Factors affecting FDI inflow in China and India

Sumit Parashar

UARE INTERN | CHINA INSTITUTE, UALBERTA

sumitparashar9@gamil.com

Factors affecting FDI inflow in China and India

Abstract

This paper investigates the determining factors of foreign direct investment (FDI) inflow in both China and India from 1980 to 2013 using econometric modelling. During this period, both nations went through major economic reforms, which began in 1991 in India and in 1992 in China. The study is based on a linear regression analysis of time series data for 34 years. This analysis used macroeconomic indicators that affect FDI inflow, such as market size, infrastructure, the opportunity cost for investors, trade openness, growth rate, policy changes and inflation. Both ordinary least squares analysis and partial least squares analysis approaches were applied to obtain regression results. The study reveals that, for both countries, market size is an important factor. Also, in the case of China, lower wage rates play an important role in attracting FDI, while in the case of India, it is policy reforms that play a crucial role in attracting FDI.

Introduction

Foreign direct investment is one of the most important phenomena in the world economy. According to the World Bank, "Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments".

According to the Global Investment Trend Monitor (January 2015), FDI inflows in developing economies have increased many fold after 1980, reaching more than US$700 billion in 2014, the highest level ever recorded. Most of the developing countries have limited savings to finance their investments. They also lack technological advancements. So to fulfil these financial and technological requirements, they are always trying to attract as much FDI as possible. FDI helps in creating jobs and providing tax income to the government. It also has many spillover effects which affect innovation, technology and the management practices of an economy.

China and India both are very big countries with huge populations. They have great potential for both "resource seeker" and "market seeker" investors because of cheap labor availability and vast consumer bases. In recent years, because of the growth of the middle class, a huge market for consumer goods is developing quickly in both the countries.

In China, economic reforms by the Communist Party of China started in December 1978 and were led by Deng Xiaoping. These economic reforms introduced market principles and the opening up of the economy to foreign investors. In the initial years, the growth rate was marginal, but after 1992, privatization began to accelerate, and the private sector grew as a percentage of GDP. China's government slowly expanded its recognition of the private economy, first as a "complement" to the state sector (1988) and then as an "important component" (1999) of the socialist market economy (Brandt 2008, p. 19).
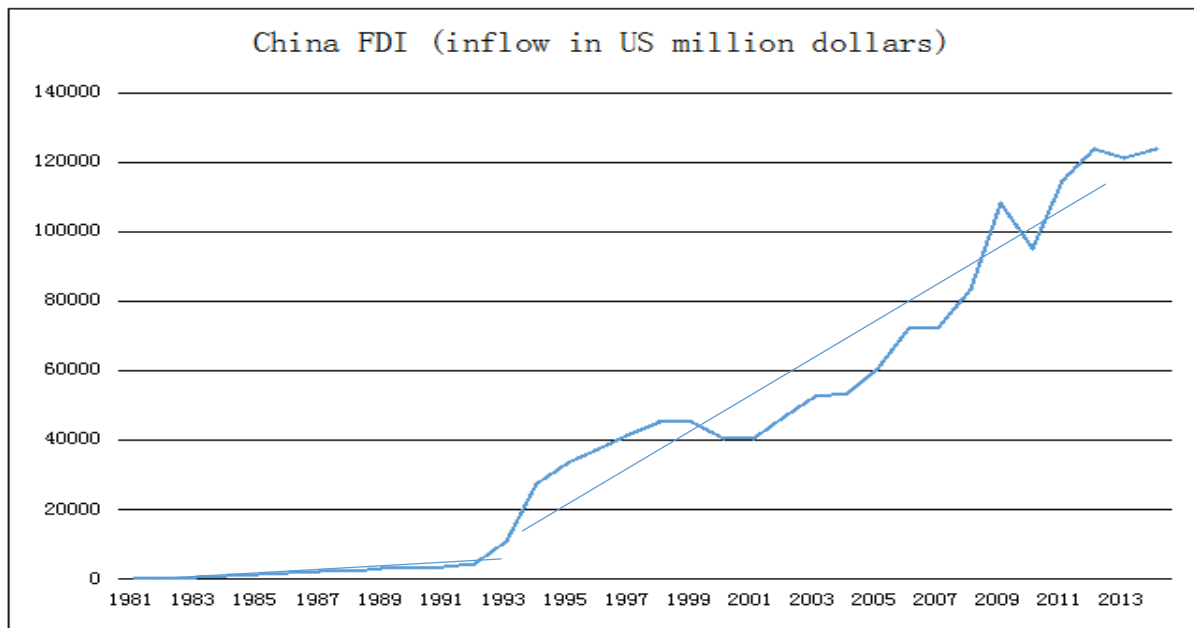

Figure 1- Annual FDI inflow in China. Data collected from UNCTAD Database.

Figure 1 gives the FDI inflow in China. We see that there was steady but marginal growth in FDI from the year 1981 to 1991. After 1991, there is a big shift in the trend line and FDI grows quickly. From 1991 to 1994, the share of FDI in the country's gross fixed capital formation increased from 3.9 to more than 17 percent. In the last 33 years, FDI inflow has increased by more than two thousand times. Most of the FDI in China is in the manufacturing sector (More than 50%).

The biggest investor in China is Hong Kong, which constituted about 66% of FDI inflow in the year 2014. Other major investors in China are Singapore, Taiwan, Japan, South Korea and the USA. Although there is also a phenomenon where some Chinese firms sent capital to Hong Kong, and then back into the Chinese mainland in order to obtain privileges available to overseas investors.

Most of the FDI comes to the 14 special economic zones (SEZs) in the eastern part of China. There are other SEZs which are developed in the western border areas and in central China, but there is very little FDI in the middle, south and western part of China as compared to its eastern region. More than 85% of FDI between the years 2000 to 2008 was in the eastern region.

Compared to China, India has less FDI inflow. In the year 2013, FDI inflow in India was US$38 billion, while in China it was US$128 billion, which is more than three times the FDI inflow to India. In India, economic reform began in 1991, which focused on the privatization, globalization and liberalization of the economy.
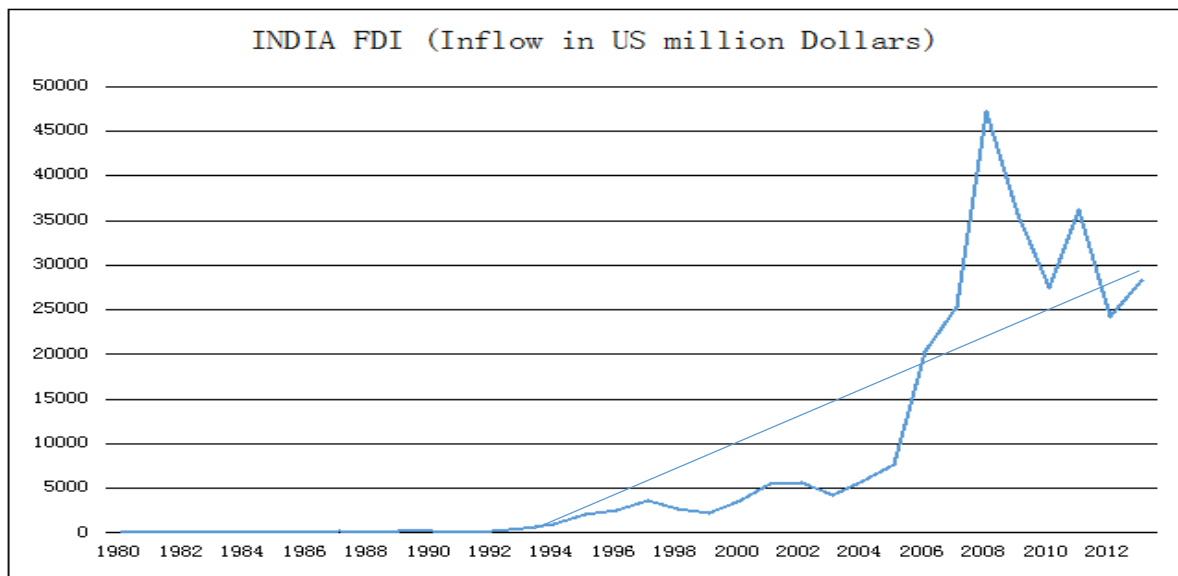

Figure 2 – Annual FDI inflow in India. Data collected from UNCTAD Database.

Figure 2 gives the timeline of FDI inflow in India. Between the years 1980 to 1991 there was very little FDI, but after the economic reform in 1991, FDI grows rapidly and reaches its peak in 2008. In the last 33 years, FDI inflow in India has increased more than three hundred times.

If we consider the sectoral distribution of FDI in India, the service sector attracts the most FDI (around 17%); said sector includes the financial sector, banking, insurance, non-financial / business, outsourcing, R&D, courier, technology testing and analysis services. Other important sectors through which FDI comes to India are construction development, telecommunication, computers software and hardware, and drugs and pharmaceuticals.

Major investors in India are from the USA. Around 40% of the FDI comes either directly from the USA or through the Mauritius hub, which is beneficial for investors as Mauritius has a double taxation redemption treaty with India. Other major investors in India are Singapore, the UK and Japan, which constituted 12%, 10% and 7% of investment respectively in 2014. Most of the FDI comes to the Indian states of Maharastra, Delhi, Tamilnadu and Karnataka.

Interesting to know are the major macroeconomic factors which affect FDI inflows in both India and China, and what lessons India can learn from its neighbouring economy with regards to boosting India's FDI inflow. This paper will attempt to answer these questions. The further analysis is structured as follows: section I will briefly outline theories of FDI inflow; section II describes the empirical findings

of others regarding factors which affect FDI; section III provides the data sources and methodology used; section IV discusses the econometric results for both the countries; section V is the conclusion.

Theoretical Background

There are many theories which try to explain FDI inflow. After World War II, foreign direct investment acquired an important role in international economics. The main research on the motivation underlying FDI was developed by J. Dunning, S. Hymer, and R. Vermon. They developed well-established theories answering why foreign direct investment takes place and what the potential determinants are, including the socio-economic factors of both the host and the home economy.

Major theories that explain the motivation for FDI are the product life cycle theory (Vermon 1966), the theory of exchange rates and imperfect capital markets (Itagaki 1981 and Cushman 1985), the internalisation theory (Hennart 1982) and the eclectic paradigm theory (Dunning 1973, 1980, 1988).

Vermon explained that there are four stages to the production cycle: innovation, growth, maturity, and decline. In the first phase, there is some technological advantage that a firm has, an advantage which reduces with time as other players come into the host market and imitate the advantage; as such, to save their market share, multinational enterprises (MNEs) shift their production facilities in host countries. This theory was able to explain investments in Western Europe made by U.S. firms between the years 1950 to 1970.

Internalisation theory, by Hennart, tries to explain the growth of multinational enterprises. Hymer (1976) identified two major determinates of FDI, one being the removal of competition, and the other being the advantage that one firm possesses in one activity. Hymer (1976) introduced the concept of firm-specific advantages and explained that FDI takes place only if the benefits of exploiting advantages outweigh the relative cost of operating abroad.

John Dunning proposed an all-inclusive theoretical explanation of FDI. His theory is a mix of three sub theories, i.e. ownership advantage, location advantage, and internalization. Ownership advantages are the highly firm-specific advantages that can be in the form of a monopoly with limited natural resources, patents, trademarks, technological advancements, and economies of scale in sales or access to financial capital. Location advantages are mainly determined by the host country. These country specific advantages can be categorized as economic benefits, political advantages and social advantages. Internalization offers a framework for assessing different ways or strategies by which a multinational enterprise can exploit its power.

Based on the above framework, Dunning (1993) explained three types of FDI based on the motivation for investment from the perspective of an investor. The first is called "market seeking" FDI, with a

basic aim to enhance the market share of the product of a MNE. This is also referred to as Horizontal FDI, as the production is in the host country. Difficulties in accessing local markets because of high tariffs or trade restrictions encourage MNEs to invest in the host country. The second one is called "resource seeking" FDI. The firm invests in another country to access the resources which are not available in the home country, such as natural resources, raw materials, or labor. This kind of FDI is similar to Vertical FDI as this involves the relocating of part of the production chain in the host country. The availability of labor or some resource abundance are the chief determinants of the amount of FDI. The third type of FDI is called "efficiency-seeking" FDI. This kind of FDI flow happens when a firm can gain from common government administrative structures by utilizing economies of scale.

Empirical Background

There are many research papers which deal with the empirical analysis of determinants of FDI. Variables that determine FDI varies country to country. They also change as time changes because of technological innovations and policy changes. Even so, most of the research suggests the following macroeconomic factors determine FDI inflow.

Market size - This is one of the most important determinants of FDI inflow. This is measured in different ways, e.g. gross domestic product, GDP per capita, or the population of middle-income group in the economy. Charkrabarti (2001) states that a large market is required for the efficient utilization of resources and exploitation of economies of scale so that as the market-size grows, FDI will start to increase.

Khchoo and Khan (2012), in their panel data analysis of developing countries, find strong empirical evidence of a positive relation between FDI and the level of GDP. They mentioned that the countries with larger market sizes (higher GDP) are getting more of overseas investments.

A large market size provides more opportunities for sales and profits to foreign firms, and therefore attracts FDI (Wang and Swain, 1995: Moore, 1993; Schneider and Frey, 1985; Frey, 1984). FDI inflow in any period is a function of market size (Wang and Swain, 1995).

Trade openness - Trade openness is defined as the ratio of the sum of exports and imports to total GDP at the current price. Jordaan (2004) claims that the impact openness has on FDI depends on the type of investment. If there is a barrier for imports by the host country, the amount of FDI necessary to capture the market increases. In that context, there may be a negative relation between trade openness and FDI inflow. In contrast to this, if the market is more open, investors can easily approach the host market. In this case, there may be a positive relation between trade openness and FDI inflow.

There are theories which are based on export promotion and import substitution economic policies. Trade openness generally positively influences export-oriented FDI inflows into an economy (Edwards (1990), Gastanaga et al. (1998), Asidu (2001)). Import substitution regimes try to attract FDI in the sectors where the host county does not perform well.

Wage rate - Most of the FDI inflow in developing countries is resource seeking, because of the availability of a cheap labour force in those countries. There is a negative relation between FDI inflow and wage rate (Goldsbrough (1979), Saunders (1982), Flamm (1984), Schneider and Frey (1985), Culem (1988), and Shamsuddin (1994)).

The impact that wage rate has on FDI inflow is not unanimous, as it also depends on the skills of the labour force. Studies by Wheeler and Mody (1992), Schneider and Frey (1985), and Loree and Guisinger (1995) show a positive impact of labour costs on FDI inflow. The more skilled the labour force, the more the FDI inflow.

Infrastructure - Infrastructure covers the huge variety of things which are required for business, like power and electricity, road and railway facilities, telecommunication facilities and institutional development. There are many proxies to capture its impact, e.g. per capita electricity consumption, telephone lines per 1000 people, per capita energy usage, annual gross fix capital formation etc.

Previous research shows the positive impact of infrastructure facilities on FDI inflows (Wheeler and Mody (1992), Kumar (2002), Loree and Guisinger (1995), Asidu (2002)). According to ODI (1997), poor infrastructure can be seen as an obstacle, and in that case there is a negative impact, but it also can be seen as an opportunity. Countries with poor infrastructure try to attract more and more FDI to the construction sector by providing incentives in infrastructure related projects. In that case, there can be a negative relation between FDI and infrastructure.

Economic reform - The term economic reform refers to policies directed to achieve improvements in economic efficiency, either by eliminating or reducing distortions in individual sectors of the economy or by reforming economy-wide policies such as the tax policy and competition policy, all with an emphasis on economic efficiency, rather than other goals such as equity or employment growth (Wiki).

Dunning (2002), Blomsrom and Kokko (2003), Schneider and Frey (1985), Grubert and Mutti (1991), Loree and Guisuinger (1995), Taylor (2000), and Kumar (2002) all consider the impact of policy reform on FDI inflow.

Total Reserve Ratio and Inflation - These two variable are used to measure the economic stability of the countries. Total reserves comprise holdings of monetary gold, special drawing rights,

reserves of IMF members held by the IMF, and foreign exchange holdings under the control of monetary authorities. The reserve ratio captures the ability of the economy to handle adverse conditions of debt or current account deficit. According to Khachoo and Khan (2012), the accumulation of more reserves by a country helps it to pull more FDI. Inflation is used to measure the short-term stability of the economy. Most of the research shows that there is not much impact by inflation on FDI inflow.

Growth Rate and US Bond Return (Opportunity Cost) – The use of last year's growth rate tries to capture the potential return on investment. There is huge controversy surrounding the impact of the growth rate. Ancharaz (2003) finds a positive effect with lagged growth for the full sample and for non-Sub-Saharan African countries, but an insignificant effect for the Sub-Saharan. There are studies which show the positive impact of per capita growth or growth prospect of FDI (Schneider and Frey, 1985; Lipsey, 1999; Dasgupt and Rath, 2000; and Durham, 2002).

The US Bond return on 10 years works as a proxy for the opportunity cost for investors, as they can invest in the US instead of investing in another, developing country. According to Wang (1997), the US government long-term bond yield is a summary measure of the long-term market opportunity available for the foreign investors. He finds bond rates have a significant impact on FDI inflow.

Data and Methodology

The data for gross domestic product per capita, annual export and import of commodities, growth rate of real GDP, inflation (consumer price index), market return on US treasury bonds (ten years), wage rate in the manufacturing sector, gross fixed capital formation, total reserve and foreign direct investment (inflow) are collected from the UNCTAD, China Statistical Yearbook, World Bank, IMF, Federal Reserve and ILO databases, with data from 1980 to 2013, inclusive.

To analyse the factors determining foreign direct investment inflow for both India and China, I have used a multiple linear regression model of the following form.

$$lnFDI_t = \beta_0 + \beta_1 lnGDP_{t-1} + \beta_2 lnGFCF_t + \beta_3 US\_Bond_t + \beta_4 lnWage_t + \beta_5 Open_t + \beta_6 Reserve_{t-1} + \beta_7 GroRate_{t-1} + \beta_8 Inf_t + \beta_9 D$$

In the above equation, lnFDI represents the natural log of FDI inflow at the current price in US dollars; lnGDP represents the market size measured as the natural log of per capita GDP at a fixed price and exchange rate (base year 2005); lnGFCF is a proxy for infrastructure development measured as a natural log of gross fix capital formation at the current price in US dollars; US_Bond represents the proxy for the opportunity cost for the investors, which is measured as the annual market return on 10 year-US bonds; lnWage denotes the natural log of the monthly wage in the manufacturing sector

measured in US dollars at the current price; Open represents the trade openness of the economy, which is measured by taking ratio of sum total of export and import to GDP at current price ; lnReserve represents the percent of total reserves to GDP, both measured at current price; GroRate represents the growth rate of the real GDP; Inf represents the inflation rate. In the equation, the subscript t is used if data used in the equation is for the same year, and t-1 if it is for the previous year.

D here represents the dummy variable, which is used as the proxy for policy reforms. In the case of India before 1992, its value is 0, and from 1992 onwards it is 1, which captures the effect of the 1991 Indian economy reforms. Similarly, in the case of China, this is used to present the 1992-93 economic revival.

Before coming to the above mentioned equation, a Dickey Fuller test of unit root and an Engel Grager co-integration test were performed. If the data is cointegrated at the same level or stationary then we can use only a regression analysis; otherwise, a model could give a spurious relation between variables.

I have used SPSS and Minitab to perform regression analysis. There is high multicollinearity between variables, and as such OLS coefficients cannot be used for the explanation purpose, as if the relation between independent variables changes slightly, the effect of these variables on the dependent variable will change drastically.

To more reliably explain the relationship between dependent and independent variables, a partial least square analysis was employed, which is a technique used when there is an issue of multicollinearity with ordinary least squares analysis. As well, a partial least square methodology with cross validation was used, leaving two data sets at one time.

Econometric Results

Before employing an ordinary least square analysis, it is required to check if the data is stationary or not. Table 1 and Table 2 gives the statistics for the Dicky Fuller test for a unit root for China and India respectively, which shows that all the variables are non-stationary and become stationary after taking the first difference.

Table 1: Dicky-Fuller Test statistics for Chinese Data

Variables	Level		First Difference	
	W/o Trend	With Trend	W/o Trend	With Trend
ln_GDP_per_capita	0.908 (-2.98)	-2.074 (-3.572)	-2.074 (-3.572)	-3.638 (-3.576)
ln_GFCF	2.946 (-2.978)	-1.36 (-3.568)	-1.36 (-3.568)	-3.632 (-3.572)
US_Bond_return	-1.034 (-2.978)	-3.202 (-3.568)	-3.202 (-3.568)	-7.452 (-3.572)
lnWage_rate_in_Dollar	3.21 (-3.696)*	-2.019 (-3.568)	-2.019 (-3.568)	-6.069 (-3.572)
Trade_openness	-1.424 (-2.978)	-1.154 (-3.568)	-1.154 (-3.568)	-4.782 (-3.572)
Total_reserve_to_GDP% with lag	-0.037 (-2.98)	-1.578 (-3.572)	-1.578 (-3.572)	-3.705 (-3.576)
Growth Rate	-3.048 (-3.702)*	-2.961 (-3.568)	-2.961 (-3.568)	-4.862 (-3.576)
Inflation	-2.489 (-2.978)	-2.624 (-3.568)	-1.624 (-3.568)	-4.645 (-3.572)
ln_FDI	-2.169 (-2.978)	-3.806 (-4.306)*	-4.806 (-4.306)	-5.394 (-3.572)

*Values in parenthesis are 5% critical value Dicky Fuller test of t statistics. (*at 1% critical value)*

Table 2: Dicky-Fuller test statistics for Indian Data

Variables	Level		First Difference	
	W/o Trend	With Trend	W/o Trend	With Trend
ln_GDP_per_capita	2.398 (-2.98)	-0.903 (-3.572)	-3.605 (-2.983)	-4.131 (-3.576)
ln_GFCF	0.449 (-2.978)	-1.402 (-3.568)	-5.11 (-2.98)	-5.129 (-3.572)
US_Bond_return	-1.034 (-2.978)	-3.202 (-3.568)	-7.453 (-2.98)	-7.452 (-3.572)
lnWage_rate_in_Dollar	-0.931 (-2.978)	-1.235 (-3.568)	-6.519 (-2.98)	-6.911 (-3.572)
Trade_openness	0.694 (-2.98)	-2.221 (-3.568)	-6.385 (-2.98)	-6.934 (-3.572)
Total_reserve_to_GDP% with lag	-0.511 (-2.98)	-2.21 (-3.572)	-4.977 (-2.98)	-4.873 (-3.576)
Growth Rate	-1.464 (-2.98)	-2.736 (-3.572)	-8.067 (-2.983)	-7.938 (-3.576)
Inflation	-3.309 (-3.702)*	-3.321 (-3.572)	-7.856 (-2.98)	-7.843 (-3.576)
ln_FDI	-0.814 (-2.978)	-3.542 (-3.568)	-5.966 (-2.983)	-5.868 (-3.572)

*Values in parenthesis are 5% critical value of Dicky- Fuller test t statistics. (*at 1% critical value)*

As variables are not stationary, it is required that they should be cointegrated, otherwise there will be a spurious regression result because of time trends in data sets.

Table 3 gives the statistics for the Granger test of cointegration for India and China. We see that the residual of the ordinary least square analysis is stationary, which confirms that variables are cointegrated as I(1).

Table 3: Statistics for Granger test of cointegration

		dfuller test
For India	Without Dummy	-3.995 (-2.978)
	With Dummy	-4.303 (-2.978)
For China	Without Dummy	-4.250 (-2.978)
	With Dummy	-5.228 (-2.978)

Values in parenthesis are 5% critical value of Dicky- Fuller test t statistics

Table 4 and 5 gives the OLS results obtain by SPSS for both China and India respectively. In the case of China, we get a very high R square value of 0.99, which means the data fits very closely with the regression line.

In table 4, we can see that the coefficient of GDP per capita is highly significant and positive. The value of the standardized coefficient for per capita GDP is also the highest, which means it has the most effect on the FDI inflow. This supports the market size hypothesis. Other factors which are significant for China's FDI inflow are the wage rate, dummy variable and growth rate of last year (at 10% level of significance).

The negative and significant coefficient of wage rate matches expectations based on the resource seeking hypothesis of FDI inflow. There is a positive relation between growth rate and FDI inflow, which follows the theory, as most of the investors invest in an economy if they think the economy will grow in future.

Table 4: Statistics of Ordinary Lest Squares Analysis for China Data.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.997[a]	.994	.991	.17128

ANOVA					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	106.774	9	11.864	404.391	.000
	Residual	.675	23	.029		
	Total	107.449	32			

Coefficients						
Model 1	Unstandardized Coefficients		Standardized Coefficiens	t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			VIF
(Constant)	-12.713	6.564		-1.937	.065	
ln_GDP_per_capita_lag	2.917	.587	1.315	4.967	**.000**	**256.746**
ln_GFCF	.359	.367	.267	.978	.338	**272.195**
US_bond_return	-.020	.045	-.033	-.439	.665	**21.013**
lnWage_rate	-1.615	.281	-.836	-5.750	**.000**	**77.443**
Trade_openness	-.008	.005	-.073	-1.469	.155	9.056
Total_reserve_percentage _of_GDP_with_lag	-.002	.010	-.020	-.244	.810	**25.663**
Dummy	.985	.157	.257	6.252	**.000**	6.201
Growth_rate_lag	.033	.019	.050	1.776	**.089**	2.917
Inflation	.007	.007	.024	.946	.354	2.283

Interestingly, the dummy variable is also highly significant (even at a 1% level). There is a positive impact by the economic policy revival in China which occurred from 1992 onwards, which focused on developing a more market-oriented economy. Other factors are insignificant.

In the case of India, the model is also highly significant, with a high R square value of .97. There are only three variables which are significant for India, these being trade openness, growth rate and the dummy variable. It is only the dummy variable which is significant at a 5% level, which shows that the only factor which affected FDI inflow in India is the policy reform undertaken in 1991.

However, we see that both the Indian and Chinese regression results have a VIF (Variance Inflation Factor) of more than 5, which raises questions regarding the relation of different independent variables with the dependent variable, because of the multicollinearity issue. To get more reliability or explaining power for the factors, I have used the partial least square methodology.

Table 5: Statistics of ordinary least squares analysis (OLS) for India Data

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.975[a]	.950	.931	.64996

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	185.533	9	20.615	48.798	.000[b]
	Residual	9.716	23	.422		
	Total	195.250	32			

Coefficients						
Model 2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			VIF
(Constant)	-44.089	27.444		-1.607	.122	
ln_GDP_per_capita_with_lag	4.804	3.141	.805	1.529	.140	**128.052**
ln_GFCF	.817	1.508	.293	.542	.593	**135.529**
US_bond_return	.015	.149	.018	.099	.922	**16.157**
lnWage_rate	.279	.515	.067	.542	.593	6.979
Trade_openness	-.122	.060	-.724	-2.017	**.056**	**59.560**
Total_reserve_percentage _of_GDP_with_lag	.088	.063	.235	1.414	.171	12.790
Dummy	1.979	.601	.384	3.292	**.003**	6.276
Growth_rate_with_lag	.123	.063	.114	1.960	**.062**	1.562
Inflation	-.034	.049	-.041	-.690	.497	1.624

Table 6 and Table 7 give the result of a partial least square analysis for China and India respectively. Both shows that PLS is highly significant with R – squares value of 0.96 and 0.90 for China and India respectively.

In Table 6, we see that GDP per capita and wage rate are the most important factors, which affect the FDI inflow in China. GDP per capita captures the effect of market size, as most of the American and European investors invest in China to capture the consumer market.

Wage rates have a negative relation with FDI inflow, which is in accordance with the "Resource Seeking" theory of FDI inflow, as most of the East Asian investors like Japan and Hong Kong invest in China to benefit from the cheap labour force available there.

Table 6: Statistics of partial least squares analysis (PLS) for Chinese Data.

Cross Validation	Leave 2 observation out
Component to evaluate	Set
Number of components evaluated	9
Number of components selected	9
R-Sq (Pred.)	0.9620

Source	DF	SS	MS	F	P
Regression	9	137.359	15.2621	187.84	0.000
Residual Error	24	1.950	0.0813		
Total	33	139.309			

Factor	Coefficient	Std. Coefficient
Constant	-19.7820	0.000000
lnGDP per capita with lag	4.7181	**1.94415**
lnGFCF	0.2961	**0.19837**
Us Bond return	0.1123	0.17256
Ln Wage rate	-2.5065	**-1.14873**
Trade Openness	-0.0180	-0.15184
Total Reserve percentage of GDP with lag	0.0023	0.01702
Dummy	0.7270	0.17164
Growth rate with lag	0.0590	*0.07843*
Inflation	0.0003	*0.00085*

Other factors which have a significant effect are gross fix capital formation (which is a proxy of infrastructure), US bond returns and the Dummy variable. Infrastructure has a positive impact on FDI inflow, which shows that better infrastructure facilities encourage FDI flow in China. The dummy variable has a positive impact, which suggests that FDI has increased because of the policy actions which took place in the years 1992-93. A positive relation with US Bond returns shows that even if the US market is doing well, US investors still invest in China in order to capture the huge consumer base in China.

Trade openness has a negative relation, which shows that FDI inflow is more under lower openness of the economy. According to the IIC open market index, in 2013 China comes in below average in terms of openness. So to capture the huge consumer base, big US and European firms invest in markets, as it is not easy to capture it via trade routes.

Inflation and growth rate do not have significant relation with FDI.

From Table 7 we can see that in case of India, the most important factor is the Dummy variable, which captures the Indian economic reforms that took place in 1991. Other important factors are the US bond return and GDP per capita. Here, in the case of India, there is a negative relation between FDI and US Bond returns, which suggests that FDI inflow goes down if the return in the US increases. As the US is the biggest investor in India, the US bond return has a very significant impact on FDI inflow. This is in contrast to China, where this has less impact because most of the FDI inflow in China is from Hong Kong, not from the US. As expected from the market size hypothesis, GDP per capita, which captures the market size, has a positive and significant impact on FDI inflow.

Similar to China, in India infrastructure also has a positive impact, which shows that FDI inflow increases with the enhancement of infrastructure facilities. As expected from theory, the reserve ratio, which captures the reliability and stability of the economy in international trade, has a positive relation with FDI.

Table 7: Statistics of partial least squares analysis (PLS) for Indian Data.

Cross Validation	Leave 2 observation out
Component to evaluate	Set
Number of components evaluated	9
Number of components selected	2
R-Sq (Pred.)	0.9089

Source	DF	SS	MS	F	P
Regression	2	182.219	91.1093	209.75	0.000
Residual Error	30	13.031	0.4344		
Total	32	195.250			

Factor	Coefficient	Std. Coefficient
Constant	-10.3638	0.000000
lnGDP per capita with lag	1.0300	**.172616**
lnGFCF	0.4342	0.155948
Us Bond return	-0.1515	**-0.189604**
Ln Wage rate	-0.1533	*-0.036642*
Trade Openness	0.0238	0.141268
Total Reserve	0.0515	0.137170
Dummy	1.1275	**0.218511**
Total Reserve percentage of GDP with lag	0.0595	*0.055137*
Inflation	-0.0668	-0.081399

Though similar to China, India also comes in below the average openness of countries but India has a positive relation with the trade openness. In India's context also both growth rate and inflation do not play much of a role in FDI inflow.

An important finding is that in the case of India, the relation between FDI and wage rate is not very significant, although the sign is negative. The negative sign captures the effect by which a cheap labor force attracts more FDI. But the relation is insignificant, which may be because the investments that come in India are more in the sectors which require a skilled labour force. In that case, higher wages mean better productivity. This is in contrast to China, where most of the FDI is in the manufacturing sector, which requires lesser skills, and lower wages play a very important role.

Conclusion

The study makes an attempt to identify the factors determining overseas investment in China and India, two big developing countries in Asia. For the empirical analysis, I have used partial least squares analysis, as the ordinary least squares analysis has a multicollinearity issue.

The study reveals that for China, the most important factors are the market size and wage rate. Both these results are consistent with the market seeking and the resource seeking hypothesis. There are other factors like infrastructure, US bond returns (the opportunity cost) and policy reforms which have a significant and positive impact.

In the case of India, the most important factor which affects FDI inflow is the policy reforms which took place in 1991 onwards. The market seeking hypothesis is true for the Indian economy also. In the case of India, the bond return has a significant and negative relation with FDI. Other factors like infrastructure and trade openness have significant and positive relations. For both the countries, inflation and last year's growth are insignificant factors.

The study proposes that India should work on its policy reform to attract more FDI. There should be the development of special economic zones like China has done, single window clearance systems to reduce red tape, and better taxation policies and law enforcement in India.

Also, as opposed to China where most of the FDI is in manufacturing, in India most of the FDI is in the service and IT sectors. To be a manufacturing hub and provide employment opportunities, India should work to attract more investment in the manufacturing sector, which is not developed to its full potential. For inclusive growth, India should attract more resource seeking investment in order to shift a large chunk of people from agriculture to the manufacturing sector, as it is tough for a labour abundant country to move directly from agriculture to the service sector.

In deciding policies, India should consider infrastructure development and trade openness issues, as these both plays a positive and significant role in FDI inflow. India should learn from China, and instead of import substitution policies should adopt export promoting ones.

For China, it is already the 2nd largest country according to FDI inflow, just after the USA. China should work on the development of its service sector to enhance the living standard of its people, as most of the FDI from Asian countries like Hong Kong and Japan comes to China because of its cheap labour force.

References

Asiedu, E. (2002), "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?" World Development, 30(1), pp. 107-119.

Blomstrom, M.A. and A. Kokko (2003), "The Economics of Foreign Direct Investment Incentives," NBER Working Paper 9489, 2003.

Brandt L. and Thomas Rawski (2008), China's Great Economic Transformation , Cambridge University Press, New York, 2008.

Chakrabarti, Avik (2001), "The Determinants of Foreign Direct Investment: Sensitivity Analyses of Cross-Country Regressions", KYKLOS, Vol.54, pp. 89-114.

Culem, C. G. (1988), "The Locational Determinants of Direct Investment among Industrialized Countries." European Economic Review, 32, pp. 885-904.

Dickey, D. and W. Fuller (1981). "Likelihood Ratio Statistics for Autoregressive Time Series with Unit Root," Econometrica, 30, pp. 167-182.

Dunning, J. H. (1988): "The Eclectic Paradigm of International Production: A restatement and some possible extensions", in Journal of International Business Studies issue 19 (Spring).

Dunning, J. H. (1973): "The determinants of international production", Oxford Economic Papers 25.

Dunning, J. H. (1980): "Toward an eclectic theory of international production: Some empirical tests" in Journal of International Business Studies issue 11.

Dunning, J. H. (1993), Multinational Enterprises and the Global Economy, Reading: Addison-Wesley.

Edwards, S. (1990), "Capital Flows, Foreign Direct Investment, and Debt-Equity Swaps in Developing Countries," Working Paper Series. Cambridge, MA: National Bureau of Economic Research.

Engle, R.F. and Granger, C.W.J (1987), "Co-integration and Error-correction:Representation, Estimation and Testing", Econometrica, March, Vol.55, pp.251-276.

Flamm, K. (1984), "The Volatility of Offshore Investment." Journal of Development Economics, 16, pp.231-248.

Frey, B. (1984), International Political Economics, Oxford, Basil Blackwell

Gastanaga, V., J. B. Nugent and B. Pashamova (1998), "Host Country Reforms & FDI Inflows: How Much Difference Do They Make?" Word Development, 26(7), 1299-1314.

Global Investment Trends Monitor, No. 18, UNCTAD

Goldsbrough, D. G. (1979), "The Role of Foreign Direct Investment in the External Adjustment Process." (Staff Papers 26), pp. 725-754.

Grubert, H., Mutti, J. (1991), "Taxes, Tariffs and Transfer Pricing in Multinational Corporate Decision Making." Review of Economic Studies, 73, pp. 285-293.

Gujarati, Damodar N. (2003), Basic Econometrics, McGraw-Hill/Irwin, New York.

Hausmann, R., Fernandez-Arias, E. (2000), "The New Wave of Capital Inflows: Sea Change or JustAnother Title?" (Working Paper No. 417).

Hennart J.F. (1982): "A theory of multinational enterprise", University of Michigan Press.

Hymer, S., 1976 (1960 dissertation): "The International Operations of Nation Firms: A Study ofForeign Direct Investment", Cambridge, MLT Press.

ICC open market index, second edition, 2013

Jordaan, J. C. (2004), "Foreign Direct Investment and Neighbouring Influences." Unpublished doctoral thesis, University of Pretoria.

Khachoo and Khan (2012), Determinants of FDI inflows to developing countries: a panel data analysis, MPRA Paper No. 37278

Kumar, N. (2002),"Infrastructure Availability, Foreign Direct Investment Inflows and Their Export Orientation: A Cross Country Study Exploration," RIS Discussion Paper, No.26, 2002.

Loree, D.W. and S.E. Guisinger (1995), Policy and Non Policy Determinants of U.S. Equity Foreign Direct Investment, Journal of International Business.

Moore, M., 1993, "Determinants of German Manufacturing Direct Investment: 1980-1988, weltwirtschaftliches Archiv, Vol.129, pp 120-137.

ODI (1997), "Foreign Direct Investment Flows to Low-Income Countries: A Review of the Evidence." http://www.odi.org.uk/publications/briefing/3_97.html.

P. Geladi and B. Kowalski (1986). "Partial Least-Squares Regression: A Tutorial," *Analytica Chimica Acta,* 185, 1–17.

S. Weisberg (1980). *Applied Linear Regression*. John Wiley & Sons, Inc.

Saunders, R. S. (1982), "The Determinants of Foreign Direct Investment." Canadian Journal of Economics, 15, pp. 77-84

Schneider, F and B. Frey (1985), "Economic and Political Determinants of Foreign Direct Investment," World Development, Vol.13, No. 2, pp. 225-250.

Shamsuddin, A. F. (1994), "Economic Determinants of Foreign Direct Investment in Less Developed Countries." The Pakistan Development Review, 33, pp. 41-51.

Taylor, C.T (2000), "The Impact of Host Country Government Policy on US Multinational Investment Decisions," World Economy, Vol. 23, pp. 635-648.

Vernon R. (1966), "International investment and international trade in the product cycle". QuarterlyJournal of Economics 80, pp. 190-207

Wang, Z. and N. Swain (1995), The Determinants of Foreign Direct Investment in Transforming Economies: Empirical Evidence from Hungary and China, Weltwirtschaftiches, Vol.129,pp 359-381

Wheeler, D and A. Mody (1992), "International Investment Location Decisions: The Case of US Firms," Journal of International Economics, Vol. 33.

Wiki, https://en.wikipedia.org/wiki/Microeconomic_reform