

# Economic Growth, Trade and Investment : A Comparative Analysis of India and China

**Kali Charan Modak**

Assistant Professor IBMR, IPS Academy Indore, India  
Email - kali.modak@gmail.com, Mob-+919981574946

**Pallabi Mukherjee**

Assistant Professor IBMR, IPS Academy Indore, India  
Email - pallabi321@yahoo.com, Mob-+919575945247

## ABSTRACT

China has been growing at an average annual rate exceeding 9% for the past 20 years. Chinese international trade has experienced rapid expansion together with its dramatic economic growth which has made the country to target the world as its market. This research discusses the rise of china as a super power in global financial system. On the other hand we had made a relative analysis between Indian economy and Chinese economy. We have taken following variable like GDP, Inflation, Unemployment, Labour productivity, Foreign exchange reserve, International trade for making comparative analysis between India and China. China's international trade performance is analyzed comprehensively then evaluates the special effects of international trade on China's economic growth through examining improvement in efficiency. Econometric approach like Vector auto regression and Granger causality test is applied based on data available from 2005 to 2013. For the econometric move towards, a stochastic frontier production function is estimated and province specific determinants of inefficiency in trade identified. The study demonstrates that increasing participation in the global trade helps China reap the static and vibrant reimbursement, motivating speedy countrywide trade and business intensification. We have used VAR model and Granger Causality test for evaluating the impact of FDI lag on GDP lag in Chinese and Indian economy. This paper has focused on the relationship between FDI and GDP. A Granger-causality analysis has been carried out in order to assess whether there is any potential predictability power of one indicator for the other.

**JEL Classification:** C23, D24, F10, O24, R58

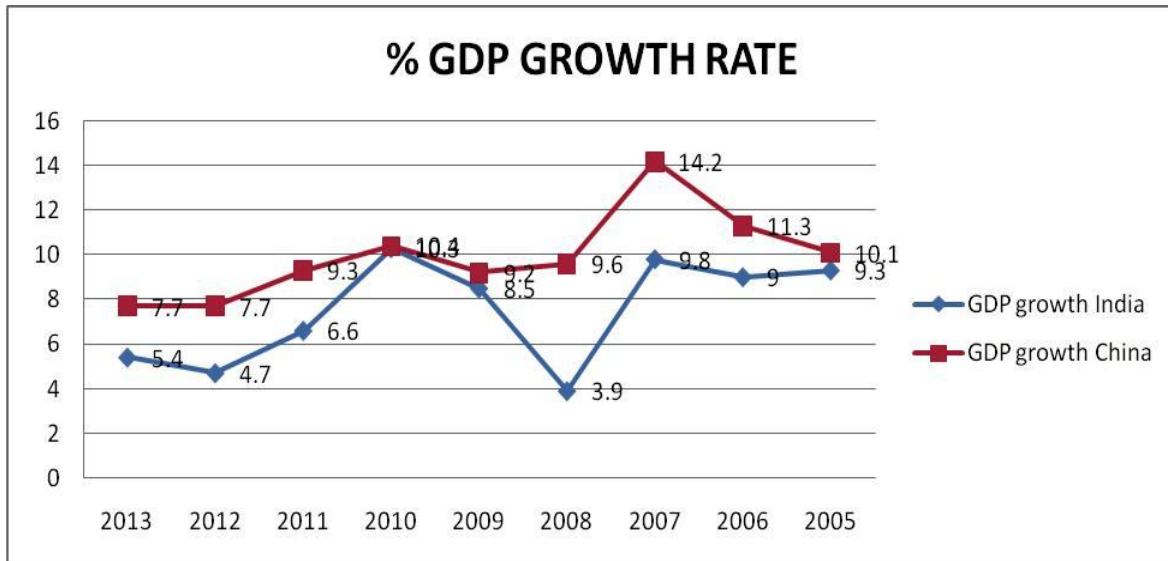
**Keywords:** Economic growth, trade and investment, India, china, granger causality.

## INTRODUCTION

China's economic growth has experienced rapid expansion in last three decade. The constant supporting structure, enormous natural resources and abundant skilled labour in China have made it a modern global factory. If we talk about history of Chinese economy the economy prior to economic reform it was very poor, stagnant, centrally embarrassed, infinitely incompetent, and moderately remote from the global economy.

### Annual GDP growth of India and China

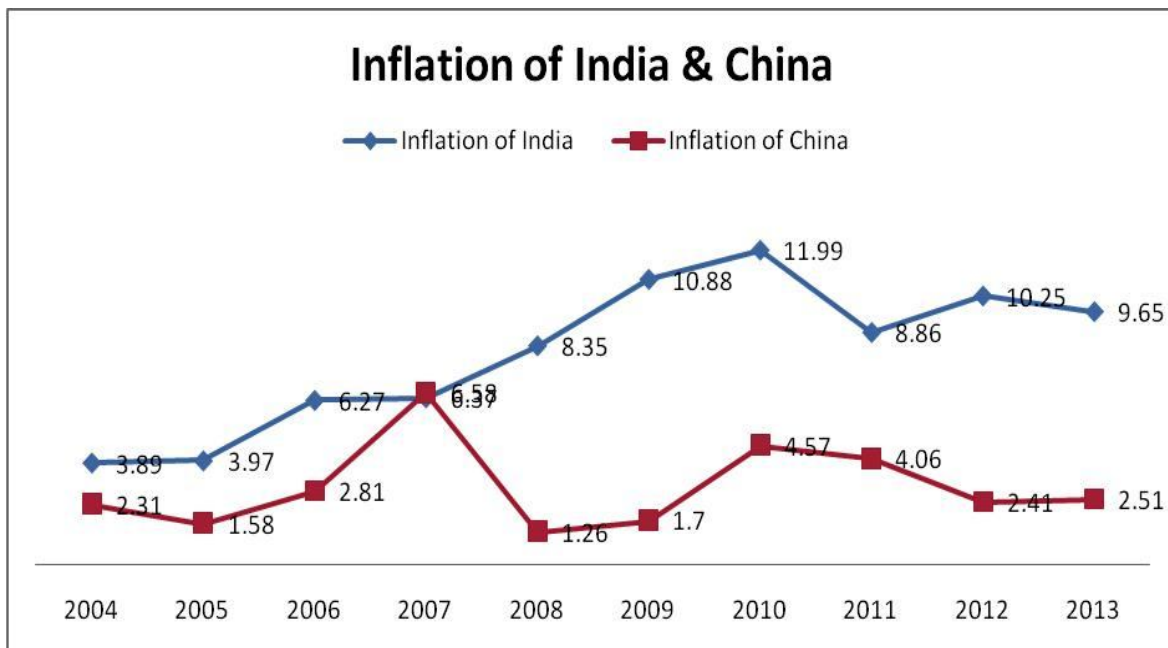
Year	2013	2012	2011	2010	2009	2008	2007	2006	2005
GDP growth India	5.4	4.7	6.6	10.3	8.5	3.9	9.8	9	9.3
GDP growth China	7.7	7.7	9.3	10.4	9.2	9.6	14.2	11.3	10.1



From the above diagram we can analyze that there is a significant growth in Chinese economy rather than Indian economy.

**Rate of Inflation of India and china in Last 10 years.**

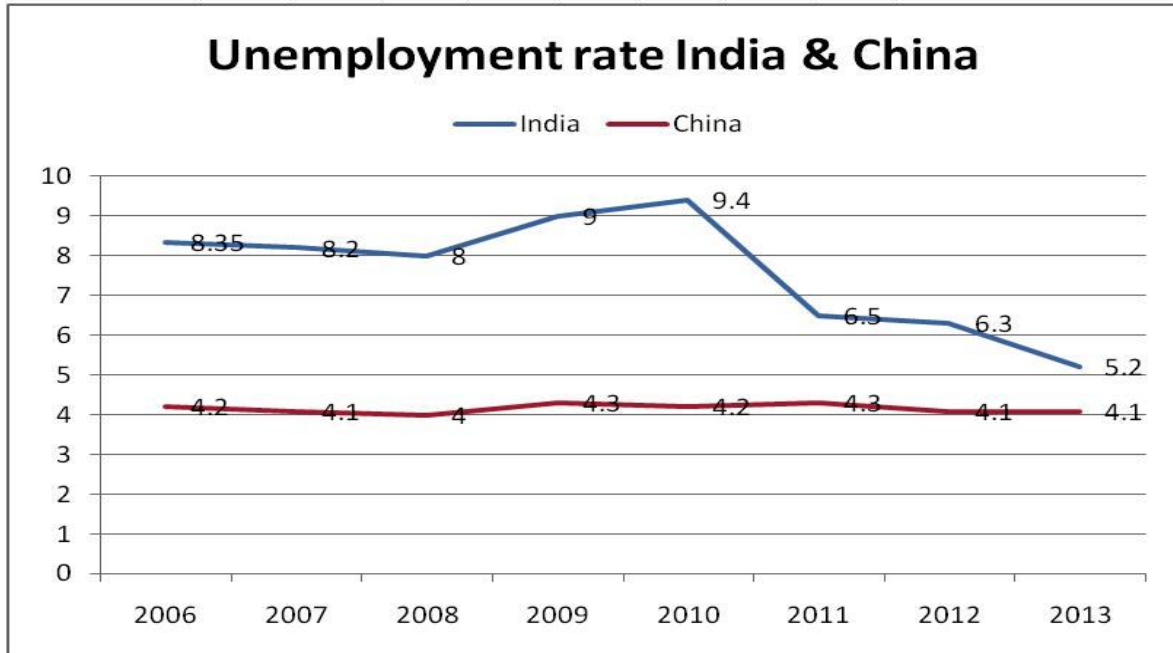
Year	2013	2012	2011	2010	2009	2008	2007	2006	2005
<b>Inflation of India</b>	8.25	9.65	10.25	8.86	11.99	10.88	8.35	6.37	3.97
<b>Inflation of China</b>	2.52	2.41	4.06	4.57	1.70	1.26	6.58	2.81	1.58



If we analyze the inflation between India and China inflation rate in china is greater than inflation rate in India.

**Unemployment rate in India & China**

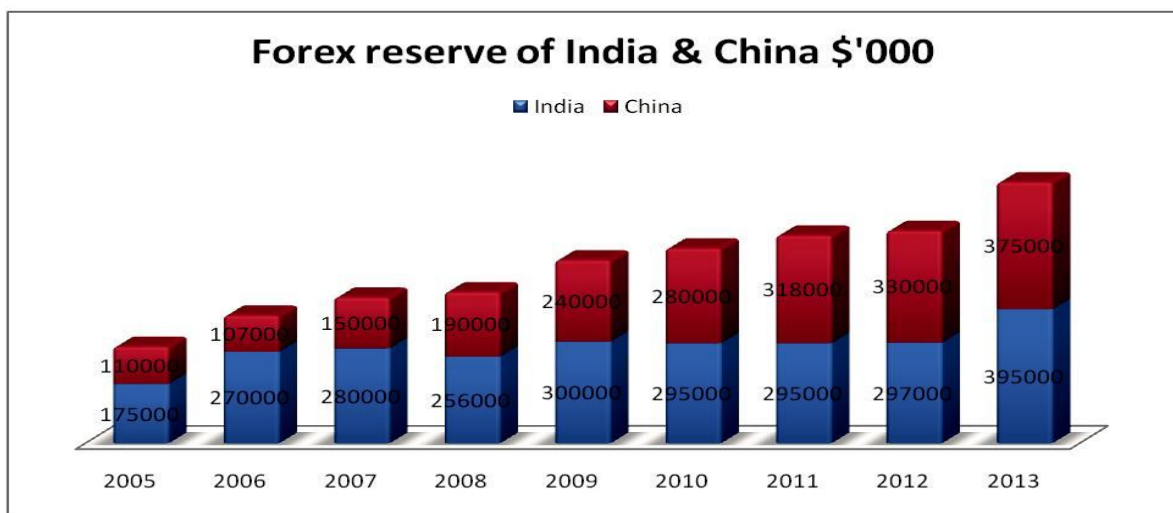
Year	2006	2007	2008	2009	2010	2011	2012	2013
<b>India</b>	8.35	8.2	8	9	9.4	6.5	6.3	5.2
<b>China</b>	4.1	4.1	4	4.3	4.2	4.3	4.1	4.1



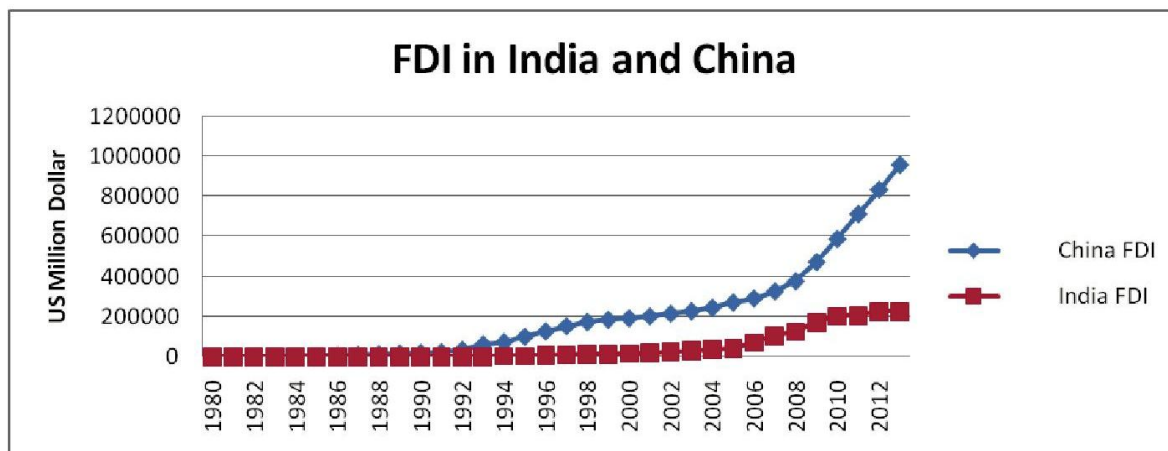
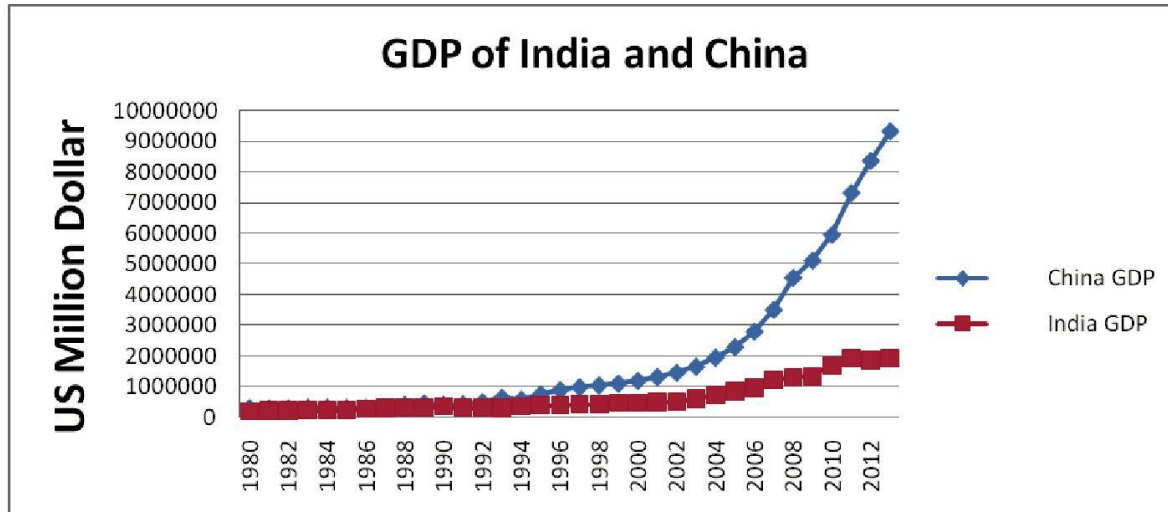
The unemployment rate is stagnant in China but there is a decrease in unemployment rate in India.

**An analysis of Forex reserve of India and china**

Year	2013	2012	2011	2010	2009	2008	2007	2006	2005
<b>India</b>	295000	297000	295000	295000	300000	256000	280000	270000	175000
<b>China</b>	110000	107000	150000	190000	240000	280000	318000	330000	375000



In 2013 Forex reserve of India is 295 Bn \$ and forex reserve of China is 1.1 Tn \$



From the above diagram we can analyze that there is a linear relationship between GDP and FDI of Indian and Chinese economy.

### REVIEW OF LITERATURE

**Mohan (2007)** Analyzed that the end of the twentieth century was tumultuous for China and India. Since economic reforms in 1978 and 1991, respectively, China and India purposeful on state-building to perpetuate command authenticity. The arrival of the United States as the global hegemony at the end of the Cold War caught the attention of both China and India; India aspired to limit its vulnerabilities by improving relations with the United States while encouraging the construction of a multi polar order, and verdict its own position in the international system. Asia was transitioning to a regionally unit polar order, however, conquered by China.

**Chellaney (2008)** examined the contrasting economic growth models of both China and India underlies their emergence as increasing powers. Whereas China achieved enlargement from side to side blue collar, manufacturing determined development, India's development has included white-collar, service labour. Fascinatingly, Brahma Chellaney comments, "in India the private division continues to fuel trade and industry growth while China's economic growth is largely state fixated. India performs unreliably where on earth the state is concerned, while the muscle of the Chinese state as the chief mechanism of accumulating authority carries noteworthy tactical ramifications."

**Fravel (2011)** studied that economic gap between China and India continues to broaden, causing China to perceive India as a non competitor. In the fashionable supporting bubble, China and India face challenging priorities within their county and globally, because of China's capacity and yearning to cross the threshold new markets in investigate of energy security, operate relations and calculated partnerships, China's rise poses a probable hazard to the steadiness of India, whereas India's increase has left Beijing moderately impervious.

**Arvind Subramanian (2012)** said that China will unswerving the world's monetary system by 2020 and that the Chinese currency will reinstate the dollar as the world's reserve currency in ten to fifteen years. The United States yielding control will hang about behind longer. He stated that "China was a top dog inexpensively for thousands of years prior to the Ming reign. In some ways, the past few hundred years have been a peculiarity.

## OBJECTIVES

- To study the recent trend and growth of Chinese and Indian economy.
- To make comparative study between Indian and Chinese economy.
- To study the impact of FDI on GDP in Chinese and Indian economy.

## RESEARCH METHODOLOGY

### Research Design

This is descriptive study, in this research we had collected last ten years of data of Indian and Chinese economy. We have used VAR model and Granger Causality test for evaluating the impact of FDI lag on GDP lag in Chinese and Indian economy. This paper has focused on the relationship between FDI and GDP. A Granger-causality analysis has been carried out in order to assess whether there is any potential predictability power of one indicator for the other.

**Granger (1969)** proposed a time-series data based approach in order to conclude causality. In the Granger-sense  $x$  is a cause of  $y$  if it is useful in forecasting  $y^1$ . In this structure useful means that  $x$  is able to augment the accuracy of the prediction of  $y$  with respect to a forecast, considering only past values of  $y$ .

**Definition 1:** Assuming to have an information set  $\mathcal{I}_t$  with the form  $(x_t, \dots, x_{t-j}, y_t, \dots, y_{t-i})$ , we say that  $x_t$  is Granger causal for  $y_t$  wrt.  $\mathcal{I}_t$  if the variance of the optimal linear predictor of  $y_{t+h}$ , based on  $\mathcal{I}_t$ , has smaller variance than the optimal linear predictor of  $y_{t+h}$  based only on lagged values of  $y_t$ , for any  $h$ . Thus,  $x$  Granger-causes  $y$  if and only if  $\sigma^2_1(y_t : y_{t-j}, x_{t-i}) < \sigma^2_2(y_t : y_{t-j})$ , with  $j$  and  $i = 1, 2, 3, \dots, n$  and  $\sigma^2$  representing the variance of the forecast error.

There are three different types of situation in which a Granger-causality test can be applied:

- In a simple Granger-causality test there are two variables and their lags.
- In a multivariate Granger-causality test more than two variables are incorporated, because it is imaginary that more than one variable can sway the results.
- Finally Granger-causality can also be tested in a VAR framework; in this case the multivariate model is comprehensive in order to test for the simultaneity of all incorporated variables. The experiential results obtainable in this paper are intended within a simple Granger-causality test in order to test whether Foreign direct investment "Granger cause" economic growth and vice versa.

The following two equations can be specified

$$(GDP)_t = \hat{a} + \hat{a}_i(GDP)_{t-i} + \hat{o}_j(FDI)_{t-j} + \mu_t \dots\dots\dots (1)$$

$$(FDI)_t = \hat{e} + \hat{o}_i(FDI)_{t-i} + \hat{o}_j(GDP)_{t-j} + \zeta_t \dots\dots\dots (2)$$

Based on the approximate OLS coefficients for the equations (1) and (2) four different hypotheses about the relationship between GDP and FDI can be formulated:

1. Unidirectional Granger-causality from FDI to GDP. In this case FDI increase the prediction of the economy but not vice versa. Thus  $\hat{\delta}_j = 0$  and  $\phi_j = 0$ .
2. Unidirectional Granger-causality from GDP to FDI. In this case the GDP of the economy increases the prediction of the FDI but not vice versa. Thus  $\hat{\delta}_j = 0$  and  $\phi_j = 0$ .
3. Bidirectional (or feedback) causality. In this case  $\hat{\delta}_j = 0$  and  $\phi_j = 0$ , so in this case the GDP of the economy increases the prediction of the FDI and vice versa.
4. Independence between GDP and FDI. In this case there is no Granger causality in any direction, thus  $\hat{\delta}_j = 0$  and  $\phi_j = 0$ . Hence by obtaining one of these results it seems possible to detect the causality relationship between FDI and the GDP of a country.

## INTERPRATATION OF RESULT

### VARGRANGER

### GRANGER CAUSALITY WALD TEST

**Table-1**

Equation	Excluded	F	df	df_r	Prob > F
China GDP	China FDI	0.02694	2	27	0.9734
China GDP	ALL	0.02694	2	27	0.9734
China FDI	China GDP	7.4095	2	27	0.0027
China FDI	ALL	7.4095	2	27	0.0027

**Table-2**

Equation	Excluded	F	df	df_r	Prob > F
INDIA GDP	INDIA FDI	25.844	2	27	0.000
INDIA GDP	ALL	25.844	2	27	0.000
INDIA FDI	INDIA GDP	8.1341	2	27	0.0017
INDIA FDI	ALL	8.1341	2	27	0.0017

Thus, the results of Granger Causality for equations (1) and (2) are represented in table 1 and 2. The tables report the results analogous to different regressions, in order to have a contrast of the dissimilar regressions outputs. The values of F statistic suggest that FDI Granger-causes GDP, and GDP does not cause FDI. Thus, it can be argued that past values of FDI contribute to the prediction of the present value of GDP even with past values of GDP. Moreover by the single regressions it can be showed that also with 2 lags much of the coefficients have positive sign and with an acceptable significance level. However it has to be taken in account that the level of  $R^2$  is low, reminding that past rates of "FDI" could have a limited ability for the prediction of GDP.

For the equation (2) the associated F tests give the opposite result, in fact there seems to be no Granger-Causality from past values of GDP for future values of FDI. It has to be noted that this holds for all the specifications tried, and so in this case the null hypothesis of no causality from GDP to FDI. Moreover all the  $R^2$  are close to zero, and the F-ratios (that test for all the right-hand coefficients significance) are statistically insignificant.

Concluding our tests for granger causality reflects what showed and assessed in the theory. There seems not to be any causality from real GDP to the FDI. But an inverse Granger-causality seems to be possible even if the

relationship does not seem to be so strong . Indeed this can be found in the current and past events that showed more than once how the FDI is not always in tune with the growth of the economy. However, to the degree that the difference in the FDI can be seen as a leading indicator for the fluctuations of the combined output, there is a better likelihood for countercyclical policies to be adopted in advance.

## CONCLUSION

Empirical evidence suggests that the increased integration of China and India into global economy has had quite different effects on monetary augmentation, but to some extent comparable possessions on employment. In respect of economic growth, the belongings are noticeably dissimilar in output structure, i.e. the mechanism of growth in China is manufacturing sector while in India, and the expansion is led by the services sector. Accordingly, the composition of their international trade is noticeably diverse; the principal split of China's exports comprises of manufactures, whereas in India, both manufactures and services comprise most important quantity of the exports but the share is mounting speedily. By distinction, employment possessions are quite similar, and are apparent in the get higher of unemployment difficulty, decline of employment in the formal sector, and deliberate increase of regular wage employment. There is a requirement to generate a stable procedure in both China and India that leads to the escalation of regular wage employment which exceeds the rate of labour force growth.

## REFERENCES

1. Acharya, Shankar (2004), 'India's Growth Prospects Revisited', Economic and Political Weekly, Issue 9 October 2004, 4537-42.
2. Ahluwalia, Montek S. (2002), 'Economic Reforms in India since 1991: Has Gradualism Worked?' Journal of Economic Perspectives, Vol. 16, No. 3, 67-88.
3. Chow, G. C. (2007), China's Economic Transformation, second edition, Oxford: Blackwell.
4. Dasgupta, Sukti and Ajit Singh (2005), 'Will Services be the New Engine of Economic Growth in India?' Centre for Business Research.
5. Ghose, Ajit K. (2004), The Employment Challenge in India, in: Economic and Political Weekly, Vol. 39, No. 48, 5106-5116.
6. Ghose, Ajit K (2008), 'The Growth Miracle, Institutional Reforms and Employment in China', Economic and Political Weekly, Issue May 31, 2008, 47-56.
7. Izurieta, Alex and Ajit Singh (2008), 'Does Fast Growth in India and China Harm U.S. Workers?: Insights from Simulation', Centre for Business Research.
8. Kohli, Atul (2006), 'Politics of Economic Growth in India, 1980-2005: The 1980s', Economic and Political Weekly, Part I, Issue April 1, 2006, 1251-1250.
9. Knight, John and Lina Song (2005), Towards a Labour Market in China, Oxford: Oxford University Press.
10. Kozul-Wright, Richard and Paul Rayment (2007), The Resistable Rise of Market Fundamentalism: Rethinking Development Policy in an Unbalanced World, London: Zed Books Ltd.
11. Mahtaney, Piya (2007), India, China and Globalisation: The Emerging Superpowers and the Future of Economic Development, England: Palgrave Macmillan.
12. Nagaraj, R. (2005), 'Industrial Growth in China and India: A Preliminary Comparison', Economic and Political Weekly, Issue May 21, 2005, 2163-71.
13. Nolan, Peter (2004), Transforming China: Globalisation, Transition and Development. London: Wimbledon Publishing Company.