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### Economic performance of muga silk entrepreneurs in Assam, India

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#### Abstract

Assam silk holds a distinctive position in the global sericulture map, given that all of India's muga silk output originates exclusively from Assam. Muga silk is highly valued by the elite class due to its intricate production methods; making it the priciest among all silk varieties. Assam state contributes 95% of the total muga production in the country. It holds immense significance in the cultural heritage of the state and highly profitable export item from Assam. This small scale industry has significant impact not only on sustainable livelihood but also provides employment and a regular income to farmers, reelers, and weavers. In 2007, Muga Silk was given the "Geographical Indication" recognition under the legal framework of the Geographical Indication of Goods (Registration and Protection) Act 1999, and in 2014 it was granted the GI logo to maintain its trademark rights. It is also a fact that the growth and development of this enterprise mainly depends on efficient management and performance of the enterprise. The study was carried out at four blocks namely Sualkuchi, Rani, Rampur and Boko of Kamrup district under the state Assam with a view to assess the socio economic correlates for characterizing the management orientation of muga silk entrepreneurs. The hundred muga silk entrepreneurs were selected through convenient sampling technique for final data collection. The study concluded that muga silk entrepreneurs in this region are proficiently managing their enterprise with a handsome profit. The variables experience, mass media exposure, annual income, type of business, organizational pattern and source of finance were significantly contributed to the cost benefit ratio of the enterprise. Moreover, to make this industry sustainable in the long run some efforts like mechanization, product promotion, inclusion of quality skilled labour are need of hour.

**Keywords:** Performance, muga, entrepreneurs, Assam

#### Introduction

India is the second-largest silk producer in the world after China. Over the past two years, China's contribution to global silk production has decreased significantly, from accounting for almost two-thirds of the production in 2019 to slightly over half of it in 2021. India's share has seen a significant increase, with numbers rising from 32.82% in 2019 to an impressive 40.43% in 2021 [1]. India produces all five types of commercial silks: mulberry, tropical Tasar, oak Tasar, Eri, and muga. Among these, the muga silk is extraordinary, exhibiting a captivating golden yellow sparkle exclusively found in India.

Assam is renowned for its production of all four varieties of silk. Despite Assam being capable of producing all 4 types of silk, the main focus has been put on Muga and Eri silk production. Assam alone contributes 95% of the total muga production in the country. The state has a long-standing tradition of practicing sericulture and takes pride in its production of Muga silk since ancient times. Muga silk holds immense significance in the cultural heritage of the state. The state of Assam considers it as an essential component of its culture, heritage, and rituals. It is an identity of Assamese culture. Muga silk is often referred to as the "queen of fabrics," and is produced by what is rightly called the "industry of the poor." [2]. In 2007, Muga Silk was

given the "Geographical Indication" recognition under the legal framework of the Geographical Indication of Goods (Registration and Protection) Act 1999, and in 2014 it was granted the GI logo to maintain its trademark rights. This helps with the production and commercialization of this unique silk worldwide [3]. Handloom weaving holds a significant position in both the society and economy of Assam which is a main livelihood sources for villages in the Brahmaputra valley. The silk weavers skillfully create and manufacture traditional designs native to the state, catering to the diverse needs of customers for various occasions like Bihu, weddings, and religious ceremonies. Muga silk is highly valued by the elite class due to its intricate production method, making it the priciest among all silk varieties. The muga silk is often used to create traditional garments, such as mekhela-chaddar, sarees, blouse pieces, kurtas, gamuchas, and other clothes. sarees, and is highly valued for its beauty and quality. The Muga silk industry in Assam is a labour-intensive and commercially viable industry that falls under the category of small-scale or cottage industries. The growth of this handloom industry mainly depends upon the rate in sales, increase in capital assets, and profits which is better and more accurate way to measure performance compared to other measures [4]. Muga Silk is a highly profitable export item from Assam. It

provides employment and a regular income to farmers, reelers, and weavers [5]. Keeping all these in view the present study was carried out to analysis the performance of muga silk entrepreneurs in terms of cost benefit ratio. The study also reflected different factors responsible in the performance of these entrepreneurs in the region.

**Materials and Methods**

The study was carried out in Kamrup district of Assam, India which belongs to the Lower Brahmaputra Valley Zone of Assam. The convenient sampling technique was adopted for the present study. Kamrup district of Assam was selected purposively because the production of silk handloom weaving in Assam is centered in Kamrup district, accounting for approximately 70 percent of the state's silk post-cocoon activities. Silk activities after cocooning happen in Sualkuchi and Bamundi sectors of Kamrup which are important Silk Weaving clusters in North-East India. This cluster plays a central role in the trade and production of silk products. Approximately 75% of Muga cocoons and over 50% of Eri cocoons produced in Northeast India are concentrated in Kamrup district of Assam for trading, production, weaving, and marketing of silk cloth [6]. Sualkuchi recognized by UNDP as the “Manchester of the East”, is located in the Kamrup district of Assam is Asia's largest silk weaving cluster [7]. The Kamrup district of Assam is consist of 14 blocks and out of which Sualkuchi, Rani, Rampur and Boko were selected purposively for the study because muga silk weaving is highly concentrated in these areas. Among the selected 4 blocks highest muga silk entrepreneurs are concentrated in Sualkuchi followed by Rani, Rampur and Boko. Hence, following a convenient sampling Sualkuchi (50), Rani (20), Rampur (15) and Boko (15) were selected for the study. The profile variables selected for this study were age, family type, education level, annual income, organizational pattern, experience, source of finance, mass media exposure, social participation, type of business and exposure to training. Meanwhile, the descriptive variables selected for the study were benefit-cost ratio. Performance of the enterprise was operationalized as the benefit cost ratio of the enterprise. On the basis of net annual income from the enterprise, the entrepreneurs were categorised as low, medium and high income group categories. The data were collected with the help of structured schedule prepared for the study after the pilot survey through the process of interview.

**Results and Discussions**

**Performance of the enterprise**

The performance especially financial analysis plays a crucial role in the success of an enterprise. It is an overall evaluation of enterprise’s financial performance and done to evaluate the profitability of the enterprise. Imayxai and Tekahashi (2010) [8] in their study stated that only a single measure, such as turnover or sales could be used to measure a firm performance. By analyzing financial data, business can identify potential risks and opportunities. This financial performance analysis helps business make informed decisions by providing insights into their financial health, profitability and efficiency. In the present study performance of the enterprise was operationalized as the benefit cost ratio of the enterprise.

The table1 depicts the average fixed cost of different items needed to setup a muga silk enterprise in the particular region. Benefit cost ratio was measured by the ratio between the profit coming from the enterprise and the cost involved in the enterprise in rupees annually.

**Table 1:** Average fixed cost of the enterprise

Sl. No.	Particulars of fixed cost	Amount (in Rs)
1.	Weaving house cost	46,78.18
2.	Cost of flying shuttle looms	10,445.54
3.	Cost of wood frame of loom	20,891.09
4.	Cost of jacquard shedding device	10,445.54
5.	Cost of cloth roller	731.19
6.	Cost of warp roller	626.73
7.	Cost of reed	1044.55
8.	Cost of pirn winding device	940.10
9.	Bobbin and shuttle	2,261.39
10.	Bowasuta (heddle/healds thread) cost	587.13
11.	Cost of other instruments	9,490.10
12.	Interest on fixed capital	7,297.19
13.	Depreciation cost	4,691.05
14.	Rental value of own land	29,584.16
	<b>Total fixed cost</b>	<b>1,45,817.94</b>

From the table1 it was noticed that average fixed cost of the enterprise was Rs. 1,45,817.94.

The table 2 depicts the average variable cost of raw material, labour, transportation, electricity and interest on variable cost of muga silk enterprise. The gross return was calculated by multiplying the average price of a pair of muga cloth and the average no. of pairs of clothes made by them in a year. Net returns were calculated by deducting the total cost of production from gross returns.

**Table 2:** Average variable cost of the enterprise

S. No.	Particulars of variable cost	Amount (in Rs)
1.	<b>Cost of raw silk</b>	
2.	Warp raw silk	2,35,062.38
3.	Weft raw silk	3,11,052.97
4.	Silk embroidery thread for flower (Bundles of flower)	97,089.21
	<b>Labour cost</b>	
5.	Draft cutting cost	9,634.65
6.	Total weaver cost	1,80,377.23
7.	Total warp preparation cost	4165.66
8.	Total healds installer cost	801.98
9.	Total helper cost	10,482.67
10.	Miscellaneous (transportation and electricity)	20,726.73
11.	Interest on variable cost	87,095.50
	<b>Total variable cost</b>	<b>9,56,488.55</b>

It was noticed from the table 2 that average variable cost of the enterprise was Rs. 9,56,488.55.

The table 3 indicates the total average cost of the muga silk enterprises along with the return coming from the enterprise. The finding also indicates the variable cost was Rs. 9,56,488.55. Total fixed cost was Rs.1,45,817.94 and total cost was Rs 11,02,306.92, which includes both total fixed cost and total variable cost. The gross return obtained by entrepreneurs was Rs 16,32,297.03 and net return was Rs.5,28,428.53. The Benefit cost ratio is 1.480.

**Table 3:** Total average cost and return from the enterprise

Sl. No.	Details of cost and returns	Cost (Rs)
1.	Total fixed cost	1,45,817.94
2.	Total variable cost	9,56,488.55
3.	Total cost	11,02,306.92
4.	Gross return	16,32,297.03
5.	Net return	5,28,428.53

Benefit cost ratio = 1.480

**Table 4:** Distribution of Benefit cost ratio according to net annual income from the enterprise

Category	Score range	Frequency (percentage)	B.C ratio range
Low-income group	Up to Rs. 4,13,834.54	13(13.00)	1.272-1.384
Medium income group	Rs.4,13,835.54 to Rs. 6,44,725.01	75(75.00)	1.294-1.614
High income group	Above Rs.6,44,726.01	12(12.00)	1.643-1.763
Total		100(100.00)	

The findings of table 4 indicated that majority of the entrepreneurs had found under medium income group category ranging from Rs.4,13,835.54 to Rs. 6,44,725.01 with benefit cost ratio 1.294-1.614 followed by low and medium income group. It is evident that more the annual income more is the benefit cost ratio, hence enterprise is performing better in a way that benefit cost ratio is higher. Moreover, experience of the entrepreneurs, mass media exposure proper and proprietorship oriented organizational pattern had contributed significantly on the performance of the enterprise.

The table. 5 presents the coefficient of correlation of benefit-cost ratio with eleven causal variables which indicates that variables experience, mass media exposure, annual income, type of business, organizational pattern and source of finance were positively and significantly associated with the benefit-cost ratio.

**Table 5:** Correlation coefficient of benefit-cost ratio of the muga silk handloom enterprises along with eleven causal variables

Sl. No.	Independent Variable	Correlation coefficient (r)	't' Value
1	Age	0.0560	0.55606
2	Education Level	0.0727	0.72247
3	Family type	0.0932	0.92763
4	Experience	0.4638**	5.18257
5	Training Exposure	0.1167	1.16371
6	Mass media exposure	0.4001**	4.32276
7	Annual income	0.7501**	13.207
8	Social participation	0.0784	0.77937
9	Type of business	0.3039**	3.15834
10	Organizational pattern	0.3937**	4.24048
11	Source of finance	0.3186**	3.32797

\*Significant at 5% level of significant

\*\* Significant at 1% level Of significant

The experience profile of an entrepreneur exposes to an interactive milieu along with diverse surroundings and events. Long term experience not only reflects in rational decision making regarding their business but also helps in building up management orientation desire and destiny to maximize the profit of his enterprise. Moreover the silk muga entrepreneurs managed the existing resources efficiently in the enterprise with the help of low cost technological intervention and more than 20 years' experience of the entrepreneurs was the key factor for profit maximization. The finding of the study support the study conducted by Adhikary *et. al* (2010) [9]. As a result the

The finding showed that for every one rupee of investments there is profit of 1.48 Rupee. Muga silk enterprises are performing in such a way that every 1 rupee invested is generating a net profit of 48 paisa. It can be interpreted that the muga silk entrepreneurs in this region are smoothly managing their enterprises with a handsome profit.

experience of the entrepreneur had positively and significantly associated with the benefit-cost ratio.

Mass media act as channels through which small enterprises are provided with information on the service and products available to them as well as general business and market information. Entrepreneurs in the study area utilized mass media as a marketing tool as well as low cost strategy for reaching out to the wide variety of customers [10]. Moreover, in study area mass media is also played an important role in improving the provision of the essential inputs like looms, plastic bobbins to the enterprise. Many entrepreneurs also used social media platform to maintain customer's relation so that they can enhance the performance of the enterprise. This finding was in conformity with the findings of (Sasatanun & Charoensukmongkol, 2016) [11]. Hence the variable mass media exposure had significant impact not only on business performance but also found sustainable growth and development of this enterprise.

Annual income from the entrepreneurs contributed significantly for growth of the enterprise in the region. In the study area more than a half of the entrepreneurs had fallen under medium income group category and analysis reveals that increase of annual income increases the level of profit from the enterprise [9]. A higher benefit/cost ratio of most muga silk enterprises indicates that they are economically viable. Higher the annual income better is the delivery of quality products or services and meet customer expectations. A healthy income allows entrepreneurs to cover their expenses, better management and invest in expanding their operations. Moreover, a strong income foundation enables entrepreneurs to face unexpected challenges that might come in their enterprises during uncertain times. Due to the fact, that the variable annual income is significantly and positively associated with benefit cost ratio of the enterprise.

In the present study the enterprise operationalized as an organization which consists of several managerial functions like, organizing, controlling, directing, planning etc. More than 90 percent entrepreneurs were set up their enterprises individually without any other people's involvement and proprietorship oriented organizational pattern proprietors have full control in business and helps in efficient decision making for business implementation. Moreover proprietorship offers a high degree of flexibility in operation and management. The owner is entitled to all profit generated by the business. As a result organizational pattern

is positively and significantly correlated with management orientation towards enterprise.

The findings revealed that majority of the entrepreneurs found under small category enterprise which gives flexibility in works, less capital investment, less number of labour and better management practices are possible with the enterprise which ultimately impacted on the income. The entrepreneurs were not only maintaining their enterprise with limited cash but also provided employment to a number of people and thereby checked migration of young generation in the area. Hence the variable type of business is positively and significantly associated with the performance. This finding was in conformity with the findings of Blackburn *et al.* (2013) <sup>[13]</sup>.

The study also reflects the source of finance had a significant positive influence on benefit cost ratio of the enterprise. Own source of finance gives much more control than other finance option. Moreover, the own source of finance provide helps to plan carefully and work hard to minimize losing cash and keeping a consistent cash flow which significantly impact on the performance as well as benefit cost ration of the enterprise. The finding of the study support the study conducted by other <sup>[9]</sup>.

### Conclusion

Handloom weaving holds a significant position in both the society and economy of Assam, making it stand out among various other crafts. The Muga silk industry in Assam is a labour-intensive and commercially viable industry that falls under the category of small-scale or cottage industries. Muga Silk is a highly profitable export item from Assam. Entrepreneurs dealing with muga silk enterprise are earning handsome amount from their enterprise and this enterprise was found to be very lucrative as well as economically viable for that particular region. Entrepreneurs found under small category enterprise which gives flexibility in works, less capital investment, less number of labour and better management practices are possible with the enterprise which ultimately impacted on the income. The findings revealed that majority of the respondents were concerned about market and customer centered approach had given top priority which is reflected in their income from this enterprise. Moreover to make this industry sustainable in the long run some efforts like mechanization, product promotion, inclusion of quality skilled labour are need of hour.

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