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Cost Benefit Analysis of Khaddar Industry: A Study on Comilla District

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Abstract: *The study tries to findout the Cost Benefit Analysis (CBA) of Khaddar industry. Comilla district is considered as the study area. Sample is selected purposively based on the establishment available within the district. The collected data is analysed by using Microsoft Office Excel 2007 to calculate different statistical values used in this paper. All the possible techniques of Cost Benefit analysis are employed. The findings suggest that, in both the cases i.e., in case of Hand Loom as well as in case of Power Loom the expected return is very high. The value of Net Present Value (NPV), Benefit Cost Ratio (BCR) and Internal Rate of Return (IRR) suggest that, there is a very higher profitability in this sector. The IRR of the projects is 183 and 157 for Hand Loom and Power Loom respectively which is exceptionally very high. The higher value may due to too low establishment costs and low maintenance costs for hand loom alternatively high productivity and comparatively lower operating costs for power loom industries.*

Key Words: Khaddar, Cost Benefit Analysis (CBA)

1.0 Introduction

Mohatma Gandhi launched the non-cooperative movement in 1921 to revive hand-spinning cloth, Khaddar. An organization in the name 'All Indian Spinners Association' was set up to propagate charka-spinning all over India as a symbol of independence movement, a source of employment for idle labour in the rural areas and a way to achieve self-sufficiency in cloth.

In ancient times, hand-spinning was a common occupation in many families in the cotton growing districts of Bengal. The art of hand-spinning reached its climax in the production of the finest type of yearn (varying from 150-200 counts) used for weaving the famous 'Dacca Maslin'. The industry began to decline for various reasons, mainly due to stiff competition from mill manufactured cloth after the establishment of British rule in Bengal.

After liberation surveys and research studies indicate that there were on an average six person in each rural family and one earning member in the family carries the burden of four dependent members. There are other

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studies which indicate that only 69 percent of the total man-days available in the village is utilized for gainful work. On top of that there are women and school drop-outs in every village of Bangladesh who can not be either employed in the fields or in the factories. Although no study has yet been made in Bangladesh to ascertain the extent of the unemployable rural labour force, it can safely be said that the percentage is quite high.

From different research works it is observed that, the demand for original khaddar is very high but the industry is going to extinct. Beside its high demand why the industry is on the way to extinction? The reasons behind its extinction might be low rate of profit! It's an initiative to identify the rate of profitability by using cost benefit analysis.

Cost Benefit Analysis (CBA) is a technique for evaluating a project or investment by comparing the economic benefits with the economic costs of the activity. There are several objectives of CBA. First, CBA can be used to evaluate the economic merit of a project. Second, the results from a series of CBA can be used to compare competing projects. Third, CBA can be used to assess the wisdom of using natural resources of alternative environmental conditions. Ultimately, CBA aims to examine potential actions with the objective of increasing social welfare.

2.0 Review of Literature

Historically it is found that, from very ancient time the occupation hand spinning and hand weaving exist all over the cotton growing district of the subcontinent. Facing a lot of obstacles khadi saw its golden age in the decade of 1920s. In the Swadeshi Movement, Mahatma Gandhi used khadi as a weapon to rescue the Indian subcontinent from British rule. After the liberation war, Bangladeshi Khaddar also facing a lot of problems and it is almost going to extinct today.

M. Nurul Haq (1973), in the ancient times, hand spinning was a common occupation in many families in the cotton growing districts of Bengal. The art of hand spinning reached its climax in the production of the finest type of yearn (varying from 150-200 counts) used for weaving the famous 'Dacca Maslin'. The industry began to decline for various reasons, mainly due to stiff competition from mill manufactured cloth after the establishment of British rule in Bengal.

The Daily Sun (2011), According to local weavers, lack of business capital, scarcity of yearn, dyes, price hike of raw materials and

mismanagement in distribution system are seriously hampering khadi production at Chandina which is renowned for manufacturing coarse cloth in Comilla.

Zakir Azad (2006), After the partition of India in 1947, Khadi work was almost on its way to extinction due to various changes in the political and social environments. Comilla also suffered the effects of those changes. After the language movement of 1952, Dr. Akhter Hamid Khan, who was a professor at Victoria College and the Director of the Bangladesh Academy of Rural Development (BARD), Comilla along with the then Governor Firoz Khan Noon took a lot of trouble of found "The Khadi and Cottage Industries Association". A training centre for Khadi and Khaddar work was also founded. In this way and with this cooperation of the Government of the time, the near-dying art of Khadi was rescued from extinction and the work has retained its excellent quality ever since. After the liberation of Bangladesh, Khaddar work again flourished and made a name both at home and abroad, making its home district Comilla wellknown and famous all over.

Tithi Farhana (2009), The Khadi industry has been struggling for survival as it has had to make do with outdated equipment, inconsistent product quality, lack of professional expertise and funding, and lack of unity and resolve within the industry to adjust to changing market trends. In contrast, the country's overall textile sector has grown tremendously with the adoption of modern technology, branding and strong marketing. The art of spinning needs continuous practice. Some spinners are leaving their profession and switching to other work. Many of them have left the country and their replacements have not been proportionate to. A continuous training program can solve this problem. But running a training program is an expensive affair. The cotton required for production is often unavailable according to demand. As a result the workers have to make do with whatever is available. A continuous twelve month work period can not be maintained. Long Staple cotton of good quality is not grown in Bangladesh. Import of such cotton from foreign countries requires spending of hard earned foreign exchange. Storage of supply of cotton has become the most serious problem. There is shortage of other materials such as dyestuff, printing equipment and spare parts for charka.

Prodip Kumar Raha (2010), The Khaddar industry of Comilla has a strong background. Here attractive and new design cloth is producing

which is the symbol of patriotism. It can be said that despite a lot of problems, after liberation in the garments industry only khaddar sector is surviving in its own without any government or non-government help.

'However, for long in the country's fashion scene, Khadi has not been a favorite. It had the tag of 'hand made' or 'made in Bangladesh', yet, it needed a designer touch perhaps to make it popular in the domestic and global fashion market.'

Maheen Khan (2011), Khadi as Dhaka Muslin could now only be reminiscent in the chapters of history. As late as the 1940's through the drives of the independence movement of India, considerable progress was made to revive khadi. It is regrettable that today we can no longer find the masterly expertise in the weaves of Bangladeshi khadi. The devious producers are using waste mill yarns to weave khadi. It is clearly unethical to label the product as khadi. Bangladeshi designers and retailers alike have failed to restore and resurrect khadi production. We could not hoist khadi as the main sail of our rooted textile tradition rather it was knocked down to the ground and stumped to death. This universal craft can easily be a way forward towards our self-reliance again, but then why did the popularity of khadi get diminished after our independence? May be if we had tried to evaluate the requirements of ever changing demands of the market or expedite technology to develop fine products it may have seen new light. It is important for us to invest in design development for the heritage weaves or teach our next generation about the legacy of our finest traditions as khadi has arrived and it is here to stay.

In an earlier research of the researcher (2013) it is found that, 'the demand for Khaddar (hand spinning and hand weaving cloth) is very high. But due to lack of availability of Khaddar in the market, i. e., lack of supply side deficiency the crisis is created'. Now the question is raised, in-spite of high market demand why the producer are not willing to supply the Khaddar product in the market? In this research paper it is tried to find out the answer of the question.

3.0 Objectives

The objective of the research was to know the cost involved in the production process and benefit from khaddar production. The general and specific objective of the research was as follows:

3.1 General Objective: The general objective was to know the cost-benefit of khaddar production.

3.2 Specific Objectives: The specific objectives of the study were to know

1. the cost involved in manual khaddar production process
2. the benefit of the producer from the product
3. comparative advantages or disadvantages with power loom (Khaddar produced with technological equipments)

4.0 Methodology

The detail about research Methodology is as follows;

4.1 Location of Research: The Comilla District is considered as research area. The researcher prefers the location where the establishment of Khaddar industry is available. Based on the information about the establishment available, the four sights is selected, i.e., Chandina, Deviddar, Homna and Comilla town. From the mentioned four locations the data were collected.

4.2 Sources of Data: To check the stating objectives of the research, the data is mainly collected from primary sources, i.e., from the owner of the Khaddar firm directly. Individual firms are considered as sample unit. Considering the scatter establishment of Khaddar firm, the researcher decided to take maximum firms covering various locations. Total of twenty (20) samples are investigated among them 10 from hand loom production unit (traditional production process) and another 10 from power loom production unit (modern production process). In reality, samples are selected purposively because the establishments are not available at present all over the district evenly but the researcher tries to ensure the participation of all the possible region of Comilla. Data is collected through the technique face to face interview with pre-designed semi structured questionnaire.

4.3 Methods of Analysis: After collecting data from the sample unit directly, it is analyzed by using the technique Cost-Benefit Analysis (CBA). From the collected data the average value is calculated for all possible costs and benefits of the hand loom firms and power loom firms separately and then the average value is considered for further calculation, i.e., for the cost-benefit analysis of the Khaddar industry. All the possible tools of CBA, i.e., Net Present Value (NPV), Benefit Cost

Ratio (BCR) and Internal Rate of Return (IRR) are employed. In all shorts of calculation the Microsoft Office Excel 2007 is used.

4.4 Selection of Discount Rate: Here the discount rate is considered 15%. From the collected data it is observed that, on an average the borrowing rate of capital by the owner of the firms is more than the value considered. Most of the owner borrows from different NGOs and non-recognized sources where the rate is too high. From the statistics of Bangladesh Bank it is found that, the average lending rate at present is almost 15%. This is the base of considering the discount rate.

5.0 Limitations

During conducting the research the following limitations were faced by the researcher:

1. List of Khaddar Establishments: Unfortunately there are no associations or organizations which maintain a complete list of Khaddar industry. In the research study period it was very difficult task to find out the location of the establishment of the industry.
2. Financial Constraints: At the time of conducting the research the researcher could not select large number of sample because of financial constraints. Large sample might give better result but it involves more costs.
3. Time Constraints: The time periods for the research were too short to conduct properly. If additional couple of months could be allocated it might give a more fruitful result.

6.0 Research Findings

Analysis and Findings: In this section firstly the researcher decide to show the data analysis for hand loom and power loom separately and then discuss the comparison between the two industry.

First of all let us have a look on Cost Benefit Analysis:

Cost Benefit Analysis: Cost Benefit Analysis (CBA) is a technique for evaluating a project or investment by comparing the economic benefits with the economic costs of the activity. Several Variations on the basic cost-benefit rule can be used to compare the cost and benefit of any investments, projects or decisions. In these circumstances, the following techniques are used to calculate the cost and benefit of Khaddar industry.

Net Present Value (NPV): The Net Present Value (NPV) is the current value of all project net benefits. Net benefits are simply the sum of benefits minus costs. The sum is discounted at the discount rate. Using this method, if the project has a NPV greater than 0 then it appears to be a good candidate for implementation. The general formula used to calculate the NPV is,

$$NPV = \sum_{t=1}^{T} \frac{(Benefit_t - Cost_t)}{(1+r)^t}$$

The formula used in this case is as follows:

$$NPV = \sum_{t=0}^{24} \frac{B_t - C_t}{(1+r)^t}$$

$$= (B_0 - C_0) + \sum_{t=1}^{24} \frac{B_t - C_t}{(1+r)^t}$$

$$= (B_0 - C_0) + \sum_{t=1}^{24} \frac{k}{(1.15)^t} \text{ Where, } k = B_t - C_t \text{ and } r = 0.15$$

$$= (B_0 - C_0) + \{\frac{k}{1.15} + \frac{k}{1.15^2} + \frac{k}{1.15^3} + \text{---------} + \frac{k}{1.15^{23}} + \frac{k}{1.15^{24}}\}$$

$$= (B_0 - C_0) + k\{\frac{1}{1.15} + \frac{1}{1.15^2} + \frac{1}{1.15^3} + \text{---------} + \frac{1}{1.15^{23}} + \frac{1}{1.15^{24}}\}$$

Since, for whole life time the revenue earned and costs involved are same. So, the difference can be expressed by a constant. Here it should be mentioned that, the value of the discount rate is considered 15% i.e., r = 0.15. So, the denominator of the fraction is also a constant. In the second part of the previous equation, it is likely to a geometric series where the first term of the series (a) is $a = \frac{1}{1.15}$, the common ratio is $r = \frac{1}{1.15}$ and number of total terms in the series is n = 24. So the summation of the series is,

$$S_n = \frac{a(1-r)^n}{(1-r)}$$

$$= \frac{\frac{1}{1.15} \times (1 - \frac{1}{1.15})^{24}}{(1 - \frac{1}{1.15})}$$
$$= 6.433771$$

By using this factor we can calculate the present value of benefit as well as costs and the net Present value as well for any industries.

Benefit Cost Ratio (BCR): The benefit Cost Ratio (BCR) is calculated as the NPV of benefits divided by the NPV of Costs. If the BCR exceeds one, then the project might be a good candidate for acceptance. The formula used to calculate the BCR is,

$$BCR = \frac{\sum_{t=1}^{T} \frac{Benefit_t}{(1+r)^t}}{\sum_{t=1}^{T} \frac{Cost_t}{(1+r)^t}}$$

Internal Rate of Return (IRR): The internal Rate of Return (IRR) is the maximum interest that would be paid for the project resources, leaving enough money to cover investment and operating costs, which would still allow the investor to breakeven. In other words, the IRR is the discount rate for which the present value of total benefits equals the present value of total costs.

According to Hawkins and Pearce, 'The IRR is the rate of return that is being earned on capital tied up, while it is tied up after allowing for recoupment of the initial investment.' [Page 125, P-H, 1971.]

In general, the IRR should be greater than the discount rate for a project to be accepted. The formula used to calculate the IRR is,

$$IRR = PV(Benefit) - PV(Cost)$$

$$\text{Where, } PV = \frac{P_t}{(1+r)^t}$$

Alternatively the formula can be written as,

$$IRR = \sum_{t=0}^{T} \frac{Benefit_t - Cost_t}{(1+r)^t} = (Benefit_0 - Cost_0) + \sum_{t=1}^{T} \frac{Benefit_t - Cost_t}{(1+r)^t}$$

$$= (Benefit_0 - Cost_0) + k\sum_{t=1}^{t}\frac{1}{(1+r)^t} where, k(cons\tan t) = Benefit_t - Cost_t$$

On the basis of the different techniques of CBA discussed above, the following findings are observed:

6.1 Findings Regarding Hand Loom:

The Net Present Value for hand loom is,

$$NPV = (B_0 - C_0) + k \times 6.433771$$
$$= -18600 + 34800 * 6.433771$$
$$= 205295.23$$

From the findings of the data collected from hand loom firms, it is found that, the average sustainability of the firm after construction is 24 years which required the mean establishment cost BDT. 15000 and also required the average operating costs (including raw materials, labor, fuel & electricity, maintenance and miscellaneous costs) per year is BDT. 289200. It is found that, the firm can be established within 6 month of the base year so it can produce some output in the starting period. From the first year the average costs to run the firm is BDT.289200 per year and the average yearly benefit of the firm is BDT. 324000. The costs and benefits are continued for the life time of the projects which is found to be 25 years including base period.

Table 6.1 Cost Benefit Analysis of Hand Loom: By using the average value of the collected data the following results are found

Name of the techniques of CBA	Result found at 15% discount rate	Decision making condition	Decision
Net Present Value (NPV)	BDT. 205295.2	NPV > 0	The project can be taken
Benefit Cost Ratio (BCR)	1.105819	BCR > 1	The project can be taken
Internal Rate of Return (IRR)	187%	IRR > the discount rate, i.e., 15%	The project can be taken

From the result it is found that, in all the cases the project shows profitable, i.e., the project is economically viable or very suitable for investment. Here the IRR is exceptionally very high. It might be due to

very low establishment costs and longer sustainability with very low maintenance costs.

6.2 Findings Regarding Power Loom:

The Net Present Value for power loom is,

$$\begin{aligned} NPV &= (B_0 - C_0) + k \times 6.433771 \\ &= -564000 + 888000 * 6.433771 \\ &= 5149188.65 \end{aligned}$$

From the findings of the data collected from power loom firms, it is found that, the average sustainability of the firm after construction is also 24 years which required the mean establishment cost BDT. 350000 and also required the average operating costs (including raw materials, labor, fuel & electricity, maintenance and miscellaneous costs) per year is BDT. 4152000. It is found that, the firm requires a year to its establishment. From the first year the average costs to run the firm is BDT.4152000 per year and the average yearly benefit of the firm is BDT. 5040000.

The costs and benefits are continued for the life time of the projects which is found to be 25 years including base period.

Table 6.2 Cost Benefit Analysis of Power Loom: By using the average vale of the collected data the following results are found

Name of the techniques of CBA	Result found at 15% discount rate	Decision making condition	Decision
Net Present Value (NPV)	BDT. 5149189	NPV > 0	The project can be taken
Benefit Cost Ratio (BCR)	1.1887739	BCR > 1	The project can be taken
Internal Rate of Return (IRR)	157%	IRR > the discount rate, i.e., 15%	The project can be taken

From the result of above table it is found that, in all the cases the project shows profitable, i.e., the project is economically viable or very suitable for investment. Here the IRR is too high. It might be due to very high productivity and longer sustainability with comparatively lower maintenance costs.

6.3 CBA Comparison between Hand Loom and Power Loom: In both the cases the investment is found very profitable. It is well known that, in case of different investment volume, to compare different projects the IRR is the best technique. In case of Hand Loom the IRR is 183 where in case of Power Loom it is 157. The IRR represents the rate of return of any investment projects. The research finds that, the economic viability or profitability is higher in the Hand Loom firms with compare to power loom industries.

7.0 Conclusion

From the study conducted it is found that, in both the cases the economic return is very high and hand loom firm is more profitable than the power loom. The investment in the hand loom firms also very low. So, it can be concluded that, the unemployed person can make them self dependent with very low investment and might get a handsome profit. Power loom firms also found profitable sector of investment but requires comparatively higher investment. If the Government provide loan with low interest rate among the entrepreneur of this sector then, it might be a very good one to earn profit as well as employment generation in larger scale. Such investments might bring fruitful result for any regional development. Beside local people, government should concentrate to revive and maintain the cultural heritage of Comilla.

8.0 Recommendations

Inspite of high market demand the supply of khaddar in the market is very low. It should also mention that, the expected profit in this sector is also very high. Beside all the things the producers are not encouraged to produce the product especially hand loom product. To revive them in this sector the following initiatives may be taken:

1. The wages of the artisan people who are engaged with hand loom production are very low. They are the core people in producing Khaddar. So it is very urgent to increase the wage rate of such people and without increasing it is impossible to revive from extinction.
2. Government should provide loan with lower interest rate.
3. The import duty on the raw materials used in this sector should be reduced.

4. The relevant government and non government organizations have to arrange specialized training program on spinning, weaving, dyeing and designing so that the people involved with these occupation can train them and give quality output.
5. New entrepreneur should come forward and take the responsibility of sustaining Comilla's cultural heritage with higher profit.

Reference:

1. Haq. M. Nurul (1973). Comilla Khaddar: A Case-Study of An Artisan Co-operative Society. Comilla: BARD.
2. Islam Md. Shamimul (2013), 'Factors Behind Going to Extinct of Khaddar: A Study on the Artisan People of Comilla', Research Report (unpublished), Comilla University.
3. Local Correspondent, 'Lack of Working Capital Hits Comilla Khadi Industry' The Daily Sun, January 23, 2011. (www.daily-sun.com)
4. Maheen Khan, The Story of Khadi, The Daily Star, Volume 6, Issue 48, Tuesday, December 13, 2011.
5. Prodip Kumar Raaha. The Cronological Development of Comilla Khaddar Industry, Bornita: A Trimester Publication, Volume 16, Issue 1, April 05, 2010.
6. Tithi Farhana, Khadi Reviving the Heritage, The Daily Star (Weekend Magazine), Volume 8, Issue 72, June 05, 2009.
7. Zakir Azad, Star Insight (A fortnightly publication of the Daily Star), Volume 1, Issue 10, November 25, 2006.
8. http://cities.sulekha.com/bangladesh/bangladesh/744619/review.htm