

Impact of Trade Liberalisation on Employment in the Indian Manufacturing Sector

Juhi Lohani

Assistant Professor (Economics), Indian School of Business and Finance

ABSTRACT

This paper examines the impact of Liberalisation on employment in the Indian Manufacturing sector. It covers the period from 1983 to 2003 as the intention is to look for pre reform and post reform effect on employment. The paper attempts to solve the ambiguity in the literature concerning trade liberalisation and employment puzzle by concluding that reform process was detrimental for the same.

India has been following an inward looking policy of import-substitution since its Independence. The financial and balance of payments crisis of 90's forced India to embark upon a range of economic reforms (stabilization and structural adjustment) as dictated by the International Monetary Fund (IMF) and the World Bank. Among the various reforms introduced, most important were the abolition of the Industrial Licensing System, substantial liberalisation of Foreign Trade, Foreign Direct Investment (FDI) regimes, opening of foreign portfolio investment and removal of ceilings on interest rates. Trade liberalisation led the country to adopt export-oriented industrialisation policies. The change in the policy framework saw a clear departure from restrictive autarkic strategy to partial liberalisation of the economy (removal of control and reliance on market economy) which brought with itself, growth of the economy in general and manufacturing sector in particular.

India followed a policy of export pessimism and import substitution with high tariff and restrictions which resulted in high cost inefficient manufacturing sector. The country witnessed stagnation in the manufacturing sector in the mid '50s-'60s. It resulted from unequal income distribution and low demand but most importantly the Industrial policy framework which led to inefficient allocation of resources. Around 2 decades later, the country was again trapped under similar circumstances which was reflected in the industry's performance in the initial years, declining from 2% to around 0.5% in 1990. In order to boost the performance of this sector and to promote growth, quantitative restrictions on imports of intermediate and final goods were relaxed. Liberalisation was expected to impact growth, particularly employment in the manufacturing sector in the view to release the country from shackles of poor performance in the world market and underdevelopment. Some economists like Sen and Raj (2008) share the same view that liberalisation would increase the size of the market by integrating with the world market which would further lead to increase in competition and efficiency since there would be better allocation of resources (moving towards Pareto optimum). On the other hand some believed that liberalisation could affect the employment patterns- some being optimistic about the fact that such a change would result in a shift to more labour intensive good manufacturing, resulting in new job opportunities while some being pessimistic of the fact that such an integration with the world market would give an easy entry to capital intensive technology resulting in higher capital to labour substitution.

In the light of the background presented above, my paper tries to examine the impact brought upon by liberalisation on employment in the organised manufacturing sector of the Indian industries.

THEORETICAL FRAMEWORK

There are many theories in International trade which show how liberalisation impacts employment growth in developing and developed nations, one of the most important being the H-O theory.

Under Heckscher-Ohlin (H-O) framework, a country will export goods that use its abundant factor intensively and import goods that uses its scarce factor intensively. In a two factor case (say Capital and Labour), it states that "capital abundant country will export capital intensive good, while the

labour abundant country will export the labour-intensive good. Therefore talking in the Indian context, trade was expected to increase the labour demand in the economy and hence, employment.

LITERATURE REVIEW

In recent years, various studies and research has been conducted by World Bank (WB) and International Labour Organisation (ILO), using cross-country and country specific evidence to evaluate the impact of liberalisation on the employment growth. The results have shown considerable amount of dispersion. Country-specific factors, the variables used in the analysis, the method adopted to evaluate the impact – all account for the variation.

STUDIES IN THE INDIAN CONTEXT

There is availability of a bunch of literature depicting the trends and pattern in employment growth, starting from 1980 to late '00s. The trajectory has undergone a massive change. Though trade liberalisation was a part of economic reforms and expected to impact employment positively, the analysis shows mixed results. There arises two schools of thought- one says that liberalisation impacted employment positively whereas the other strongly suggests that it brought about a decrease in the employment. Hence, this paper tries to solve the above ambiguity in an appropriate way.

DATA SOURCE AND METHODOLOGY

The focus of my paper is the organised manufacturing sector in India. Hence, data from the Annual Survey of Industries (ASI), a survey conducted by the National Sample Survey Organisation (NSSO) and processed by the Central Statistical Organisation (CSO) has been used. The period of study extends from 1988 to 2003 since intention is to capture pre-reform effect and post reform effect on employment. In the ASI framework, all industries are classified in their appropriate National Industrial Classification 1988 (NIC) groups on the basis of their principal product manufactured. I have used the data of 12 major export-oriented and import competing industries. The rationale behind the selection of these 12 industries is literature and empirical data supporting these industries to be among the top 20 import competing and export oriented industries. For trade related data, Commodity Trade (COMTRADE) provided by United Nations Conference on Trade and Development (UNCTAD) has been used. GDP (at factor cost) data is extracted from the RBI website. The data on exports and imports are available in USD which are then converted to INR using the average exchange rate of each year respectively.

The analysis is divided in to 2 time frame - (a) 1988 to 2003 to capture the pre and post liberalisation impact of various factors on employment, with a break at 1992 indicating the initiation of reforms (b) 1992-2003 to analyse the impact following liberalisation with an exogenous break at 1997 (the reason for which has been explained later)

The dependent variable is the number of workers employed which measures employment in the sector. The independent variables which are considered to have an impact on employment include the gross value added, the value of capital stock (working capital + invested fixed capital), real wages and trade share (share of export and imports in GDP of that particular year). Trade share has been used to capture the openness of the economy. Since the data is available in monetary term, it is converted to real term using the WPI (Manufactured Products) of each year, taking the base year as 1988 available from the website of RBI (Handbook of Statistics on Indian Economy).

Regression Analysis

Drawing from the discussion so far, I have developed the following model that helps in evaluating the impact of trade related and other factors on employment in the manufacturing sector. All the variables are log-transformed.

$$\ln \text{emplit} = a + b_1 \ln \text{GVAit} + b_2 \ln \text{KSit} + b_3 \ln \text{Trade_shareit} + b_4 \ln \text{Real_wagesit} + t + \text{cit}$$

where $\ln \text{empl}$: total number of workers employed (in log ter

$\ln \text{GVA}$: gross value added (in log term)

$\ln \text{KS}$: value of capital stock (in log term)

$\ln \text{Trade_share}$: (exports + imports)/GDP (in log term)

$\ln \text{Real_wages}$: real wages paid to the workers (in log term)

t : time dummy variable taking value 0 or 1

c : residual term

for all the variables ‘i’ represents an industry and ‘t’ represents the year

The analysis is carried out in two parts as stated above.

Variable Construction

The following section discusses the factors that impact employment through liberalisation.

Real Gross Value Added (GVA): It gives the real value of goods and services produced in an area, sector or industry in an economy. As the GVA increases, the employment increases.

Capital Stock(KS): The sum total of working capital and fixed invested capital has been taken as an indicator for the capital stock of the economy. Improved access to foreign technology and invested capital good can make the industries more capital intensive which leads to the reduction of employment.

Trade Share (Trade_Share): Trade share has been used as an index of openness, which is exports + imports divided by the GDP. The share per year shows how open the economy is to foreign trade. It is expected to have a positive impact on employment.

Real Wages (Real_Wages): Wages paid to the workers that have been adjusted for inflation. Real wages provide a more comparable data for study. It is expected that an increase in the real wages paid should have a negative impact on employment as workers tend to cut down on their input costs.

t: This dummy variable takes the value 0 or 1 to capture and distinguish the pre and post liberalisation impact and the after liberalisation impact.

RESULTS OF THE ESTIMATED MODEL

Pre and Post Liberalisation (1988-2003)

The present study deals with the impact before and after 1991, the year that witnessed the change of trade policy, towards a more liberalised regime in India. To identify the appropriate methodology used for analysis, Breusch and Pagan Lagrangian multiplier test is performed which confirms that pooled OLS should not be used since $\chi^2 = 1177.50$ which is statistically significant (at 5% level of confidence). Again to choose between random effects and fixed effects regression, Hausman test is used which gives a $\chi^2 = 2.55$, insignificant at 5% level. Hence, random effects model is used to carry out the analysis. The model also validates the very fact that there are certain omitted variables that are constant over time but vary between the industries such as policy changes pertaining to one of the sectors or and others which are constant across industries but vary over time such as change in the political scenario or international agreements over the 16 years of study might have an impact and can now be controlled. The value of R^2 in all the estimates assures goodness of fit. Wald χ^2 value is also significant at 5% level. The model also checks for heteroskedasticity and autocorrelation. Overall the regression model used is adequate to study the relationship between employment and trade liberalisation.

Table1. *The effect of Trade Liberalisation on employment of Indian Manufacturing Sector from 1988 to 2003*

Dependent variable : lnEmployment

<u>Regressors</u>	<u>Co-efficient</u>	<u>z-value</u>	<u>P> z </u>
lnKS	.025439	0.76	0.448
lnGVA	-.038548	-1.45	0.148
lnTrade_share	.0084129	0.50	0.617
lnReal_wages	.868203	23.58**	0.000
T	-.1246439	-4.50**	0.000
Constant	7.055267	26.75**	0.000
R²			
Within	0.9222		
Overall	0.9109		
Between	0.9094		
Wald chi2 statistic	2161.28**		0.0000
Number of observation		192	
** : significant at 5% level			

According to results, it can be inferred that impact of real wages on employment is significantly positive (at 5% level of confidence) suggesting that a 1% increase in real wages increases employment by 0.87% and hence does not support the classical labour demand theory that as cost of hiring workers rise (increase in wages paid) employers tend to reduce employment. An increase in capital stock tends to increase employment by 0.025% but is not significant implying it did not impact employment to a very great extent. It could be that following trade liberalisation, capital intensity of industries increased which led to more workers being employed to handle new technology but it was certainly not one of the most important drivers for employment. Trade share for all the industries showed almost similar results. A percent rise in trade share led to increase in employment by only 0.08% and did not enter the model significantly. Although trade share is taken as a proxy for openness, it is still not among the key factors. Trade only accounts for an average 2-3% of GDP for the period under study and probably does not have enough force to impact the labour employment. Finally the dummy which accounts for trade liberalisation is found to effect employment adversely. Hence, other things remaining constant, employment decreased significantly after trade liberalisation.

Hence, from the above analysis it is clear that the trade and non-trade factors had a positive, but almost negligible impact on employment but the time dummy shows that it had a significant negative effect. Hence, there must be other factors responsible for such a huge decline.

Analysis with Break at 1997 (1992-2003)

The objective of this analysis is to get a clearer picture on employment pattern following liberalisation. There is an exogenous break at 1997 since the Indian manufacturing sector entered into a phase of stagnation '97 onwards which continued until the late '00s, hence it is not justified to analyse the results using one study only.

In the following study, random effects model is used for reason already given. The R² value here assures goodness of fit. Wald Chi2 is also statistically significant. Overall this is a good model for the study.

Table2. *The effect of Trade Liberalisation on employment of Indian Manufacturing Sector from 1992 to 2003*

Dependent variable : lnEmployment

<u>Regressors</u>	<u>Co-efficient</u>	<u>z-value</u>	<u>P> z </u>
lnKS	.0292211	0.83	0.405
lnGVA	.0413043	1.26	0.207
lnTrade_share	.0072739	0.28	0.779
lnReal_wages	.8285844	24.05**	0.000
t	-.0962065	-5.64**	0.000
Constant	6.612949	19.76**	0.000
R ²			
Within	0.9493		
Overall	0.9088		
Between	0.9096		
Wald chi2 statistic	2468.02		0.000
Number of observation		144	
** : significant at 5% level			

Here, we get almost similar results as compared to the previous analysis. Only the sign of coefficient of GVA turned positive which implies that a percent rise in gross value added led to rise in employment, though marginally. The importance for this analysis can now be inferred. Post '97 employment percentage decreased more as compared to the years immediately following liberalisation. The reason can be traced down to stagnation in the Indian manufacturing sector which was a result of two inefficiency mechanisms- interaction of quantitative restrictive policies and inflexible labour laws as well as the high inflation rate which led the employers to cut down employment. Rate of growth of manufacturing sector turned negative in '99-'00. According to the ASI, which has been used as the basic data source, shows stagnation of GVA since 1997-1998. The cumulative annual growth rate for 1997-2000 for the entire economy was only about 0.1%. Such a drastic change impacted organised sector employment heavily.

CONCLUSION

The paper attempts to solve the ambiguity in the literature concerning trade liberalisation and employment puzzle by concluding that reform process was detrimental for the same. Employment is one of the most important factors to achieve growth in any developing nation. For a nation like India, which suffers from high rates of unemployment and underemployment, it is of immense importance to boost organised manufacturing sector which can help create jobs. As can be concluded from the above study, this sector has performed poorly over the last few decades. The initiation of economic reforms in 1991-1992 could not do any better to increase the employment rates. Though the process of deterioration began in '92 itself, it picked up pace in the late 90s leading to a further slowdown of the growth process. Quantitative easing of the trade tariffs and integration with the world market, increased import of capital intensive technology. Instead of generating employment, it led to the substitution of capital for labour. The analysis, hence contradicts the trade theory formulated by Heckscher- Ohlin. According to the theory, employment should have increased but it just worked the other way around.

If employment is shrinking, then a major section will be pushed to the unorganised sector, which already suffers from unemployment. Under such adverse circumstances, it is extremely important for the manufacturing sector to grow to generate employment. Labour intensive exports should be encouraged which could also absorb employment from the unorganised sector to some extent. If the sector is capital intensive, then unskilled labour can be trained to an extent to work with the new technology. Adapting such measures could help bring the country out from such adverse circumstances and align it with growth process such that it becomes growth complementing rather than just 'jobless growth'.

APPENDIX

The following 3-digit industries have been used for the analysis :

171 : Spinning, weaving and finishing of textiles

173 : Manufacture of knitted and crocheted fabrics and articles

181 : Manufacture of wearing apparel, except fur apparel

191 : Tanning and dressing of leather, manufacture of leather handbags, saddlery and harness

210 : Manufacture of paper and paper products

242 : Manufacture of chemical products

289 : Manufacture of fabricated metal products

332 : Manufacture of optical instruments and photographic equipment

352 : Building of railway and tramway locomotives and rolling stock

353 : Manufacture of aircraft and spacecraft

361 : Manufacture of furniture

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AUTHOR’S BIOGRAPHY



Juhi Lohani, is currently working as an Assistant Professor of Economics at Indian School of Business and Finance. She has done her masters in economics from Delhi School of Economics and her graduation from Delhi University..Her research experience includes stint with Institute of Economic Growth. Also, she has a teaching experience with Tutor.com.