
Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

Neha Sharma¹ and Amarjit Singh Sidhu¹

¹ University Business School, Guru Nanak Dev University, Amritsar, Punjab.

To take the benefit of positive externalities and to augment domestic capital, FDI is sought by all countries. Amongst the potential contributions of Foreign Direct Investment (FDI) flows to the developing countries, generation of additional employment is of specific interest to the policy makers. Thus, the purpose of this research paper is to look for evidence regarding the impact of Foreign Direct Investment on employment in Indian Automobile Industry using recent firm level panel data for a period of fifteen years (2001-2015). Our analysis broadly concludes that increased FDI flows have led to higher levels of employment in the industry. It is also observed that technology import intensity and size of a firm positively affect the employment while capital intensity and wage share have a negative impact. A significant policy direction that emerges from the study is that in order to increase the employment, FDI should be encouraged in industries in which skilled labour is required.

Keywords: Capital intensity, Foreign Direct Investment, Panel data, Skilled labour.

INTRODUCTION

India's inward investment regime coupled with a series of reforms after July 1991, has led to a positive change in the perception of the role played by Foreign Direct Investment (FDI) in the development of an economy. FDIs are not only the carrier of financial capital, but have also emerged as the most attractive type of capital flow that improves the production capabilities by bringing the latest technology. Amongst the potential contributions of Foreign Direct Investment (FDI) flows to the developing countries, one which is of specific interest to policy makers is the extent to which FDI creates employment. The liberalized industrial policies have managed to create an 'investor friendly' environment which in turn has led to a marked increase in FDI inflows into Indian industries. The share of manufacturing in FDI in the year 2014 was approximately 46 percent with 37 percent rise in the FDI projects, 32 percent rise in investment and 39 percent additional jobs created has made India number one FDI destination in the world during the first half of 2015 (European attractiveness survey India 2015).

Foreign Direct Investment is defined as a category of international investment that reflects the objective of a resident in one economy (the direct investor) obtaining a lasting interest in an enterprise resident in another economy (the direct investment

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

enterprise). The lasting interest signifies the presence of a long-term relationship between the direct investor and the direct investment enterprise, and a significant degree of say of the investor in the management of the enterprise. A direct investment relationship is said to be established when the direct investor acquires at least ten percent or more of the ordinary shares or voting power of an enterprise abroad (International Monetary Fund [IMF], 1993). The economic rationale to attract FDI to the economy stems from the fact that foreign direct investment produces positive externalities in the form of technology diffusion and spillovers. Foreign Direct Investment firms are also a potential source of information about foreign markets, consumers and technology; thereby having a direct or indirect impact on the domestic firms from their presence in the market. Since the FDI firms possess superior assets, their presence provides the workforce of domestic firms, an access to innovative ideas and international practices. These FDI firms make use of well-developed training schemes and spend more on employees as compared to their domestic counterparts (Bergman, 2006). The remainder of the article is structured as follows. The second section provides a brief overview of Indian automobile industry and the third section outlines the impact of FDI on employment. The fourth section reviews the related studies in the existing literature followed by fifth and sixth section which highlight the rationale and objective of the present study respectively. The

subsequent section outlines the methodology applied in the study followed by results and discussion. The paper's concluding section acknowledges the limitations of the study and discusses the policy implications of the findings and direction for future research in the field.

Brief Overview of Indian Automobile Industry

Being one of the high performing sectors of the Indian economy, the Indian automobile industry has largely contributed to make India a prime destination for many international players and has attracted considerable amount of FDI in the recent years (See table 1).

The industry has been on a growth trajectory and accounted for 7.1 per cent of the country's Gross Domestic Product (GDP) and for almost 49 per cent of the nation's manufacturing GDP (FY2015-16). On account of increasing middle class and young population in India, the two wheelers segment has emerged to be the leader of the Indian Automobile market with 81 per cent market share while the overall Passenger Vehicle (PV) segment had 13 per cent market share during 2015. The industry has an average production of around 24 million vehicles annually and employs over 29 million people (direct and indirect employment). Every vehicle produced creates direct and indirect employment opportunities with employment of

**Table 1: Sub Sectors of FDI Equity Inflows in Automobile Industry
(From January, 2000 to December, 2015)**

Sub Sectors	Amount of FDI equity Inflows (US\$ million)	Percentage with total FDI inflows
Automobile Industry	3,656.45	1.31
Passenger Cars	6,164.79	2.21
Auto Ancillaries/Parts	2,870.76	1.03
Others (Transport)	1,783.24	0.64
Total FDI	14,475.24	5.20

Source: Department of Industrial Policy and Promotion, 2015.

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

13 persons for each truck, six persons for each car and four for each three-wheeler and one person for two-wheelers (Make in India, Automobiles). As per Automotive Mission Plan 2016-26, the Indian Automotive industry will emerge as a top job creator by 2026 with creation of 65 million additional jobs.

Recently, government has allowed 100 per cent Foreign Direct investment (FDI) under the automatic route in the automobile sector. FDI equity inflow has registered an increase of 72 per cent, increasing from 3.05 US\$ billion in 2012-14 to 5.25 US\$ billion in 2014-16 (Department of Industrial Policy and Promotion, 2016). Emerging as a major employment generator, GDP contributor and FDI receiver, the automobile industry is vital for development of country's economy and is thus referred to as a 'Sunrise sector' under Make in India mission introduced by the NDA government at the centre.

FDI Impact on Employment- An Overview

To understand the link between FDI and employment, it is imperative to know what attracts FDI to a country. The major motives of entry of FDI into a country as classified by standard FDI theories are market, resource and efficiency seeking (Ernst, 2005). The market seeking FDI looks for market structure, size and growth potential, per capita income, access to domestic and international markets and consumer preferences. This type of investment is mostly found in medium labour intensive industries like automobile industry. On the other hand, the main considerations for resource seeking FDI are availability of cheap raw materials and this type of investment is mostly found in low labour intensive industries, thereby making a limited contribution to employment generation and more contribution to export growth. Further, the main concern for efficiency seeking FDI is the environmental resources, cost of labour and other expenses like transport and communication costs. This type of investment is mostly found in sectors like automobiles, electronics and lead to increase in

employment. The firms generally combine all the three strategies rather than using one.

Referring to the existing literature, FDI might have a direct and indirect as well as quantitative and qualitative effects on employment which could either be negative and positive (Abor and Harvey, 2008). Quantitative effects of FDI refer to the new jobs created through the establishment of foreign subsidiaries or through expansion of existing industries. It also adds to the net capital of the industry. However the firms might crowd out the existing local firms that are labour intensive and the acquisitions might result in job losses. The source of indirect employment generation can be through forward and backward linkages which again have a negative effect in terms of reliance on imports or displacement of existing firms leading to reduction in employment.

In terms of qualitative effects of FDI on employment, the existing literature stipulates that foreign firms also pay higher wages as compared to their domestic counterparts and are in a better position to offer job security, thereby leading to higher productivity. In this process, restructuring of strategies and other practices of hiring and promotion, training exercises might be considered undesirable by existing employees. The indirect effect could be in the form of spillovers to domestic firms. Technological spillovers is one of the spillovers generated by FDI where diffusion of new technology from foreign firms leads to an improvement in the efficiency of domestic firms through imitating hired workers trained by foreign firms. However, this might again erode wage levels when domestic firms attempt to compete.

REVIEW OF LITERATURE

The review of the literature relevant to the study is discussed in this section.

Pradhan et al. (2004) made an attempt to examine the impact of foreign ownership on labour and employment in Indian manufacturing sector for the

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

year 2001-02 and found that the labour had benefitted from foreign investment. The foreign firms did not have any negative effect on the manufacturing employment in India.

Banga (2005) examined the impact of three important components of liberalization i.e. Foreign Direct Investment (FDI), trade and technology on wages and employment in Indian manufacturing sector. The analysis revealed that though higher FDI had a positive impact on wage rate of the industry, yet it did not lead to a higher employment level. While higher exports positively affected employment levels, technology acquisition had an unfavorable impact on employment and showed no impact on the wage rate of the industry.

Abor and Harvey (2008) made an attempt to examine the effect of FDI on job creation and wage level in manufacturing firms in Ghana for the period 1992-2002 using panel regression model. The results showed that the firms with a higher percentage of foreign ownership showed higher level of employment as compared to the firms with no foreign ownership. Negative and significant relationship was found between productivity and employment indicating that highly productive firms employed less labour and engaged in technology intensive methods of production.

Kato and Mitra (2008) made an attempt to study the effect of import composition of capital (defined as the ratio of imported capital to domestic capital) on the value added (defined as the ratio of labour to output). Panel data estimation was made using the firm level data of eight industries in Indian manufacturing sector for the period 1991-92 to 2001-02. The results found the negative relationship between the two implying that, as the ratio of foreign to domestic capital increased, the ratio of labour to value added decreased.

Sahu (2010) analyzed the determinants of wage rate and employment of the foreign and the domestic firms in Indian manufacturing industry during the period 2001-02 to 2007-08 using the firm level panel

data. The results revealed that the capital intensity came out to be the most important factor in determining the wage rate of an industry and high output per worker followed by foreign ownership were the important determinants of wage rate in foreign firms. In case of employment behavior of manufacturing, the capital intensity was found to be significantly negative for the entire manufacturing industry.

Bhasker (2013) made an attempt to examine the impact of Foreign Direct Investment (FDI) on employment generation in Indian Automobile sector. The study found that FDI contributed to the growth in the Automobile sector in the same proportion from 2001-02 to 2011-12. Moreover, FDI in Automobile industry triggered investment in the industry and created employment opportunities by providing direct and indirect employment to people.

Ghosh and Roy (2015) examined the impact of ownership, labour productivity and technology acquisition on firm level labour demand in Indian manufacturing industry post 2000. It was found that except for the food and beverages industry, the ownership did not have had any significant impact on employment in firms. Increase in the average wage had a negative impact on firm level labour demand, chemical industry being an exception.

Based on literature review, it has been found that the issue of impact of FDI on employment has remained underexplored in Indian context.

RATIONALE OF THE STUDY

The theoretical understanding on why FDI firms have a different impact on employment vis-à-vis domestic firms can be deduced from the industrial organization theory of Foreign Direct Investment. Hymer (1960), one of the pioneers who developed a systematic approach towards the concept of Foreign Direct Investment (FDI) proposed that FDI brings with it certain firm specific advantages in the form of highly sophisticated product differentiation, brand

names, advanced technology, superior management and organizational skills. These advantages thereby place the FDI firms in a better position over the local firms, which though are in advantageous position in terms of culture, language, legal norms and local consumers' preferences. According to Hymer, superior technology, being the most important firm specific advantage leads to improved production process and ultimately the introduction of novel and better products. With the implementation of more capital intensive and superior technology by foreign firms there is a decrease in employment in comparison to the domestic firms that still make use of labour intensive techniques of production. In order to prevent labour turnover, domestic firms are also expected to pay higher wages. Thus, where FDI allows a firm to exploit its advantages to the full, it also has a significant impact on the domestic firms. In spite of all these benefits which the FDI based investments generate, it has been found that FDI firms being capital intensive have negative impact on employment in the long run. However, this hypothesis needs empirical investigation. In addition to this, the macroeconomic stability and the labour market of an economy have been identified as important factors considered by the foreign investors before deciding to invest in a country (Strat et al, 2015).

The review of literature reveals that some researchers have attempted to investigate this issue but in a limited manner. Therefore, there is need to analyze this phenomenon on the basis of empirical evidences. Against this backdrop, the present study makes an attempt to analyze the impact of foreign direct investment on employment in the Indian Automobile industry.

OBJECTIVE OF THE STUDY

The main objective of the study is to investigate what impact foreign direct investment enterprises (captured through foreign ownership) have on employment generation in Indian Automobile industry.

DATABASE AND RESEARCH METHODOLOGY

Data Source

The present study is based on secondary data and the universe of the study is confined to the Indian Automobile sector. The firm level data has been taken from PROWESS, database of the Centre for Monitoring Indian Economy (C.M.I.E.) while industry level data was collected from Annual Survey of Industries. The study covers a time period of fifteen years from year 2001-02 to year 2014-15. The year 2000 was taken as a base year since beginning 2000; the Indian government allowed foreign investment through automatic route in all industries for FDI which led to significant increase in FDI investments in India after 2000 (Rastogi and Sawhney, 2013).

Sample Frame

The sample of the study has been drawn on the basis of the following: firstly, only those firms were included in the sample for which the data for all the variables used in the study for at least a period of 7 years was available. After this, the firms were further bifurcated into FDI firms and domestic firms on the basis of their foreign equity ownership as per the definition followed by Reserve Bank of India. As per RBI guidelines, "A direct investment enterprise is defined as an incorporated or unincorporated enterprise in which a direct investor, who is resident in another economy, owns 10 per cent or more of the ordinary shares or voting power (for an incorporated enterprise) or the equivalent (for an unincorporated enterprise)". As such, a company in which 10 per cent or more equity capital is held by a single non-resident investor is defined as a Foreign Direct Investment Company" (RBI Bulletin, 1999). Firms which had foreign equity promoters share greater than or equal to 10 percent were classified as FDI firms and rest of the firms were classified as the domestic firms. The filtering procedure finally yielded a sample of 85 companies out of which 29 were the FDI firms while rest were domestic firms.

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

Variables

Referring to the previous literature, the following variables are used as dependent, independent and control variables.

Dependent variable

The dependent variable used in the study is employment. Since Prowess provides information on wages and salaries of a firm and does not provide data on number of employees, an indirect approach is applied following the one used in previous literature. We make use of Annual Survey of Industry database to construct man days per firm. Man days per firm is arrived at by dividing expenditure on salaries and wages of the firm by the average wage rate of industry to which the firm belongs. Further average wage rate is calculated by dividing total emoluments to total persons engaged as provided in Annual Survey of

Industry database.(Ghosh & Roy, 2015 and Kathuria,2010).

Independent and Control variables

The independent variable is foreign ownership which is a dummy variable that takes the value 1 for the FDI firms and 0 for the domestic firms. The analysis of existing literature suggests that there are several other variables that may affect the employment in the companies and therefore, it becomes pertinent to control these variables. The following control variables have been used in the present study: export intensity, technology import intensity, capital intensity, R & D intensity, firm age, firm size and wage share. The description of variables used in the regression model and their hypothesized relationship with the dependent variable is presented in Table 2.

Table 2: Description of Variables used in the Regression Model

Variable	Description	Notation	Hypothesized relationship with dependent variable
Dependent Employment	Total Salaries & wages/ Average wage rate	Emp	
Independent Foreign Ownership	Dummy=1 if the firm is an FDI firm (> 10 per cent foreign equity) and 0 if domestic firm (<10 per cent foreign equity)	Fown	+/-
Control Export Intensity	Total Exports / Total Sales	Expint	+
Technology Import Intensity	(Import of capital goods+ Royalty + License fees)/ Total Sales	Techimpint	+/-
Capital Intensity	Net fixed assets/ Sales	Capint	-
R & D Intensity	Total R & D Expenditure/ Total Sales	Rdint	+/-
Age	Observation year (2001) - Year of incorporation	Age	+/-
Size	Natural log of total assets	Size	+
Wage share	Salaries and wages/ Total sales	Wageshare	-

Source: Authors' Compilation from various studies.

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

Econometric Model

In order to study the impact of foreign direct investment on employment, the panel data methodology is used as the panel data incorporates datasets consisting of both the cross sectional and time series observations. A panel data model can be estimated through fixed effects or random effects. Since we have taken a time invariant dummy variable (foreign ownership) in our dataset, the fixed effects model is not suitable for the present study as it omits the variable. Thus we rely on random effects model to estimate the results (Jai Singhani, 2016). Random effect model is also known as 'error component' or 'variance component' model since it allows the omitted latent variable to vary in the error term. The random model assumes that the entity's error term is not correlated with the predictors, thereby allowing the time-invariant variables to play a role as explanatory variables (Reyna, 2007). The general form of panel equation can be written as:

$$Y_{it} = \beta_0 + \beta_1 Fown_{it} + \beta_2 X_{it} + \varepsilon_{it} \quad (1)$$

Where β_0 refers to the constant term, subscript i refers to an individual firm; subscript t refers to year; Y_{it} is the dependent variable and is the observation of firm i in a particular year t ; $Fown_{it}$ represents the foreign ownership dummy; X_{it} is a set of control variables

and ε_{it} is the random disturbance term.

The Generalized Least Square (GLS) technique is used to carry out the estimation in Random Effect model and the software used is STATA (version 11).

By extending equation (1) to reflect the variables, as described in Table 2, the model has been formulated as follows:

$$\begin{aligned} \ln Emp_{it} = & \beta_0 + \beta_1 Fown_{it} + \beta_2 \ln Exptint_{it} + \\ & \beta_3 \ln Techimpint_{it} + \beta_4 \ln Capint_{it} + \beta_5 \ln Rdint_{it} + \\ & \beta_6 \ln Age_{it} + \beta_7 \ln Size_{it} + \beta_8 \ln WageShare_{it} + \varepsilon_{it} \end{aligned}$$

Here, $\ln$ is the natural logarithm transformation of the variables under study; and $\beta_1 \beta_2 \dots$ are coefficients of the covariates. The natural log of variables is taken to ensure linearity in data. All the variables in the equation have been described in Table 2.

RESULTS AND DISCUSSION

Firstly, it is necessary to have an idea about the basic characteristics of the sample. Thus, the descriptive statistics of all the variables used in the study are computed and presented in Table 3. The table highlights the mean, maximum value, minimum value and standard deviation for all the variables.

Table 3: Descriptive Statistics					
Variable	Observations	Min	Max	Mean	Std. Dev
i (Firms)	1335	1	89	45	25.70009
t (Year)	1335	2001	2015	2008	4.322113
Foreign Ownership	1335	0	1	.3707865	.4831964
Employment	1335	0	8260.25	347.7567	805.6064
Export intensity	1335	0	87.95	11.2315	15.87031
Techimp int	1335	0	.604275	.0173208	.0297548
Capital intensity	1335	0	39.17199	.3730909	1.146081
R&D intensity	1335	0	.0643509	.0026715	.0071898
Age	1335	5	96	33.23596	15.73227
Size	1335	1	13.22551	7.731824	2.017608
Wage share	1335	0	.4487195	.0708764	.0396669

Source: STATA 11 Output

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

After analyzing the sample characteristics, the degree of association among the variables is studied. With the purpose to understand the nature of relationships among several variables considered, the correlations among all the variables are obtained. Table 4 reports the coefficients of correlation among different variables. Majority of the variables show positive correlation with dependent variable while capital intensity, R&D intensity and wage share showed a negative correlation with employment.

Before running regression, diagnostic tests have been employed to check for the presence of non-

stationarity, heteroskedasticity, auto correlation and multicollinearity in the panel data models that would affect the efficiency of the estimators. Levin Lin Chu unit root test has been applied to check the stationarity of variables. It tests the null hypothesis of panels containing unit roots as against the alternate that panels are stationary. The results are reported in table 5. All the variables are stationary at level except capital intensity which was stationary at the first difference. In order to check multicollinearity in the model, the Variance Inflation Factor (VIF) and tolerance (1/VIF) are both widely used measures. The maximum acceptable value for

Table 4: Correlation Matrix									
	Emp	Fown	Expint	Techimpint	Capint	Rdint	Age	Size	Wage share
Emp	1.0000								
Fown	0.2979	1.0000							
Expint	0.0916	-0.0606	1.0000						
Techimpint	0.1078	0.1298	0.0143	1.0000					
Capint	-0.0747	-0.0386	0.0156	0.0110	1.0000				
Rdint	-0.027	-0.0900	0.0092	-0.0302	-0.0086	1.0000			
Age	0.2976	0.1817	0.2856	-0.0060	0.0399	0.0803	1.0000		
Size	0.5782	0.3873	0.1744	0.1136	0.0215	-0.0080	0.1591	1.0000	
Wage share	-0.1073	-0.1676	0.2152	-0.0192	0.0641	0.1600	0.2840	-0.1877	1.0000

Source: STATA 11 Output.

Table 5: Stationarity and Multicollinearity Test					
Stationarity test			Multicollinearity test		
Variables	Statistics	p value	Variables	VIF	1/VIF
Emp	-7.1793	0.0000	Size	1.30	0.767236
Expint	-9.0131	0.0000	Fown	1.29	0.776871
Techimpint	-10.0989	0.0000	Age	1.25	0.797487
Capint*	-14.3684	0.0000	Wageshare	1.25	0.801825
Rdint	-7.4745	0.0000	Expint	1.18	0.844767
Age	-58.4016	0.0000	Rdint	1.04	0.961867
Size	-8.5538	0.0000	Techimpint	1.03	0.975587
Wage share	-4.8310	0.0000	Capint	1.01	0.991132
			Mean VIF		1.17

*Stationary at first difference

Source: STATA 11 Output.

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

the VIF is 10 and minimum value for tolerance is 0.10. Following this criterion, Table 5 shows that multicollinearity has not been a serious problem for regression models as the VIF and tolerance values fall within the acceptable limits of collinearity.

Since there was no multicollinearity found in the study, the next step includes checking for heteroskedasticity and autocorrelation. Breusch-Pagan test is applied to test for heteroskedasticity and Wooldridge Test is applied to check autocorrelation in Panel Data. Breusch-Pagan tests the null hypothesis of panels having constant variance as against the alternate that panels are heterogeneous. For Wooldridge Test, the null hypothesis is no first-order autocorrelation. Table 6 shows that there is no problem of heteroskedasticity in the model ($p > 0.05$) while there is a significant presence of autocorrelation in the regression model ($p < 0.05$).

Table 6: Heteroskedasticity and Autocorrelation tests	
Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity	
chi2(1)	p value
0.00	0.9798
Wooldridge Test for Autocorrelation	
F(1, 88)	p value
29.193	0.0000

Source: STATA 11 Output.

After checking for all the assumptions, panel regression is run on the model. Generalized least square random effects model has been used to estimate the results. The results of the panel data regression analysis are reported in Table 7. To control for autocorrelation, xtregar command is used for fixed or random models with AR1 disturbances (Drukker, 2003). The Wald Chi-squared value of the model comes out to be 159.88, which is highly significant at 1 percent level of significance. Hence, the model is a good fit to estimate the regression results. The co-efficient of determination

i.e. overall R-squared (R^2) of the model comes out to be 0.340 which suggests that approximately 34 percent variation in the employment has been explained by the significant explanatory variables incorporated in the panel data regression model. Durbin Watson value of 1.9 indicates that the problem of autocorrelation no more exists in the model. Foreign ownership, technology import intensity, capital intensity, size and wages and salary share are found significant. Export intensity, R&D intensity and firm age did not show any significant impact.

The empirical findings show that the foreign ownership coefficient is significant and positive indicating that FDI firms tend to employ more workforce than their domestic counterparts. The table shows that 1 per cent increase in FDI will lead to 39 per cent increase in employment. Thus, increased FDI flows lead to higher levels of employment. This can be explained by the fact that FDI brings in large scale production which create demand to increase the workforce in order to maintain the higher level of production. Moreover FDI firms are expected to have more financial resources and thus can pay higher wages to the workers as compared to domestic firms.

The findings of this study are in agreement with the findings of study of Lipsey et al., (2013). Technology import intensity is found to have a positive impact on employment indicating that technology is perhaps labour utilizing and FDI firms with their capital and skill-intensive technologies tend to employ more of skilled workers. Wage share and capital intensity showed negative and significant association with the employment. This implies that higher the wage share, lower will be the employment indicating that an increase in wages make labour more expensive as compared to capital thereby compelling the firms to substitute capital for labour. As a result less labour will be used to produce the required output. In addition to this, the automobile industry is a capital intensive industry and the employment is generally less in high capital-

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

intensive firms, there by justifying the negative effect of capital intensity. These results are consistent with those of Sahu (2010). Size of a firm is found to have a significantly positive effect on employment indicating that as the size of the firm increases, the employment also increases and since large size firms have sufficient financial resources, they are likely to employ more workers. The findings are in consonance with the previous literature results (Abraham et al., 2004). The other variables, export intensity, R&D intensity and age have found to be insignificant in the study.

CONCLUSION

Foreign Direct Investment (FDI) is sought by many countries since it is expected to bring with it positive externalities and augments domestic capital. Employment creation is being considered as one of the potential contributions of FDI to the host economy. The present study is undertaken to examine the impact of FDI on employment in Indian Automobile industry using firm level panel data for a time period of 2001-2015. Foreign ownership (dummy) variable was introduced taking the value 1

Table 7: Panel Regression Analysis			
Dependent variable: Employment			
Regressors	Coefficient	Robust Std. Error	p values
Fown	0.399* (2.13)	.1874838	0.033
Expint	0.00777 (0.25)	.0305824	0.799
Tech imp int	2.027* (2.12)	.9555241	0.034
Cap int	-0.0887*** (-3.94)	.0224818	0.000
R&D Int	2.794 (0.55)	5.041818	0.6
Age	0.0162 (0.10)	.1595609	0.919
Size	0.340*** (9.95)	.0341983	0.000
Wage share	-2.553* (-2.03)	1.254962	0.042
Constant	1.718** (3.19)	.5387127	0.001
Observations	1335		
R ² (overall)	0.340		
F/Wald chi2(9)	159.88 ***		0.000
Durbin Watson	1.9		

Source: STATA 11 Output.

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

if the firm was FDI firm and 0 if the firm was a domestic firm. The results of the study showed a positive and significant value of foreign ownership. The study indicated that FDI has a significant positive effect on employment highlighting the fact that increased FDI flows leads to higher levels of employment in case of Indian automobile industry. FDI firms tend to employ more employees as compared to their domestic counterparts, which can be attributed to the fact that FDI brings in large scale production which creates an increase in demand for the workforce. Another outcome of the study is that technology import intensity and size had a positive impact on employment. This implies that foreign firms with their capital and skill intensive technologies tend to employ more of skilled workers. Moreover, as the size of firm increases, the level of employment increases. The impact of capital intensity and wage share on employment was found to be negative. Therefore, the present study throws light on the fact that the employment is less in high capital-intensive firms in automobile industry. The results of the study also revealed that, as the level of wages increases, the level of employment decreases, indicating the use of capital when the cost of labor increases. However export intensity, R&D intensity and age were found to have insignificant impact on employment in the present study.

POLICY IMPLICATIONS

The findings of this study have considerable policy relevance. We suggest that the government should formulate investor friendly policies to attract FDI and should essentially encourage FDI in the industries where more of skilled labour is required as our findings reveal that employment is positively affected by technology import intensity. Moreover, government should specifically target unskilled workers with a view to promote their skills through special training programmes in order to ensure that they also reap benefits from foreign investment. The size variable turned out to be positive indicating that expansion of firms will lead to an increase in

employment. This means that acquisition by FDI firms might generate additional employment. The major policy implication which emerges from the analysis of results is that the government should be selective in regard to the Foreign Direct Investments. Only those foreign investments should be encouraged which create a demand for workforce as compared to others type of investments which are employment neutral or have a negative impact on employment generation.

SCOPE FOR FUTURE RESEARCH

There are few limitations in the present study that can be addressed by future research. Since, the present study is based on secondary data; thereby it suffers from the limitations of secondary data. Further research can be undertaken based on primary data. Moreover, the research is confined to one industry and the employment impact of FDI is expected to vary from industry to industry. Therefore the findings of the study might not be generalized for rest of the industries. A research can be undertaken in other industries and it might produce different results.

REFERENCES

- Abor, J., & Harvey, S. K. (2008). Foreign direct investment and employment: host country experience. *Macroeconomics and finance in emerging market economies*, 1(2), 213-225.
- Abraham, V., Sahoo, M., & Pradhan, J. P. (2004). Foreign Direct Investment and Labour: The Case of Indian Manufacturing. *Labour & Development*, 10(1), 58-79.
- Banga, R. (2005). Impact of liberalisation on wages and employment in Indian manufacturing industries. *Indian Council for Research on International Economic Relations*.
- Bergman, A. (2006). FDI and spillover effects in the Indian pharmaceutical industry.
- Bhasker, V. V. (2013). Foreign Direct Investment (FDI) in Indian Automobile Industry: Impact on Employment Generation. *Research Journal of Management Sciences*, 2(2), 14-22.
- Department of Industrial Policy and Promotion; Department of Heavy Industries Automotive Sector Achievements Report, November 24, 2016.
- Department of Industrial Policy and Promotion (DIPP), Fact Sheet

Foreign Direct Investment and Employment in Indian Automobile Industry: An Empirical Analysis

on Foreign Direct Investment. (2016) Retrieved from; http://www.dipp.gov.in/sites/default/files/Chapter6.2.v_0.pdf

Drukker, D. M. (2003). Testing for serial correlation in linear panel-data models. *Stata Journal*, 3(2), 168-177.

Ernst, C. (2005). The FDI-employment link in a globalizing world: The case of Argentina, Brazil and Mexico. *International Labour Office, Employment Strategy Paper*, 17.

European attractiveness survey India, (2015). Retrieved from [http://www.ey.com/Publication/vwLUAssets/ey-2015-india-attractiveness-survey-ready-set-grow/\\$FILE/ey-2015-india-attractiveness-survey-ready-set-grow.pdf](http://www.ey.com/Publication/vwLUAssets/ey-2015-india-attractiveness-survey-ready-set-grow/$FILE/ey-2015-india-attractiveness-survey-ready-set-grow.pdf)

Ghosh, M., & Roy, S. S. (2014). FDI, Technology Acquisition and Labour Demand in an Emerging Market Economy, *The Journal of Industrial Statistics*, 4 (I), 19-36.

Hymer, Stephen (1960). *The International Operations of National Firms: A Study of Direct Foreign Investment*. Cambridge: MIT Press, 1976.

International Monetary Fund. (1993). *Balance of Payments Manual, fifth edition (BPM5)* (Washington).

Jaisinghani, D. (2016). Group affiliation, R&D and firm performance: empirical evidence from Indian manufacturing sector. *International Journal of Business and Emerging Markets*, 8(1), 30-48.

Kathuria, V. (2010). Does the technology gap influence spillovers? A post-liberalization analysis of Indian manufacturing industries". *Oxford Development Studies* 38, no. 2 (2010): 145-170.

Kato, A., & Mitra, A. (2008). *Imported technology and employment: Evidence from panel data on Indian manufacturing firms. High-tech Industries, Employment and Competitiveness*, Routledge.

Lipsey, R. E., Sjöholm, F., & Sun, J. (2013). Foreign Ownership and Employment Growth in a Developing Country. *The Journal of Development Studies*, 49(8), 1133-1147.

Make in India, Automobiles, Retrieved from <http://www.makeinindia.com/sector/automobiles>.

Rastogi, R., & Sawhney, A. (2013). What Attracts FDI in Indian Manufacturing Industries? (No. 13-02). *Centre for International Trade and Development, Jawaharlal Nehru University, New Delhi, India*.

Reserve Bank of India, RBI Bulletin. 1999. Retrieved from <https://bulletin.rbi.org.in/>

Sahu, P. K. (2010). FDI, wage inequality and employment in emerging economies: recent evidence from Indian manufacturing. (No. 35149). *University Library of Munich, Germany*.

Strat, V. A., Davidescu, A., & Paul, A. M. (2015). FDI and The Unemployment-A Causality Analysis for The Latest EU Members. *Procedia Economics and Finance*, 23, 635-643.

Torres-Reyna, O. (2007). *Panel data analysis fixed and random effects using Stata (v. 4.2)*. Data & Statistical Services, Princeton University.

BRIEF PROFILE OF THE AUTHORS

Neha Sharma is a senior research scholar at University Business School, Guru Nanak Dev University, Amritsar, India. She is pursuing PhD on the topic "Impact of Foreign Direct Investment on Domestic Firms in Indian Manufacturing Sector". She did her MBA from Department of Commerce and Management, Guru Nanak Dev University, Amritsar. She has five years of experience in area of research.

Amarjit Singh Sidhu, PhD, is a Professor at University Business School, Guru Nanak Dev University, Amritsar, India. He has 28 years of teaching experience and 32 years of research experience. His area of specialization includes International Business and Industrial Relations. His research contribution includes about 50 research publications (articles/ books) in the journals of international repute.