Philippine Review of Economics and Business
Volume XXXVI, No. 2, December 1999

MULTINATIONALS, EMPLOYMENT CREATION AND SPILLOVER EFFECTS: THE CASE OF THE PHILIPPINES*

Yumiko Ikamoto

This paper analyzes the role of FDI in industrial development of the Philippines using the three-digit industrial classification data by type of ownership. Unlike other ASEAN countries, FDI did not become an engine of growth in the Philippines until the recent years. This seems to arise from differences in the quality, as well as the level, of FDI. The entry of foreign firms did not enhance industrial development with substantial labor absorption in the Philippines. Besides, the spillover gains of productivity tended to be weak. The benefits from FDI, however, depends on the policies of host countries, as well as the behaviors of the multinational firms. The case study of the Philippines seems to show that opening FDI regime without complementary trade and other liberalization policy may detract from long-run economic growth.

The benefits of comprehensive economic reforms in the early 1990s, however, have started to be realized in the Philippines since 1994. The virtuous circle of export, investment and growth seems to be setting in. Further, trade, as well as investment, liberalization will enhance the role of FDI in economic development of the Philippines.

1. Introduction

The role of foreign direct investment (FDI) in economic development in the Asia Pacific region is an important research question, especially today's high level of cross-border direct investment. The evaluation investment liberalization in economic development was, indeed, stated as one of the collective actions to be undertaken by the APEC member economies in The Osaka Action Agenda (APEC Secretariat, 1995).

---

* Paper presented at 72nd Annual Western Economic Association International Conference held at Seattle Sheraton Hotel & Towers on July 9-13, 1997.

This paper assesses the role of FDI in economic development of the Philippines with a focus on the 1990s for two reasons. First, unlike most of the other Asian economies, FDI was far from the engine of growth in the Philippines at least until the recent years.[1] The case study of the Philippines may illustrate what accounts for the difference.

Second, since 1991, the Philippines has undertaken substantial foreign investment liberalization measures as part of new round of comprehensive economic liberalization and rendered the foreign investment regime comparable in structure and equity allowances to those of its neighbors such as Malaysia, Thailand, and Indonesia. Although it is still very preliminary, the assessment of the recent investment liberalization may add further evidence of its role in economic development.

The paper proceeds as follows. Section 2 presents trends of FDI inflow into the Philippines by source and by sector as well as in general terms. Section 3 presents an analytical framework to examine the role of FDI in economic development of the host country, which is followed by empirical examinations (Section 4). Section 5 provides prospects for the role of multinationals in the future growth of the Philippines. Section 6 concludes policy implications.

2. FDI Flow into the Philippines Since the Mid-1980s

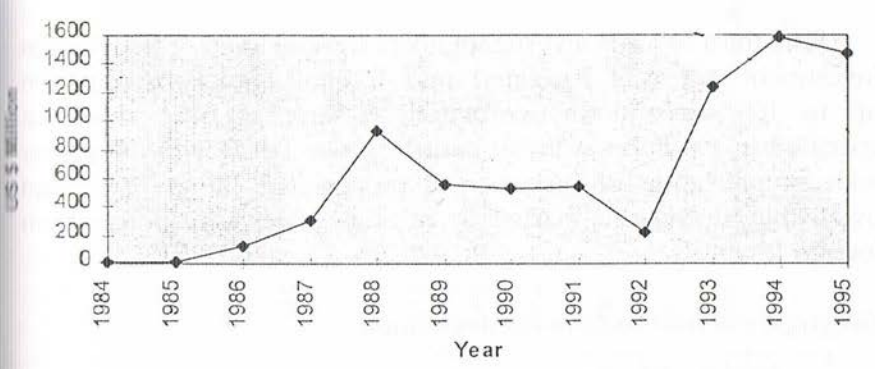
General trends

Figure 1 shows the gross inflow of FDI in the Philippines based on the balance of payments statistics. Except 1988 in which the amount of FDI inflow jumped to around US$1 billion, the FDI inflow tended to be slow in the Philippines. This makes a contrast to other

[1] See, for example, Warr (1987) for the discussion about EPZ, foreign firms and the economic performance of the Philippines.

ASEAN countries in which the FDI inflow went up sharply during the same period.[2] After 1993, however, the Philippines started to experience the higher amount of FDI inflow. The Philippines seems to be in the process of catching up with other ASEAN countries.

Figure 1 - Gross FDI Flows into the Philippines



Source: IMF, *Balance of Payments Statistical Yearbook,* various years.

Three factors are considered to account for the sudden increase in the FDI inflow into the Philippines in 1993. One is political stability. Mercado-Aldaba (1994) showed through multiple regression analysis that the political instability discouraged FDI flow into the Philippines especially FDI from Japan. In 1992, former defense secretary Fidel Ramos was elected as president and his administration made an effort to conclude peace negotiations with both right wing military rebels and communist insurgents. This led to the establishment of political stability.

[2] See Table A-1 in Appendix 1 to compare the FDI inflow among four ASEAN countries.

The second factor is improvement in the infrastructure of the Philippines. Again the above study showed that the stock of public investment has also a considerable impact on the FDI flow into the Philippines. Although many things are still left to be desired with respect to its infrastructure, at least in 1993, the problem of power shortage was lessened to a great extent, which is considered to have contributed to the surging FDI inflow in the Philippines in 1993.

The third factor is investment liberalization. In 1991, the Foreign Investment Act was legislated and foreign equity participation up to 100 percent was permitted as long as they were not specified in the Foreign Investment Negative List (FINL). Together with simplification of bureaucratic process the lifting of foreign ownership restrictions started to elicit a positive response from foreign investors.

Geographical and sectoral decomposition

As in many of the countries, the Philippines lacks comprehensive FDI data.[3] This section uses the Central Bank's data to analyze the changes in the source of FDI and the sectoral concentration.[4]

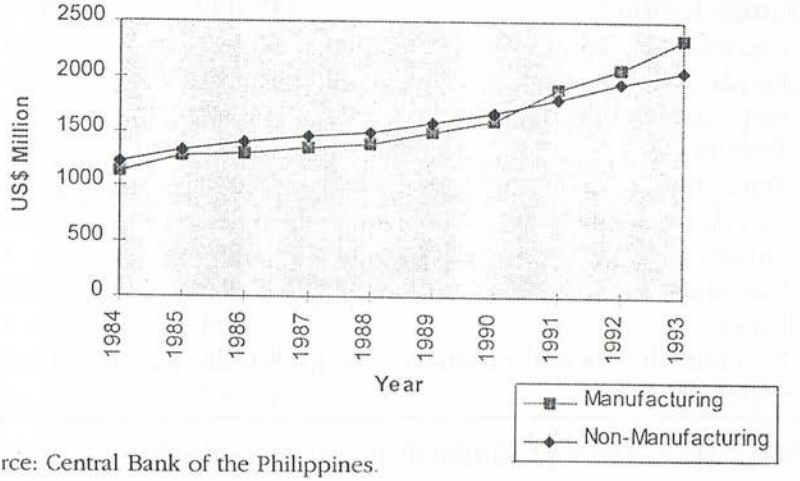
Figure 2 and 3 show the inflow of FDI by industry and by sector since 1984 in a cumulative manner. There is a clear sectoral change in the inflow of FDI in the Philippines especially in the 1990s. First of all, the manufacturing sector is becoming more important in the total FDI inflow as its share has surpassed that of the non-manufacturing sector in 1991 (Figure 2). Second, although the chemicals and food sectors used to be most popular for foreign investors until the 1980s in the manufacturing sector, transport equipment and machinery sectors are replacing them in the recent years (Figure 3). The dominance of the machinery sector in the FDI flow is seen more

[3] See Mercado-Aldaba (1994) about the details of FDI data of the Philippines.

[4] This is because the data based on Central Bank statistics are the most comprehensive in terms of coverage and the most complete in terms of number of years covered despite their weaknesses (Mercado-Aldaba, 1994, p. 13).

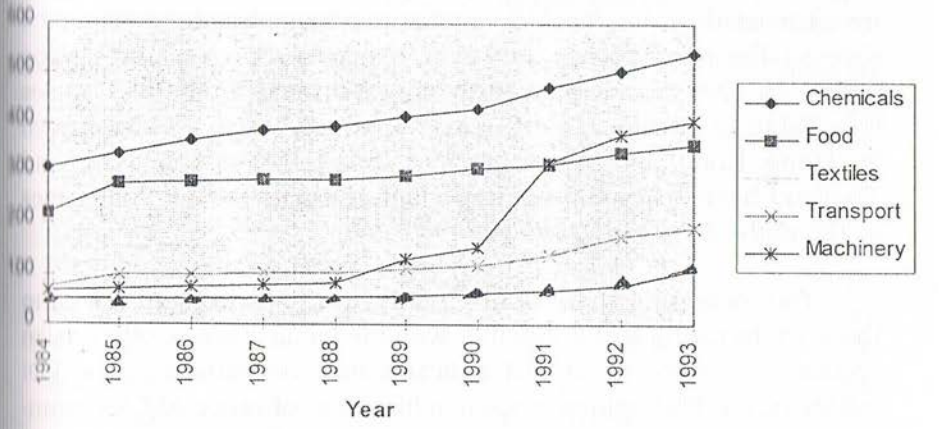
clearly in 1995, as the summation of both transport equipment and machinery sectors reached almost half the total FDI flow into the manufacturing sector of the Philippines (see Table 1).

Figure 2 - Direct Foreign Equity Investments by Industry (Cumulative Flows)



Source: Central Bank of the Philippines.

Figure 3 - Direct Foreign Equity Investment by Major Sector (Cumulative Flows)



Source: Central Bank of the Philippines.

Table 1 - FDI Inflow in the Manufacturing Sector of the Philippines in 1995

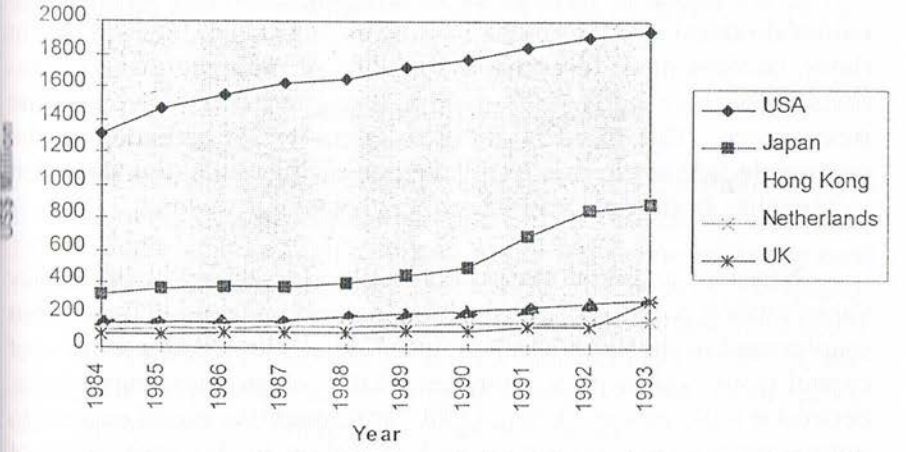
	FDI In US$ Million	Shares %
Manufacturing	**337.882**	**100.00**
Chemicals	36.159	10.70
Foods	10.524	3.11
Metal & Metal products	23.348	6.91
Textiles	12.637	3.74
Transport	53.03	15.69
Petroleum & Coal	43.687	12.93
Rubber	1.588	0.47
Machinery	132.906	39.34
Paper	0.288	0.09
Non-Metallic Mineral Products	10.328	3.06
Others	13.387	3.96

Source: Central Bank of the Philippines

The geographical distribution of origin of the FDI flow has also begun to show a noticeable change in the 1990s. The biggest investor used to be the U.S. in the previous decade as Figure 4 shows. The role of Japan, however, rose as a source country in the 1990s. In 1995 Japan became the biggest investor in the Philippines (see Table 2). Besides, the East and Southeast Asian countries such as Hong Kong, Singapore, Taiwan, South Korea, Malaysia and Thailand have become more important investors for the Philippines in the mid-1990s (see Table 2).

The increasing share of machinery and transport equipment in the manufacturing sector together with the rising share of other Asian countries as a source of FDI indicates that the pattern of the FDI inflow in the Philippines is approaching that of other ASEAN countries.

Figure 4 - Direct Foreign Equity Investment by Country (Cumulative Flows)



Source: Central Bank of the Philippines.

Table 2 - FDI Inflow in the Philippines by Country in 1995

	FDI In US$ Million	Share %
Total	**815.001**	**100.00**
US	55.823	6.85
Japan	244.485	30.00
Hong Kong	235.646	28.91
Netherlands	29.766	3.65
UK	52.689	6.46
Singapore	75.482	9.26
South Korea	8.162	1.00
Taiwan	7.394	0.91
Malaysia	27.181	3.34
Thailand	10.060	1.23

Source: Central Bank of the Philippines

3. Why Do Developing Countries Want To Attract FDI?

A considerable number of developing countries which were earlier skeptical about foreign direct investment (FDI) have, in recent times, become more receptive to the entry of multinational corporations. Especially in the 1980s their policies toward FDI have become more open. This trend is going to be more strengthened in the coming decade in the Asia Pacific Region owing to the regional effort to liberalize both trade and investment regimes.

Although a central reason behind the increasing liberal policy varies among countries, at least three major benefits of FDI are often emphasized in development literature.[5] First, viewed as a transfer of capital from rich to poor countries, FDI is of growing importance. Second is job creation. Schive (1990) attributed the role of exports to improving resource utilization and allocation in the early stage of development of Taiwan. He concluded that exports, particularly, of foreign firms contributed to the generation of local employment to a great extent in Taiwan.

Third is the diffusion of technology.[6] According to Blomstrom (1991), the prospect of acquiring access to modern technology is perhaps the most important reason why countries try to attract foreign investment. By inviting the multinational firms, host countries may gain access to technologies which cannot be produced domestically. FDI can also generate indirect productivity gains in the host countries through the realization of external economies.

The third benefit of FDI is particularly attracting much attention from academicians, as well as policymakers, in recent years as a result of the recent theoretical development of growth theory. The new growth theory emphasizes the importance of new ideas and

---

[5] See Gillis, et al. (1996).

[6] Here, technology is defined broadly to include not only production technology but also management skills, world marketing information, etc.

knowledge in the growth process, and it is FDI that is looked as one of the important vehicles for not only the transfer of goods and services but also, more fundamentally, of ideas (Ruffin, 1993, p. 18).[7]

4. Empirical Investigation

FDI did not become an engine of growth in the Philippines in the past partly because, unlike other ASEAN countries, the amount of FDI was not large enough to boost up the Philippine economy until the recent years as we observed in Section 2. However, the quality, rather than the level, of FDI seems to be more important in considering its impacts on economic development (PECC, 1995, p. 82). Section 4 empirically investigates the roles of FDI in economic development of the Philippines in greater detail.

Is FDI a major source of capital?

Table 3 shows the sources of foreign capital in the Philippines in share. In the 1980s, the amount of capital inflow fluctuated tremendously. This is considered to reflect political and economic instability of the 1980s. Although it is difficult to say something meaningful under the unstable economic condition, at least FDI was not a major source of capital in the Philippines in the 1980s. Entering the 1990s, however, the Philippines started to receive foreign capital more steadily, among which the share of FDI in foreign capital inflow stays around one third. Given the fact that foreign saving comprises an important part of the total gross saving of the Philippines, FDI is considered to play a central role as a source of capital in the Philippines.

---

[7] See also Romer (1993). He also emphasizes the role of new ideas in economic development and looks at FDI as one of the important channels through which new ideas are disseminated widely in developing countries. See Barro and Sala-i-Martin (1995) for the formal modeling of the diffusion of technology through the multinational corporations.

Table 3 - Sources of Capital Inflow in the Philippines
(%)

	FDI	Portfolio Investment	Other L-T Capital	Other S-T Capital
1980	–0.16	–7.97	82.30	25.84
1981	13.25	–1.42	90.06	–1.89
1982	7.89	–6.78	92.53	6.46
1983	24.94	–12.30	157.11	–69.75
1984	11.69	–10.06	45.79	52.59
1985	4.57	–2.98	259.74	–161.32
1986	304.17	–12.50	1,525.00	–1,716.67
1987	64.07	–6.37	28.14	14.16
1988	599.39	1.83	–316.46	–184.76
1989	49.25	25.02	33.57	–7.84
1990	58.34	–5.30	44.86	2.10
1991	27.48	6.49	47.90	18.13
1992	32.72	3.01	32.28	31.99
1993	31.20	–1.88	76.02	–5.34
1994	33.28	6.95	33.90	25.87
1995	31.34	34.88	35.41	–1.63

Source: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries 1996.*
Note: L-T means long-term.
S-T means short-term.

The importance of FDI seems to be particularly large in the manufacturing sector of the Philippines. Table 4 shows the share of capital expenditure by sector and the contribution of foreign firms to it in 1991, 1992 and 1993. According to Table 4, the share of foreign firms in overall investment activities are significantly high at least in the 1990s:[8] the foreign share exceeds 60 percent in total. The

[8] It is important to note that this figure overestimates the true contribution of foreign firms due to the fact that data include only medium- and large-scale firms, and foreign firms usually tend to be bigger in size. Data for 1991 and 1992 include only firms with 50 or more employees. Those for 1993 include only firms with 100 or more employees.

dominance of foreign firms is particularly noticeable in three sectors — food, chemical and machinery industries. Since these three industries happen to be the major ones in the Philippines, FDI seems to play an important role in the development of the major industries.

Table 4 - Industrial Composition of Investment Flow and its Foreign Shares (%)

	(a) Industrial Composition of Investment by Sector			(b) Shares of Foreign-Owned Firms in Each Sector		
ISIC	1991	1992	1993	1991	1992	1993
31	28.59	27.09	20.08	57.09	59.07	44.66
32	7.06	6.04	3.92	37.28	35.16	35.64
33	1.44	1.43	0.89	22.79	14.14	8.93
34	3.19	2.05	3.15	21.79	11.20	31.02
35	27.68	25.44	33.20	72.22	73.29	61.05
36	5.81	9.89	5.72	64.61	83.07	43.97
37	3.17	8.99	6.57	46.25	13.77	6.19
38	22.77	18.14	25.82	81.88	84.36	84.09
39	0.28	0.93	0.65	83.08	89.45	89.32
Total	**100.00**	**100.00**	**100.00**	**67.77**	**65.33**	**60.99**

Source: National Statistical Office of the Philippines.

Notes: (a) Here, foreign-owned firms include all of the firms with foreign equity participation.

(b) Strictly speaking, figures between 1991, 1992 and 1993 cannot be compared due to the difference in the inclusion of firms. The years 91 and 92 include all firms with 50 or more employees for both domestic and foreign firms. The year 1993 includes all firms with 100 or more employees.

(c) 31 --- Food, beverages, tobacco
32 --- Textile, wearing apparel, leather products
33 --- Wood products, furniture
34 --- Paper products, printing
35 --- Chemicals, petroleum refineries, etc.
36 --- Pottery, glass, cement, etc.
37 --- Basic industries
38 --- Machinery
39 --- Others

Employment creation

Gross-vs-net employment generation

There are several reasons for the persistence of poverty in the Philippines, one of which is lack of employment opportunities. Although official unemployment rates are not very high (around 8 or 9 percent) in the 1990s, underemployment rates are as high as over 20 percent during the same period. It is a vital policy objective for the government of the Philippines to enhance stable industrial development with the substantial generation of employment opportunities.

The past empirical evidence of the contribution of multinational firms to employment creation in general is far from conclusive. Schive (1990) found that export-oriented foreign firms had a significant effect on local employment in the case of Taiwan. The contribution of multinationals to employment creation in developing countries does not, however, seem to be always impressive (Gillis, et al., 1996, p. 404). How about the case of the Philippines?

Table 5 shows the employment structure of the manufacturing sector and the shares of foreign-owned firms in total employment in each sector of the Philippines in 1991, 1992, and 1993. According to the table, food, textiles and machinery industries are the biggest contributors to the generation of employment and the presence of foreign-owned firms is high in all three industries. The issue is not, however, gross employment, but net employment. The answer depends on whether foreign firms use more or less labor-intensive technology than domestic firms (Gills, et al., 1996, p. 405).

Table 6 shows the capital-labor ratios of foreign firms as a percentage of those of domestic firms in 1993. The year 1993 was chosen because 1993 data include only medium and large firms (with 100 or more employees) and the difference in capital intensity between two types of firms due to the scale difference is excluded. One hundred percent means that there is no difference between two

types of firms. According to it, 18 out of 29 subsectors of the manufacturing industry were found to possess the ratio exceeding 100. This is especially so in such industries as chemical-related products, non-metallic mineral products. This indicates that foreign firms tend to be more capital-intensive although it varies across sectors.[9] This means that the contribution of foreign firms may not have been substantial in terms of net employment.

Table 5 - Employment Structure and its Foreign Shares (%)

	(a) Employment Structure by Sector			(b) Shares of Foreign-Owned Firms in Employment		
ISIC	1991	1992	1993	1991	1992	1993
31	22.80	22.39	23.60	35.94	40.15	34.58
32	29.87	27.45	28.73	52.02	50.36	49.41
33	7.00	6.20	4.50	28.47	19.76	9.70
34	3.23	3.57	3.07	19.63	8.06	40.00
35	10.49	10.75	9.88	50.10	46.44	43.64
36	3.53	4.07	4.02	40.20	51.72	39.17
37	2.73	3.34	2.46	19.43	22.93	13.57
38	17.78	19.20	20.76	65.35	64.61	69.90
39	2.58	3.03	3.00	65.97	62.48	67.38
Total	100.00	100.00	100.00	46.52	46.31	46.43

Source: National Statistical Office of the Philippines.
Notes: See notes of Table 4.

[9] Since this paper uses aggregate industry data rather than firm-level data, the higher capital-labor ratios may be attributable to their different product mixes, rather than to different capital-labor ratios for similar products as pointed out in the case of Taiwan (Schive, 1990, p. 47).

Table 6 - Differences in Capital-Labor Ratios between Foreign and Domestic Firms

PSIC	K/L	PSIC	K/L
311	88	362	625
312	152	363	248
313	68	369	250
314	1,182	371	72
321	128	381	296
322	67	382	831
323	312	3,831	22
331	89	3,832	129
332	69	3,833	76
341	99	3,836	157
351	349	3,839	42
352	187	384	645
355	238	385	12
356	497	390	149
361	123	Total	134

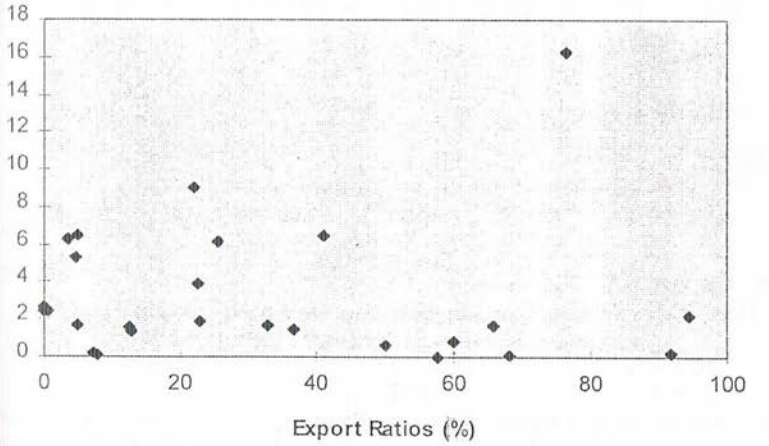
Sources: the author's calculation.
Notes: (a) PSIC stands for Philippine standard of industrial classification.
(b) Figures are calculated as follows: $K/L = 100*(Kf/Lf)/Kd/Ld)$.
(c) Refer to Appendix II to see which sector is included in each PSIC number.

Importance of export-oriented foreign firms in employment generation

Job creation may, however, depend as much on the host country's policies as on the multinationals' practices. According to Schive (1990), export-oriented FDI made an important contribution in labor absorption in Taiwan. FDI has been disappointing in employment generation in the Philippines, at least until the recent years, partly because its policies in general failed to attract export-oriented firms in the past.

Figure 5 shows the relationship between the sectoral distribution of foreign fixed assets and export intensity in 1993. It indicates that except for electrical machinery industry, the industrial sectors with higher concentration of foreign firms' fixed assets are the ones which show a lower tendency to export. In other words, foreign firms entering the Philippines tend to be rather domestic-oriented than export-oriented at least until 1993. One of the main reasons is its high protectionist policy (Mercado-Aldaba, 1994, p. 40) — foreign firms were given more incentives to gear toward domestic rather than export markets. However, at least in the case of the Philippines, it is the export-oriented firms and industries which seem to generate more employment opportunities and enhance its international competitiveness.

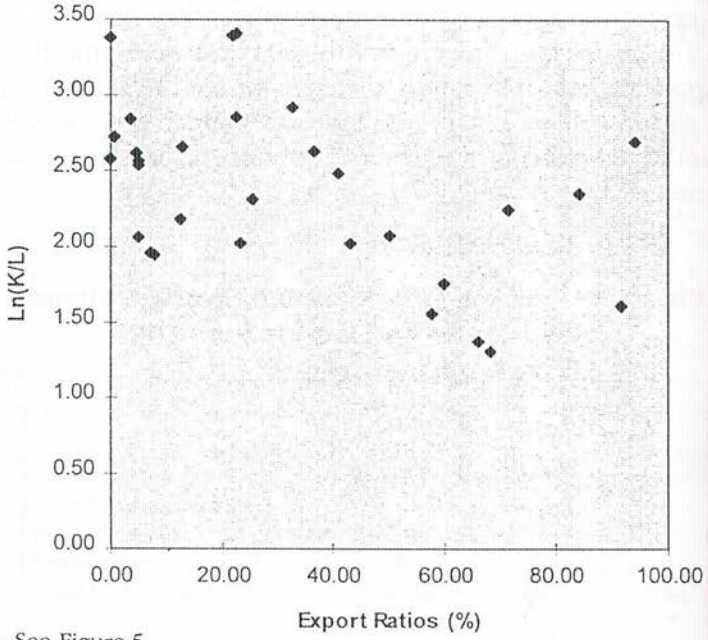
Figure 5 - Sectoral Distribution of Foreign Firms' Fixed Assets and Export Intensity



Source: the author's calculation based on National Statistical Office (NSO) data.

Figure 6 shows the relationship between export ratios and capital-labor ratios of foreign firms at the three-digit industrial classification level for the year 1993. There is a clear tendency for export-oriented foreign firms to be more labor-intensive.[10]

Figure 6 - Relationship between Export Orientation and Capital Intensity



Source: See Figure 5.
Note: Here, K/L is value of fixed assets in thousand pesos per employee.

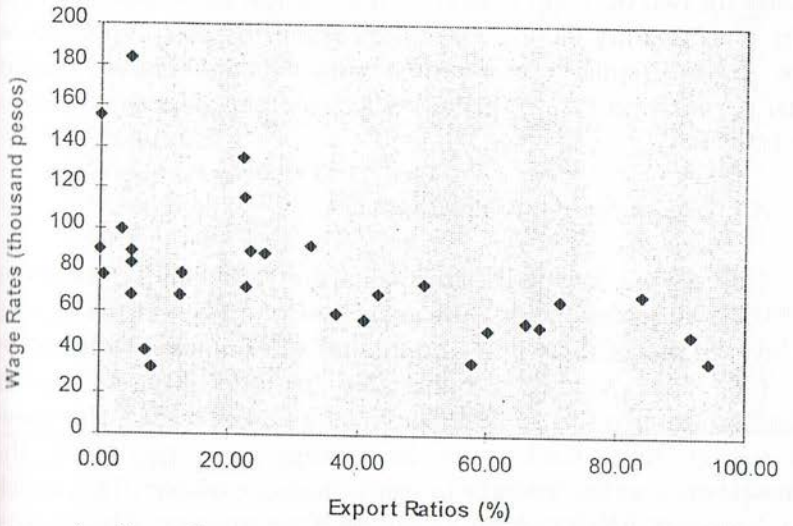
[10] A simple regression analysis is conducted as follows:

$$Ln(K/L)i = 13.03 - 0.02(E/X)i \qquad R^2 = 0.22$$
$$(-2.79)^* \qquad D.F. = 28$$

where $Ln\,(K/L)i$ stands for the natural log of capital-labor ratio in the i-th industrial sector, $(E/X)i$ stands for share of exports in total revenues of foreign firms in the i-th industrial sector in percentage, and the figure in parenthesis stands for t-ratio. Data for 1993 were used.

Besides, as Figure 7 shows, more export-oriented foreign firms tend to refrain from paying higher wages.[11] This indicates that when foreign firms produce for export, competitive pressures force them to employ the lowest-cost techniques (which frequently means more labor-intensive methods) and maintain internationally competitive wage levels.

Figure 7 - Export Intensity and Wage Rates



Source: See Figure 5.

[11] Simple regression analyses are conducted as follows:

a. Using average wage rates of production workers,

$$(\text{Wage Rate})_i = 96669 - 576\,(E/X)_i \qquad R^2 = 0.25$$
$$(-3.04)^* \qquad D.F. = 28$$

where $(\text{Wage Rate})_i$ is an average wage rate of foreign firm in the i-th sector in pesos, the figure in the parenthesis stands for t-ratio and * indicates statistical significance at the 5 percent level. Data for 1993 were used for the calculation. Figure 7 expresses the relationship between average wage rates of production workers and export ratios.

b. Using average wage rates of non-production workers,

$$(\text{Wage Rate})_i = 127286 - 857(\text{E/X})_i \qquad R^2 = 0.28$$
$$(-3.31)^* \qquad D.F. = 28$$

where $(\text{Wage Rate})_i$ is an average wage rate of foreign firms in the i-th sector, the figure in the parenthesis stands for t-ratio and * indicates statistical significance at the 5 percent level. Data for 1993 were used for the calculation.

Industrial development with labor absorption is essential for the sustainable development of the Philippines. Therefore, overall incentive structures should be such that at least equal incentives be given to export-oriented, as well as domestic-oriented, FDI.

Does FDI enhance productivity?

FDI is considered to influence the productivity of the host country for two different reasons. First, the foreign subsidiary brings to its host country skilled entrepreneurship or productive knowledge. Second, spillovers of productivity occur when the multinational corporation cannot capture all quasi-rents due to its productive activities.

Are foreign firms more productive?

This paper, first of all, calculates the total factor productivity (TFP) of each manufacturing sector by type of ownership to compare the level of productivity between foreign and domestic firms in 1993 (see Table 7).[12] According to the table, the ratio of the level of TFP of foreign firms to that of local firms is 1.28 on average. This means that foreign firms tend to be 28 percent more productive than domestic ones in the manufacturing sector as a whole. This conclusion, however, holds only in 19 out of 30 subsectors. This makes a contrast to the case of Malaysia where the conclusion held in almost all the subsectors of the manufacturing industry (Okamoto, 1994). Therefore, although FDI tends to increase the overall level of productivity, it varies a lot among the sectors in the Philippines.

---

[12] TFP was calculated as follows for each industrial sector by type of ownership:

$$TFP = Q / (L^{\alpha}K^{\beta}M^{1-\alpha-\beta}), \text{ where}$$

Q = gross total revenue in pesos in 1993,
L = number of employees in 1993,
K = value of fixed assets in pesos in 1993,
M = cost of inputs in pesos in 1993,
α = value share of labor, and
β = value share of capital.

Table 7 - Differences in Total Factor Productivity (DTFP) between Foreign- and Domestic-owned Firms

PSIC	DTFP	PSIC	DTFP
311	2.00	361	1.21
312	1.31	362	0.52
313	1.46	363	1.01
314	2.95	369	1.14
321	0.80	371	1.23
322	4.28	381	0.88
323	1.71	382	0.05
324	1.71	3831	1.22
331	0.73	3832	0.86
332	4.75	3833	0.74
341	1.22	3836	1.30
351	0.69	3839	6.54
352	1.29	384	0.44
355	1.62	385	59.55
356	0.77	390	0.60
		Total	1.28

Source: the author's calculation.

Notes: (a) DTFP was calculated as follows: *TFPf/ TFPd*, where *f* stands for foreign-owned firms, and *d* stands for domestic-owned firms.
(b) See endnote (12) for the calculation of TFP.
(c) Refer to Appendix II for PSIC.

Is there any spillover effect?

According to Caves (1974), there are three different potential benefits arising from spillover effects. One is allocative efficiency. The multinational firms may provide an increase in competition in the host-country market and pare down monopolistic distortions of the host-country market. The second is technical efficiency. The subsidiary may induce a higher level of technical or X-efficiency in host country firms that compete with it. The third is the diffusion of technology and knowledge to the local firms.

Following Caves (1974), two hypotheses are tested for the existence of the above benefits.

Allocative efficiency

If the entry of the multinational firms improves the allocative efficiency of a country, the profit rates of domestic firms should be inversely related to the competitive pressure supplied by foreign firms (Caves, 1974, p. 178). To test the hypothesis that a larger share of the market held by subsidiaries should correspond to lower profits earned by local firms, two other variables are introduced to control for other factors influencing profits. The first one is a variable to control extraneous influences which affect total industry profit rates including both domestic and foreign firms such as their market structure. The paper includes the profit rate of foreign-owned firms to serve as a proxy for these extraneous influences on total industry profits following the study of Caves (1974). The other variable is a proxy for the level of protection. Due to lack of indicators to represent the degree of overall protection of each industry, this paper uses the proportion of domestic sales in total revenue of the foreign firms. As a protectionist trade policy with an anti-export bias (which was the case in the Philippines until recently) implies a greater incentive for domestic production, the above variable is used as a proxy.

To test the hypothesis controlling other variables, the following regression equation was estimated using data of 1993:

$$(1)\quad \text{PROFIT}d_i = \alpha_0 + \alpha_1 \cdot FS_i + \alpha_2 \cdot \text{PROFIT}f_i + \alpha_3 \cdot \text{PROTECTION}_i + \varepsilon_i$$

where $\text{PROFIT}d_i$ is the average profit rate of domestic firms in the i-th industry,[13] FS_i is sales share of foreign firms in the i-th industry, $\text{PROFIT}f_i$ is the average profit rate of foreign firms in the i-th industry, PROTECTION_i is the proportion of domestic sales in

[13] The average profit rate is calculated as follows:
(total gross revenue – wages – materials costs) / value of fixed assets.

total revenue of foreign firms in the i-th industry (a proxy for the level of protection), and ε_i is an industry-specific error term. All of the coefficients are expected to be positive except α_1 which is hypothesized to be negative. The estimated equation (1) is as follows:

$$(1)\quad \hat{PROFIT}d_i = -0.668 + \underset{(1.178)}{0.685^*}\, FS_i + \underset{(3.236)^*}{0.448^*}\, PROFITf_i + \underset{(2.238)^*}{1.056^*}\, PROTECTION_i \qquad R^2 = 0.36,\ DF = 26$$

where figures in parentheses show t-ratios and * indicates statistical significance at the five percent level.

The results show that although the profit rates of local firms were found to be closely associated with the profit rates of foreign firms and a proxy for the protection measure, the negative relationship between the profit rates of domestic firms and the foreign share was not found. They suggest that at least one source of the productivity spillovers from FDI was not supported in the case of the Philippines.

Technical efficiency and the diffusion of technology and knowledge

Although the hypotheses about technical efficiency and technology transfer are analytically distinct, it is hard to test them separately with the limited amount of data as Caves (1974) mentioned. Therefore, the two are tested jointly. This paper tests the hypothesis that a larger share of subsidiaries in an industry will, in the long run, induce higher technical efficiency and/or faster diffusion of technology and knowledge to domestic firms.

To control for other factors, two other variables are included in the equation. One is the level of total factor productivity of foreign firms. This is, as in the case of equation (1), to control for other extraneous effects which may influence the productivity level of the total industry. The other is the export intensity of domestic firms.

World Bank (1993, p. 317) claims that exports play an important role in helping economies adopt and master international best-practice technologies.

To test the above hypothesis including control variables, the following regression equation is estimated:

$$(2) \quad Ln(TFPd_i) = \beta_0 + \beta_{1*} FS_i + \beta_{2*} Ln(TFPf_i) + \beta_{3*} LEX_i + \sigma_1$$

where $TFPd_i$ is the level of TFP of domestic firms in the i-th industry, FS_i is sales share of foreign firms in the i-th industry, $TFPf_i$ is the level of TFP of foreign firms in the i-th industry, LEX_i is export share in total revenue of domestic firms in the i-th industry and σ_i is an industry-specific error term.

All of the coefficients are hypothesized to be positive. Once again, data of 1993 were used for testing.

The result is as follows:

$$(2) \quad \hat{Ln(TFPd_i)} = 0.305 + \underset{(1.987)}{0.544^*} FS_i + \underset{(1.680)}{0.313^*} Ln(TFPf_i) + \underset{(0.00)}{0.00^*} LEX_i$$

$$R^2 = 0.2$$

$$DF = 20$$

Although the signs of coefficients are as expected, none of the coefficients show any statistical significance at five percent level. This indicates that the other spillover gain of productivity also tends to be weak in the Philippines.

In conclusion, FDI has not played a big and important role in enhancing the production efficiency of the Philippines at least until the recent years.

5. Will FDI be an Engine of Growth?

The above analysis showed that although the multinational firms were a large part of the Philippine industrialization process, they did not contribute much to the absorption of labor force and the enhancement of productivity at least until the early 1990s. Is there any possibility that FDI can someday be an engine of growth in the Philippines as in other ASEAN countries?

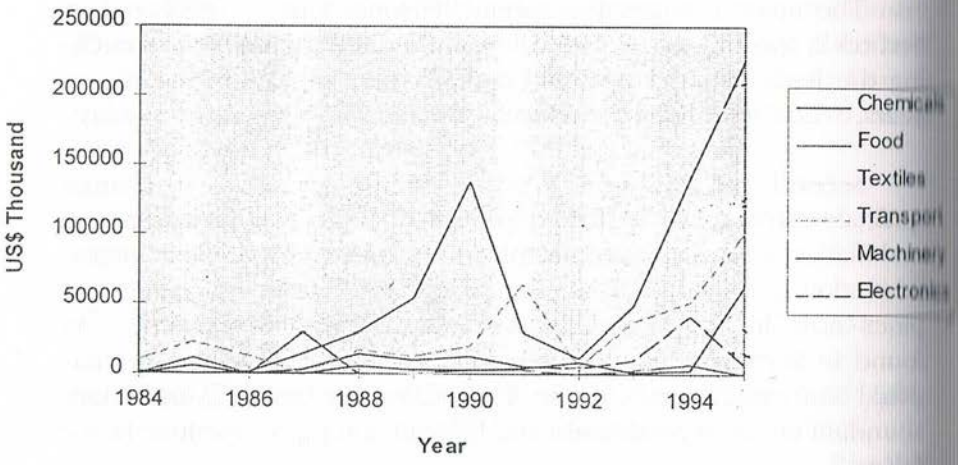
The answer is yes for several reasons. First, as analyzed in Section 2, the amount of FDI inflows in the Philippines is approaching the level of other ASEAN countries very rapidly in the recent years. The Philippines seems to be catching up with them quickly.

Second, the flow of FDI in the Philippines seems to change qualitatively as well. As found in Section 3, the past investment of multinational firms rather concentrated in the production for domestic market due to a high level of protection. However, the Philippines now invites more export-oriented foreign investment. As found in Section 3, export-oriented firms tend to enhance international competitiveness of the Philippines by utilizing the more abundant factor of production and by maintaining competitive factor prices.

Figure 8 shows the flow of Japanese FDI in the Philippines since 1984. As found in Section 2, Japan has become more important as a source of investment in the Philippines in the 1990s. According to Figure 8, Japan's FDI increased sharply in electronics in 1994. This is consistent with the observation that the recent FDI in the export processing zones (EPZs) of the Philippines is dominated by Japanese

electronics companies.[14] Since electronics tends to be more labor-intensive than other manufacturing sectors in the Philippines and the recent FDI in electronics tends to be more export-oriented rather than import-oriented, FDI will play a bigger role in promoting industrialization, accompanied by more employment opportunities in the Philippines.

Figure 8 - Japan's FDI Flows by Sector



Source: Ministry of Finance of Japan.

Third, new efforts on import liberalization are underway in the Philippines. Although FDI contributes to the dissemination of new technology and ideas across borders, what is most important is to what extent new technology can spill over into the rest of the

[14] According to data provided by the Export Processing Zone Authority (PEZA), FDI increased sharply in 1994 and it continues to flow into the Philippines until now. In 1995, 74 percent of the total amount of FDI flowed in the electronics sector. In the same year, Japan occupied 69 percent of total FDI. Therefore, we can assume that the recent FDI in EPZs is dominated by Japanese electronics companies. However, it is not possible to know the exact share of Japanese electronics companies in total FDI as there is no breakdown of FDI by industry and by source country in the data provided by PEZA.

economy. The paper found that the spillover gains of FDI were weak in the Philippines in the past. One of the main reasons is the seemingly lack of competitive economic environment in the private sector due to a high level of protection or other factors. Trade, as well as investment, liberalization will be necessary to maximize the net benefits associated with the massive inflow of FDI.

6. Policy Implications

We can draw at least two policy implications. First, FDI is not always and automatically an engine of growth. The impact of FDI on economic development is influenced to a great extent by the public policy of the host country as well as the behavior of the multinationals. In this regard, investment liberalization should well be coordinated with other economic reforms, such as import liberalization and competition policy, in order to enhance overall competitive pressure. "Opening the investment regime while maintaining substantial trade barriers to protect inefficient industries may detract from long-run economic growth by promoting resource misallocation and internationally inefficient industries." (PECC, 1995, p. 82). Trade, as well as investment, liberalization under the APEC process will be required to further enhance liberalization and economic development in the Philippines.

Second, investment liberalization rather than generous foreign investment incentives can be an effective way to attract FDI. In recent years, many express concern about the serious proliferation of investment incentives in the Asia Pacific Region (PECC, 1995). Although investment incentives may successfully change the decisions of foreign investors, it is not without cost. The cost to the government of the recipient country is the revenue forgone and/or the government funds spent to finance the incentives. Continuous outflow of FDI due to generous investment incentives of host countries may cause some negative impact on the home country. This will be a more important topic in the future discussion of the multilateral negotiation such as APEC.

Appendix I

Table A-1 - Gross Inflow of FDI in ASEAN 4 (In US$ Million)

	Philippines	Malaysia	Thailand	Indonesia
1984	9	797	401	222
1985	12	695	163	310
1986	127	489	263	258
1987	307	423	352	385
1988	936	719	1,105	576
1989	563	1,668	1,775	682
1990	530	2,332	2,444	1,093
1991	544	3,998	2,014	1,482
1992	228	5,183	2,113	1,777
1993	1,238	5,006	1,804	2,004
1994	1,591	4,348	1,366	2,109
1995	1,478		2,068	4,348

Source: See Figure 1.

Appendix II

PSIC Code	Industrial Description
311	Food Manufacturing I
312	Food Manufacturing II
313	Beverage Manufacturing
314	Tobacco Manufacturing
321	Manufacture of Textiles
322	Manufacture of Wearing Apparel except Footwear
323	Manufacture of Leather and Leather Products
324	Manufacture of Footwear
331	Manufacture of Wood, and Wood and Cork Products
332	Manufacture of Furniture and Repair

Appendix II (continued)

PSIC Code	Industrial Description
341	Manufacture of Paper and Paper Products
342	Printing, Publishing and Allied Industries
351	Manufacture of Industrial Chemicals
352	Manufacture of Other Chemical Products
353	Petroleum Refineries
354	Manufacture of Miscellaneous Products of Petroleum and Coal
355	Manufacture of Rubber Products
356	Manufacture of Plastic Products
361	Manufacture of Pottery and China
362	Manufacture of Glass and Glass Products
363	Manufacture of Cement
369	Manufacture of Other Non-Metallic Mineral Products
371	Iron and Steel Basic Industries
372	Non-Ferrous Metal Basic Industries
381	Manufacture of Fabricated Metal Products
382	Manufacture of Machinery except Electrical Machinery
3831	Manufacture of Electrical Machinery and Apparatus
3832	Manufacture of Radio, Television and Communication Equipment
3833	Manufacture of Electrical Appliances and Housewares
3836	Manufacture of Electric Wire and Wiring Devices
3839	Manufacture of Electrical Apparatus and Supplies
384	Manufacture of Transport Equipment
385	Manufacture of Professional and Scientific Equipment
390	Other Manufacturing Industries

References

APEC Secretariat (1995), *Selected APEC Documents*. Singapore: APEC Secretariat.

Barro, R.J. and X. Sala-i-Martin (1995), *Economic Growth*. New York: McGraw-Hill.

Blomstrom, M. (1991), "Host Country Benefits of Foreign Investment," in *Foreign Investment, Technology and Economic Growth,* D. McFetridge (ed.). Calgary: the University of Calgary Press.

Caves, R.E. (1974), "Multinational Firms, Competition, and Productivity in Host-Country Markets," *Economica 41* (May).

Gills, M. et al. (1996), *Economics of Development* (4th ed.). New York: W.W. Norton & Company.

Mercado-Aldaba, R.A. (1994), "Foreign Direct Investment in the Philippines: A Reassessment." PIDS Research Paper Series No. 94-10.

Okamoto, Y. (1994), "Impacts of Trade and FDI Liberalization Policies on the Malaysian Economy," *The Developing Economies 32* (No. 4).

PECC (1995), *Survey of Impediments to Trade and Investment in the APEC Region*. Singapore: APEC Secretariat.

Romer, P. (1993). "Idea Gaps and Object Gaps in Economic Development," *Journal of Monetary Economics 32*.

Ruffin, R.J. (1993), "The Role of Foreign Investment in the Economic Growth of the Asian and Pacific Region," *Asian Development Review 11* (No. 1).

Schive, C. (1990), *The Foreign Factor: The Multinational Corporation's Contribution to the Economic Modernization of the Republic of China*. Stanford, Ca.: Hoover Institution Press.

Warr, P.G. (1987), "Export Promotion via Industrial Enclaves: The Philippines' Bataan Export Processing Zone," *The Journal of Development Studies 23* (January).