RESEARCH REVIEW JOURNALS
Volume-03
Issue-09
September-2018

ISSN: 2455-3085 (Online)
RESEARCH REVIEW International Journal of Multidisciplinary
www.rrjournals.com [UGC Listed Journal]

Competitiveness of Indian Textile Industry: A Perspective

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ARTICLE DETAILS

Article History
Published Online: 07 September 2018

Keywords
Market Share, RCA, export potential, Labour productivity and Exchange rate

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ABSTRACT

This paper aimed to measure the export competitiveness of Indian textile Industry after quota elimination. There are many measurements by which the concept of competitiveness can be understood but in this study, a widely recognized measurement 'market share' has been used as a proxy for export competitiveness. International market share and Revealed comparative advantage has been used as primary tools to measure export competitiveness and the seven determinants of export competitiveness also analyzed with the help of multiple regression and Anova test. The multicollinearity among predictors has been also checked by the researchers. The Standard International Trade Classification (SITC Rev.3) data at two digit level have used for the computation and compilation of market share and RCA. The study found that most of textile exports gone up after the quota elimination with some exceptions and export potential increased or decreased in some cases. The most powerful determinates of export competitiveness were observed as labour productivity and exchange rate.

1. Introduction

In this research paper the term 'Competitiveness' has been taken in the sense of exports Competitiveness and explained by many scholars in many different terms. Some scholars describes competitiveness as the function of monetary and non-monetary factors such as cost of production, company image, delivery schedules etc**.**(Rao, 2011) while some others defined it as a result of productivity and its determinants. Lall defined competitiveness as strength by which any firm maintain or improve its position in the market and can be measured by sales or market share or profit with the comparison of other similar firms of the industry(Lall, 2001). In this study , the international market share of Indian textile industry has been taken out as a proxy of Competitiveness. The market share is good indicator of measuring competitiveness because it reflects that maintaining or improving market share is a function of many quantifiable and unquantifiable factors and if a firm or nation is capable of retain or grow its market share in cut throat competition is said to be competitive. The revealed comparative advantage (Balassa Index) also captures the competitiveness in a better way as it reflects the export potential of any product or country in that particular time period. The RCA has been used in this study to measure the export potential of Indian textile industry. After elimination of Agreement on Textile and Clothing (Since 1st Jan. 2005), there has been wide scope for Indian textile industry to boost its exports to rest of the world. The long time duration passed since 2005, so this study also compares the pre and post ATC changes in textile industry in respect of international market share and RCA. The study has taken out seven variables as determinants for the export competitiveness as Labour productivity, Capital productivity, Total factor productivity, Exchange rate, Real Effective Exchange rate, Export Profitability Index and world textile export share in world total exports as a proxy for world textile demand. The researcher applied the multiple regression model and Anova test to find the most responsible factor as determinant for competitiveness. To check the relationship among independent variables researchers used multicollinearity test. The results of this study are in favour of this presumed assumption that free textile market will benefitted to all nation in general and India in particular. Market share and Export potential hiked up in most case with few exceptions but the most responsible variables which affects competitiveness were found only labour productivity and exchange rate. Although other predictor has insignificant value but with data expansion and different time framework the result may differ so these predictors should not be ignored while considering the facts.

2. Review of Literature

The various studies have been done on competitiveness and the related areas of competitiveness such as Mehra (2012) did extensive analysis of determinants of exports for Amritsar and Ludhiyana after the quota elimination using panel regression model and found that the gains of post quota regime could not increase upto the expectation**.** Narula (2011) in her Ph.d thesis examined the many variables responsible for competitiveness such as Export profitability Index, Labour productivity, Capital productivity, Total Factor productivity, Unit labour cost, Exchange rate etc using stepwise multiple regression and independent variable as percentage share of textile export to textile output. Sharma (1990) in his thesis gone through various determinants of competitiveness and classified the demand and supply side variables. Fetscherin (2012)examined 97 different Indian industry competitiveness through four dimensional model and used revealed comparative advantage of Balassa and found that most of the Indian company are dynamic in nature. Vu (2016) investigated the competitiveness of Vietnam Textile Industry using Double Diamond Model and suggested that Vietnam should improve its performance on all the four aspect of this model. Gentimir (2015)discussed the various reform had been done in India and

commented that India needs highly skilled people in comparison of today and also remarked that only IITs and IIMs are providing good quality students than other universities. Walkenhorst (2005) reviewed various studies on textile industry benefits after liberalization and commented that after ATC developed countries production will be reduced and import will increase. Das (2016) analyzed the export competitiveness with its various determinants.

3. Objective of the study

1. To measure the Competitiveness after the phasing out of MFA.
2. To explore the various determinants of Competitiveness and find the most liable determinants for competitiveness.

4. Hypothesis of the study

Null Hypothesis **(H_0):** There is no Probability of linear relationship between the Independent variables and the Dependent variable.

5. Research methodology

International market share has been used as a measure of export competitiveness and to measure the export potential Balassa's Revealed Comparative Advantage has been used. The time period used to measure the market share and RCA is 23 years from 1995 to 2017 along with to find out the most liable determinants of competitiveness multiple regression analysis has been done. The six determinants has been taken as Independent variable as Labour productivity (LP) , Capital Productivity (CP), Total Factor productivity(TFP), Exchange rate (ER) , Real effective exchange rate (REER), Export Profitability Index (EPI) and percentage of World textile in total world Exports as a proxy for World Textile Demand. The percentage share of Indian textile export in world Textile export is being taken as a proxy of export competitiveness as a dependent variable. The previous study has been conducted by Narula, 2011on the determinants of competitiveness took percentage share of Indian textile Export to Indian textile output as a proxy for competitiveness and as dependent variable used multiple stepwise regression with time period of 18 years from 1988-89 to 2005-06. In this study the time period has been taken of 18 years ranging from 1998-99 to 2015-16. The data for Independent variables have been collected from different sources of Annual survey of Industries and the data for dependent variable has been used from UNCTAD Statistics.

6. International Market Share

International Market share is good measure of international competitiveness and high percentage reflects high competitiveness and vice versa. International market share can be calculated by using the following formula:

$$= \frac{Xt\,(c)}{Xt\,(w)} x100$$

Where, xt (c) Textile Export of particular country to world, xt (w) Textile export of world

Table 1 reflects the International market share of Indian textile industry as a whole and in sub- division according to Standard International Trade Classification (SITC) two digit code, Rev. 3. There are three main types of sub codes as 26 for Textiles fibres and their wastes, Code 65 for Textile yarn and related products and code 84 assigned for Articles of apparel & clothing accessories. This can be seen clearly that International market share of Indian textile Exports increased from 2.45 per cent to 4.45 per cent from 1995 to 2017. The noticeable thing is that after 2004 the export share of Indian textile industry increased significantly as we took export share as a proxy for export competitiveness, it can be said that export competitiveness of Indian textile industry as a whole has increased considerably and this is due to removal of all type of quota restriction after 1st Jan. 2005. When we look at SITC code 26, it can be observed that the percentage share has gone up from just 0.03 per cent in 1995 to 0.30 per cent in 2017, however it was on its highest level in 2013 with 0.68 per cent. The export level of textiles fibres and their wastes gone up remarkably after 2004. The export competitiveness of Textile Yarn and related products reached its maximum level in 2013 with 2.27 per cent while it was 1.19 per cent in 1995 and after 2013 it has been decreasing so proper consideration must be paid. The articles of apparel and clothing is being used comprehensively worldwide and having static significance in Textile industry of any country. The export share of this SITC code also hiked up to 2.14 per cent in 2017 and 2.20 in 2016 from 1.23 in 1995. Therefore it is clear from all the analysis that Indian textile Industry competitiveness has been increasing significantly after the removal of quotas.

Table :1

Year	Percentage share of Indian Textile Export in World Textile Export			
	Textile Industry	SITC codes (Two digit classification Rev. 3)		
		(26) Textiles fibres and their wastes	(65) Textile yarn and related products	(84) Articles of apparel & clothing accessories
1995	2.45	0.03	1.19	1.23
1996	2.52	0.10	1.26	1.16
1997	2.52	0.09	1.34	1.10
1998	2.45	0.03	1.22	1.19
1999	2.65	0.03	1.34	1.28
2000	2.83	0.03	1.40	1.40
2001	2.85	0.02	1.42	1.41
2002	2.87	0.03	1.42	1.43
2003	2.76	0.04	1.36	1.36
2004	2.76	0.07	1.37	1.32
2005	3.21	0.09	1.45	1.67

2006	3.37	0.23	1.44	1.70
2007	3.29	0.30	1.42	1.57
2008	3.47	0.33	1.48	1.66
2009	4.15	0.28	1.65	2.22
2010	4.21	0.56	1.83	1.82
2011	4.65	0.64	2.00	2.01
2012	4.42	0.63	1.95	1.84
2013	5.06	0.68	2.27	2.11
2014	4.69	0.48	2.12	2.09
2015	4.63	0.34	2.11	2.17
2016	4.52	0.30	2.03	2.20
2017	4.45	0.30	2.01	2.14
Source : Calculated from Unctad Statistics				

7. Revealed comparative advantage

Revealed Comparative advantage is used as a measurement of comparative or relative advantage of any country's products or exports and if the result is unity or above unity then comparative advantage exists or revealed for that product or export and if result is less than unity then product or export has comparative disadvantage and having less export potential. This formula has been given by BelaBalassa and is being widely used.Balassa's revealed comparative advantage can be calculated by using this formula:

$$= \frac{Eij\,/Eit}{Enj\,/Ent}$$

where: E=Exports, i=Country Index, N=Set of Commodities,mj=Commoditiy Index, t=Set of Commodities.

Table 2 Indicated that India's Revealed comparative advantage is above unity and is almost four times up to 2000 that's why It showing that India has revealed comparative advantage in Textile Industry as a whole but after all type of quotas elimination up to 2004, the rca has been declining constantly and reached to 2.64, this needs attention by the policymakers. The SITC code 26 which is assigned to textile fibres and their wastes showed revealed comparative disadvantage up to 2003 but further showed advantage and gone up to its maximum level of 6.39 in 2013 and again started diminishing and become to just 3.49. The export potential of Textile yarn and related products (SITC code 65) is good but this is continuously declining to 3.32 in 2017 while it was 4.27 in 1995 and 4.09 in 2004, it further marked that free environment in textile world market has not been suitable for textile yarn and attention must be paid to this segment. The rca for apparel and clothing also showing the same trend and having reveal comparative advantage but export potential of this code has been decreasing after 2004.

Table :2

Year	Revealed Comparative Advantage of Indian Textile Industry			
	Textile Industry	SITC codes (Two digit classification Rev. 3)		
		(26) Textiles fibres and their wastes	(65) Textile yarn and related products	(84) Articles of apparel & clothing accessories
1995	3.96	0.50	4.27	4.30
1996	4.03	2.04	4.55	3.88
1997	4.03	1.87	4.94	3.56
1998	4.02	0.83	4.74	3.82
1999	4.09	0.70	4.92	3.77
2000	4.27	0.91	5.05	4.00
2001	3.99	0.56	4.85	3.67
2002	3.69	0.64	4.46	3.41
2003	3.49	0.86	4.24	3.20
2004	3.33	1.59	4.09	2.95
2005	3.35	1.86	3.78	3.18
2006	3.37	4.33	3.69	3.05
2007	3.16	5.21	3.57	2.69
2008	3.08	5.81	3.44	2.60
2009	2.94	4.20	3.12	2.72
2010	2.91	6.26	3.30	2.27
2011	2.83	5.51	3.21	2.23
2012	2.82	6.03	3.32	2.10
2013	2.85	6.39	3.44	2.09
2014	2.80	5.40	3.42	2.17
2015	2.89	4.54	3.57	2.33
2016	2.79	3.96	3.38	2.32
2017	2.64	3.49	3.32	2.16
Source : Calculated from Unctad Statistics				

8. Results and Interpretations

For testing the Hypothesis, whether there is a linear relationship between the Dependent Variable, PS (Percentage share of Indian Textile in world textile) and the Predictors, EPI (Export Profitability Index),LP (Labour Productivity),CP(Capital Productivity), EXR (Exchange Rate), TFP (Total Factor Productivity), REX (Real Effective Exchange Rate),WTD (World Textile Demand) multiple linear regression model has been used. To do this, researchers have checked by scatter plots. The scatter plots below indicate a good linear relationship between Dependent and Predictors variable. The Enter Method was used to run the multiple linear regressions to produce model, where eighteen years of data has taken for the analysis. The first table in the results output Model Summary and overall fit statistics tells us the variables relationship between PS and EPI, LP, CP, EXR, TFP, REX and WTD. Table 3 showed the multiple correlation coefficient is 0.994 which is very high degree of positive correlation. We found that the adjusted R^2 of our model is .980 with the R^2 = .988. This means that the linear regression explains 98.8 % of the variance in the data.

The next table 4 of output is the F-test. The F-test of linear regression has the null hypothesis that the regression model explains zero variance in the dependent variable (in other words R^2 = 0). The F-test is highly significant, thus we can assume that the model explains a significant amount of the variance in Percentage share of Indian textile exports in world textile exports (PS). The next output table 5 reveals the t-value, intercept and the significance level of the multiple linear regressions.

In multiple linear regression analysis, we found a non-significant intercept but highly significant LP (0.001) and EXR (0.047) coefficient, which we can interpret as: for every 1-unit increase in Independent variables we will see beta change in dependent variable. The predictors like EPI, CP, TFP, REX and WTD have seen statistically insignificant but lies on margin at 5 % level of significant. Hence null hypothesis is rejected, therefore is a Probability of linear relationship between the Independent variables and the Dependent variable.

Model Produced

$$Y=\alpha+\beta 1X^1+\beta 2X^2+\beta 3X^3+\beta 4X^4+\beta 5X^5+\beta 6X^6+\beta 7X^7$$

$$PS\,(Y)=\text{Constant}\,(\alpha)+\beta 1\,(EPI)+\beta 2\,(LP)+\beta 3\,(CP)+\beta 4\,(TFP)+\beta 5\,(EXR)+\beta 6\,(REX)+\beta 7\,(WTD)$$

$$PS\,(Y)=2.282+(.001)\,(EPI)+.494\,(LP)+(2.690)\,(CP)+(2.889)\,(TFP)+.022\,(EXR)+.019\,(REX)+(.158)\,(WTD)$$

Dependent Variable: PS (Percentage share of Indian Textile Export in world textile)

Predictors:
EPI (Export Profitability Index)
LP (Labour Productivity)
CP (Capital Productivity)
EXR (Exchange Rate)
TFP (Total Factor Productivity)
REX (Real Effective Exchange Rate)
WTD (World Textile Demand)

The information exhibit in the table 5 also allows us to check for multicollinearity in created multiple linear regression model. The tolerance of multicollinearity should be > 0.1 (or VIF < 10) for all predictor variables, which occurred in all the variables.Lastly, researchers have checked for normality of residuals with a normal P-P plot (Figure.1). The Normal PP - plotshows the normal transverse line with no strong deviationswhich indicates that the residuals are normally distributed.

Table: 3 Model Summary of Multiple Linear Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.994[a]	.988	.980	.10999

a. Predictors: (Constant), WTD, CP, EXR, TFP, REX, EPI, LP
b. Dependent Variable: PS
Source: Output SPSS 20.

Table: 4 ANOVA of Multiple Linear Regression Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.016	7	1.431	118.275	.000[b]
	Residual	.121	10	.012		
	Total	10.137	17			

a. Dependent Variable: PS
b. Predictors: (Constant), WTD, CP, EXR, TFP, REX, EPI, LP
Source: Output SPSS 20.

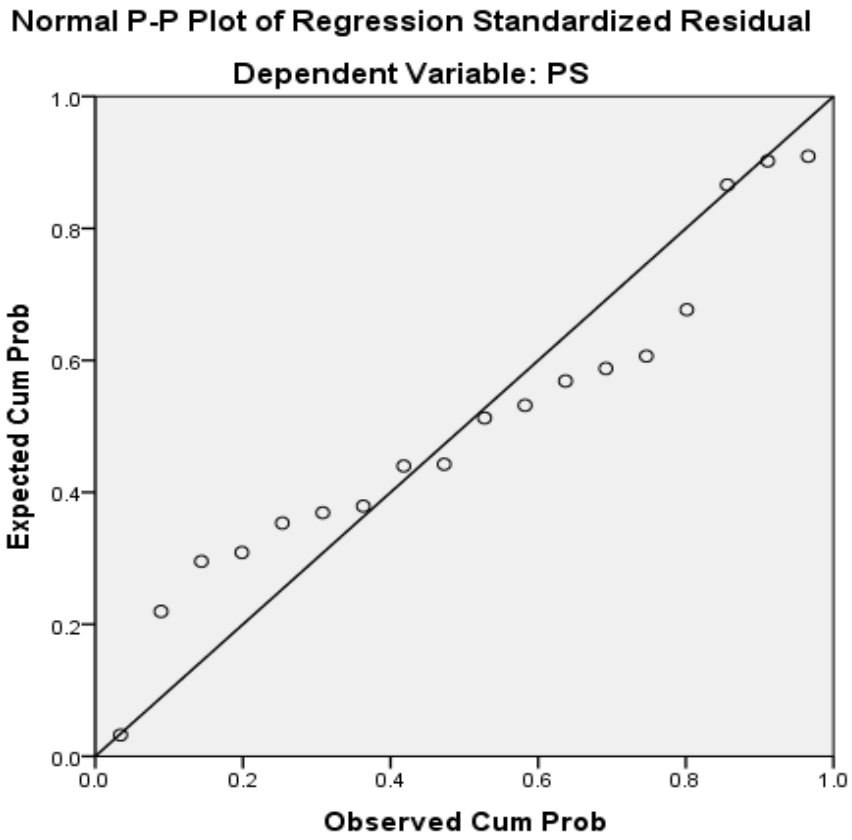
Table: 5 Coefficients of Multiple Linear Regression Analysis

Coefficients[a] Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.282	3.604		.633	.541		
	EPI	-.001	.002	-.037	-.307	.765	.082	8.200
	LP	.494	.098	.655	5.038	.001	.071	7.156
	CP	-2.690	1.272	-.151	-2.115	.061	.233	4.283
	TFP	-2.889	9.873	-.019	-.293	.776	.290	3.447
	EXR	.022	.010	.200	2.261	.047	.153	6.550
	REX	.019	.009	.157	2.187	.054	.231	4.328
	WTD	-.158	.071	-.182	-2.226	.050	.178	5.629

a. Dependent Variable: PS

Source: Output SPSS 20.

Figure: 1 Normal PP- Plot of Regression Analysis.



Source: Output SPSS 20.

9. Conclusion

The null hypothesis that there is no probability of linear relationship between dependent and predictors variables proved wrong and out of seven variable two predictor variable have significant impact on dependent variable as their significant value is less than the 'p' value which is 0.05 and the predictor variable which have significant impact on percentage share of Indian textile exports to world textile exports are labour productivity and Exchange Rate. Labour productivity is the important aspect in India and cheap labour is the main advantage for India. Labour productivity is directly linked with the exports competitiveness of Indian textile industry and Exchange rate is another important factor that plays prime role in determining the competitiveness of Indian textile industry. The significant values of the some predictors were noticed near to 'p' value as World Textile demand and Real Effective exchange Rate may be considered important variable in determining the export competitiveness with more flexible time frame. As this study aimed to judge the effect of Phasing out of MFA on Indian textile industry, the analysis reflected that international market share gone up after the removal of all types of quotas as a whole of Indian textile industry and also in sub-division of textile industry according to the SITC code 26, 65 and 84. On the other hand the quantum of revealed comparative advantage for Indian textile industry went down since 2004. It is witnessed that export potential of textile industry declined after the expiry of all type of quota as a

whole. Although, export potential for textile fibres and their wastes showed remarkable improvement after ATC but code (65) Textile yarn and related products and (84) Articles of apparel & clothing accessories registered retardation in export potential which is the point of thinking and policymakers may have attention on this side. The export competitiveness determinants such as labour productivity and exchange rate proved the most liable variables in performance of Indian textile exports to rest of the world while some other variable should not be ignored with different data set or different time frame such as export profitability index, World textile demand and Real effective exchange rate. The government should try to improve the productivity of labour by giving them suitable incentives and job security and healthy working environment on one hand and improvement must be done in the foreign exchange rate by improving the overall quality performance of Indian Industry as a general and textile industry in particular.

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