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Literature review of 100 empirical studies of Foreign Direct Investment: 1950-2015

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Abstract

International capital allocation influences has a social, political and economic impact on the trading countries. Thus, it has been investigated so as to determine the key factors of capital flows and their impact on the host country's economy. The present essay involves a literature review of 100 empirical papers focusing on capital movement and in particular in Foreign Direct Investment (FDI) inflows worldwide. The papers are discussed based on the statistical method applied, the sample chosen and the trends on the variables used. More recent empirical papers include larger samples of countries and the researchers don't tend to focus on case studies. Furthermore, it is argued that the empirical studies involve countries of every geographical region despite the fact that most of them focus on the largest recipients of F.D.I., that is to say the Asian and the Latin American countries.

Key words: Foreign Direct Investment, Empirical Studies, Literature Review, Statistical Method

Jel: O47, F21

INTRODUCTION

FDI has been a subject of academic study over the past decades. There are numerous scientific theoretical and empirical articles focusing on the determinants factors of FDI, as well as on the impact of the FDI inflows on the host country's economy. The purpose of the present study is to present a literature review of empirical papers regarding the FDI inflows in developing countries. Therefore, the aim, the statistical method, the variables and the results of each study are presented. In particular, empirical studies published from 1950 to 2015 have been selected. The papers are presented according to the publication date and thus four periods are studied: from 1950 to 1973, from 1974 to 1989, from 1990 to 2004 and from 2005

to 2015. This classification aims at the investigation of trends in each period regarding the statistical models and the variables used.

It should be noted that the present study focuses on the FDI inflows, thus the empirical papers investigated solely the FDI exports are not taken into consideration. In addition, the empirical studies presented refer mostly to the developing and underdeveloped countries. Furthermore, the papers have been selected so that the countries of the samples cover each geographical region, while in certain papers FDI is studied as a dependent variable and in the rest as an independent one. To our knowledge past studies presented a limited number of empirical papers. In the present study the sample is larger and thus 100 empirical studies are presented. Moreover, empirical papers have been chosen contrary to theoretical ones so as to investigate also the statistical methods applied during time. Finally, in the present study a large time period is covered based on the publication date of each paper.

PERIOD 1950 – 1973

We analyse the empirical works of this period started by Krainer (1967) who applied multiple regression analysis to study the effect of resource endowment in FDI inputs and the influence of the industry's structure on private capital flows and domestic economic activity. The study regarded FDI in the United Kingdom for the period 1952 - 1962 and in the USA for the period 1950 – 1963. The variables studied were the countries' portfolio, the FDI, the index of capacity utilization and the ratio of the British to American long term bond yields. The study concluded that the private FDI of both countries reacts differently to the capacity utilization changes.

The same year, Scaperlanda (1967) applied multiple regression analysis to investigate whether the establishment of the EEC¹ influenced the international capital allocation. The variables used are the FDI realized by the U.S.A. and the FDI in the Western European countries for the period 1951 – 1964. The researcher concluded that the establishment of the E.E.C. did not influence the international capital allocation. Griffin (1968) performed a cross – section analysis to investigate the influence of foreign capital inflows in the Colombian economic growth for the period 1950 – 1963. The variables used are domestic savings, the Colombian GDP² and the net inflow of foreign capital. The study concluded that the foreign capital inflow resulted in a corresponding reduction of domestic savings.

In addition, Scaperlanda and Mauer (1969) investigated the key factors of the US FDI during 1952 – 1966 applying OLS³. The researchers took into consideration the annual rate of the US FDI in the EEC countries, the GDP of the EEC countries, the tariff discrimination, the rate of the involved countries, the annual exports from the EEC countries and the annual U.S.

¹ European Economic Community

² Gross Domestic Product

³ Ordinary Least Squares

exports. The study concluded that from the FDI determinants only the market size of the host country is statistically important.

D' Arge (1969) applied multiple regression analysis to investigate the effect of the establishment of trade associations in the international allocation of resource and capitals. The study regarded the EEC and the EFTA⁴ countries during 1951 – 1965 and the annual rate of the US FDI in the EEC countries and the profit rates of the FDI were taken into consideration. The research concluded that the EFTA foundation had a significant positive impact on the US FDI in the region. On the contrary, no significant impact observed for the EEC countries. Schmitz (1970), based on the above presented research of Scaperlanda (1967) applied OLS to study the impact of the imposed trade tariffs in the US FDI to EEC and EFTA during 1951 – 1967. The researcher studied the growth rate of the US FDI in EEC and EFTA, the profit rates of the U.S. inflows in the regions and the sub – periods. It is observed that the EEC foundation changed significantly the U.S. plan of fund placement since it led to the reduction of both the US FDI and the US market share in EFTA.

Griffin (1970) used cross – section data to investigate the interdependence of foreign capital flows, domestic savings and economic development in 32 countries during 1962 – 1968. The variables used were the gross domestic savings, G.D.P. and foreign savings. The results indicated that a reduction of foreign capital could lead to an increase in both domestic savings and exports – capital ratio. These effects could offset the reduction of the total available resources and thus lead to economic growth, while reducing the level of current consumption.

Erbe (1970) applied multiple regression analysis to investigate the causes and effects of the private capitals movement in Germany during 1955 – 1969. The variables used were the net flow of private capital, trade balance and the German and European interest rates. It is observed that the capital flow doesn't affect significantly the trade balance. Moreover, the balance of the private capitals flow affected adversely the trade balance and positively the difference between the German and the European interest rates. Branson and Hill (1971) applied multiple regression analysis to study the capital movements among 6 OECD⁵ countries during 1960 – 1969. The variables used were the net capital inflow, the international interest rates, the income velocity of money and the host countries' trade balance. The researchers observed both short and long term interest rates; the income velocity of money and the trade balance contribute positively to attracting foreign capitals.

Weisskopf (1972a) used pooled OLS to investigate the impact of foreign capitals inflow on domestic savings in 44 countries during 1953 – 1966. The variables used were domestic savings, GDP, net capital inflows and total exports. It is observed that foreign

⁴ European Free Trade Association

⁵ Organization for Economic Co-operation and Development

capital inflows affect negatively domestic savings, while in most of the countries it is observed that foreign capitals replace domestic savings.

Moreover, Weisskopf (1972b) applied multiple regression analysis to study the impact of foreign capitals inflow on the economic growth of 44 countries during 1953 – 1966. The variables used were the total investment, GDP, the net inflow of foreign capital and total exports. The study concluded that trade restrictions do not constitute an obstacle in the countries' economic growth.

Pesmazoglou (1972) applied multiple regression analysis to investigate the interdependence among economic growth, investment and savings in 43 countries during 1957 – 1968. The variables examined were the growth rates of real GDP, gross fixed capital formation, gross domestic savings and balance of payments. In the long term, there has been observed high correlation between the growth rates of GDP and real gross fixed capital formation. Kwack (1972) applied OLS to investigate the determinants of the US FDI in 4 recipient countries during 1960 – 1967. The variables used were the FDI profit, the tax rates, the level of output, the services of labor input, the prices of output, the prices of capital goods, the prices of labor services, the interest rates, the expected rate of price changes, the stock of fixed and current assets and the net worth and liabilities. The study concludes that the U.S. FDI flows are determined by the price of foreign output, the U.S. interest rate and the value of the US FDI at the beginning of the period. Moreover, cash flow and dividends of U.S. non – financial companies affect positively the FDI flow abroad.

Kim (1972) used OLS to investigate foreign capitals inflow and their effect on the Korean economic growth during 1957 – 1966. Gross domestic capital formation, private and government capital formation and increase in stock were examined. The study argues that it is essential for the Korean economy to sustain high growth rates of tax revenue and exports so as to achieve sustaining growth.

Christian and Pagoulatoes (1973) analyzed cross section data to investigate the role of the domestic stock markets in attracting foreign capitals in 60 countries during 1962 – 1966. The variables used were GDP, gross fixed capital formation, time and demand deposits, the overall financial resources and the net inflows of funds. The study concludes that low level of domestic financial development is considered a major barrier of capital formation and production growth.

Healey (1973) applied multiple regression analysis to investigate the impact of foreign capital inflow in 8 countries during 1950 – 1969. The variables studied were the GDP growth rate, the exports and the trade liberalization. The research conclusions suggest that there is low correlation between exports and economic growth, except for Malaysia and Ceylon.

PERIOD 1974 – 1989

The second period after the collapse of fordism development model, presents several important studies in FDI analysis. More particularly, Kouri and Porter (1974) applied OLS to investigate the international capital flow and the balance of payments in 4 countries during 1960 – 1970. The variables used were the total inflow of private capitals, the foreign income, the exchange rate, the domestic assets, the domestic stock of wealth and the account balance. The study concluded that income changes contribute to capital flows changes, while capital flows adapt to the host countries' monetary policies. Stoneman (1975) used the multiple regression analysis to study the effect of the FDI on the economic growth in developing countries during 1945 – 1970. The variables used were the annual rate of economic growth, the gross domestic investment, the net FDI and the FDI stock. According to the results ODA⁶ and domestic savings contribute to economic growth. On the contrary, it is observed that FDI delay economic growth.

In addition, Kouri (1975) applied OLS to investigate the interaction between monetary policy and FDI in Germany during 1960 – 1970. The variables studied were the net capital inflow, the domestic stock of wealth, the domestic interest rate, the exchange rate, foreign income, the domestic assets and the current account balance. The study concluded that the German monetary policies offset substantially FDI

Some years later, Feldstein (1983) applied OLS to investigate the relation between domestic savings and international capital movement in 17 countries during 1960 – 1979. The variables taken into consideration were net FDI, GDP and domestic savings. The survey concluded that the constant increase in domestic savings causes corresponding increases in domestic investment rates. Blomström and Persson (1983) used OLS to investigate the interaction between FDI and spillover efficiency in Mexico in 1970. The variables taken into consideration were total assets, the Herfindahl index, the average gross production in host economies, the average effective work day, the number of employees employed in foreign companies, the average effective work day and the ratio of white – collar employees to blue – collar employees. The researchers argued that labor productivity in Mexico is positively associated to the presence of subsidiary companies and to the FDI

Rothgeb (1984) applied multiple regression analysis to investigate the impact of FDI on mining and constructions in 62 countries during 1967 – 1978. The variables considered were the FDI stock in constructions, FDI, real gross fixed capital formation, total population, per capita GDP and FDI stock in the mining industry. According to the findings FDI stock in the construction sector is positively associated to borrowing only in the USA, while only the African countries are affected by the FDI Moreover, FDI in the mining sector are not

⁶ Official Development Assistance

associated to the public debt accumulation. Finally, there have been observed differences among regions regarding the effect of FDI in public debt accumulation.

Blomström (1986) applied OLS to investigate the influence of multinational enterprises on the Mexican market structure during 1965 – 1970. The variables studied were the market concentration, the market size, the market growth, the average gross production, the total assets of the domestic enterprises, the advertising intensity and the foreign presence. It is argued that multinational enterprises are an independent source of concentration in the Mexican market since they raise the entry barriers for local enterprises and intense competition. Santiago (1987) applied a stepwise regression to investigate the impact of FDI on exports and employment in Puerto Rico in 1979. The variables examined were the FDI, the firm size, the capital intensity of production, the market concentration, the average profits, the fuel costs, the profits and the productivity in the host economy compared to the U.S.A. According to the findings low labor cost in Puerto Rico is not considered an important factor in attracting FDI.

Rothgeb (1988) used multiple regression analysis to investigate the production sector as a FDI determinant in Africa and Latin America during 1967 – 1978. The variables considered were the GDP growth rate and the FDI stock. The study reached to the conclusion that there is a positive correlation between FDI inflow and economic growth, especially in constructions, transports and telecommunications. On the contrary, FDI have no significant impact on the mining sector.

Smits (1988) applied OLS to investigate the relation between FDI and the export and import value in 30 countries in 1978. The variables studied were the value of exports or imports, GDP, total population and FDI stock. It is argued that there is stronger correlation among exports, G.D.P. and F.D.I. stock for least populated countries. Kharas and Levinsohn (1988) applied 2SLS⁷ analysis to study debt problems in LDC⁸ taking into consideration foreign financing and commercial loans in 26 countries during 1961 – 1981. The consumption, the income and the FDE were examined. The research findings suggest that increasing propensity of domestic savings improved creditworthiness.

Culem (1988) used OLS and GLS⁹ to investigate the location determinants of FDI in 6 European countries during 1969 – 1982. The variables taken into account were the FDI, the annual rate of GDP growth, tariff barriers, labor costs and the nominal interest rate differential. The study reached to the conclusion that the market size, the growth rate and the tariff barriers are the most important location determinants in attracting FDI Nevertheless, it

⁷ Two Stages Least Square regression

⁸ Least Developed Countries

⁹ Generalized least squares

is observed that the size of the European market is not considered a significant factor in attracting FDI deriving from the U.S.A.

PERIOD 1990 – 2004

The third period is characterized by the rapid development of developing countries around the world and the transition process for many former eastern countries into European Union environment in 2004. A huge number of studies regarding FDI have developed this period. Savvides (1990) applied OLS and two – stage limited – dependent variable method to investigate the interdependence between creditworthiness and FDI in 47 LDC during 1980 – 1986. The variables used were the commercial inflows, the intention to reschedule capital and the exogenous variables affecting creditworthiness. The study concluded that the amount of capital inflows affects significantly the host countries' creditworthiness and that foreign commercial inflows are not associated with increased creditworthiness.

Tsai (1991) used OLS to investigate the determinants factors of the Taiwanese F.D.I. during 1958 – 1985. The variables studied were the FDI in Taiwan, the Taiwanese economic reforms regarding FDI and the periods during which FDI reached their peak. According to the findings incentives offered to foreign investors and the country's economic performance are not determinant factors in attracting FDI. Drake and Caves (1992) also used OLS to investigate the FDI determinant factors of Japan in the U.S.A. during 1975 – 1986. The researchers took into consideration the FDI, R&D spending, the Japanese share of U.S. the imports, the trade restrictions, the advertising intensity, the real exchange rate, the retained profits and the total Japanese enterprises as a fraction of total enterprises in the U.S.A. The study concluded that the Japanese R&D contribute significantly to performing more FDI and that in the 80's the FDI share of Japan in the USA increased mostly due to increased advertising and promotion.

Ketkar (1993) applied 2S.L.S. to investigate the Indian public banking sector and its impact on the country's economic growth during 1950 – 1985. The variables studied were the real domestic demand, the real investment, the funding costs, the bank deposits, the real foreign capital inflows, the return on capital and the credit allocations. The study reached to the conclusion that the Indian expanding programs in the banking sector increased both domestic savings and investments. Pastor and Hilt (1993) applied OLS to investigate the correlation between FDI and democracy in 7 Latin American countries during 1973 – 1986. The variables studied were the FDI, the expected growth rate, the changes in credit to the private sector, the development of public sector investment, the inflation rate, the expected debt burden, the actual debt service, the per capita GDP, the IMF¹⁰ programs, the political

¹⁰ International Monetary Fund

risk, the worker share of income and the Gurr index of democracy. The study concludes that democracy is negatively associated to private FDI when measures related to debt are not applied, while on the contrary there is a positive correlation in case these measures applied.

Fatehi and Safizadeh (1994) applied multiple regression analysis to investigate the impact of social and political changes on the FDI in 15 LDC during 1950 – 1982. The variables taken into consideration were FDI in manufacturing, mining and petroleum industries, the GDP and the total population. The researchers did not observe a stable pattern of FDI fluctuations because of political turmoil. Metwally and Tamaschke (1994) applied OLS and 2S.L.S. to study the interaction among external debt, capital flows and economic growth in 3 North African countries during 1975 – 1992. The variables used were the debt service, the debt stock, the capital inflow, the rate of growth of GNP¹¹, the interest rate on foreign debt, exports, the ratio of total credits to total debt, the domestic savings, the foreign absorption and the difference between domestic and international interest rate. It has been observed that increases in total debt service are negatively related to economic growth and thus to the country's ability to repay existing debt. Moreover, when regarding to capital inflows, the need to borrow will be limited and thus economic growth could be achieved through absorbing F.D.I.

Wei (1995) focused on the Chinese FDI during 1987 – 1990 and used a FE.¹² model taking into account FDI, GDP, total population and literacy ratio. The study concluded that China received limited FDI from the major suppliers of foreign capital, while the amount of FDI received from Japan is considered sufficient.

Meller et al (1996) applied OLS to investigate the interaction among economic growth, environment and justice in Chile during 1951 – 1989. The variables used were the growth rate of real GDP, the rate of GDP growth by Hicks, the capital stock effectively utilized and the employment ratio. It has been observed that recessions lead to high rates of unemployment that affect negatively both economic growth and the low and middle – income groups. Thus, economic growth could be achieved through reforms in the labor market. Aitken et al (1996) applied 2SLS to study the relation between wages and foreign ownership in 3 countries in 1987 and in 1990. The variables examined were the wages, the share of employees in foreign ownership enterprises, the equilibrium wage, the royalty payments, the capital stock, the industry sector and the region and the share of foreign enterprises. It is argued that higher amounts of FDI are positively associated to higher wages.

Kumar (1996) applied OLS to investigate the relation among IPR¹³, market orientation and location of FDI in 44 countries in 1977, 1982 and 1989. The variables used

¹¹ Gross National Product

¹² Fixed Effects

¹³ Intellectual Property Rights

were the total expenditure for R&D, sales of non – banking subsidiaries, the GDP of the host country, the FDI royalties, the host country sales of majority owned subsidiaries, the exports, the national and the total expenditure on R&D, the literacy rate, the average wage, the number of telephones per 1000 of inhabitants, the IPR index, the tariff rates and the number of subsidiaries acquired by foreign governments. The findings suggest that the countries of larger domestic market could more possibly attract FDI for R&D. Finally, technological resources, strengthening the protection of IPR and infrastructure render the host countries more attractive to FDI for R&D.

Borensztein et al (1998) 2S.L.S. and 3S.L.S.¹⁴ to investigate the impact of FDI in 69 countries during 1970 – 1989 taking into consideration the economic growth, the FDI, the stock of human capital, the GDP, the government consumption, the political instability, the political rights, the inflation, the quality of institutions, the exchange rates and the financial growth. The research concluded that FDI are positively related to transfer of technology and thus contribute to the economic growth more than the domestic investments. Nevertheless, FDI contributes to economic growth when the absorptive capability of the domestic human resources is sufficient.

Sadik and Bolbol (2001) used OLS to study the impact of FDI on the economic performance of 6 Arab countries during 1978 – 1998. The variables used were the domestic productivity, the FDI, the labor force and the marginal capital productivity. The study concluded that FDI affect positively both economic growth and domestic investment.

Noorbakhs et al (2001) applied weighted least squares to investigate the impact of FDI on human capital in 36 countries during 1980 – 1994. The variables studied were the FDI, the human capital and the FDI determinant factors except for the human capital. The study concluded that human capital is a key determinant of FDI since it could influence their geographical distribution. Furthermore, FDI are positively associated to the development of the domestic markets, the stable macroeconomic environment, the trade liberalization, the sufficiency in natural resources and the investment environment. Globerman and Shapiro (2002) used OLS to investigate the impact of the government policy, the human capital and the environment on FDI in 144 countries during 1995 – 1997. The variables used were the FDI inflows and outflows, the GDP, the governance infrastructure, the human capital and the environmental sustainability. It has been argued that both government policy and governance infrastructure are determinant factors of FDI inflows and outflows.

Choi (2003) used OLS, weighed least squares and Tobit regression to investigate the use of the Internet as a determinant factor of FDI in 53 countries during 1994 – 1996. The variables studied were the FDI stock, the distance between the trading countries, the common

¹⁴ Three – stage least squares

language, the GDP, the population, the characteristic of the host country, the number of Internet users and the trade blocs. According to the findings the growth of the Internet use in the host country contributes significantly to attracting FDI.

Liu and Wang (2003) used 2S.L.S. to investigate the impact of FDI on technological progress in China for the year 1995. The variables examined were the total productivity, the expenditure for R&D, the human capital, the total sales and the FDI. It is argued that foreign presence, expenditure for R&D and the firm size are the most important factors of the technological progress in China. Bengoa and Sanchez – Robles (2003) used panel data to investigate the interaction among FDI, economic growth and economic freedom in 18 Latin American countries during 1970 – 1999. The variables studied were the FDI, the market size, the economic freedom, the human capital and the host country's economic conditions. The researchers observed positive correlation between economic freedom and FDI, as well as between FDI and economic growth, while in both cases human capital, economic stability and market liberalization are essentials.

Fung et al (2003) used GLS to study the FDI in China during 1990 – 2000 taking into account the FDI, the GDP, the average wage, the literacy ratio, the infrastructures, the Special Economic Zones, the coastal cities, the Economic and Technological Development Zones the distance between the trading countries. The study concludes that labor cost in China mostly affects FDI from Hong Kong and local demands affect FDI from Japan. Moreover, FDI from Japan are mostly attracted by the Economic and Technological Development Zones, while FDI from Hong Kong are attracted by the coastal cities and the Special Economic Zones. Finally, distance is not considered a determinant factor of FDI deriving from Japan.

Alfaro et al (2004) used OLS to investigate the impact of the local financial markets on economic growth and FDI in 71 countries during 1975 – 1995. The variables used were the economic growth, the FDI, the financial systems, the educational level, the population, the institutional quality, the black market premium, the inflation, the trade openness and the government consumption. It is argued that FDI contribute significantly to economic growth but this contribution depends on the development of the local financial markets.

Farrell et al (2004) performed pooled regression to investigate the determinants factors of FDI deriving from Japan towards 15 countries during 1984 – 1998. The factors studied were the FDI, the market size, the Japanese exports and imports, the labor costs, the exchange rate, the Japanese real interest rate and the antidumping measures. The study concluded that the market size is a key factor in attracting FDI. Moreover, FDI flows from Japan are mostly influenced by the macroeconomic conditions and the antidumping measures and there is a positive correlation between imports and FDI. Finally, both trade flows and F.D.I. depend on the industry of the host country.

Bevan and Estrin (2004) used RE¹⁵ to study the determinant factors of F.D.I. in 11 in European transition countries during 1994 – 2000. The variables used were the F.D.I., the trading countries' size, the distance, the trade openness, the labor cost, the interest rate differential, the institutional, legal and political conditions in the host country and the prospect of EU¹⁶ membership. The study concluded that the labor cost, the market size and the distance between the trading countries are determinant factors of F.D.I., contrary to the institutional, legal and political conditions. Moreover, the prospect of E.U. membership attracts more future FDI.

In another study of Bevan et al (2004) the impact of FDI on institutional development in 12 transition countries during 1994 – 1998 was studied, using cross - section analysis. The variables used were the FDI, trading countries' size, the distance, the trade openness, the relative labor cost, the common borders, the aggregate institutional index and Russia as a dummy variable. It is argued that there is a positive correlation between F.D.I. and institutional development. In addition, FDI contribute to the development of the private enterprises, the banking sector, the trade openness and the legal development.

Durham (2004) applied OLS to study the impact of FDI and EFPI¹⁷ on economic growth in 83 countries during 1979 – 1998. The variables used were the economic growth, the FDI and the equity foreign portfolio investment, the economic or institutional development, the corruption and the property rights. It is observed that F.D.I. and equity foreign portfolio investment do not have direct impact on economic growth; however, they contribute to the improvement of the absorption capacity.

PERIOD 2005 – 2015

Li and Liu (2005) used 3S.L.S. to study the impact of FDI on economic growth in 84 countries during 1970 – 1999. The variables studied were the GDP, the inflation, the literacy ratio, the gross domestic investment, the FDI, the black market premium, the interest rates, the political instability, the trade volume, the regional inequalities and the telephone lines per capita. The study concluded that there is a positive correlation between F.D.I. and economic growth since they influence positively the human capital.

Agosin and Machado (2005) used GMM¹⁸ to investigate the impact of FDI on domestic investment in 12 countries during 1971 – 2000 taking into consideration the private investment, the FDI and the GDP. It is argued that FDI do not influence domestic investment.

¹⁵ Random Effects

¹⁶ European Union

¹⁷ Equity Foreign Portfolio Investment

¹⁸ Generalized method of moments

Schneider (2005) used OLS and FE to investigate the interaction among international trade, economic growth and IPR in 47 countries during 1970 – 1990. The variables studied were the human capital stock, the GDP, the FDI, the infrastructure, the R&D expenditures, the IPR index, the physical capital stock, the imports and the innovation rate. It is observed that the influence of FDI on economic growth is ambiguous. Alsan et al (2006) used OLS and RESET¹⁹ to investigate the population health as a determinant factor of FDI in 74 countries during 1980 – 2000. The variables used were the FDI, the population, the GDP, the income, the trade barriers, the literacy ratio and the health status. The study concluded that total FDI are positively and significantly related to the health status.

Ramman and Zurbuegg (2006) used FE, RE and cross – section analysis to study the regulatory quality as a determinant factor of FDI in 5 ASEAN²⁰ during 1996 – 2002 taking into consideration the FDI, the price controls and the financial supervision. It is observed that both price controls and the intensive trade and investment regulation influence negatively FDI.

Hansen and Rand (2006) used FE and a VAR²¹ model in 31 countries during 1970 – 2000 taking into account the FDI, the host country's characteristics and time dummies. There has been observed bidirectional causality between FDI and GDP. Moreover, FDI have long – run impact on GDP and thus they contribute to economic growth. Kasuga (2007) used OLS, FE and RE to investigate the interaction among FDI, ODA and savings in 64 countries during 1980 – 1999. The variables studied were the GDP, the gross fixed capital formation, the gross domestic savings, the FDI and the ODA. It is observed that the impact of FDI, ODA and domestic savings depends on the host country's income level, financial structure and governance infrastructure.

Mina (2007) applied GLS and panel data to investigate the location of the host country as a determinant factor of FDI in GCC²² during 1980 – 2002. The variables used were the FDI, the international price of crude oil, the market size, the human capital, the infrastructure development, the institutional quality, the trade openness and the oil resources. It is observed that oil resources, oil production, oil price and human capital have significant negative impact on FDI. On the contrary, relative oil utilization, institutional quality, trade openness and infrastructure improve encourage FDI. Te Velde and Xenogiani (2007) used OLS, FE and RE to study the impact of FDI on educational and skill inequalities in 111 countries during 1970 – 2000. The variables studied were the literacy ratio, the FDI, the education opportunities, the GDP, the land endowments and the skill endowments. It is

¹⁹ Ramsey Regression Equation Specification Error Test

²⁰ Association of Southeast Asian Nations

²¹ Vector Autoregression

²² Gulf Cooperation Council

argued that there is a positive correlation between F.D.I. and literacy ratio and the FDI contribute to skills development in countries already well – endowed with basic skills.

Ndikumana and Verick (2008) used FE to study the relation between FDI and domestic investment in 38 SSA²³ during 1970 – 2005. The researchers took into consideration the FDI, the private investment, the total investment and the factors affecting FDI, private and public investment. It is argued that FDI crowds in domestic investment and private investment encourage FDI.

Azémar and Desbordes (2009) applied OLS and FE to study the impact of health status on FDI in 70 countries during 1985 – 2005. The variables used were the FDI, the market size, the macroeconomic policies, the degree of democracy, the provision of public goods and the IPR. It is observed that the SSA receive less FDI compared to the rest countries of the sample because of lack of public goods, human capital and health status. Suliman and Mollick (2009) used FE to study the role of human capital and wars in attracting FDI in 29 SSA during 1980 – 2003. The variables studied were the FDI, the market size, the literacy ratio, the infrastructure, the market demand, the liquidity, the openness, the civil rights and the political freedom. It is suggested that the literacy ratio, the political freedom and the civil rights have a positive impact on FDI contrary to wars that discourage FDI.

Adams (2009) used OLS and fixes effects to study the interaction among FDI, private investment and economic growth in 42 SSA during 1990 – 2003. The variables used were the FDI, the human capital stock, the gross domestic investment, the G.D.P., the location, the political danger, the inflation, the openness of the economy and the government consumption. It is observed that FDI have a negative impact on domestic investment and thus there is a crowding out effect.

Vadlamannati and Tamazian (2009) applied GMM to study the impact of FDI on economic growth in 80 countries during 1980 – 2006. The variables used were the domestic investment, the output per worker, the FDI, the trade openness, the inflation, the civil wars, the political and institutional constrains and the economic reforms. It is observed that the FDI and the political and institutional reforms contribute to economic growth. Moreover, there is a positive correlation between FDI and aggregate production. Vijayakumar et al (2010) performed a panel analysis to investigate the determinants factors of FDI in the BRICS²⁴ countries during 1975 – 2007. The variables studied were the FDI, the GDP as the measure of market size, the inflation, the labor cost, the trade openness, the gross fixed capital formation, the currency value, the infrastructure and the industrial production. It is suggested that the determinant factors of FDI are the market size, the labor cost, the infrastructure, the currency value and the gross fixed capital formation.

²³ Sub – Saharan African countries

²⁴ Brazil, Russia, India, China, South Africa

Kinda (2010) used 2S.L.S. and PCA²⁵ to study the correlation between FDI and investment climate in 77 countries during 2000 – 2006. The researcher took into account the structural constraints, including the infrastructure, the human capital and the institutions, the firm location factors, including agglomeration effects, taxes, firm's size and trade regulations, as well as the host country and sector effect. It is observed that deficiencies in physical infrastructure, financial constraints and institutional problems have a negative impact on FDI.

Azman – Saini et al (2010) applied PTR²⁶ to study the interaction between local financial markets and FDI in 91 countries during 1975 – 2005. The variables studied were the GDP, the income, the population, the FDI, the human capital, the government expenditure and the financial markets. It is observed that there is a threshold level beyond which FDI has positive impacts on economic growth. Hübler and Keller (2010) applied OLS to study the impact of FDI on energy savings in 60 countries during 1975 – 2004. The variables used were the FDI, the imports, the ODA, the income, the gross fixed capital formation, the industrial value added in output and the primary energy supply. The study concludes that the FDI do not contribute to the reduction of energy intensity.

Ali et al (2011) used OLS, GMM and panel analysis to study the interaction between IPR and FDI in 70 countries during 1981 – 2005. The variables studied were the IPR, the economic growth, the FDI, the political determinants of institutions, the cultural determinants of institutional quality and the endowments. It is observed that FDI contribute to economic growth since they improve the institutional quality. Moreover, there is a positive correlation between FDI and IPR.

Doytch and Uctum (2011) applied GMM, FE and pooled OLS to study the impact of FDI on manufacturing and service growth in 60 countries during 1990 – 2004. The variables used were the GDP, the manufacturing and the services value added, the FDI in manufacturing, service, financial and non – financial services and the net FDI. The study concluded that there is a positive impact of FDI on economic mostly in the manufacturing sector in Latin American, Caribbean, Europe and Central Asia, in middle and low income countries and in countries with developed manufacturing bases. Moreover, FDI in the service industry could lead to deindustrialization. Finally, FDI in the financial sector contributes to economic growth in South and East Asia, in Pacific and in high income countries.

Tiwari and Murascu (2011) applied pooled OLS to investigate the impact of FDI on economic growth in 23 Asian countries during 1986 – 2008. The variables used were the GDP, the gross fixed capital formation, the labor force, the FDI and the exports. The study concluded that both FDI and exports contribute to economic growth. Nevertheless, it is

²⁵ Principal Component Analysis

²⁶ Panel Threshold Regression

observed that the export – oriented developmental strategies are more effective in achieving economic growth than the FDI – oriented strategies.

Anwar and Cooray (2012) used OLS, GMM and FE. to study the interaction among FDI, the quality of governance and economic growth in 6 South Asian countries during 1970 – 2009. The variables used were the GDP, the stock of capital, the human capital, the level of economic development, the FDI, the exports, the civil rights, the political rights and the government expenditure. The study concluded that financial development increases the benefits deriving from FDI. Fillat and Woerz (2011) used panel data analysis, GMM and OLS to study the impact of FDI on productivity growth in 35 countries during 1987 – 2002. The researchers took into consideration the FDI, the exports, the domestic investment, the employment, the growth rates and the characteristics of the industries and the countries. The study did not reach any clear conclusion regarding the impact of FDI on economic growth. It is suggested that the impact of FDI on economic growth depends on the developmental stage, while in some countries a crowd – out effect of FDI on domestic investment is observed.

Jadhav (2012) applied panel data analysis to investigate the determinant factors of FDI in the BRICS countries during 2000 – 2009. The variables used were the market size, the institutional and political factors, the political risk factors and the natural resource availability. It is argued that financial factors are more important than that political and institutional ones in attracting FDI. Finally, the determinant factors of FDI are the market size, the trade openness, the natural resource availability, the Rule of Law and the Voice and accountability.

Morrissey and Udomkerdmongkol (2012) used GMM to investigate the interaction among private investment, FDI and governance in 46 countries during 1996 – 2009. The variables studied were the private and the public investment, the FDI, the GDP and governance indicators. It is argued that countries with effective governance attract more FDI and private investment and the political stability of the most important factor in attracting FDI. Gohou and Soumaré (2012) applied 2S.L.S. to investigate the interaction between FDI and poverty in Africa's RECs²⁷ during 1990 – 2007. The variables considered were the poverty rates, the FDI, the HDI²⁸, the GDP, the financial and political conditions, the investment environment, the institutional quality and the political risks. The study concludes that there is a positive relation between FDI and poverty reduction. Moreover, FDI have a greater impact on the welfare of poorest countries rather than the richer ones.

Tintin (2013) applied OLS and FE to study the determinant factors of FDI in 6 European countries during 1996 – 2009. The variables used were the FDI, the GDP, the distance, the trade openness, the EE membership, the economic freedoms, the political

²⁷ Regional Economic Communities

²⁸ Human Development Index

instability, the political rights and the civil liberties. It is argued that there the determinants factors of FDI are the GDP, the trade openness, the EE membership and the institutional quality.

Masron and Nor (2013) applied panel data analysis to investigate the impact of institutional quality on FDI in 8 ASEAN during 2002 – 2010. The variables studied were the GDP, the institutional quality, the educational expenditure, the trade openness and the wage rate. It is observed that the countries that improved the institutional quality and the corruption controls attracted larger amounts of FDI.

Kashcheeva (2013) used OLS, GMM and FE to investigate the relation between FDI and IPR in 103 countries during 1970 – 2009. The variables used were the stage of development, the FDI, the IPR, the human capital, the government expenditure, the trade openness, the inflation and the market distortions. The study concludes that both FDI and IPR have positive impact on economic development. Kaur et al (2013) used panel data, FE and RE to investigate the impact of the financial system on the FDI in BRIC²⁹ countries during 1991 – 2010. The variables studied were the FDI, the liquid liabilities of banking sector, the credit by banking sector, the return on equity of banks, the bank cost and income, the stock market capitalization and the turnover ratio. The study reached to the conclusion that FDI depend on the banking sector and the financial market in the host country. Furthermore, there is a positive relation between FDI and the banking sector and between FDI and the stock market capitalization.

Ezcurra and Guez – Pose (2013) applied OLS to investigate the interaction between economic globalization and regional inequalities in 47 countries during 1990 – 2007. The researchers studied the regional inequalities, the trade openness, the F.D.I. stock, the portfolio investment, the income payments to foreign nationals and the trade and tax restrictions. It is argued that there is a positive relation between economic globalization and regional inequalities, as well as between economic openness and regional inequalities.

Lessmann (2013) also investigated the impact of FDI on regional inequalities in 55 countries during 1980 – 2009. The methods used were OLS and LIML³⁰ and the variables studied were the regional inequalities, the GDP and FDI. The study concluded that FDI increase regional inequalities in low and middle income countries. Fereidouni (2013) applied GMM and FE to investigate the environmental effect of FDI in 31 emerging economic during 2000 – 2008. The variables used were the CO₂ emissions, the FDI by sector, the GDP and the urban population. It is argued that FDI in real estate sector has no impact on CO₂ emissions. On the contrary, it is suggested that there is a positive correlation among energy consumption, urbanization, economic growth and CO₂ increased emissions.

²⁹ Brazil, Russia, India, China

³⁰ Limited Information Maximum Likelihood

Feeny et al (2014) used OLS and GMM to investigate the impact of FDI on economic growth in 2009 in the Pacific Island countries during 1971 – 2010. The variables studied were the GDP, the FDI, the literacy ratio, the inflation, the imports, the exports, the domestic investment and the trade openness. It is argued that the impact of FDI on the economic growth of the countries of the sample is lower than the average impact of the host countries.

Imai et al (2014) used panel data to study the impact of FDI on economic growth in 24 countries during 1980 – 2009. The variables used were the GDP, the remittances, the inflation, the civil wars, the available natural resources, the investment, the financial development and the capital account openness. It is observed that remittances contribute more on economic growth compared to FDI and ODA.

Goswami and Haider (2014) applied factor analysis and panel data to study the impact of political risk on the FDI in 146 countries during 1984 – 2009. The variables used were the market size, the GDP, the trade openness and the available infrastructure. The study concluded that both cultural conflict and the attitude of the host country towards foreign investors discourage FDI.

Seyoum et al (2014) applied panel data to study the interaction between trade openness and FDI in 25 SSA during 1977 – 2009. The variables used were the trade openness and the FDI. The researchers reached to the conclusion that there is a bidirectional casual relation between FDI and trade openness. Thangavelu and Narjoko (2014) used FE to study the relation between FTAs³¹ and FDI in 39 countries during 2000 – 2009. The researchers took into consideration the GDP, the literacy ratio, the FTAs, the distance, the common borders and the language. It is argued that there is a positive relation between FDI and FTAs and that the impact of FDI on the host country's economy depends on its absorptive capacity.

Kinuthia and Murshed (2014) applied VAR and VECM³² to investigate the determinant factors of FDI in Kenya and Malaysia during 1960 – 2009. The variables studied were the market size, the trade openness, the financial stability, the inflation, the FDI, the institutional development and the cost factors. The study concluded that the FDI contributed to economic growth only in Malaysia because of the country's macroeconomic stability, trade openness, infrastructure facilities and institutional development.

Doytch et al (2014) used GMM to study the impact of FDI on child labor in 100 countries during 1990 – 2009. The variables used were the income, the population, the corruption, the FDI, the child labor and the U.N.³³ Convention on the Rights of the Child. It is suggested that FDI in the agricultural sector in Europe and Central Asia increase child labor, contrary to FDI in manufacturing and mining in the rest countries of the sample.

³¹ Free Trade Agreements

³² Vector Error Correction Model

³³ United Nations

Omri et al (2014) applied GMM and panel data to investigate the interaction among CO₂ emissions, FDI and economic growth in 54 countries during 1990 – 2011. The variables used were the CO₂ emissions, the GDP, the labor force, the FDI, the urbanization and the trade openness. The study concluded that there is bidirectional causality between FDI and economic growth, as well as between FDI and CO₂ emissions except for Europe and North Asia.

Xaypanya et al (2015) applied pooled OLS and FE to investigate the determinant factors of FDI in 8 ASEAN during 2000 – 2011. The variables used were the FDI, the real exchange rates, the inflation, the telephone lines, the trade openness, the ODA and the host country's loans. It is observed that in Laos, Vietnam and Cambodia the FDI key factors are the infrastructure, the trade openness and the inflation. In the rest countries of the sample it is observed that the determinant factors of FDI are the market size and the infrastructure.

Cleeve et al (2015) used panel data to study the interaction between FDI and human capital in 35 SSA countries during 1980 – 2012. The variables studied were the FDI, the human capital, the literacy ratio, the trade openness, the natural resources, the market size, the democratic institutions, the infrastructure, the financial crises and the political participation. It is argued that there is a positive relation between F.D.I. and human capital and that the market size, the natural resource endowments, the infrastructure and the economic crises are the determinants factors of FDI. Samargandi et al (2015) applied PCA and ARDL³⁴ to study the interaction between FDI and economic growth in 52 countries during 1980 – 2008. The variables used were the trade openness, the FDI, the population, the government expenditure and the gross fixed capital formation. It is argued that FDI contribute to economic growth since they improve productivity, technology transfer and adoption of new processes and skills.

Anwar and Cooray (2015) used OLS, GMM and panel data to investigate the interaction among FDI, ODA, remittances and GDP in 103 countries during 1970 – 2011. The variables used were the GDP, the domestic capital, the ODA, the remittances and the FDI. It is observed that both FDI and remittances have a positive impact on GDP. Furthermore, the institutional quality, the government expenditure and the human capital are determinant factors of FDI.

Arazmuradov (2015) applied 2S.L.S. and F.E. to study the interaction between F.D.I. and ODA in 5 central Asian countries during 1993 – 2008. The variables used were the FDI, the ODA, the gross fixed capital formation, the exports, the natural resource availability and the banking reforms. The study concluded that natural resource availability attracts more FDI and that there is a positive relation between FDI and ODA.

³⁴ Autoregressive Distributed Lag

Gui – Diby and Renard (2015) applied GLS to study the relation between industrialization and FDI in 49 countries during 1980 – 2009. The variables used were the level of industrialization, the gross fixed capital formation, the FDI, the exports, the imports and the value added of the agricultural sector. It is argued that FDI have no significant impact on the level of industrialization contrary to the market size, the international trade and the financial sector of the host country.

Lin et al (2015) applied P.T.R., O.L.S. and P.S.T.R.³⁵ to investigate the interaction between FDI and income inequality in 42 countries during 1976 – 2005. The variables used were the income inequality, the FDI, the GDP, the literacy ratio, the inflation, the imports, the exports, the private credit, the government spending, the redistributive expenditures and the intervention in the marketplace. It is argued that FDI inflows increase income inequalities and that this impact depends on the level of economic growth.

Pazienza (2015) used OLS, RE and FE to study the environmental impact of FDI in 30 countries during 1981 – 2005. The variables used were the CO₂ emissions, the GDP, the gross fixed capital formation, the trade openness, the literacy ratio, the product and the surface. The findings suggest that F.D.I. have no environmental consequences.

DISCUSSION

The present essay involves the brief presentation of 100 empirical papers on FDI The study aims at categorizing the papers in four periods based on the publication date so as to investigate the trends regarding the statistical methods and the variables used, as well as the countries examined so as to reach to useful conclusions on the examination of FDI It is noted that only the papers that refer to FDI inflows have been selected under the condition that they present and use a statistical model in which FDI were either a dependent or an independent variable.

The first period (1950 – 1973) includes 16 empirical papers, in most of which multiple regression is applied as a statistical method. Furthermore, it is observed that only the papers published in this period investigate the role of the trade associations, that is to say the EEC and the EFTA In addition, most of the papers of this period tend to focus on the international capital movement and on economic growth. Finally, in most of the papers of the period the FDI inflows are studied as a dependent variable and most of the researchers focus on FDI in the European countries.

When regarding to the second period (1974 – 1989) 12 papers are presented. It is observed that in the majority of the studies OLS is chosen and applied as a statistical method, while in this period it is the first time we found empirical papers that used 2S.L.S. and GLS

³⁵ Panel Smooth Transition Regression

Contrary to the period above presented, in the second period F.D.I. are mostly investigated as an independent variable. In addition, it is the first time that O.D.A. is taken into account, as well as the FDI by sector. Similarly to the previous period it is observed that most of the authors focused on economic development and capital allocation. As for the sample, most of the researchers focused on the Latin American countries.

The third period (1990 – 2004) includes 24 papers in the majority of which F.D.I. are examined as a dependent variable. It is observed that most of the empirical papers published during this period applied OLS; nevertheless, it is in the third period we first encounter other statistical methods such as FE., RE and 3SLS. When regarding to the independent variables, it is observed that we first encounter the literacy ratio and the wages inequalities. Thus, during this period the social determinants and implications are investigated. In addition, the role of the economic zones is taken into consideration; however it is the first time we encounter the trade openness as a variable. Moreover, it is the first time we encounter the investigation of the environmental impact of F.D.I. It is argued that during this period the researchers mostly focused on investigating the social, political and financial determinant factors of F.D.I. Finally, during the specific period it is observed that the researchers take into account the IPR and the R&D and thus the industrial property is a subject of study. When regarding to the sample, it is observed that most of the papers focus on the Asian and Latin American inflows.

In the last period (2005 – 2015) it is observed that FDI is studied as an independent variable. Furthermore, most of the papers focus on the determinant factors of FDI and on their impact on economic growth. However, there is a growing number of papers that focus on the environmental consequences of FDI. Moreover, we encounter for the first time the investigation of the impact of FDI on poverty reduction and on child labor. In addition, it is the first time we encounter the investigation of health status and wars as determinant factors of FDI. Consequently, more recent empirical papers focus mostly on the social and environmental implications of FDI. Finally, it is observed that the majority of the papers include a larger sample of countries compared to the previous periods and that most of them focus on the Asian and African inflows.

CONCLUSION

A plethora of research has been conducted over FDI over the past decades. From the empirical papers presented in this essay we managed to reach some conclusions on the statistical methods used, the sample chosen and the topics that the researchers mostly focus. The present study is limited to empirical papers in which a statistical model including FDI is available. Thus, the empirical papers at which the statistical model would be available upon request have been excluded from the study. Further research could involve the papers

involving FDI in certain groups of countries, such as the GCC and the Arab countries. In addition, empirical papers published after 2015 could be added.

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