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The Contribution of Foreign Investment Movements to Economic Growth: a Macroeconomic Approach.

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Introduction

The contribution of foreign investment to economic growth is widely discussed in economic literature. The question of the relationship of foreign investment and economic growth has become important now because of the growing importance of foreign investment in the world economy. In this work, the different aspects of the impact of foreign investment on economic growth are investigated. In the first section there is a review of economic literature on the cause. In the second section, the empirical analysis is made to find out the relationship between the ratios of outward (inward) FDI to outward (inward) FPI and GDP per capita growth (and GDP per capita) to see how the structure of foreign investment influences GDP per capita (growth).

1. *Review of economic literature.*

First I shall turn to the review of the classical theory on the subject.

From the comparative static approach, the simple model of two countries has the following basic assumptions: production of one good; output depends partly upon capital and partly on labor; there are positive but diminishing marginal products of each factor and constant returns to scale; there is no assumption; there is perfect competition in the fullest sense; there is no technological change; no depreciation; transaction costs are zero; portfolio holders aim for the highest return they can get. If countries display different rates of profit at the moment, the ban on cross-country capital movement is taken away, than if it's higher in A than in B, capital will flow from B to A. But it will encourage the opposite flow of profits from A to B. Therefore, in this case, both countries win: A from increased domestic product because of the availability of additional capital, and B from increased receipts of profit income from abroad. Both countries experience a rise in national income when restrictions on international capital movements are abolished.

In fact, if the marginal product of capital happens to be a similar linear function of the stock of capital in each country, these welfare gains will be evenly split between them.

In a dynamic view, the process of capital migration drives interest rates together. So capital and domestic product (output) rise in A and fall in B, until they are equal in both.

But, still from the modern theory's point of view, the basic assumption of the classical model are unrealistic; furthermore, the modern theory of international

investment movements gives many different explanations of foreign investment movements (therefore, the interest rate differentiation is not the only one).

Thus I shall turn to the review of the modern theory on the subject. First, the host country's gains and losses from foreign investment should be examined.

For the host country, foreign private investment is usually seen as a way of filling gaps between the domestically available suppliers of savings, foreign exchange, government revenue and skills, and the planned level of these resources necessary to achieve development targets.

An example of the saving-investment gap analysis, is the Harrod - Domar growth model which postulates a direct relationship between a country's rate of savings, s, and its rate of output growth, g, via the equation g = s/k, where k is the national capital /output ratio. If the planned rate of national output growth, g, is targeted at say 7 % annually, and the capital/output rate is 3, then the needed rate of saving is 21 % (since s = g*k). If the saving that can be domestically mobilized amounts to only say, 16 per cent of GNP, then a savings gap equal to 5 % of GNP can be said to exist. If the nation can fill this gap with foreign financial resources (either private or public) it will be better able to achieve its target rate of growth. So, the first and most often cited contribution of private foreign investment to national development is its role in filling the resource gap between targeted or desired investment and locally mobilized savings.

A second contribution, analogous to the first, is its contribution to filling the gap between targeted foreign exchange requirements and those derived from net export earnings plus net public foreign aid. This is the so-called foreign exchange or trade gap.

The third gap said to be filled by foreign investment is between targeted governmental tax revenues and locally raised taxes. By taxing MNC profits and

participating financially in their local operations, recipient's country's governments are thought to be better able to mobilize public financial resources for development projects.

Fourth, and finally, there is the gap in management, entrepreneurship, technology and skills, which is presumed to be partially or wholly filled by the local operations of private foreign firms. MNCs not only provide financial resources and new factories to poor countries: they also supply a 'package' of needed resources, including management experience, entrepreneurial abilities and technological skills (Todaro, 1982, p.330-331).

From the standpoint of national economic benefit, the stimuli for encouraging an inflow of capital is that the increase in real income resulting from investment is greater than the resultant increase in the income of the investor. As long as foreign investment raises productivity, and the investor does not wholly get this increase, the greater product must be shared with others, and there must be some direct benefits to other income groups. These benefits can accrue to (1) domestic labor in the form of higher real wages, (2) consumers by way of lower prices, and (3) the government through higher tax revenue. Beyond this, and most importantly in many cases, there are likely to be (4) indirect gains through the realization of external economies.

Private foreign investment may serve a stimulus to additional domestic investment in the recipient country (if the foreign capital is used to improve the country's infrastructure, it may directly stimulate more domestic investment) (Meier, 1995, p. 248-249).

Many economists argue that foreign direct investment creates external economies or spillovers. Two types of spillovers are defined: intra-industry spillovers, which are viewed as the influence of foreign firms on the efficiency of their host country competitors– competition, training of labor and management, transfer of technology; and inter-industry spillovers which are viewed as the influence of foreign firms on their local

suppliers and customers: new technology brought in by multinationals may stimulate local suppliers of intermediate products to improve product quality and lower costs in order to compete for the MNE market; new products introduced by the foreign firms may also stimulate improved productivity in the local firms purchasing these products (MacFetridge, 1991, p.99-105).

It should be stressed here that the transfer of technology also suggests important implications for trade policies. Since technology has become so complex and expensive to develop, access to foreign products and technology via imports is now more important than ever for firms in all countries, including the US. Import restrictions may have devastating effects on economic growth as shown, for example, by the recent experience of Brazil. In 1984, the Brazilian Congress voted overwhelmingly to reserve the market for micro- and mini- computers for national manufactures for a period of eight years. As a result, after few years of limited access to the world computer revolution, the cost of Brazilian personal computers had become generally twice that of their foreign equivalents on the international market; a facsimile machine costed seven times more than a foreign equivalent. This policy has become too costly to return and Brazil has therefore decided to abandon it. Now the computer's price in Brazil is approximately the same as in the rest of the world. Such measures first of all bring losses for customers (MacFetridge, 1991, p.100).

There can be some indirect costs of foreign investment. For example, foreign investment might affect the recipient country's commodity terms of trade through structural changes associated with the pattern of development that results from the capital inflow. Economic literature in this context stresses that if the terms of trade deteriorate, as a result of capital inflows, the rise in real income will be less than that in output and the worsening terms of trade may be considered to be the indirect cost of the foreign

investment. Newlyn (1977, p.111) argues that the position of direct investors who are mainly exporters is such that, although their contribution to the balance of payments is higher than non-exporters, they can impose terms of trade on the host country which deprive the latter of the major part of the gain from trade. This has been especially true in mineral exploitation, in which the benefit to the host country, which should include substantial compensation for the exhaustion of the mineral wealth, generally depends on the terms dictated by the foreign companies (e.g. export prices), which finance the investment.

Other costs of foreign investment are widely discussed in the modern foreign direct investment theory (and also MNEs theories). For example, again Newlyn (1977, p.110) argues that the extent to which management and skills are transferred in capital-intensive plants employing foreign technicians and unskilled local labor is very limited and this can be further constrained by racial discrimination. Much of the technology is protected by patent, and thus producing a foreign technological enclave.

Some economists argue that FDI is politically unacceptable in the long run as the solution to the problem of achieving self-sustaining growth, because they lead to accelerate ownership of the means of production. But this proposition is difficult to prove empirically (Newlyn, 1977, p.111).

I shall now turn to the impact of foreign investment on economic performance in the source country. According to the modern economic theory, the national interest is served when returns on investment made abroad after foreign taxes exceed the returns on home investment before taxes by more than the loss in productivity of domestic labor. Many economists argue that the productivity of labor tends to increase as each unit of it is combined with an increasing volume of capital in the productive process. In the case of foreign investment it is the productivity of foreign labor that would rise. If the investment

is undertaken at home, these benefits accrue to domestic resources. But, on the other hand, the provision of primary materials (raw materials, land) and cheap labor from foreign sources (when domestic sources are not available) increases the productivity of domestic capital going abroad (and, therefore, the return on investment). So if these gains to investment going abroad exceeds the lost productivity there is also a gain for the source country.

It's a common point of view in economic literature that in the long run outward foreign investment stimulates exports from the source country to the host country, and as exports stimulate economic growth (according to the export-led growth theory), the source country gets benefits from investing abroad in the long run (Krenin, 1995, p.232-234).

At present there is a wide range of models that try to describe the impact of foreign investment on economic growth.

The pioneering article integrating foreign finance into a model of the development process is Hollis Chenery and Alan Strout (1966). The model is based on the identification of three constraints on the rate of growth: 1. The capacity constraint; 2. The savings constraint; 3. The external trade constraint; and the objectives were to estimate the extent to which foreign finance can remove constraints, how long the process will take, and how much external finance will be required (Newlyn, 1977, p.93).

In Newlyn model (1977, p. 102-104) three effects of foreign direct investment are determined: income effect, finance effect and balance of payments effect. If m – is the import content of the capital expenditure (K), m' – the marginal propensity to import, k – is the gross capital output ratio derived from total capital employed and the total value of output at factor cost, OC – opportunity cost, p – rate of profit, d - depreciation, r – is the proportion of net profits reinvested, t – rate of tax, the income effect is:

$$Y = (1-m)\, K/k - OC - (d + p - tp)\, K$$

Turning to the financial aspect the effect is:

$$F = sY + [tp + r(p - td)]K$$

Where s – is the aggregate propensity to save.

The effect on the balance of payments is:

$$B = (x-m)\, k/k - [(p - tp) - r\,(p - tp)]\, K$$

Where x – the ratio of exports to output, m – the ratio of import to output.

The balance of payments effect depends on the character of the industry (export industry or import-substituting industry).

Newlyn (1977, p.133) mentions the study of Gustav Papanek (1973) of the effect on Growth (G) of saving (S), aid (A), foreign private (direct) investment (FI) and the residual R (with standard errors in brackets), in which he obtained the following results:

$$G = 1.5 + 0.2S + 0.39A + 0.17\,FI + 0.19R$$

(0.05) (0.03) (0.06) (0.07) (0.09)

Since this was a pure cross-section regression (one observation for each country with data for two periods combined), the author claims only that it is suggestive. But it is well specified and as a reflection of the long-term effect it is very relevant to subsequent discussion. The remarkable features are the greater growth effect of aid as compared both with savings and direct investments. Papanek explains the former plausibility by the joint ‘two gap’ role played by aid.

The new growth theory argues that growth can be endogenous. According to the endogenous growth theory, the decline in the marginal physical product of capital can be

prevented. This could come through increasing returns to scale, imperfect competition, human capital accumulation or spillovers effects.

Brenton (1997,p.258-261) stresses that the most influential endogenous model was presented in a second paper by Romer (1990) with interesting implications for international economic integration. According to the model, the higher the rate of interest, the lower the present value of the stream of profits the machine monopolist will earn, and the less he will bid at auction for the design to which it relates. A lower price of new designs means less income for inventors. It, therefore, means fewer inventors, and so fewer inventions, slower expansion in the range of capital goods types in production and, therefore, a slower rate of economic growth. And vice versa. So, Romer has introduced the down – ward sloping curve for the relationship between the interest rate and the growth rate (Figure1).

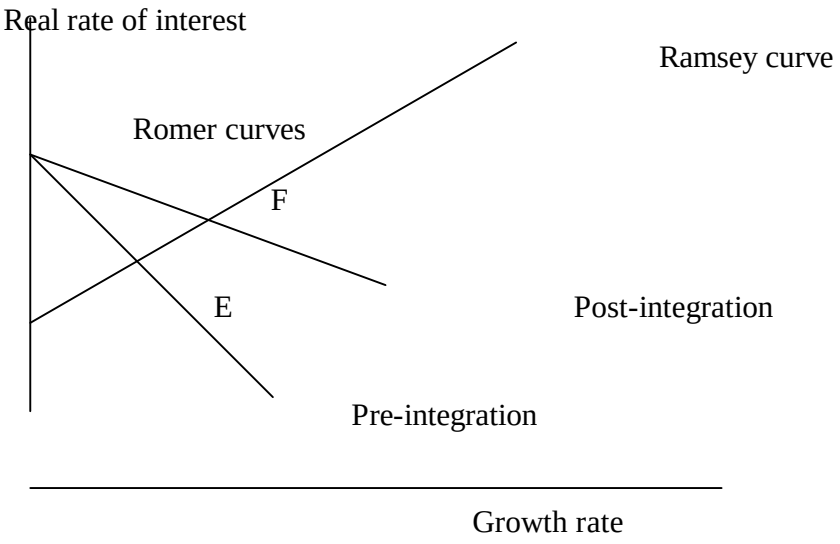

Figure1. Codetermination of the rates of growth and interest in Romer's (1990) model of endogenous growth

Source: Brenton, 1997, p.257

The positive growth – interest relation, which comes from consumer optimization, is labeled the Ramsey curve after Frank Ramsey, who first proposed this idea. Romer's model concentrates on the steady state, where the ratio of consumption to income is constant. That means that higher interest implies faster income growth, since income and consumption have to grow at a common speed at the steady state. This positive link between interest and growth derived from the blueprint auction price and the equilibrium allocation of human capital between inventing and services in final output production. The intersection at E determines the equilibrium long-run rates of interest and growth.

Romer concludes his paper with some remarks about the open economy. He supposes that two economies permit international economic relations (for example free trade). Access to the stock of foreign knowledge leads to a doubling in the rate of invention. So the Romer curve swings from the old to the new one. If the position of Ramsey curve remains unchanged, both the interest rate and the growth rate are higher at F than at E.

So, the new growth theory emphasizes those factors, which are supposed to characterize FDI (foreign direct investment).

Although there is no consensus, the factors identified in the literature on FDI appear to be the following:

1. FDI is a composite bundle of capital, know-how and technology.
2. Its main contribution to growth is through technology transfer and technology and skill diffusion in the countries importing FDI (Balasubramanyam, Salisu, Sapford, 1999, p.28).

In the economic literature on the relationship between FDI and economic growth it's stressed that the two greatest benefits for a recipient country are: the transfer of technology, and the externalities, measured in terms of spillovers generated by the FDI.

The relationship between FDI and growth has been widely discussed in economic literature, but the precise nature of the relationship for FDI to promote growth and the mechanism through which it promotes growth remain unexplored.

The notion that the outward and inward direct investment position of a country is systematically related to its economic development, relative to the rest of the world, was first put forward by John Dunning (1979).

Dunning's paradigm determined three general potential advantages for an MNC competing in a foreign country. They are:

- Ownership advantages (specific), which derive mainly from size and established position and include any monopoly power that the MNC may enjoy. For example, proprietary technological know-how, R&D capacity, reservoir of experienced workers and managers with industry specific human capital, trademarks and known brand names.
- Internalization advantages that accrue to large firms able to accomplish goals more cheaply within the single firm than can be accomplished in a market setting among separate corporations. For example, internal economies of production, advantage of production sharing (a special, international version of internal economies of production, leading to intra-firm trade), economies of scale in overhead operations (marketing, finance, purchasing), economies from a broader market position, avoidance of costs of negotiating contracts.
- Location-specific advantages which are factors that favor production either at home or abroad. For example, prices of internationally immobile inputs, differences in quality of infrastructure (public; educational; commercial and legal), transportation costs, economies of marketing when production is located near the market,

difficulties of " foreignness" (sometimes called " psychic distance" between the home and host countries) (Gray, 1999, p.54-55).

The IDP suggests that countries tend to go through five main stages of development and that these stages can be usefully classified according to the propensity of those countries to be outward and/or inward direct investors. In turn, this propensity will rest on the extent and pattern of the competitive or ownership specific (O) advantages of the indigenous firms of the countries concerned, relative to those of firms of other countries; the competitiveness of the location-bound resources and capabilities of that country, relative to those of the other countries (the L specific advantages of that country); and the extent to which indigenous and foreign firms choose to utilize their O specific advantages jointly with the location-bound endowments of home or foreign countries through internalizing the cross-border market for these advantages, rather than by some other organizational route (i.e. their perceived I advantages) (Dunning, Narula, 1996, p.1)

The IDP of Dunning's suggests that countries tend to go through five main stages of development and that these stages can be usually classified according to the investment position. The main characteristics of these five stages are summarized in the Table 1.

Table 1. The main characteristics of the Dunning's IDP path.

Number of stage	*The relationship between the growth of inward and outward direct investment (G_{IFDI};G_{OFDI})*	*Net outward investment position*	*The level of development of Dunning's paradigm's advantages of domestic and foreign firms, the description of economic and political conditions in the host country; economic performance of the domestic firms.*
1st stage	Both low	Below zero	L specific advantages of a country are presumed to be insufficient to attract inward direct investment. O specific advantages of domestic firms are few, so there are few opportunities for outward foreign investment. The L advantages of foreign firms are much higher then that of domestic firms, and O specific advantages are also higher, but still there are few incentives for foreign firms to invest in this country. The economic typical conditions: low per capita income; inappropriate economic systems or government policies; inadequate infrastructure, poorly educated and trained labor fource.
2nd stage	$G_{IFDI} > G_{OFDI}$	Below zero (can become worthier)	A country must possess some desirable L characteristics to attract inward direct investment. The O advantages of domestic firms will have increased from the previous stage. These O advantages will exist due to the development of support industries clustered around primary industries, and production will move towards semi-skilled and moderately knowledge-intensive consumer goods. So outward direct investment increases at this stage, but less than inward direct investment. The L and O specific advantages of foreign firms are less

			higher then that of domestic firms in comparison with the previous stage. The economic and political conditions are improving in comparison with previous stage; domestic markets may have growth either in size or in purchasing power.
3rd stage	$G_{IFDI} < G_{OFDI}$	Will improve but still below zero or equal zero.	L and O advantages of domestic firms grow and in many industries become the same as that of foreign firms. Income rising; consumers begin to demand higher quality goods, fuelled in part by the growing competitiveness among the supplying firms; domestic wages will rise; outward direct investment will be directed more to countries at lower stages in their IDP.
4th stage	$G_{IFDI} < G_{OFDI}$	Will be zero or above zero.	The L advantages of domestic firms will be based on created assets; the O specific advantages tend to be more 'transaction' than 'asset' related (Dunning, 1993). Domestic firms can now not only effectively compete with foreign owned firms in domestic sectors in which the home country has developed the a competitive advantage, but they are able to penetrate foreign markets as well. Since the O advantages of countries at this stage are broadly similar, intra-industry production will become more important. Both intra-industry trade and production will tend to be increasingly conducted within MNEs.
5th stage	$G_{IFDI} = G_{OFDI}$	First falls and then fluctuates around the zero level.	The L and O advantages of domestic firms are very high. Dunning stresses on the two main features of this stage. First, there is an increasing propensity for cross-boarder transactions to be conducted not through the market but internalized by and within MNEs. Second, as countries converge in the structure of their location-bound assets, their international direct investment positions are likely to become more evenly balanced.

Source: Dunning, Narula, 1996, p.1 – 22.

Most of the empirical studies of the basic propositions of the IDP, viz. that there is a systematic relationship between a country's inward and outward investment and it's GDP per capita, has used cross section data and is generally supportive of the proposition.

It should be stressed that each country's particular path is determined by three main variables: (1) the extent and nature of it's created and natural assets (resource structure and size); (2) it's strategy of economic development, and (3) the role of government.

For example (as for the first variable) a country which possesses a significant comparative advantage (or an absolute advantage) in primary commodities, would tend to have a much lower (i.e. negative) level of NOI at considerably advanced stages of development. The example of such a country is Australia. The lack of a natural resources base would lead to the opposite result, so, these countries would become net outward investors at a considerably earlier stage of development (for example Japan).

As for the second variable (market size) small countries will reach a positive NOI position at a considerably earlier stage of their development. The main argument is that the small population may mean not just small aggregate consumption, but that domestic firms would need to seek overseas markets in order to achieve economies of scale. The opposite scenario would apply for large countries, which would attract larger amounts of inward investment due to the attraction of their large markets, and domestic firms will not have much incentive to seek overseas markets since economies of scale can be achieved at home.

The orientation of an economy (export oriented or import substitute regime) can also influence the country's IDP path. The economic literature on the subjects supports the point of view that E-O countries tend to have more both inward and outward direct investment, since I-O countries tend to have less (Dunning, Narula, 1996, p.22-28).

2. Empirical study.

As the economic literature stresses, Direct Investment has become an increasingly important source of finance for developing countries in the 1980 and 1990s. I shall turn to the data represented in Table2.

Table 2. Net sources of fund to developing countries. (%)

	1970	1980	1990	1994
Direct investment	19	12	16	50
Official	43	28	26	10

development aid				
Non concenssional loans and credits	38	60	59	40

Source: (Melvin, 1997, p.126)

During the decade of the 1980s (and on into the 1990s), many developing countries turned towards a strategy of growth through increased linkages to the world economy – and MNEs are an important means to achieve these linkages. FDI by MNEs has become an increasingly important source for developing countries of capital, exports, and technology flows compared to other sources such as commercial and concenssional loans and arms-length exports and technology licensing (UNCTC, 1988).

Now I will turn to international economic statistics to see how foreign direct and foreign portfolio investments grew in the 1990-s in the selected developed countries. The results of the calculations are summarized in tables 3 and 3a (the International investment position statistics has been taken).

Table 3.

Growth of outward FDI and FPI positions, millions of US dollars.

Year	1992	1993	1994	1995	1996	1997	1998	Average in period.
Europe								
Spain								
Outward FDI	22009,9	23914	30056,4	36529,4	39880,4	47626,3	68392,2	
rate of growth		1,087	1,257	1,215	1,092	1,194	1,436	1,213
Outward FPI	9710,24	14815,7	17584,8	18872,6	21496,1	34871,7	81925,9	
rate of growth		1,526	1,187	1,073	1,139	1,622	2,349	1,483
Italy								
Outward FDI	71004	81892,3	91096,7	109176	113251	130668	165412	
rate of growth		1,153	1,112	1,198	1,037	1,154	1,266	1,154
Outward PFI	111125	130670	150426	171793	192351	257494	394501	
rate of growth		1,176	1,151	1,142	1,120	1,339	1,532	1,243
Sweden								
Outward FDI	47706,9	44559,5	59237,4	69087,7	71750,8	79098,6	94674,4	
rate of growth		0,934	1,329	1,166	1,039	1,102	1,197	1,128
Outward PFI	14056,5	17582,9	22113,5	52867,1	66802,5	85928,7	116168	
rate of growth		1,251	1,258	2,391	1,264	1,286	1,352	1,467
UK								
Outward FDI	479,2	676,02	647,46	755,13	908,62	1036,46	1148,37	
rate of		1,411	0,958	1,166	1,203	1,141	1,108	1,164

growth								
Outward PFI	209,94	287,4	291,92	336,3	404,67	466,94	504,96	
rate of growth		1,369	1,016	1,152	1,203	1,154	1,081	1,163
American continent								
USA								
Outward FDI	798,63	1027,55	1067,8	1307,16	1526,24	1784,49	2140,53	
rate of growth		1,287	1,039	1,224	1,168	1,169	1,200	1,181
Outward PFI	515,04	853,53	948,67	1169,64	1467,99	1739,4	1968,96	
rate of growth		1,657	1,111	1,233	1,255	1,185	1,132	1,262
Canada								
Outward FDI	87869,9	92467,9	104302	120279	132416	143938	156651	
rate of growth		1,052	1,128	1,153	1,101	1,087	1,088	1,102
Outward FPI	45379,9	53200,3	57384,5	61695,7	73279,1	79287	94004,6	
rate of growth		1,172	1,079	1,075	1,188	1,082	1,186	1,130
Asia								
Japan								
Outward FDI	248,06	259,8	275,57	238,45	258,61	271,9	270,04	
rate of growth		1,047	1,061	0,865	1,085	1,051	0,993	1,017
Outward PFI	715,45	771,11	858,69	858,28	937,16	906,66	1061,59	
rate of growth		1,078	1,114	1,000	1,092	0,967	1,171	1,070

Table 3a.

Growth of Inward FDI and PFI positions, millions of US dollars.

Year	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**Average in period**
Europe								

Spain								
Inward FDI	86230,4	80223,5	96359,5	112137	109853	100806	118926	
rate of growth		0,930	1,201	1,164	0,980	0,918	1,180	1,062
Inward PFI	54162,6	103697	83942,5	115305	123103	134489	177512	
rate of growth		1,915	0,809	1,374	1,068	1,092	1,320	1,263
Italy								
Inward FDI	50730,2	54537,9	60954,5	65980,1	74640,2	83157,6	105397	
rate of growth		1,075	1,118	1,082	1,131	1,114	1,267	1,131
Inward PFI	101229	160403	188595	237861	333422	385388	544602	
rate of growth		1,585	1,176	1,261	1,402	1,156	1,413	1,332
Sweden								
Inward FDI	13772,5	12886,1	23453,7	33042	34056,2	42399,4	53792,3	
rate of growth		0,936	1,820	1,409	1,031	1,245	1,269	1,285
Inward PFI	30952,7	47088,6	57897,2	94169,6	117159	223985	241647	
rate of growth		1,521	1,230	1,626	1,244	1,912	1,079	1,435
UK								
Inward FDI	186,11	189,93	191,54	213,8	250,61	276,41	323,14	
rate of growth		1,021	1,008	1,116	1,172	1,103	1,169	1,098
Inward PFI	373,54	454,6	499,98	598,92	729,53	973,15	1127,44	
rate of growth		1,217	1,100	1,198	1,218	1,334	1,159	1,204
<u>American continent</u>								
*USA**								
inward FDI	696,18	768,4	757,85	1005,73	1229,12	1642,36	2194,1	
rate of growth		1,104	0,986	1,327	1,222	1,336	1,336	1,219
inward FPI	1158,68	1335,53	1413,55	1870,64	2364,78	2919,78	3442,95	
rate of		1,153	1,058	1,323	1,264	1,235	1,179	1,202

growth								
Canada								
inward FDI	108503	106868	110204	123317	131071	137648	141818	
rate of growth		0,9849	1,0312	1,1190	1,0629	1,0502	1,0303	1,0464
inward FPI	234585	266961	281767	310980	323599	323311	330774	
rate of growth		1,138	1,055	1,104	1,041	0,999	1,023	1,060
<u>Asia</u>								
*Japan**								
inward FDI	15,51	16,89	19,17	33,51	29,94	27,08	26,07	
rate of growth		1,089	1,135	1,748	0,893	0,904	0,963	1,122
inward FPI	513,1	545,32	630,67	548,27	558,97	586,58	637,31	
rate of growth		1,063	1,157	0,869	1,020	1,049	1,086	1,041

* Billions of US dollars
Calculated on the basis of the International Financial Statistics CD-ROM of the IMF

In tables 3 and 3a seven economically developed countries have been taken into consideration: Spain, Italy, Sweden, UK, USA, Canada and Japan. It's estimated that the average rate of growth in 90s of the outward PFI position exceeds that of FDI in all countries in the sample except the UK; the average growth of inward FDI position was lower than that of PFI in all countries in the sample except USA and Japan. The explanation of this fact can be found in the economic literature, which stresses that at the beginning of the 1990s the negative attitudes of governments towards direct investment – both inward and outward – have been assumed in many developed countries and as a result, restrictions on inward and outward FDI have been made.

Now I will turn to the regression analysis to find out how the ratios of outward (inward) FDI to outward (inward) FPI influence GDP growth.

First, I have taken as an independent variable (X) the ratio of outward FDI to outward PFI and as a dependent variable (Y) GDP per capita growth. The results of the analysis are shown in Table 4.

Table 4. Results of the linear regression analysis of the relationship between the ratio of outward FDI to outward PFI (X) and GDP per capita growth (Y).

Country	Period	Equation	R^2 (adjusted R^2)
Spain	1982-1997	Y = -0.097X + 0.1071 (-0.27) (0.95)	0.0052 (-0.066)
Italy	1981-1997	Y = 0.00384X+0.0173*** (0.73) (0.22)	0.0343 (-0.03)
Japan	1981-1997	Y = 0.13923 – 0.15506X (1.6136) (-0.7265)	0.0339 (-0.03041)
USA	1981-1998	Y = 0.026747** + 0.01283**X (2.3265) (2.728)	0.317(0.275)
Pooled		Y = 0.07** + 0.000369X (2.651) (0.0296)	1.33E-05(-0.01514)

Calculated on the basis of the International Financial statistics CD-ROM of the IMF

Note 1: ***p-value<1%; **1%<p-value<5%, *5%<p-value<10%; (T – Statistics).

Note 2: all data used in the calculations was transformed into USD.

A pooled regression controlling for fixed effects was estimated. The following variables were used: X1 – outward FDI to outward FPI ratio, X2 – dummy variable of

Spain; X3 – dummy variable of Italy; X4 – dummy variable of Japan. The results were the following:

$Y = 0.07964^{**} + 0.0055X1 – 0.0167X2 – 0.0185X3 – 0.036X4$

(2.41) (0.288) (-0.25) (-0.377) (-0.634)

($R^2 = 0.0078$: adjusted $R^2 = -0.055$)

The results show that there is no clear linear relationship between the variables.

As the analysis made above doesn't give a definite answer about the relationship between the outward FDI to outward FPI ratio and GDP per capita growth, I shall turn to the linear regression analysis between the ratio (X) and GDP per capita (Y). The results are represented in Table 5.

Table 5. Results of the linear regression analysis between the ratio of outward FDI to outward FPI (X) and GDP per capita (Y).

Country	Period	Equation	R^2 (adjusted R^2)
Spain	1981-1997	$Y = -0.0012^{***}X + 0.0135^{***}$ (-3.37) (6.09)	0.43 (0.39)
Italy	1980-1997	$Y = -0.0068^{***}X + 0.0292$ (-113.03) (12.67)	0.7735(0.75)
Japan	1980-1997	$Y = 0.0384^{***} - 0.0354^{***}X$ (9.88) (-4.078)	0.5096 (0.4789)
USA	1980-1998	$Y = 0.035^{***} - 0.00577^{***}X$ (27.554) (-11.3146)	0.883 (0.876)
Pooled		$Y = 0.023^{***} - 0.00299^{***}X$ (0.317) (0.308)	0.317 (0.307)

Calculated on the basis of the International Financial Statistics CD-ROM of the IMF

A pooled regression controlling for fixed effects was estimated, where X1 is the outward FDI to outward FPI ratio, X2 is the dummy variable of Spain, X3 is the dummy variable of Italy, X4 is the dummy variable of Japan. The results were the following:

$Y = 0.0277^{***} - 0.00254^{***}X1 – 0.0096^{***}X2 – 0.01027^{***}X3 – 0.00252^{***}X4$

(14.41) (-4.45) (-4.5) (-4.91) (-1.1)

(R^2 = 0.56; adjusted R^2 = 0.53)

The results show that there is evidence of a negative relationship between the variables: if the ratio of outward FDI to outward FPI increase, GDP per capita tends to decrease.

The next step was the regression analysis of the relationship between the ratio of inward FDI to inward FPI and GDP per capita growth. The results are summarized in Table 6.

Table 6. Results of the regression analysis between the ratio of inward FDI to inward FPI (X) and GDP per capita growth (Y).

Country	Period	Equation	R^2 (adjusted R^2)
Spain	1982-1997	Y = -0.0099X + 0.1178* (-1.09) (2.16)	0.0784 (0.0126)
Italy	1981-1997	Y = 0.0389X + 0.0034 (0.597) (1.451)	0.1231 (0.065)
Japan	1981-1997	Y = 0.2392* - 4.0154X (2.156) (-1.462)	0.125 (0.066)
USA	1981-1998	Y = 0.038* + 0.444X (2.02) (0.965)	0.055 (-0.0045)
Pooled		Y = 0.075*** - 0.0031X (4.28) (-0.55)	0.0045 (-0.01)

Calculated on the basis of the International Statistics CD-ROM of the IMF

A pooled regression controlling for fixed effects was estimated where X1 is the ratio of inward FDI to inward FPI, X2 is the dummy variable of Spain, X3 is the dummy variable of Italy, and X4 is the dummy variable of Japan. The results were the following:

Y = 0.082** - 0.0057X1 + 0.0195X2 – 0.0039X3 – 0.02609X4

(2.55) (-0.83) (0.366) (-0.08) (-0.58)

(R^2 = 0.017; adjusted R^2 = -0.045)

As the regression analysis made above doesn't show a clear relationship between the ratio and GDP per capita growth, I again shall turn to the linear regression analysis of the relationship between the ratio (X) and GDP per capita. The results of the analysis are represented in table 7.

Table 7. Results of the analysis of the linear relationship between the ratio of inward FDI to inward FPI (X) and GDP per capita (Y).

Country	Period	Equation	R^2 (adjusted R^2)
Spain	1981-1997	Y = 0.0128*** - 0.00074***X (17.25) (-6.38)	0.73 (0-71)
Italy	1980-1997	Y = 0.019*** - 0.003***X (12.4) (-4.14)	0.52 (0.49)
Japan	1980-1997	Y = 0.03789*** - 0.33114**X (5.77) (-2.2)	0.23 (0.19)
USA	1980-1998	Y = 0.027*** - 0.132X (6.379) (-1.34)	0.09567 (0.0425)
Pooled		Y = 0.02*** - 0.0017***X (20.48) (-5.71)	0.317 (0.308)

Calculated on the basis of the international financial Statistics CD-ROM of the IMF

A pooled regression controlling for fixed effects was estimated, where X1 is the ratio, X2 is the dummy variable of Spain, X3 is the dummy variable of Italy, X4 is the dummy variable of Japan. The results were the following:

$$Y = 0.0219^{***} - 0.00091^{***}X1 - 0.0084^{***}X2 - 0.0063^{***}X3 + 0.002324X4$$

(14.49) (-2.8) (-3.22) (-2.82) (1.07)

($R^2 = 0.49$; adjusted $R^2 = 0.46$)

There is evidence of a negative relationship between the variables. If the ratio of inward direct investment to inward portfolio investment increases, GDP per capita tends to decrease.

These results show that the faster growth of outward and inward FDI than that of FPI doesn't have a positive impact on the GDP per capita growth in the selected countries. So it can be concluded here that this empirical study provide a support for more rapid growth of outward and inward FPI than that of FDI.

Now I turn to the multivariable regression analysis. The dependent variable Y is GDP per capita growth; and the independent variables are X1 – outward FDI /outward PFI; X2 – inward FDI/inward FPI. First, it's necessary to determine the multicolinearity between independent variables. The results are shown in Table 8.

Table 8. The multicolinearity between the ratios of outward FDI (inward FDI) to outward PFI (inward PFI).

Spain	Italy	Japan	*USA*	*Pooled*
0.54	0.86	0.44	0.04	0.48

Calculated on the basis of the International Financial Statistics CD-ROM of the IMF

So, according to these results, it makes sense to conduct a multivariable linear regression analysis for Japan, USA and for a pooled sample. A pooled regression controlling for fixed effects was estimated where X1 is the ratio of outward FDI to outward FPI, X2 is the ratio of inward FDI to inward FPI, X3 is the dummy variable of Spain; X4 is the

dummy variable of Italy; X4 is the dummy variable of Japan. The results are summarized in table 9.

Table 9. Results of the regression analysis of the relationship between the independent variables: outward FDI/outward FPI (x1); inward FDI /inward FPI (x2) and the dependant variable GDP per capita growth (Y).

Country	Period	Equation	R^2 (adjusted R^2)
Japan	1981-1997	Y = 0.242* - 0.02263X1 – 3.87409X2 (2.01) (-0.095) (-1.209)	0.125 (0.00042)
USA	1981-1998	Y =0.012 + 0.0126**X1 +0.39X3 (0.064) (2.67) (0.99)	0.36 (0.27)
Pooled		Y = 0.064** + 0.0086X1 – 0.0057X2 (2.3) (0.52) (-0.75)	0.0086 (-0.022)
Pooled controlling for fixed effects.		Y = -0.01929 + 0.034X1 – 0.0145X2 + 0.058X3 + (-0.28) (1.25) (-1.47) (1.079) 0.067X4 + 0.089X5 (1.15) (1.325)	0.04 (-0.036)

Calculated on the basis of the International Financial Statistics CD-ROM of the IMF

The results don't show any clear relationship between the variables.

A multivariable linear regression analysis of the relationship between the ratios (X1 and X2) and GDP per capita (Y) was also estimated. The results are presented in table 10.

Table 10. Results of the regression analysis of the relationship between the independent variables: outward FDI/outward FPI (X1); inward FDI /inward FPI (X2) and the dependant variable GDP per capita (Y).

Country	Period	Equation	R^2 (adjusted R^2)
Japan	1981-1997	Y = 0.039*** - 0.035**X1 – 0.01X2 (7.11) (-2.9) (-0.07)	0.51 (0.44)
USA	1981-1998	Y = 0.037*** -0.0056***X1 – 0.05161X2 (21.44) (-11.14) (-1.48)	0.897 (0.884)
Pooled		Y =0.022335*** - 0.0018**X1 – 0.00101**X2 (17.19) (-2.5) (-2.52)	0.375 (0.357)
Pooled controlling for fixed effects		Y = 0.02782*** - 0.0026***X1 + 2.49E-05X2 – (12.098) (-3.25) (0.059) 0.0097***X3 – 0.01034***X4 – 0.0026X5 (-3.912) (-4.26) (-1.02)	0.56 (0.53)

Calculated on the basis of the International Financial Statistics of the IMF

These results provide some support for the conclusions made above, but still in the pooled regression the R^2 is too low; in the regression for the USA the coefficient of

X2 is not statistically significant; in the regression for Japan, the R2 is rather low and the coefficient of X2 is not statistically significant.

Now, I will introduce into the analysis some other independent variables which characterize the economic conditions in the country and make a multivariable regression to see the importance of the influence of the structure of foreign investment in comparison with other economic conditions. The independent variables used in the model are: X1 – oFDI/oFPI; X2 – iFDi/iFPI; X3 – unemployment rate (%); X4 – domestic credit/GDP. The dependent variable (Y) is GDP per capita growth. A pooled regression analysis was conducted for three countries: USA (1985-1998); Italy (1985-1997); Japan (1985-1997). A pooled regression controlling for fixed effects was estimated where X5 is the dummy variable of Italy and X6 is the dummy variable of Japan.

First, the multicolinearity of the independent variables is shown in table 11.

Table 11. The multicolinearity of the independent variables.

	oFDI/oFPI	iFDI/iFPI	unemployment rate	Domestic credit/GDP
oFDI/oFPI	1			
iFDI/iFPI	0.05	1		
Unemployment rate	0.06	0.34	1	
Domestic credit/GDP	0.4	0.09	0.52	1

Calculated on the basis of the International Financial Statistics CD-ROM of the IMF.

The results of the analysis are the following:

Table 12. Results of the analysis between the ratios of outward (inward) FDI to outward (inward) FPI (X1, X2), unemployment rate (X3), the ratio of domestic credit to GDP (X4) and GDP per capita growth (Y).

Type of the regression.	Equation	R^2 (adjusted

		R^2)
Pooled	Y = 0.1921 – 0.0023X1 + 0.0883***X2 – 0.01387*X3 – 0.06053X4 (1.075) (-0.09) (3.8) (-1.9) (-0.48)	0.3 (0.22)
Pooled controlling for fixed effects	Y = 1.028**+0.07*X1+0.01X2–0.054*X3–0.98**X4 + 0.51**X5 + 0.48**X6 (2.7) (1.87) (0.36) (-1.97) (-2.54) (2.19) (2.23)	0.42 (0.31)

Calculated on the basis of the International Financial Statistics CD-ROM of the IMF.

These results show that there is some evidence that the ratio of inward FDI to inward FPI is positively correlated with the GDP per capita growth.

The same analysis using GDP per capita as the dependent variable (Y). The results are the following:

Table 13. Results of the analysis between the ratios of outward (inward) FDI to outward (inward) FPI (X1, X2), unemployment rate (X3), the ratio of domestic credit to GDP (X4) and GDP per capita (Y).

Type of the regression.	Equation	R^2 (adjusted R^2)
Pooled	Y = 0.043*** - 0.0029***X1 – 0.00176*X2 – (5.94) (-2.89) (-1.88) 0.0012***X3 – 0.00679X4 (-4.08) (-1.34)	0.67 (0.64)
Pooled controlling for fixed effects	Y=-0.0019- (-0.14) 0.00683***X1 + 0.00221X2 + 0.0012X3 + 0.041***X4 - (-4.84) (1.59) (1.13) (2.8) 0.0283***X5 - 0.0237***X6	0.76 (0.72)

	-3.2) (-2.9)	

Calculated on the basis of the International Financial Statistics CD-ROM of the IMF.

The results show that if the ratios of outward (inward) FDI to outward (inward) FPI increase, GDP per capita tends to decrease.

Conclusions

The economic literature on the subject doesn't give a definite answer about the size and direction of the impact of foreign investment on economic growth. In general, inward foreign private investment is typically seen as a way of filling in gaps between the domestically available suppliers of savings, foreign exchange, government revenue and skills, and the planned level of these resources necessary to achieve development targets. There are also indirect spillovers of foreign private investment for the recipient countries: the transfer of technology, training of labor, etc. There are also costs of inward foreign investment, the example is the deterioration of the terms of trade of a country.

There are many economic models which try to explain the influence of foreign finance on economic growth. Dunning's Investment Development Path (IDP) is a good example. This model explains how the country's international investment position is changing during the different stages of development. This model is based on Dunning's OLI paradigm.

The empirical analysis showed that in the 1990's there is evidence for the selected developed countries of more rapid growth of outward (inward) FPI positions than that of FDI. This can be explained by the negative attitude of governments towards direct investment during this period.

The regression analysis was done for four countries (USA, Japan, Spain and Italy). The results show that there is no clear relationship between the ratios of outward (inward) FDI to outward (inward) FPI and GDP per capita growth, and that there is evidence that the more rapid growth of outward FDI than that of outward FPI tends to decrease GDP per capita. This supports the hypothesis that the costs of outward Foreign Direct Investment outweigh its benefits. As for the relationship between the ratio of inward FDI to inward FPI and GDP per capita growth, the results show some evidence of a positive relationship, but still, for the relationship between the ratio and GDP per capita, the results give some evidence that if the ratio increases, GDP per capita tends to decrease. Therefore, the question remains open, though it should be stressed here that a large amount of economic literature (and of empirical empirical studies) stress on many positive effects of inward FDI, the main of which is the transfer of technology.

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