Human Capital and FDI in Economic Growth: Study of Eighteen Indian States

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ABSTRACT

Stock and human capital augmentation are two fundamental sources of new knowledge creation which would propel the economic expansion by creating contented and congenial endeavour to accumulate and invest global finance in the home economy. The new scheme of idea is a paradigm shift from conventional physical capital-driven growth process to the efficiency units of labour as the 'engine of growth' through the eventual and decisive destiny of FDI. The present study has tried to test the above view in the major eighteen states in India with pooled, robust regression and panel framework.

Keywords: Human Capital, Skilled Labour, FDI, Growth, Major Indian States

JEL classification: F36, H75, O15, O4

Introduction

Stock and augmentation in human capital are two fundamental sources of new knowledge creation which would propel the economy towards high rate of expansion by creating contented and congenial endeavour to accumulate and invest global finance in the recipient economy. The new scheme of idea is a paradigm shift from the conventional initiative of physical capital-driven growth process. The basic argument is very straight forward in the sense that it is not the empirical count, rather the efficiency unit of factor is the 'engine of growth' because the economy with more skilled labour force is the eventual and decisive destiny of foreign finance in the form of foreign direct investment (FDI). Historical experiences show that large volume of FDI inflow can only be possible when the existing labour force would have expertise to adapt and use the updated technologies.

Foreign Direct Investment (FDI by the Multi National Corporations (MNCs) or by the non-resident entities (either citizen of host country residing abroad or foreign citizen) makes investment in the productive sector of the host or recipient country with the intention to earn private returns. There are two channels by which they can invest – either through indirect investment or through direct investment. Foreign Indirect investment includes portfolio investment, acquisition of stock of an enterprise, medium-term and long-term loans by financial institutions and intermediaries, and investment in new issues of national loans, bonds and debentures. Foreign Direct investment is mid-term or long-term equity investment that gives the investor managerial control and prospective returns.[2]

In the economic development perspective of post-WTO regime[3], FDI is a strategic constituent in maintaining the pace of growth and development of any economy, although its importance has been adequately spelt out by many economists and social planners since 1950s. The rapid growth

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[2] See Griffiths and Hall, 1984. (A. Griffiths and S. Hall, 1984, Applied Economics, Longman, London).

[3] After new world economic order of 1990s, the development process through the progressive global integration of trade and finance has been remarkable in the sense that world trade in real terms has grown by almost five-folds during 1980-2005, and trade share of the world GDP has increased from 36 percent to 55 percent in the same period.

of FDI inflows does not only serve the purpose to channeling capital resources to the recipient country, but it also supplements the technology up-gradation, infrastructure development, and most importantly, it enhances both procedural skills (scientific and/or technical) and managerial capabilities to a large extent.[4]

In this streak, Kuznets (1955) argued that the most important stock of an economically advanced country is not its physical capital but "the body of knowledge amassed from tested findings and discoveries of empirical science, and the capacity and training of its population to use this knowledge effectively." This is perhaps one of the major clues of developing poor economies with richer ones through the passage of human capital development. Schultz (1964) has also commented in similar track in that capital goods must not be supposed to include only material factors . . . . "Thus excluding the skills and other capabilities of man that are augmented by investment in human capital. The acquired abilities of a people that are useful in their economic endeavor are obviously produced means of production and in this respect form of capital, the supply of which can be augmented." Hence human capital development is an essential precondition for the expansion of any economy which, in turn, is essentially contingent upon the education parameters and skill generation to fulfill and apply the abilities, endowments and talents in productive activities and thus, in economic development.

The new growth theory by Romer (1986) model does not always fit well to encounter the crucial issue regarding the role of human capital on long-run growth in the perspective of endogenous technological progress because the non-decreasing returns to scale of capital cannot be captured in isolation and in an explicit manner as well with other economic factors. Again, in the formulation by Lucas (1988), growth of income depends on growth of human capital which is much in parity with the neo classical approach. Thus from the experimental point of view, the theoretical argument of endogeneity of human capital as the factor of economic expansion is a challenging issue to be captured with empirical viabilities.

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[4] The total international financial assets have increased from 58 percent of global GDP in 1990 to 131 percent in 2004. See World Economic Outlook: Globalization and Inequality, IMF, October, 2007.

Keeping in consideration the above line of arguments, the most exigent part of recent development paradigm is the sceptical apprehension about the inflows of FDI and its role to enhance the quality of human capital and promote egalitarian expansion of the economy. The contentious views of some economists are that FDI inflow is likely to enhance inegalitarian allocation of income, although it helps to enhance overall economic growth. The crucial argument goes in the line that FDI inflow generally moves towards those locations in an economy where existing labour force would have proficiency and capability to acclimatize and able to use the updated technologies along with the locations of industrial agglomeration accompanied by enough entrepreneurial and managerial efficiency, thus denying the approach of 'balanced regional growth along with egalitarianism' which has been considered as the hallmark of economic philosophy for long. Birdsall (2007) argues that opportunities created by the process would not be equally distributed across economy which may weigh down the general welfare index.

The paper tries to capture the above issue in Indian case in an elaborated manner and has taken eighteen major states in consideration because other than major states the inflow of FDI is negligible compared to the total volume. The primary issue of the study is that if enhancement of human capital through education would be uneven among states and if it would result as the states of skilled and unskilled, then growth differential among states may possibly be evidenced with the discrepancy in the inflow of FDI. Economic reforms have generated an endeavour for higher mobility of commodities and factors within and between the states such that efficient allocation and access of both foreign capital and technology could be achieved by the states. But differential in the capabilities and uneven backups and imbalances in the human capital augmentation of the regional governments would heighten inequalities of FDI inflow within the sub national boundaries. Thus taking into considerations the above facets of analytical perspectives, the present study has tried to test how far the human capital augmenting variables are responsible to induce FDI and economic prospect by FDI.

The whole set up of the paper is as follows. Section two describes FDI scenario in India until recently and section three elaborates the initial conditions and growth perspectives of eighteen major states in India. This

analysis shows the relative positions of the states from the growth rate perspectives. Section four takes up the importance of human capital in capturing FDI inflow and section five deals with econometric framework and its economic interpretation. Section six ends up with concluding remarks.

FDI in India

Since independence, policies relating to FDI put on increased consideration to the social planners in respect of advanced technology and, with it, from the point of view of trade perspective to increase trade abroad with a view to mobilize foreign exchange reserve. Until 1991, India followed a restrictive[5] foreign investment policy, particularly in the private sector, although relaxation in the restriction started taking places since 1980s in the pre-SAP period. State patronized industrialization in the framework of highly centralized resource allocation and politically motivated idea of protectionism in the name of *self-reliance* allowed bureaucratic interference that eventually led to economic stagnation during seventies. The resultant overburden of central borrowing and profligacy of development expenditure resulted in severe budget deficit and consequent balance-of-payments crisis. The whole panorama of fiscal extravagance shoved the government into a serious peril that ultimately played a pivotal role to set off several round of reforms since 1991. And the domain of foreign investment in the form of FDI inflow was the main concern where several phases of reforms have taken place to fill up the gap of huge investable sum to boost up growth. In this line, between 1991 and 2005 old Acts have been repealed and new Acts have came in force like Competition Act, SEBI Act and FEMA in governing the new post-globalized trade regime. A series of trade activities have been placed in automatic roots, dividend-balancing condition was removed and introduction of the new differentiation in the forms of 'control' and 'ownership' has taken place. Other ways to boost the FDI inflows in the country the government of India has allowed also frequent equity

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[5] Two Acts are fundamental in the restrictive trade regime, viz., MRTP Act (1969) and FERA (1973), which not only imposed barriers on the size of the operation of the foreign players in domestic economy, but put restrictions also on the pricing of the products as well as on the domestic private industries to grow and enhance operation abroad.

participation of foreign enterprises along with other incentives like tax concessions, simplification of licensing procedures and de-reserving some industries, etc. There has been a deliberate benchmark policy[6] taken by the government of India since 1991 against those of the hastily growing south-east Asian economies including China to draw a larger allocation of the global FDI inflows. Over the last two decades, foreign investment inflow has been allowed in almost all the sectors of the economy including in retail recently.[7]

The following figure portraying the FDI inflow in India as a percentage of GDP and as a percentage of gross fixed investment has supported the effects of post reforms regime in that there are sharp upward tilts of both, although fluctuating, since 2002 to 2010.
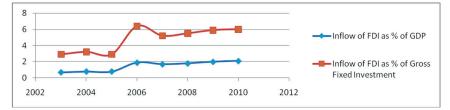

Figure 1: FDI Scenario in India
Source: Economist Intelligence Unit (EIU):

In terms of actual amount, there has been a spectacular rise of FDI inflow in the post-SAP period, particularly since 2000-01. The top countries who held responsible for almost 80 percent of FDI inflows in India in current years are Mauritius, Singapore, USA, UK, Netherlands, Japan,

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6   In 1996, the automatic approval route for FDI was expanded from 35 to 111 industries under four distinct categories (Part A – up to 50%, Part B – up to 51%, Part C – up to 74%, and Part D – up to 100%) limited the scope of foreign companies starting new joint ventures, using the same technology as an existing ventures. A Foreign Investment Promotion Board (FIPB) was also constituted to consider cases under the government route. In the year 2000, except for some items, all the remaining activities were placed under the automatic route. Caps were gradually raised in a number of sectors/activities and the NBFC Sector was placed on the automatic route. The insurance and defence sectors were opened up to a cap of 26%, for telecom services was increased from 49% to 74%. FDI was allowed up to 51% in single brand retail.

7   The Government of India has released a comprehensive FDI policy document effective from April 1, 2010. Furthermore, the government has also allowed the Foreign Investment Promotion Board (FIPB), under the Ministry of Commerce and Industry to clear FDI proposals of up to US$ 258.3 million.

Cyprus, Germany, France and UAE. Mauritius is the top one as it has been done by the holding companies in Mauritius set up by the US firms to take the advantage of the treaty between Mauritius and India relating to dividend tax. The following shows the increasing trend of FDI since India's independence. It is observed that the amount is meager until 1990s, but after that there has been a sudden spurt in increase in the amount. The dominating states which are attracting the most of the inflows are Maharashtra (35 percent, Particularly Mumbai, where service sector has attracted almost 38%), Delhi (20 percent including New Delhi region), followed by Karnataka (7 percent, particularly Bangalore), Gujarat (6 percent including Ahmadabad, where telecommunications has attracted 25% and Natural Gas and Power sector attracted almost 23%), Tamil Nadu (5 percent) and Andhra Pradesh (4 percent, including Hyderabad).
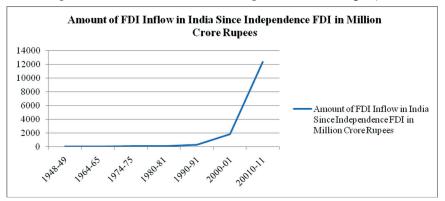

Figure 2: FDI Inflow in India since Independence
Source: UNCTAD, World Investment Report.

In the same streak, it is found that India Share in world FDI inflows has increased from 0.4 to 0.5 from 2001 to 2002, to 0.8 in 2005. The amount of inflow[8] has increased from US$ 79 million in 1980 to US$ 4585 million in 2003 to US$ 6598 million in 2005.

Initial Conditions and Growth Perspectives of Eighteen Major States in India

To test the tendency whether the growth rates of the states have been converging or not, given the initial conditions, the study takes the

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[8] UNCTAD, World Investment Report.

comparable dataset of PCNSDP and the average growth rates of the eighteen major states over the periods 1070-71 and 2004-05. The horizontal axis of the figure represents the proportion between the base period (1970-71) PCNSDP (x_i) for each state and the average (x-bar) expressed in logarithmic terms. The vertical axis measures the deviations from the average growth rate of PCNSDP (g_i-g-bar). The number corresponding to each state is given below the Figure.

The figure confers some appealing patterns. First, it is seen that although Andhra, Karnataka, Tripura, HP and West Bengal have started from lower base period income, but have grown moderately faster, while the Maharashtra started with higher base, but did exactly opposite. Assam, Bihar, Orissa and UP started from lower base and grew slower. Second, there is no unambiguous negative relation between the variables, rather shows a rough upward drift, which prima facie substantiates the fact that states in India have not been converging in respect of PCNSDP, rather strong states like Delhi, Gujarat, MP, Punjab, Haryana, Tamil Nadu, Kerala have grown at a faster pace, starting from higher base.
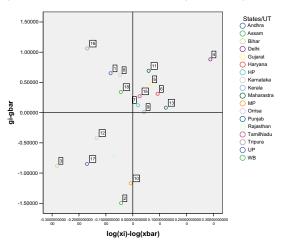

Figure 3: Initial Condition and Trend Line for Seventeen States in India during the Period between 1970-71 and 2004-05

[States in the figure: Andhra (1), Assam (2), Bihar (3), Delhi (4), Gujarat (5), Haryana (6), HP (7), Karnataka (8), Kerala (9), Maharashtra (10), MP (11), Orissa (12), Punjab (13), Rajasthan (14), Tamil Nadu (15), Tripura (16), UP (17), WB(18)]

Source: Calculations based on the dataset from CSO, Government of India.

Human Capital as a Determining Factor

In the context of economic prospect, human capital enhancement is vital to the scheme of growth. In the endogenous growth theory, augmentation of human capital is linked with the accumulation of knowledge that dissuaded diminishing returns and enhances income growth. Thus government policies to improve these factors would have impacts on the link by improving productivity growth following Romer (1990). Nelson and Phelps (1966) argued that human capital enhancement elevates the capacity of a nation to espouse and implement new knowledge and its propagation. They observed that the domestic stock of human capital is one of the major means to enhance the competence of any economy to take up and capacity to utilize implement new-fangled foreign productive technology. In their studies, Becker (1962, 1964) and Schultz (1961) passionately argued about the importance of human capital in economic advancement. In this perspective, the works of Uzawa (1965) and Rosen (1976) are very significant. Denison (1967) substantiated in favour of labour augmentation by providing education in the context of economic dynamics.

In their study Maksymenko and Rabbani (2011) have shown by employing multivariate time series model that significant positive impacts of human capital accumulation on growth has been found in both India and South Korea in the post reform periods. They constructed a modified production function which incorporates physical capital as well as composite reform index and human capital index to observe their impacts on economic growth. With the help of two indices, economic reform index and human capital index, they tried to observe the transitional dynamics of growth in total factor productivity. The most important outcome was that economic reforms and human capital accumulation produce a significant long-run positive effect on economic growth and productivity as well as technology transfers.

The evidences from the various studies have shown that economies with enriched human capital have attracted significant FDI inflow within host economy with the presumption of positive impact on growth and productivity afterward. Studies of Caves (1974), Globerman (1979), Blomstrom and Person (1983), Haddad and Harrison (1993) have argued

in the mentioned line through the channel of competition between domestic and foreign firms.

Econometric Framework and Economic Explanation

Now taking into considerations the issues, the present study has tried to test how far the human capital is responsible to induce FDI and FDI to induce economic prospect among major eighteen states in India in the recent perspectives of global integration in the form of international finance. The whole study tries to analyze the link through econometric analysis with both pooled and panel (fixed effect) frameworks. The methodology has not taken into consideration the threshold econometric analysis as, in this case, the panel regression would reveal more robust outcome as the states are having both political and economic homogeneities under the quasi-federal Union with broad similar contour of judiciary and economic institutions.

The present study uses the forms of the pooled, robust regression as well as the panel regression at the levels of controlling state and time effects:

Model 1: $fdi_{t,i} = \Omega_i + \alpha_1 LitRate_{t,i} + \theta\, Z_i + \psi\, \eta_i + e_{t,i}$

Model 2: $fdi_{t,i} = \Omega_i + \alpha_2\, (Gr\_PCNSDP\_Indus)_{t,i} + \theta Z_i + \psi\eta_i + e_{t,i}$

Table 1: Human Capital and FDI

Independent Variables	*Dependent Variable: Foreign Direct Investment (FDI)*					
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Model	Pooled, Robust	Pooled, Robust	Pooled, Robust	Panel, Fixed	Panel, Fixed	Panel, Fixed
State Effect	Yes	Yes	Yes	Yes	Yes	Yes
Time Effect	Yes	Yes	Yes	Yes	Yes	Yes
Gr_PCNSDP_ Indus		−0.003 (−0.04)	−0.04 (−0.45)		−6.95 (−0.90)	−11.15 (−1.44)
LitRate	0.262* (3.11)		0.275* (3.04)	39.66* (2.13)		47.92* (2.39)
F	9.67	1.03	4.63	4.56	0.81	3.28
R2	0.52	0.18	0.37	0.43	0.19	0.26
Number of Observations	126	126	126	126	126	126

Model 3: $fdi_{t,i} = \Omega_i + \alpha_1 LitRate_{t,i} + \alpha_2 (Gr\_PCNSDP\_Indus)_{t,i}$
$$+ \theta Z_i + \psi \eta_i + e_{t,i}$$

Here, 'i' refers to the state specific variables in consideration and Z is vector of dummies of different states to capture individual state specific heterogeneity and η is time-specific variables. Gr_PCNSDP_Indus,fdi and LitRate are respectively growth of per capita net state domestic product in industry origin (Planning Commission Dataset, Government of India), state wise foreign direct investment in million rupees (Lok Sabha Unstarred Question-Answer, Various Years) and literacy rate in India (Census Reports, Government of India, Various Years) and $e_{t,i}$ is the vector of random disturbance term. The framework considers pooled, robust models to control the heteroscedasticity in data-set and the panel regression consists of fixed effect model. The outcomes are evident in Table 1.

To observe the reverse causation, Gr_PCNSDP_Indus is taken as dependent variable and fdi and LitRate as regressors, and then the models are:

Model 1: $(Gr\_PCNSDP\_Indus)_{t,i} = \Omega_i + \alpha_2 fdi_{t,i} + \theta Z_i + \psi \eta_i + e_{t,i}$
Model 2: $(Gr\_PCNSDP\_Indus)_{t,i} = \Omega_i + \alpha_1 LitRate_{t,i} + \alpha_2 fdi_{t,i} + \theta Z_i$
$$+ \psi \eta_i + e_{t,i}$$

The outcomes are observed in the following Table 2:

Table 2: Growth of PCNSDP and FDI

Independent Variables	Dependent Variable:Gr_PCNSDP_Indus			
	Model 1	Model 2	Model 3	Model 4
Model	Pooled, Robust	Pooled, Robust	Panel, Fixed	Panel, Fixed
State Effect	Yes	Yes	Yes	Yes
Time Effect	Yes	Yes	Yes	Yes
fdi		–0.043 (–0.52)		–0.001 (–1.44)
LitRate	0.133* (2.01)	0.145** (1,73)	0.580* (2.31)	0.671* (2.57)
F	4.56	3.54	5.34	3.73
R2	0.28	0.19	0.51	0.17
Number of Observations	126	126	126	126

In the above analyses, irrespective of pooled or panel regressions, it is revealed clearly that FDI and PCNSDP growth in industry origin are highly negatively related and insignificant. But literacy rate has strong positive and significant relation with both FDI and growth rate of PCNSDP. Three points can be mentioned from above regression outcomes:

1. FDI does not enhance overall growth rate of PCNSDP in industry origin in all the major states as well as does not have significant impacts as it is only concentrated in some specified locations of some states like Maharashtra, Gujarat, etc. More importantly, the spread of the flow is also not similarly distributed within the state, rather it is concentrated in some specific geographical locations within any specific state having prior industrial and entrepreneurial backups and skilled labour supply (like Mumbai in Maharashtra, Ahmadabad in Gujarat, etc).

2. Human capital attracts FDI which means the distribution of the human capital is highly skewed among major states and this non-uniformity is a serious cause of uneven and skewed concentration of FDI in the major states in India. That is to say, disparity in the capabilities and imbalances in the human capital expansion of the regional governments still exists in the post liberalization that would heighten inequalities of FDI inflow within the sub national boundaries.

3. Lastly, the obvious outcome has been observed from the analysis in that human capital is always growth enhancing.

Concluding Remarks

The major research agenda that the paper tries to explore is that FDI inflow is highly contingent upon the egalitarian expansion of human capital in the form of education and skill generation. It is evident from the study that in the post-liberalization and globalization era also all the states (most strikingly major states!) in India are not able to construct proper human capital stock and the expected outcome has been seen in the form of differential capabilities among states to catch-up foreign finance to enhance growth. Recent higher growth regime is also limited

to the urban sector compared to the rural sector, and not only that it is highly location-concentrated within the state, perhaps the major cause of rising inter-personal disparities in the urban sector. Thus the reciprocating dynamics would create an inegalitarian pressure on the economy, widening the socio-economic disparity among regions and individuals further. Clearly therefore the high growth regime is economically, socially and politically unstable unless there is egalitarian enhancement of human capital can be and growth becomes more broad based and inclusive. Bigger size of cake is not the issue – the purpose should be justifiable share to all.

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