FACTOR ANALYSIS OF THE SELECTED VARIABLES OF FOREIGN DIRECT INVESTMENT IN INDIA

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Factor Analysis of the Selected Variables of Foreign Direct Investment in India

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Abstract – As a matter of fact the growth of a country largely depends upon FDI and in the recent times, FDI in India has contributed effectively to the overall growth of the economy. Developing economies like India see FDI as a source of economic development, modernization and employment generation. India has liberalized the FDI regimes so as to attract larger investment and the government of India has put in place a liberal, transparent and investor friendly FDI policy. The flow of FDI in India is governed by so many explanatory variables but for the present study, nine variables have been selected i.e. imports, exports, market share, economic stability, industrial production index, interest rate, inflation rate, currency value and gross capital formation. The present paper attempts to focus on analyzing these nine variables which determine the flow of FDI in India from 2006-07 to 2012-13. For this purpose the technique of factor analysis has been used. The study revealed that out of nine variables under study, only seven variables are highly influencing the FDI in India.

Keywords: Foreign Direct Investment (FDI), Factor Analysis.

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INTRODUCTION

Various studies have shown that foreign capital has big impact on the economic development of the economy. The total FDI exerts an ambiguous effect on growth (Alfaro Laura, 2003) and for the improvement in the standard of living of the people, the promotion of FDI could be very useful (Williams, 2009). Moreover there is a positive relation between FDI and GDP (Khazri, Djelassi, 2011). FDI inflows into India responded positively to the liberalization measures introduced in the early 1990s (Singh J, 2010). FDI inflows have an impact on India's transfer of new technology and innovative ideas, improving infrastructure and thus makes a competitive business environment. Considering the trends of FDI in India, service sector has attracted highest FDI inflows and construction is the second largest sector. Telecommunication sector in India is now one of the fastest growing sectors and is also attracting good amount of FDI inflows. Talking about country-wise FDI inflows, Mauritius is largest whereas Singapore is second largest investor of FDI inflow in India. The other major countries are UK, Japan, USA, Netherlands contributing reasonable good amount of FDI in India. FDI in India comes through non-resident Indians, international companies, and other foreign investors. Under automatic route and government route an Indian company may receive FDI. In order to accelerate the growth rate of GDP, all the countries of the world are doing their best to attract greater inflows of FDI into their economies. India has much more potential than this to attract FDI inflows because foreign investors are showing their growing confidence in the immediate and medium term prospects of the Indian economy. A recent confidence survey by **Global Consultancy AT Kearney** rated India as the third most favored destination, next to china and USA. Beside, for the first time, manufacturing investors surveyed by AT Kearney considered India as a superior manufacturing location than even the USA. It is worth-mentioning here that the inflows of FDI in India are governed by so many explanatory variables and the assessment of these variables can be done with the help of statistical tools like correlation and factor analysis.

REVIEW OF LITERATURE

R.Renuka, et.al. (2013) in their paper "Impact of FDI in Indian Economy with Special reference to Retail Sector in India" suggested that India had to open up the retail trade sector to foreign investors. **Nilanjana Kumari (2013)** in her paper, "A study of FDI in India" found, with the help of correlation, that flow of equity in any previous year will determine the flow in the next year.**Jasbir Singh, et.al. (2012)** in their paper "Role of Foreign Direct Investment in India: An Analytical Study" suggested that the need of FDI depends on saving and investment rate in any country. **Babar,S.N. and Khandare, B.V.(2012)** in their paper, "Structure of FDI in India during globalization period." focused on changing structure, trends and direction of India's FDI during globalization period. **Khazri, Djelassi (2011**), in an article "The Relationship between Financial Liberalization, FDI and Economic Growth: An Empirical Test for MENA Countries", found that there was negative relation between FDI and economic growth and a positive relation between FDI and GDP. **Duan (2010),** in an article "FDI in BRICS: A Sector Level Analysis", found that in Brazil, Russia and India, the tertiary sector received the most inward FDI and primary sector received the least FDI. Manufacturing sector was in the middle in terms of inward FDI.**Williams (2009**), in an article "Determinants of Outward foreign Direct Investments from Small Island Developing States", suggested that there is inverse relationship between per capita income and level of outward FDI. **Moreira (2008),** in an article "The determinants of Foreign Direct Investment What is the evidence of Africa?", suggested that FDI in African countries was driven by their natural resources. **Alfaro Laura (2003),** in an article "Foreign Direct Investment and Growth: Does the sector matter?", suggested that total FDI exerts an ambiguous effect on growth.

OBJECTIVE OF THE STUDY

The objective of the paper is to analyze the relationship among selected variables of Foreign Direct Investment in India.

RESEARCH METHODOLOGY

Since the study is descriptive in nature, therefore the data have been collected and compiled for the period 2006-07 to 2012-13 from secondary source like UNCTAD FDI statistics, World Investment Report, UNCTAD, Economic Surveys of India and Ministry of Commerce and Industry data, RBI bulletin, online data base of Indian Economy, journals, articles, newspapers, etc. The technique of factor analysis and correlation has been applied to analyze the relationship among selected variables of FDI in India.

Factor Analysis Technique[1]: Testing the Significance of Association between Selected Variables of FDI in India

For testing the Significance of association between selected variables of FDI in India Factor analysis technique has been applied which is a multivariate technique used for the purpose of data reduction and is useful in studying large number of variable affecting a particular phenomenon. For the present study, nine variables have been selected such as

- Imports(IM),
- Exports(EX),
- Market Share(MS),
- Economic Stability(ES),
- Industrial Production Index(IPI),
- Interest Rates(IR),
- Inflation Rates(IRS),
- Currency Value(CV) and
- Gross Capital Formation (GCF).

The component loading[2] of 0.7 and the Eigen Value[3] more than one has been considered in order to convert these nine variables into factors[4] and to find out the variables which are similar and form a factor,

Table 1: Correlation Matrix of Selected Variables of FDI in India 2006-07 to 2012-13

Varia-bles	Inflow	Outflow	Im	Ex	MS	ES	IPI	IR	IRS	CV	GCF
Inflow	1										
Outflow	0.19	1									
Im	-0.48	0.56	1								
Ex	-0.52	0.60	**0.99***	1							
MS	-0.66	0.42	**0.96***	**0.95***	1						
ES	-0.56	-0.26	-0.03	-0.01	0.26	1					
IPI	-0.63	0.48	**0.94***	**0.94***	**0.99***	0.31	1				
IR	0.09	0.30	0.56	0.52	0.32	-0.80	0.24	1			
IRS	-0.07	0.76	0.25	0.35	0.18	-0.11	0.24	0.01	1		
CV	-0.46	-0.34	0.54	0.47	0.55	-0.04	0.46	0.56	-0.61	1	
GCF	-0.61	0.49	**0.96***	**0.96***	**0.99***	0.254	**0.99***	0.30	0.22	0.50	1

*Source: Complied and Calculated from World Bank Data. Note: Selected variables of FDI in India with*are significant at 1% level of significance.*

The table clearly shows that there is positive and high correlation between exports and imports (0.99), industrial production index and market size(0.99), gross capital formation and industrial production index(0.99) and gross capital formation and market size(0.99),market size is correlated with imports and exports (0.96 and 0.95) , industrial production index is correlated with imports and exports(0.94 and 0.94), gross capital formation is correlated with imports and exports (0.96 and 0.96) which are significant at 1% level of significance.

[1] Factor analysis studies the group of variables that tend to be correlated to each other and identify underlying dimensions that explain these correlations.

[2] Component loading is simple correlation between the variables and the factors.

[3] Eigen value represents the total variance explained by each factor.

[4] Factor is an underlying dimension that explains the correlations among a set of variables.

Table 2: Summary of Factor Analysis of FDI in India 2006-07 to 2012-13

Variables	Component Loadings			Communalities[5]
	Factor 1	Factor 2	Factor 3	
Imports(IM)	0.11	0.96*	0.25	0.987
Exports(EX)	0.96*	0.19	0.20	0.995
Market Share(MS)	0.99*	0.03	-0.04	0.987
Economic Stability(ES)	0.21	-0.11	-0.96	0.974
Industrial Production Index(IPI)	0.98*	0.11	-0.09	0.976
Interest Rates(IR)	0.37	-0.11	0.91*	0.966
Inflation Rates(IRS)	0.17	0.92*	-0.01	0.874
Currency Value(CV)	0.59	-0.77	0.26	0.976
Gross Capital Formation(GCF)	0.99*	0.09	-0.03	0.924
Eigen Value	6.016	2.436	2.057	
Variance explained	5.953	2.294	2.261	
% Variance explained	54.688	22.146	18.699	95.533

Source: Complied and Calculated from World Bank Data

Factor	Variables	Correlation> Component Loading
Factor 1	• Exports • Market Share • Industrial Production Index • Gross Capital Formation	0.96 > 0.7 0.99 > 0.7 0.98 > 0.7 0.99 > 0.7
Factor 2	• Imports • Inflation Rates	0.96 > 0.7 0.92 > 0.7
Factor 3	• Interest Rates	0.91 > 0.7

- **In factor 1** the variables exports, market share, industrial production index and gross capital formation had loading more than 0.7 and rest of the variables had loading of less than 0.7.

- In **factor 2** the variables imports and inflation rates had loading of more than 0.7 and rest of the variables had loading of less than 0.7.

- In **factor 3** the variable interest rates had loading more than 0.7 and rest of the variables had loading of less than 0.7.

Out of nine variables under study only seven variables are highly influencing the FDI in India. All the variables having factor loading less than 0.7 are insignificant factors whereas the variables having loading more than 0.7 are highly influencing the FDI in India. The total variance explained from factor 1, factor 2 and factor 3 are explained to be at 95.53%.

CONCLUSION

The upshot of the above is that that out of nine variables under study, only seven variables are highly influencing the FDI in India. Thus the need of the hour is to optimize these seven variables such as imports, exports, market share, industrial production index, interest rate, inflation rate, and gross capital formation which contribute towards the augmentation of FDI in India. India has been able to attract lesser FDI inflows as compared to her potential. India is having superior marketplace at global level which can attract more FDI inflows. Thus for the acceleration of rate of economic growth, India needs to augment FDI inflows and for this the need of the hour is to implement various policies more effectively to augment FDI inflows in the country.

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