The Global Economic Crisis, Growth and Employment: The Case of the Indian Textile and Apparel Industry[♣]

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Abstract:

This paper seeks to assess the impact of the Global Economic Crisis (GEC) on India's textile and Apparel Industry. In this paper we have used firm level data to examine the growth, employment and exports behavior over 1998 through 2006. We have laid down a theoretical framework to analyse the possible channels and a supply side effect is hinted at. A linear cross panel data regression and descriptive analysis suggests that employment does depend significantly on the imports of intermediate inputs. The industry does not display a lot of dependence on the imported capital inputs; however, linkages may be traced between output and imported revenue inputs. We established a clear connection between employment and output. Also, we tried to establish a direct link between the exports and employment and found it to be not so significant. The most significant impact of the economic slowdown has been felt through the indirect effect of exports that has led to a fall in output. The study suggests a set of policy initiatives to improve the employment potential of the industry.

Keywords: Global Economic Crisis, Growth, Employment, Indian Textile Industry

1. Introduction

In the context of developing countries, the financial crisis has compounded into a social crisis in two respects – one, falling real wages have hindered the households' ability to fulfill their needs and two, strain on government budget has led to a cut in human development spending in a time when it is needed the most. The fall in real wages has occurred on account of the fall in labour demand, which in turn stems from restricted access to credit and reduced global trade. Reduced access to credit has had a direct impact on firms; especially the medium to large sized ones that typically have a higher dependence on institutional credit. However, more importantly, the financial crisis is expected to have a sizeable indirect effect on employment levels in developing economies rendered by a cut in export led demand.

Developing countries are expected to face severe cuts in export led demand that may slow down growth in foreign trade oriented sectors of the economy. The fall in export demand is expected to have an impact of a sizeable magnitude in employment. In India, over 500,000 jobs have been lost over the last 3 months of 2008 in export-oriented sectors—i.e., gems and jewelry, autos, and textiles (World Bank, 2009).

The textile industry which is vital to the economy emerges as a classic case to be examined in the light of the Global Economic Crisis (GEC). As per March 2006 estimates, the textiles and apparel sector directly employs 33.17 million people (and is the second largest employer) while indirectly an even greater 54.85 million. Its contributions of four per cent to the GDP and 14% to industrial production make it the largest industrial sector of the country. The textile economy generates 16.63% of the total export earnings. In 2007-08, textiles and clothing exports amounted to US$ 21.46 billion (India 2009). As per the latest available WTO data, India's percentage share in global textiles and clothing trade was 4.3% in textiles, and 3.3% in clothing during the year 2006. In world trade, it has been ranked 7th in textiles and 5th in clothing (Ministry of Textiles, GOI, 2007-08).

The recent recession, however, is another defining moment in the life of the textile industry. This study aims to detail the impact of the economic slowdown on employment in the textile industry. It analyses the prevailing trends in a select sample of textile firms over a ten year period, based on which, it seeks to answer the following questions:

- In the past how has employment varied with exports of finished goods?
- How significantly has output been affected by variation in export?
- How are these trends likely to change in the face of the current slowdown?

Data Methodology

To get a broad overview of the entire textile industry, we categorized it into five sectors viz. manmade textile and fibres (Acrylic fibres, Rayon, Terry Towels, Polyester Fibres) (MMTF), readymade garments (RMG), hosiery and knitwear (H&K), composite mills (medium/small) and Weaving. Each sector had several firms in the Capitaline Plus, the Corporate Database. However, the data set for many of them was not complete in terms of turnover and exports. Depending on the availability of contiguous and complete data sets a sample of 79 firms[1] has been selected. Deflated Gross turnover is used as a proxy indicator for output. Since direct information on number of employees is not available employment level has been estimated by dividing the total wages and salaries paid by a firm by the prevailing wage rate[2] in the relevant sector. In order to be more specific, the specific three digit level industries are chosen from the respective two-digit-level classification of the *Annual Survey of Industries* (*ASI*). For RMG *ASI* code 181(Manufacture of wearing apparel, except fur apparel), for H&K code 173 (Manufacture of knitted and crocheted fabrics and articles), for MMTF code 243(Manufacture of Man-made fibres) and, for Weaving and Composite code 171(spinning, weaving and finishing of textiles) are considered.

Deflated Free on Board (FOB) exports are taken as a measure of goods exported by each firm (details relating to deflation are described below). Deflated revenue expenses in

forex[3] and deflated import of capital goods are taken as imported inputs and imported capital, respectively. Domestic Capital has been calculated by subtracting the deflated import of capital goods from the deflated gross block. Similarly, domestic inputs are estimated by subtracting deflated revenue expenses in forex from the deflated total input cost[4].

The paper is divided into four sections. The first section has already introduced the topic in some detail and has set the background for a detailed analysis. The second section, which presents the main analysis, is divided into two parts – descriptive and quantitative. The descriptive analysis deals with the overview of how certain variables in the industry have behaved over a period of time. The quantitative part comprises regression analysis of how various inputs influence total sales and how employment is affected by exports. Section 3 brings out the connection between the Indian textile Industry and the recent financial crisis, harping on the possible channels through which the crisis may affect the industry. We suggest a comprehensive framework and then examine it in the Indian context based on our analysis and other relevant studies. Section 4 summarizes the major findings and brings out the policy implications of the study.

2. Analysis

    a) <u>Descriptive Analysis</u>

In this section we examine broad trends of certain variables.

Table1 shows the rate of growth of output, exports and number of employees sector-wise. RMG, MMTF and Weaving registered an increase in output (as expected) from 1998 to 2006 whereas Composite and H&K sectors witnessed a deceleration in their turnover.

Table 1: Rate of Growth of variables in different sectors

Sector	R.O.G. Output	R.O.G. Exports	R.O.G. Employees
RMG	20.3%	-5.8%	14.9%
Weaving	8.8%	-8.1%	5.9%
MMTF	6.6%	12.7%	2.7%
H&K	-3.0%	-4.0%	9.65%
Composite	-4.7%	-26%	-13.3%

RMG expanded rapidly, growing at a very high rate of 20.3% and above (Table 1). This trend however, cannot be attributed to increase in exports, which registered a negative growth rate of 5.8% over the same period. But it is difficult to discern any clear pattern, i.e., whether exports have risen or fallen with industry expansion.

Weaving witnessed the second highest growth rate registering a positive rate of expansion but falling exports (Table 1)[5]. Only, MMTF sector can be observed to have positive rates of growth of both exports and output.

For H&K and Composite[6], we got highly unexpected results with their turnover and exports falling (Table 1).

Table 2: 2 : Sector wise Ratios for the year 1998-99

	Composite M/S	MMTF	RMG	H&K	Weaving
Exports/Turnover	21.24%	14.72%	87.22%	28.94%	13.00%
Employment/RExports	1627.19	289.42	311.92	238.87	550.14
Employment/RTurnover	362.30	42.59	272.07	69.69	72.31

As expected, employment has risen in the four sectors of the industry. Composite Textile Mills, as earlier mentioned, has been suffering due to outdated technology and uncompetitive taxes and so has lain off people. Number of Employees has been observed to have increased in RMG, MMTF, Weaving and H&K sectors over 1995-2007.

As seen in Tables 2& 3, the total export to turnover ratio has declined from 1998-99 to 2006-07 for all sectors apart from MMTF, where it increased by about 60% over the former period. The decrease has been significant in the composite mills and H&K segments, while in the remaining two sectors they have been rather marginal.

The employment to real exports ratio investigates the effect of exports on employment. The ratio of the totaled figures showed an increase for all sectors apart from MMTF, where it fell by around 50%. It grew in very significant proportions for H&K and in almost equal proportion for Weaving and RMG. However, Composite mills, weaving and H&K show no clear trend. Thus, our analysis tends to be relatively inconclusive. (Tables 2&3)

The employment to real turnover ratio, gives an insight into how output affects employment, shows that RMG, of all five sector, is the most labour intensive sector. While between 1998-99 and 2006-07 the ratio has more than doubled for H&K, it has only marginally gone up for RMG and weaving. Expectedly, it has gone down for composite mills. It has also gone down for MMTF, though not by a significant share. Composite mills largely show a gradual decrease. Nonetheless, it may be generalized that labour has been less affected by output in these firms because a major segment of the

Table 3: Sector wise Ratios for the year 2006-07

	Composite M/S	MMTF	RMG	H&K	Weaving
Exports/Turnover	3.95%	22.34%	77.13%	9.53%	10.00%
Employment/RExports	3464.51	130.19	1034.12	3459.48	1686.38
Employment/RTurnover	147.39	31.23	288.34	192.34	57.64

change in output can be attributed to increased capital substitution as well as capital improvement. (Table 2 &3)

Imported to Total revenue inputs ratio explains the significance of imports in the production process. Revenue inputs constitute raw materials and other input costs

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Employment/RExports	1627.19	289.42	311.92	238.87	550.14
Employment/RTurnover	Composite M/S 362.30	MMTF 42.59	RMG 272.07	H&K 69.69	Weaving 72.31
Exports/Turnover	3.95%	22.34%	77.13%	9.53%	10.00%
Employment/RExports	3464.51	130.19	1034.12	3459.48	1686.38
Employment/RTurnover	147.39	31.23	288.34	192.34	57.64

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excluding capital and employment (which have been considered separately). From table 4, we find that the RMG and MMTF sectors utilize a larger percentage of imports. Between 1998-99 and 2006-07 this share has only marginally grown for the two sectors. Weaving and H&K continue to use small proportions of imported revenue inputs.

Table 4 Imported to total revenue inputs ratio (in%)

	1998-99	2006-07
H&K	1.82	4.63
MMTF	21.83	28.86
Composite Mills M/S	16.54	4.47
Weaving	4.94	5.73
RMG	23.71	32.97

Imported to total capital inputs ratio

For capital inputs, however, it is the H&K sector that utilizes maximum amount of foreign capital inputs. Unlike H&K, all other sectors have registered a growth in relative utilization of imported capital goods. In the RMG sector, the relative utilization has gone up by over 45 times. There has been a substantial increase in consumption for other sectors too.

Table 5 Imported to total capital inputs ratio (in %)

	1998-99	2006-07
H&K	18.40	11.86
MMTF	1.12	11.54
RMG	0.90	41.59
Weaving	3.72	9.08
Composite Mills M/S	2.65	11.54

b) Quantitative Analysis

I.

To get a broad idea of factors affecting the output (i.e. turnover) of each industry, we have regressed the natural logarithm of real turnover on natural logarithms of imported capital inputs (ICI), imported revenue inputs (IRI), domestic capital inputs (DCI), domestic revenue inputs (DRI) and employment. Broadly speaking, a Cobb-Douglas (C-D) production function [limitation][7] framework is used to estimate the elasticity of output with respect to different inputs.

Cross-sectional panel data has been tabulated and used for estimating the elasticity coefficients by OLS technique. However, we have reported the OLS results (corrected for heteroskedasticity) only, which are as follows:

MMTF

IRI, DCI, DRI and employment (as expected) are found to have a positive and significant effect on the output (Table 6). Elasticity of output with respect to the various explanatory

variables is represented by the coefficients. For example, the partial (constant) elasticity of real output w.r.t DCI is 0.44, which suggests that if DCI increase by 1%, output *on the average* increases ≈ 0.44%. In this case, output is inelastic w.r.t all the explanatory variables as the elasticity coefficient is less than one in all cases

Table 6 Regression Results based on Time-Series Data (OLS Estimate)

Explanatory Variables	Dep. Var: ln turnover in MMTF	Dep. Var: ln turnover in Weaving	Dep. Var: ln turnover in RMG	Dep. Var: ln turnover in H&K	Dep. Var: ln turnover in Composite Mills M/S
ln ICI	-0.01 (-0.94)	0.02 (1.59)	0.01 (0.28)	0.04 (1.51)	-0.01 (-0.57)
ln IRI	0.19 (7.77***)	0.01 (0.54)	0.06 (2.31***)	-0.08 (-2.64**)	0.14 (8.28***)
ln DCI	0.13 (2.65***)	-0.01 (-0.29)	0.17 (1.63)	0.30 (3.61***)	0.15 (1.60**)
ln DRI	0.44 (7.88***)	0.73 (17.75***)	0.87 (11.31***)	0.52 (5.9***)	0.56 (5.43***)
ln Employment	0.23 (6.28***)	0.24 (6.02***)	0.08 (4.91***)	0.18 (3.70***)	0.08 (0.86)
Constant	0.14 (0.74)	-0.43 (-1.68)	0.27 (1.76*)	-0.69 (-2.48**)	0.74 (1.50*)
No. of Observations	166	97	65	44	32
Adj. R^2	0.92	0.98	0.95	0.97	0.98

Note: Figures in parentheses are t-ratios. * significance at 10% level ** significance at 5% level *** significance at 1% level

A high proportion of explained variation (0.92) suggests that the model is a good fit[8]. Also, the estimated F-value is highly significant (because the p-value is zero) rejecting

the null hypothesis that the four inputs (IRI, DCI, DRI and employment) together do not have any strong impact on output (turnover).

Weaving:

Only DRI and employment have highly positive and significant (at one%) effect on the output (Table 6).

RMG:

As can be seen from the table 6 above, IRI, DCI, DRI and employment affect output significantly.

H&K:

DCI, DRI and employment have significantly high and positive effect on output (Table 6). Negative and significant values of coefficients of IRI and Constant can be attributed to data limitations.

Composite:

IRI, DCI and DRI have significant impact on the Composite Mills' (Table 6) output. Among all the five sectors, output in this sector is not significantly dependent on employment. Composite sector had been shedding its labour force and cutting production. This can explain the possible unexpected non-dependence of real turnover on employment.

It is also observed that the coefficient of the explanatory variable ICI is not significant in any sector. This clearly suggests that capital inputs imported, generally, do not significantly affect the output.

II.

Another function of C-D form has been used to establish a relationship between exports[9], output and employment through the OLS regression model (as previously used). The results obtained from the above exercise are discussed below:

The MMTF sector (Table 7) displays a positive relation between employment and exports with employment being inelastic w.r.t. exports. However, a percent increase in real turnover increases employment by 0.88%, which is significant.

Table 7 Regression Results based on Time-Series Data (OLS Estimate)

Explanatory Variables	Dep. Var: ln employment in MMTF	Dep. Var: ln turnover in Weaving	Dep. Var: ln turnover in RMG	Dep. Var: ln turnover in H&K	Dep. Var: ln turnover in Composite Mills M/S
ln turnover	0.89 (25.43***)	0.86 (25.30)	0.75 (6.18***)	0.489808 (3.59***)	1.57114 (11.93***)
ln exports	0.10 (3.42***)	0.02 (0.68)	-0.06 (-0.54)	0.15 (1.56*)	-0.36 (-4.53***)
Constant	3.60 (53.06***)	4.56 (54.01***)	5.20 (27.13***)	5.06 (36.30***)	4.07 (15.14***)
No. of Observations	235	173	127	103	89
Adj. R^2	0.75	0.81	0.27	0.34	0.74

Note: Figures in parentheses are t-ratios. * significance at 10% level ** significance at 5% level *** significance at 1% level

Nothing conclusive can be said about the impact of exports on employment in the Weaving sector because the t-value for this variable is not significant. Nonetheless, here again there is a significant positive relationship between output and employment.

In the RMG sector, employment is not significantly dependent on exports. The elasticity of employment with respect to output is 0.75. Yet, it must be noted that because of a low r-squared value, the estimated equation does not represent a very good fit.

In the H&K segment, the elasticity of employment with respect to exports, though significant at 10% level, is very low. With respect to output, this value is relatively higher and highly significant as well.

In the composite mills sector, the exports show a negative effect on employment, which may be due to data limitations, it is also possible that growth of exports has taken place in consonance with technological improvement rather than labour intensiveness.

Results

One, imports in capital inputs have not been found to affect the turnover or the growth at all. But the imported revenue inputs, which mainly includes cost of raw materials imported, is seen to exert a significant effect on the growth of MMTF, RMG and Composite sectors.

Two, after controlling for output, exports do not seem to have any significant effect on the employment directly. This may be because the effect of exports might be embedded in the effect of output [10] on employment indirectly, which we have not siphoned out.

However one thing that comes out very clearly from both the regressions is that the output and employment have a very significant positive relation[11].

3. The Impact of Recession

In this section, we propose a simple framework to highlight the ways in which the recession is likely to have impacted employment in the textile industry. Then, we screen our findings under this framework.

The framework:

A) Supply side impact: Sauernheimer (1986) devised an international trade model to gauge the effects of trade policy on employment by including domestic labour and imported raw materials as factors of production. According to the model, the depreciation (of foreign currency) lowers the home currency price of the imported raw material. At a given level of production, the demand for foreign currency decreases and the domestic factor incomes increase. But, the increased consumption from increase in income is not sufficient to compensate for lower exports from depreciation of foreign currency. Total demand for domestic goods falls leading to a decline in production and employment. This model shows that changes in imported inputs can affect employment levels in a country. Also, lack of investment can adversely affect growth and thus lead to workers getting laid-off.

B) Demand side impact: There are three aspects of the demand side impact. One of the channels through which the Global Economic Crisis has impacted India is the real channel[12]. Global demand plays an important role in determining export growth of a product. The impact of slowdown in global demand on a country's exports will largely be determined by income elasticity of demand of the product. There has been a direct fall in

export led demand, which has led to reduction in output. This slowdown in US domestic demand has been exported to other economies through lower export demand and a weaker dollar. It is likely that larger the share of US-bound exports in the GDP, the greater will be the effect of a US slowdown on its national income.

Second, the recessionary trends have collectively reduced incomes in the economy and there is a consequent fall in output.

Domestic demand also plays an important role in determining employment. If the recession has a significant negative effect on domestic demand then it is likely that the impact on employment will be deleterious too. Third aspect (partly derived from the first aspect) is the interdependence between exports and output. Output may be seen as a function of several variables, one of them being exports. Thus decline in exports can affect output and employment both adversely.
This is illustrated in the diagram below:
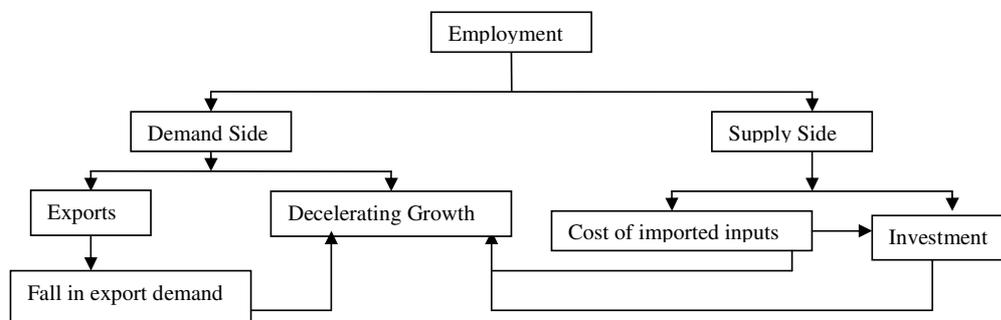
The Indian Context:

Supply Side:

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In India, the rupee depreciated[13] (foreign currency appreciated) because of the capital outflows during recession that ensued the GEC. This means exports should have increased but as described later, export channel was blocked due to the lack of demand in the international market and the protectionist tendencies of EU and US. The only other effect – increase in cost of imports- that can be in force, drove up the import bill. The profit-motive of the entrepreneurs guided them to lower investments (UNCTAD 2009). This was again enforced by loss of FDI to Indian Industry (The Financial Express, 17 December 2008). As investments in the industry went down, output was cut, restraining our growth. With sluggish growth, it is difficult for employment level to remain stable or shoot up.

In the analysis, we have seen that the imported revenue inputs affect the employment level in three sectors- MMTF, RMG and Composite- significantly. Also, the fact that the imports form a significant part of total revenue inputs used for manufacturing (table 4 descriptive analysis) further reinforces the above argument. In MMTF and RMG, imports form a larger share of total intermediate inputs used. A study done by Fitch Ratings confirmed that one of the factors affecting the growth and employment in the Indian Textile industry is High Input Costs (The Financial Express, 16 December 2008), which can be attributed to dearer imports. Thus, reduction in imports can lead to a cut in production and hence increase in unemployment level.

Demand side:

The textile has seen a steady fall in industrial output since the beginning of the recession. Since June 2008 average IIP for Textiles and Textile products has witnessed a decline in majority of months with an average month-on-month drop of 1.44% from June 2008 to February 2009 indicating a drop in production (CITI, June 2009). According to provisional Data (CITI, June 2009), cotton textiles registered a negative y-o-y growth of -2.1%, while for textile products (including RMG) this number was -0.2 for the year 2008-09. For Manmade Fibres this figure was relatively very high, etched at -14.7%. (CITI, June 2009).

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To analyze the effect of recession on employment, first, we examine the direct impact of a fall in exports. Growth of Indian T&C exports stagnated during Apr–Dec 2008 as compared to a growth of 15% y-o-y in FY08. During Apr–Dec 2008, garment exports grew by 7% (y-o-y) as against a growth of 9% (y-o-y) in FY08 whereas Textile exports declined by 4% (y-o-y) as against a growth of 21% (y-o-y) in FY08. Decline in exports was observed in all major categories of T&C industry during Aug–Dec2008. There is ample evidence, therefore, that textile exports were directly affected by the recession. In light of this, we examine the direct and indirect effect of exports.

While the ratio analysis does not point to a definite positive linkage between exports and employment, comparing 1998-99 and 2006-07, we find an explicit overall increase in employment per unit export. Thus, in recent times employment has shown a greater dependency on exports. However, as said earlier, this does not represent a trend. From the quantitative analysis, we find that exports do not have a significant effect on employment. While the effect is seen to be positive over the period considered, there is no evidence of a very strong linkage because even values are statistically significant elasticity values are low.

However, we do find a strong positive connection between output and employment. Thus, we cannot negate the indirect impact of exports. As seen in the descriptive analysis, exports do account for a considerable proportion of turnover, especially in case of RMG, and of a somewhat lower magnitude in case of MMTF. Though the ratio is relatively small in other sectors and hovers around 10-15% (for the latter period), it must be noted that exports contribute to only 15% of India's GDP. Thus the dependence of output on exports for the textile industry cannot be de-emphasized. While the exact impact of exports through a change in output can only be discerned by defining an output function, the sizeable magnitudes of the export output ratios do point to a possibility of a significant embedded effect. Linking this with the findings of the quantitative analysis, we can certainly say that employment shows a strong positive variation with output. The regression analysis reveals relatively high and very significant elasticity values. Thus the

overall scenario implies that a reduction in growth rates will have a severe effect on employment levels. In the cases of MMTF, Weaving and RMG, specifically, a 1% decrease in output is expected to lead to a more than 0.75% decrease in employment. While this value is much higher in the composite mills sector (pegged at 1.6%), the sector does not have a very high level of exports.

The last aspect of our framework, the fall in domestic demand on account of fall in incomes and its consequent impact on employment has not been analyzed in great detail in this study. Nonetheless, the very fact that a fall in output has a significant negative effect on employment levels goes on to indicate that if there were to be a fall in domestic demand, it will have serious consequences for employment. [14]

4. Conclusion

In the study we have tried to identify the pertinent channels through which the employment in Indian textiles has been affected. The industry does not display a lot of dependence on the imported capital inputs; however, linkages may be traced between output and imported revenue inputs. We established a clear connection between employment and output. Also, we tried to establish a direct link between the exports and employment and found it to be not so significant. We have indicated a possible channel of the impact from supply side. However, it should be noted that the most significant impact of the economic slowdown has been felt through the indirect effect of exports that has led to a fall in output.

Based on the results of our analysis, following policy recommendations can be made:

The policy to boost up the textile industry from recession must have two guiding principles. It should be *compensatory* – to help the dislodged regain the former standing. These are largely short-term measures. Simultaneously, however, *preventive or precautionary* measures must also be put into place so that the industry is in a better spot to handle any downturns in the future.

- **Compensatory measures:** The employment has dipped on account of the fall in export led demand. Thus, it is imperative that alternatives to this must be found. Arguably, domestic demand should be promoted to a level where it not only augments exports but also offsets a fall in them. To stabilize the economy from the well-being standpoint, the Government must actively put social safety nets into place. The labour markets must be made a part of the macroeconomic financial stabilization schemes. Also, the authorities must look at other industries

that continue to enjoy a healthy demand for the prospect of absorbing the displaced labour force. From the supply side, the government must bring down the cost of inputs, especially imported inputs by reducing the tariffs (for instance, these are really high on MMTF intermediates), so the output levels may be reinforced.

- **Preventive measures:** The industry must try and diversify – at the level of its export composition as well as its export markets. It is important for the industry to try and find newer markets and avoid concentration in a few so as to reduce the concentration of risk. Moreover, never measures of financing should also be put into place. Measures must be taken to setup a backup in case one branch of investment (in this case, FDIs) fails. More importantly, a greater emphasis must be laid on long-term investment of human capital. It is important to lay stress on the training and health of workers so that they may be better prepared to face such exigencies. Schemes of cooperation between Government, Employer and employees must be devised and put into practice so as to reduce the shock value of such economic downturns on both the employer and the employee. These measures will not only provide a financial backing to the workers in times of distress, they will also make them more self-reliant and flexible in adverse economic phases.

The aim, therefore, should not be only to restore the situation to the pre-recession scenario but, in fact, to bolster growth as well as well being to previously unattained levels.

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Notes

[1] 10 firms under composite mills, 23 under MMTF, 18 under weaving, 12 under H&K and 16 under readymade.

[2] The wage rate was calculated by the following formula:

$$\frac{\text{Total Emoluments}}{\text{Number of workers employed}} = \text{Wage rate}$$

(Total emoluments and Total workers employed were taken from the Annual Survey of Industries for respective years)

[3] Though revenue expenses in forex include commission, royalty, travel expenses etc, these were observed to have been negligible enough for us to take the entire block as a valid indicator for imported inputs.

[4] The total input cost was calculated by adding the expenditure components that were also a part of revenue expenses in forex.

[5] These unexpected results may be attributed to the lack of data for some firms. For calculating industry growth rates between 1998 and 2006, data was not available in some cases for the year 1998. To solve this, we calculated the exponential growth rate and then through forward interpolation, the missing value was calculated.

[6] For Composite Textile Mills, the trend may be true because this sector had been lagging. Also see: Financial Express, 24 April 2000.

[7] This is not exactly a production function as there are limitations in the data, viz. considering gross block as proxy for capital stock employed and turnover as proxy for output.

[8] Caution: It may also be due to large number of explanatory variables used

[9] In the simplistic framework used, it is difficult to differentiate between the direct and indirect impact of exports on employment. The direct effect refers to the impact of exports on employment while controlling for output growth i.e. the partial elasticity of employment with respect to exports. The indirect effect enters the function through the impact of exports on growth itself. To decipher the indirect impact, a separate output function with several independent variables including exports needs to be estimated which would have cropped up more technical complexities. So, to retain simplicity, this has not been done and broad conclusions (that follow) have been made.

[10] Real Turnover = Real Domestic Consumption + Real Exports

[11] These inferences have been made in light of the following data limitations. Wage rates could be calculated only for the period 1998 to 2005, as ASI data was available only for these years. For the years before 1998 and after 2005, the wage rates had to be estimated by calculating the exponential growth rate and then through backward interpolation (from 1998) and forward extrapolation (from 2005). UVE&I figures were not available for the year 1998-1999. These were estimated by interpolation. Due to the use of different deflators for Gross Block and imported Capital Goods, Total Revenue Expenses and Revenue Expenses in Forex respectively, some of the figures on domestic capital and domestic inputs turned out to be negative which then have to be dropped as logarithmic transformation of a negative number cannot be carried out. Another limitation has been the use of gross block as a proxy for capital stock employed. Gross block does not take into account the deprecation of capital. This may lead to considerable differences between the estimated and the real value of capital. Ideally for economic analysis net capital stock should be used. Several studies have been done on the correct valuation of capital stock. For suggested methods of inventory valuation see Hashim and Dadi (1973), Banerji (1975), Ahluwalia (1985) and Goldar (1986).

[12] The other two channels are the financial channel and the confidence channel, as described by RBI Governer, D. Subbarao.

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[13] This situation is opposite to the one described in Sauernheimer.

[14] However, the 'Report on Effect of Economic Slowdown on Employment in India (January – March 2009)' by Ministry of Labour & Employment shows a boost in domestic demand.