

# Economic Viability of Indian Textile Industry: An Empirical Analysis

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## ABSTRACT

In this paper, an attempt has been made to investigate the concept of economic viability of Indian textile and clothing industry through the some ratios designed by the authors. The study compares the period which is significant in the textile world as Pre MFA period and Post MFA period. This period is significant in the sense that since 1 Jan. 2005, the world is open for textile trade without any quantitative restrictions. The no. of studies are devoted to measure the competitiveness of this industry but no study was found to measure the economic viability of this industry. This is noteworthy aspect that economic viability and competitiveness cannot be separated from each other and if the industry has poor economic viability, the expectation of better competitive strength is just a dream. The study tried to reveals that what is economic viability is? How can it be measured? and is there any significant difference in economic viability of this industry between pre and post MFA period. The finding showed although some ratios showed positive trends, the overall economic viability of Indian textile and clothing industry is falling down.

## 1. The concept of Economic viability

Before understanding the economic viability concept, the meaning of viability has to understand. According to oxford dictionary the viability means 'Ability to work successfully' but in the sense of biology viability means 'Ability to survive or live successfully'.<sup>1</sup>In other words, judging the 'profitability' of any present or proposed project/Business comes in the study of viability and this focuses on strategies which made for growing and successful operating of the business. The growth and sustainability or stability are the two key pillars of viability. Sustainability implied maintenance of the things in a present status. The sustainable profits of any business/Industry during some time span and in future determine the viability of that business. The strategy, policies and tactics formulated for the growth and sustainability come in the purview of viability.<sup>2</sup>The economic viability means "**the capacity of a project for an overall gain to the economy in terms of significant net additional benefits generated and efficient use of resources**".<sup>3</sup> in other words economic viability can be described as:

**"Economic viability means that market operation is sustainable regarding current and projected revenues. The revenues will be greater than or equal to all current and planned expenditures. In simple terms, any project or activity that can financially support itself is economically viable. Using farming as an example, economic viability refers to the ability and capacity of a farm to 'make a living' annually".<sup>4</sup>**

From the above discussion the following features can be drawn of economic viability:

- Economic viability is the ability to survive of any Business/Industry in competitive environment.
- The study of profitability is necessary in the study of economic viability. Although profitability is key issue in

economic viability, fulfilling the cost also comes in the economic viability means survival in the competitive environment.

- Cost- Benefit analysis is an integral part of Economic Viability.
- The aim of rational uses of resources of the economy must be fulfilled and business/ industry is expected to be beneficial for the economy.
- Growth and sustainability are the two key things in economic viability. It means that industry will be said to have economic viability if it is growing and keeps maintain its profit level in competitive environment.
- It is different from feasibility study which considers all the aspects of business as legal feasibility, technical feasibility, environmental feasibility, cultural and social feasibility etc.<sup>5</sup>

## 2. Objective of the study

To understand and measure the economic viability of Indian textile and clothing industry during pre and post MFA period.

## 3. Hypothesis of the study

There is no significant difference in economic viability (Ratios) of Indian textile industry between pre and post MFA period.

## 4. Research Methodology

To measure the economic viability some ratios have been used and with the help of descriptive Statistics such as Mean, Standard Deviation, Compound Annual Growth Rate, the comparison has been done during pre and post MFA period. The student t-test is being used to measure the empirically mean difference of economic viability of Indian textile and clothing industry during pre and post MFA period and for this the time period considered from 1998-99 to 2004-05 as pre

MFA period and 2005-06 to 2011-12 as post MFA period. The Statistical tools has been used in this study are as follows:

**Student's T-Test**

This test is widely used in testing the hypotheses. In this study the paired sample t-test has been applied for comparing the means of two samples. Formally, it is also known as dependent t-test and determines that the difference of Means of two related groups is statistically significant or not.<sup>6</sup>The formula is as under:

$$t = \frac{\sum D}{\sqrt{\frac{N \sum D^2 - (\sum D)^2}{N-1}}}$$

Where,  $\sum D$  = Sum of the differences ,  $N-1$  =Degree of freedom and  $N$  = No. of pairs of scores.<sup>7</sup>

**Standard Deviation**

It measures the variance or dispersion or spread exists in the data points from the mean value. This measures widely used by the researchers to know the variance in the data series. The low standard deviation shows low variance and vice versa. It is denoted by ( $\sigma$ ) Sigma.<sup>8</sup>

$$\sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{n-1}}$$

Where,  $\sum$ = Summation,  $X$ = Individual value in the data set and  $\bar{X}$ - bar is arithmetic mean and  $n$  = number of data points.

**Coefficient of Variation (C.V)**

It is the ratio of standarad deviation to the mean and measures degree of variability from one data series to another with different means.<sup>9</sup> It is expressed as under:

$$C.V = \frac{S.D}{Mean} * 100$$

The greater ratio shows more variability but less stabiilty while smaller ratio shows less variability but more stability.

**Compound Annual Growth rate (CAGR)**

This is the mean annual growth rate of an investment for more than one year.<sup>10</sup>

$$CAGR(t_0, t_n) = \left( \frac{V(t_n)}{V(t_0)} \right)^{\frac{1}{t_n - t_0}} - 1$$

Where,  $V(t_0)$  indicates the start value,  $V(t_n)$  indicates the finish value,  $t_n - t_0$  refers to the number of years.<sup>11</sup>

From all the thing discussed earlier in this study, this research assessed the economic viability of Indian textile and Clothing industry through some ratios which ultimately reflects

and works as a proxy for sustainability and growth of Indian textile and clothing industry in relation to the economy. The Gross Domestic Product ( $GDP_{mp}$ ) at constant price of India has been considered the representative of economy. The output, Profit and gross fixed capital formation of Indian textile and clothing industry found suitable measurement to judge the economic viability of this sector in relation with GDP of India. Some ratios calculated to judge the economic viability as under:

- **Textile Output/GDP ratio:** This ratio establish the relation between GDP of India and Output of Indian textile and clothing industry and shows the contribution of Indian textile and clothing industry to overall GDP for a country.
- **Textile Gross fixed capital formation/GDP ratio:** As the name is indicating, this ratio reflects the contribution of the fixed capital formation (which is essential for production) by Indian textile and clothing industry to total economy in the form of percentage share of GFCF to GDP of India.
- **Textile Profit/GDP ratio:** This ratio tells us the contribution of profits of the Indian textile and clothing industry in GDP of the country.
- **Textile Gross fixed capital formation/Gross Domestic Capital Formation ratio:** A different ratios also has been calculated with the relation Gross fixed capital formation (GFCF) of Indian textile and clothing industry and Gross Domestic Capital formation (GDCF) of India. This reflects the contribution of GFCF to GDCF of India.

Besides calculation of all the above ratios, the Compound Annual growth rate, Mean, S.D and C.V have been calculated to judge the changes during pre MFA period and post MFA period in all these ratios.

Table 1 shows various ratios which reflects the status of economic viability of Indian textile and clothing industry. it can be seen that contribution of Indian textile and clothing industry increased in economy because CAGR of output/GDP ratio increased from 0.94 per cent to 3.49 percent from pre to post MFA period. The average of this ratio (Mean) also increased during post MFA period from pre MFA period. Whereas, the coefficient of variation has gone up from 5.22 per cent to 16.46 percent which depicts the increased variability during the post MFA tenure. The share of Gross fixed capital formation in GDP has increased from 0.23 per cent in 1998-99 to 0.28 per cent in 2015-16. The CAGR has fallen down from 2.07 per cent to -2.49 per cent for this ratio but stability improved slightly during post MFA period from 25.98 per cent to 25.34 per cent. The share of profit of Indian textile and clothing industry in GDP was negative in 1998-99 as it was stood at -0.04 per cent but in 2004-05 it improved to 0.06 per cent but in overall pre MFA period this ratio was not attractive and calculation of CAGR was not possible due to negative figures. The variation percentage -198.29 shows that stability was in the negative situation during pre MFA period. In Post MFA tenure Pt/GDP ratio was 0.14 per cent in 2005-06 and peaked on 0.28 per cent in 2012-13 but after that it started fallen down and reached to only 0.08 per cent. The negative CAGR (-5.29) in

this period reflects that profit contribution of Indian textile and clothing industry in economy has been decreasing which is a cause of worry for economic viability of Indian textile industry. However, the mean of this ratio increased from -0.03 per cent to 0.13 per cent from pre to post MFA period and variability also increased significantly from negative to positive. The

another ratio has been calculated which shows the relationship between Gross Fixed Capital Formation of Indian textile and clothing industry and Gross domestic Capital formation of India. The CAGR of this ratio become more negative in post MFA tenure from -2.43 per cent to -2.98 per cent and C.V also increased significantly during post MFA period.

**Table 1 Ratios Show Economic Viability of Indian Textile and Clothing Industry (%)**

Year	Textile Output/GDP	Textile GFCF/GDP	Textile PT/GDP	Textile GFCF/GDCF
1998-99	3.24	0.23	-0.04	0.93
1999-00	3.39	0.26	-0.10	0.97
2000-01	3.55	0.17	-0.03	0.70
2001-02	3.06	0.12	-0.06	0.49
2002-03	3.15	0.18	-0.001	0.69
2003-04	3.23	0.19	0.003	0.69
2004-05	3.43	0.26	0.06	0.80
<b>CAGR %</b>	<b>0.94</b>	<b>2.07</b>	<b>#NUM!</b>	<b>-2.43</b>
<b>Mean</b>	<b>3.29</b>	<b>0.20</b>	<b>-0.03</b>	<b>0.75</b>
<b>S.D</b>	<b>0.17</b>	<b>0.05</b>	<b>0.05</b>	<b>0.16</b>
<b>C.V</b>	<b>5.22</b>	<b>25.98</b>	<b>-198.29</b>	<b>21.54</b>
2005-06	3.63	0.36	0.14	1.04
2006-07	4.34	0.51	0.14	1.40
2007-08	3.91	0.43	0.11	1.12
2008-09	3.89	0.29	0.01	0.80
2009-10	4.13	0.30	0.11	0.78
2010-11	5.15	0.38	0.26	0.94
2011-12	5.23	0.32	0.02	0.83
2012-13	5.22	0.28	0.28	0.73
2013-14	5.90	0.28	0.17	0.75
2014-15	5.62	0.21	0.06	0.56
2015-16	5.12	0.28	0.08	0.77
<b>CAGR %</b>	<b>3.49</b>	<b>-2.49</b>	<b>-5.29</b>	<b>-2.98</b>
<b>Mean</b>	<b>4.74</b>	<b>0.33</b>	<b>0.13</b>	<b>0.89</b>
<b>S.D</b>	<b>0.78</b>	<b>0.08</b>	<b>0.09</b>	<b>0.23</b>
<b>C.V</b>	<b>16.46</b>	<b>25.34</b>	<b>68.78</b>	<b>26.00</b>

**5. Testing of Hypotheses: Economic Viability**

The time period has been considered for the paired sample t- test is from 1998-99 to 2004-05 as pre MFA period and 2005-06 to 2011-12 as post MFA period. The null hypothesis is that there is no significant difference in Pre and post MFA period of Output/GDP, GFCF/GDP, PT/GDP and GFCF/GDCF ratio. Similarly alternative hypothesis is that there is significant difference between in these ratios during pre and post MFA period. Table 2 shows that in all the ratios calculated t- value is greater than the t- critical value 2.447 and if we consider the p value then all calculated P values are less than the p critical value .05. So it can be concluded that there is statistically significant difference between pre and post MFA ratio and thus null hypothesis is rejected and alternative

hypothesis is accepted. The Mean in all the cases support this thing as it increased during post MFA period in all the cases but at the same time Standard Deviation also increased. The CAGR has significantly increased from 0.94 per cent to 6.29 per cent from pre to post MFA in case of Output/GDP ratio but C.V also increased. For GFCF/GDP ratio CAGR has gone down from 2.07 per cent during pre MFA period to -2.00 during post MFA period but good thing is that stability also increased for this ratio during post MFA period. The CAGR for PT/GDP ratio cannot be calculated due to negative value but during post MFA period it was negative. In case of GFCF/GDCF ratio CAGR was -2.43 per cent in pre MFA period which increased to -3.70 per cent in post MFA period.

**Table 2 Table shows outcomes of Paired sample T-Test (Economic Viability)**

		Mean (%)	Std. Deviation	CAGR (%)	C.V (%)	d.f	t-value	Sig (2-tailed) P-value
<b>Output/GDP</b>	Pre MFA	3.29	.17	0.94	5.22	6	4.421	.004
	Post MFA	4.32	.63	6.29	14.59			
<b>GFCF/GDP</b>	Pre MFA	.20	.05	2.07	25.98	6	6.196	.001
	Post MFA	.37	.08	-2.00	21.44			
<b>PT/GDP</b>	Pre MFA	-.02	.05	-	-198.29	6	3.509	.013
	Post MFA	.11	.08	-26.44	74.04			
<b>GFCF/GDCF</b>	Pre MFA	.75	.16	-2.43	21.54	6	3.835	.009
	Post MFA	.98	.22	-3.70	22.46			

*Source: Calculated from ASI and RBI Data with the help of SPSS 20*

## 6. Conclusion

After the analyzing various ratios taking into the consideration of Gross Domestic product of Indian economy with linkage of various aspects of Indian textile and clothing industry, it can be concluded that overall economic viability of Indian textile industry cannot be said good because Textile profit/GDP ratio in post MFA period is decreasing in absolute

term and CAGR also in this period is negative. The increasing variability of all the ratios is not the good sign for Indian textile industry as it enhance the environment of confusion in the mind of exporters which ultimately affect the competitiveness of this sector. The positive thing is that CAGR of Textile output/GDP ratio increased after the post MFA period which reflects the increased contribution of this sector to economy.

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