

IMPACT OF TRADE AND FDI LIBERALIZATION POLICIES ON THE MALAYSIAN ECONOMY

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I. INTRODUCTION

IN 1993 the World Bank published a book called *The East Asian Miracle* [17], in which Malaysia is regarded as one of the newly industrializing economies along with Thailand and Indonesia. This is because Malaysia has continued to grow at astonishingly high annual rates of 8 or 9 per cent since the late 1980s. At present, development economists are paying close attention to the factors which have brought about an "economic miracle" in these countries including Malaysia.

In the 1980s not only developed but also developing countries introduced economic liberalization policies, and Malaysia was no exception. In the latter half of the 1980s, Malaysia accelerated trade liberalization policies and drastically eased restrictions with respect to the capital ownership of foreign companies. The purpose of this paper is, therefore, to investigate to what extent these trade and FDI liberalization policies contributed to the high economic performance of Malaysia with special focus on the productivity of the manufacturing sector.

To this end, first of all, Section II provides an overview of trade and FDI liberalization policies of Malaysia in the 1980s. The reasons behind the introduction or acceleration of liberalization policies are also clarified.

Section III evaluates liberalization policies as a whole by comparing the economic performance of Malaysia in the pre-1985 and post-1985 periods. Then, Section IV analyzes the contribution of foreign companies to the economic transition.

Section V examines the impact of liberalization policies on the productivity of the manufacturing sector of Malaysia in particular. Impact on productivity is analyzed in detail precisely because the improvement of productivity is regarded as an essential part of economic development. For the purpose of analysis, two methods are utilized. One is to calculate the annual growth rates of total factor productivity (TFP) by industry and examine the relationship between TFP and policy variables by using the regression method. Second is to evaluate the impact of FDI liberalization on the level of productivity in particular by comparing foreign and local companies.¹

Analysis of FDI liberalization is emphasized in this paper because in Malaysia FDI liberalization policy has been implemented more drastically and extensively

¹ This kind of analysis became possible only recently because data on production, employment, wages, capital stock, etc. by industry and by the type of ownership was made available only recently.

(as examined in Section II), and because more and more developing countries are looking into this kind of development strategy, stimulated by the economic success of several ASEAN countries. Both theoretical and empirical studies are becoming more necessary to support the policy.

II. AN OVERVIEW OF MALAYSIAN TRADE AND FDI LIBERALIZATION POLICIES IN THE 1980s

It is often said that there has been no drastic change in trade policy in Malaysia since its independence. There are several reasons for this. In Malaysia, quantitative restriction policies towards imported goods never had much importance as a measurement of protection policy in the first place. In addition, tariff rates tended to be low compared with other developing countries even during the import substitution period in the 1960s [7, p.115] [2, pp.75-77]. Moreover, although accelerated, the speed of import liberalization was still mild in the 1980s compared with such Latin American countries as Chile and Mexico in which import liberalization policies were conducted rapidly and extensively. However, this paper argues that at least there was a clear-cut change in trade policy in the mid-1980s in Malaysia following the revitalization of outward-oriented industrialization strategy.

Contrary to mild trade liberalization, deregulation of FDI was conducted extensively in the mid-1980s. There is no doubt that the adoption of the FDI liberalization policy was one of the important factors behind the massive inflows of FDI into Malaysia in the late 1980s. Section II provides an overview of two liberalization policies and reasons for their changes.

A. *Trade Liberalization Policy in the 1980s*

Outward-oriented development strategy initiated in the 1970s receded at the beginning of the 1980s once because the government of Malaysia launched the second-round import substitution strategy. It stressed the import substitution of intermediate and capital goods such as chemicals, cement, aluminum, steel, and transport equipment [9, p.203]. As a part of the strategy, the degree of protection given to these manufactured goods was raised.

The intensification of protection given to certain industries of the manufacturing sector can be confirmed by Table I (which shows nominal and effective rates of protection by industry for the years of 1982, 1985, and 1987). According to Table I, nominal and effective rates of protection increased in a number of sectors by 1985 especially so in nonmetallic mineral products (including cement), fabricated metal products (including aluminum), and transport equipment besides tobacco. In addition, not only the level but also the variance of protection increased as indicated by the rising value of standard deviation of protection rates during the 1982-85 period.

However, this second-round import substitution strategy did not last. In the mid-1980s, the government reinforced the outward-oriented development strategy and as a part of it, import liberalization policy was implemented again, although gradually. Table I and Figure 1 show this gradual but clear-cut import liberali-

TABLE I
 NOMINAL AND EFFECTIVE RATES OF PROTECTION FOR THE YEARS
 OF 1982, 1985, AND 1987

Industrial Classification	Nominal Rate of Protection (<i>NRP</i>)			Effective Rate of Protection (<i>ERP</i>)		
	1982	1985	1987	1982	1985	1987
Food manufacturing	2.65	6.18	4.67	4.55	13.87	9.17
Beverage	19.63	24.51	10.56	27.49	33.81	13.37
Tobacco	27.04	77.83	52.81	31.58	91.35	61.78
Textiles	13.62	9.44	5.44	29.16	17.36	7.91
Wearing apparel	20.13	19.70	16.26	39.99	44.54	40.15
Leather	19.52	22.52	19.53	64.21	73.65	58.50
Footwear	21.26	24.35	18.52	122.86	135.55	84.87
Wood and cork products	8.23	10.74	8.74	24.54	27.29	17.03
Furniture	36.21	32.65	18.23	83.39	71.72	37.18
Paper and paper products	2.37	4.81	4.21	1.98	5.39	4.28
Printing and publishing	2.78	3.65	2.64	3.55	3.30	1.33
Industrial chemicals	3.90	4.63	2.89	4.56	4.76	1.89
Other chemical products	4.22	4.30	3.05	4.81	3.36	1.66
Petroleum refineries	2.33	3.63	7.27	10.67	16.53	33.63
Rubber products	18.91	20.45	8.45	50.01	53.25	19.83
Plastic products	20.08	13.61	6.07	50.47	31.42	11.89
Pottery, china, glass	20.38	21.84	16.41	38.96	40.31	29.28
Nonmetallic mineral products	8.97	15.10	11.67	16.91	28.23	21.11
Iron and steel	5.72	4.12	3.09	24.62	10.73	2.18
Nonferrous metal	2.34	2.52	1.27	15.26	16.30	7.69
Fabricated metal products	5.53	11.40	6.57	8.19	24.21	12.81
General machinery	2.65	3.19	2.63	-0.45	-0.03	1.12
Electrical machinery	2.94	1.96	0.87	1.34	-1.15	-2.64
Transport equipment	5.89	13.87	4.21	5.66	15.30	4.16
Precision equipment and others	2.93	3.76	3.18	1.55	2.86	2.98
Standard deviation	9.43	15.52	10.51	29.14	32.32	21.88

Source: Calculated by the author using the data of the Department of Statistics (DOS).

Notes: 1. $NRP(t_j) = 100 \cdot (\text{import duty}) / (\text{import value})$.

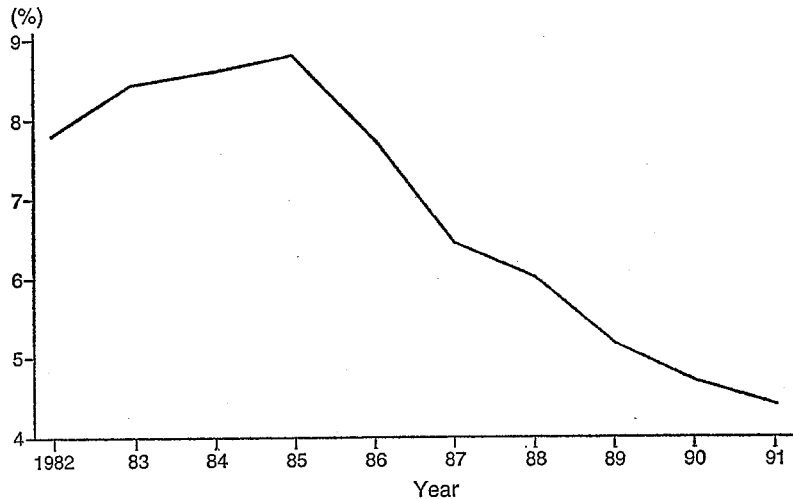
$$ERP(T_j) = (t_j - \sum_{i=1}^m a_{ij} \cdot t_i) / (1 - \sum_{i=1}^m a_{ij})$$

2. Industrial classification follows International Standard Industrial Classification (ISIC).

zation policy. As Table I shows, both nominal and effective rates of protection declined in a number of sectors in 1987. Moreover, the variance of protection also decreased in the same year. Figure 1 indicates the continuous efforts to liberalize the Malaysian economy from 1987 since import duty as a percentage of the total import value continues to decline.

Why then did Malaysia change this trade policy in the mid-1980s? The first reason is that the heavy industrialization launched at the beginning of the 1980s did not generate good economic performance [11, p.196]. As time went by, it became clear that many of the import-substituting industries were not performing

Fig. 1. Average Tariff Rates of Malaysia



Sources: Calculated by the author using Bank Negara Malaysia, *Quarterly Bulletin*, Vol. 8, No. 1 (March–June 1993); International Monetary Fund, *International Financial Statistics Yearbook, 1993* (Washington, D.C., 1993).

Note: Average tariff rates = $100 \cdot (\text{import duty}) / (\text{import value})$.

as expected. To overcome the severe economic recession in the mid-1980s and to revitalize the economy, there was no other choice but to come back to the outward-oriented strategy [10, p. 333]. As a part of this strategy, the import liberalization policy was indispensable.

The second reason was that, as pointed out in Malaysia [8, 1987 edition, pp. 18–19] [8, 1989 edition, pp. 10–11], by the mid-1980s it had become clear that a number of infant industries never grew despite being protected for a long time (more than ten years) and had prevented the export industry from strengthening its competitiveness in the international market. To revitalize the outward-looking industrialization initiated in the 1970s and to remove the negative incentives to export industries, it was important to implement an import liberalization policy [10, p. 26].

It is important to note, however, that the import liberalization policy of Malaysia is different on two grounds from that of Latin American countries such as Chile and Mexico which are under the strong influence of the economic philosophy of the World Bank and the International Monetary Fund. First, the policy has been implemented gradually. Second, the direct export promotion policy was implemented at the same time as the import liberalization policy.²

² In Thomas, Nash, et al. [13], the coexistence of export promotion policy and import liberalization policy is called trade neutrality and is differentiated from trade liberalization.

Although the goal may be the same, progress towards the goal seems to differ tremendously among the developing countries.

B. *FDI Liberalization Policy in the 1980s*

1. *Reasons behind FDI liberalization policy*

In 1971 the government of Malaysia introduced the New Economic Policy (NEP), one of the objectives of which was to achieve 30 per cent Malay ownership of capital in the manufacturing and commercial sectors. As a result, although the importance of foreign capital continued to be recognized, restrictions against foreign companies were strengthened in the 1970s.

In the mid-1980s, prices of primary commodities declined dramatically due to the worldwide recession and so did export revenue. In addition, both private and public investment expenditures declined. A combination of several factors led to negative GDP growth (-1.1 per cent) in 1985 for the first time since the independence. The economic recovery was still weak in 1986.

Since public debt had accumulated enormously by the mid-1980s, the government was in no position to implement countercyclical, expansionary fiscal policy at that time. In addition, although the government emphasized the important role of the private sector in economic recovery, the local entrepreneurship was not strong enough to pull the economy out of the recession. As a result, the government dramatically deregulated the rules with respect to FDI in 1986, in the hope that foreign companies would revitalize the economy.³

Since changes in the regulations concerning FDI are described in detail elsewhere,⁴ this paper need only reiterate the fact that one of the important changes was to admit 100 per cent foreign ownership of capital to companies which exported more than 50 per cent of their products (previously 80 per cent was required). In addition, fiscal incentives to attract FDI were enlarged.

2. *FDI liberalization and the massive inflow of foreign capital to Malaysia*

Figure 2 shows the trends of FDI inflows to the manufacturing sector of Malaysia. Although in the early 1980s FDI inflows were stagnant, the trend changed dramatically in the post-liberalization period. FDI started to flood into Malaysia, especially into the manufacturing sector, in the late 1980s. Since both supply and demand (or pull and push) factors determine the FDI flows,⁵ FDI liberalization policy is not the only factor which led to the massive inflow of FDI. However, there is no doubt that without the changes in FDI regulations it would never have occurred.

Then, into which industry of the manufacturing sector did most FDI flow? Although there is no data to show the flows of FDI by industry on the basis of realization rather than approval, we can infer them by examining data of fixed capital assets by industry and by type of ownership.⁶ It is important to note here

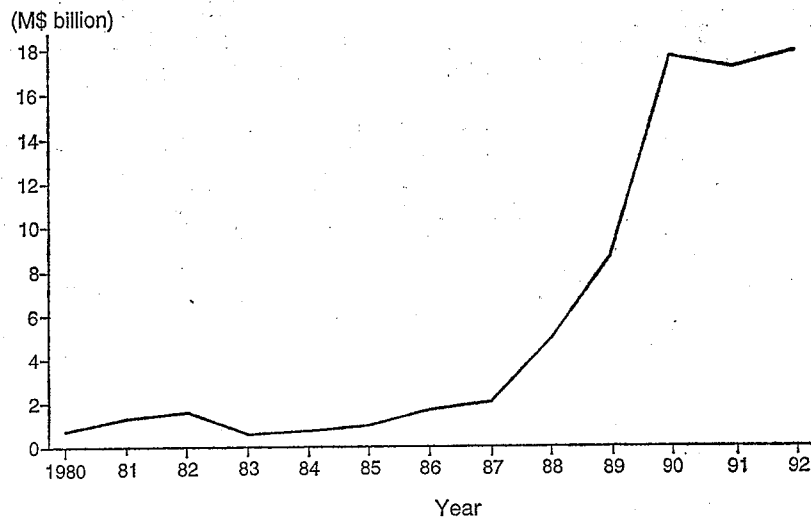
³ Refer to Kitamura [6] for detailed description of FDI policy in Malaysia.

⁴ See Kitamura [6] for example.

⁵ Refer to Ariff [1] for the determination of FDI flows to Malaysia.

⁶ A similar attempt is made by Yokoyama [14] using different sources (Malaysian Industrial Development Authority statistics).

Fig. 2. FDI Flows into Malaysia



Source: Malaysian Industrial Development Authority.

TABLE II
THE SHARE OF FOREIGN COMPANIES IN TOTAL FIXED ASSETS BY SECTOR

	1983	1985	1986	1987	1988	1989	1990
Food, beverage, and tobacco	26.8	22.4	21.8	22.4	26.0	25.4	24.8
Textiles	42.1	39.5	38.3	40.4	40.2	45.6	44.5
Apparel	33.8	41.4	39.3	40.1	35.4	50.4	47.0
Leather and footwear	0.3	0.8	0.4	0.3	0.1	0.0	40.4
Wood products	3.5	9.6	3.3	12.5	10.5	11.9	14.5
Furniture	2.2	1.5	1.4	3.7	20.3	28.3	49.0
Paper and printing	9.6	9.1	7.9	3.6	4.3	8.0	9.6
Chemicals	5.7	4.9	5.9	6.1	8.8	9.7	16.8
Petroleum and coal products	44.7	30.1	32.8	68.7	69.1	72.6	73.9
Rubber products	38.3	41.7	36.7	41.9	51.3	53.6	48.4
Plastic products	8.5	7.6	9.0	11.0	12.1	22.7	27.1
Nonmetallic mineral products	21.7	7.8	9.0	8.8	10.3	10.9	17.0
Basic metals	27.3	10.9	11.7	13.4	17.6	17.9	17.9
Fabricated metal products	18.7	12.7	13.2	15.8	11.3	12.4	20.7
General machinery	28.9	23.0	29.8	47.5	64.9	64.1	78.7
Electric machinery	71.2	71.2	71.4	76.2	78.4	85.2	87.4
Transport equipment	6.7	5.5	4.9	5.3	5.3	8.6	18.5
Precision equipment	88.4	91.2	92.5	95.3	97.8	100.0	100.0
Other manufactured goods	56.1	52.2	59.3	58.1	63.5	63.1	64.0
Total manufacturing sector	23.6	19.4	19.7	22.3	26.9	31.8	38.1

Source: Calculated by the author using data of DOS.

that due to restrictions on the usage of data, we regard companies as foreign if more than 50 per cent of the capital ownership is held by foreigners.

Table II shows the share of foreign companies in the total fixed assets of each industry from 1983 to 1990. According to Table II, the share of foreign companies was only around 23.6 per cent in 1983. However, it went up to as high as 38 per cent in 1990.

Examining the trends of the share of foreign companies by industry clarifies that the share increased not only in industries such as electronic and electrical machinery, precision equipment (which had been dominated by foreign companies since the early days), but also in industries such as leather and footwear, furniture, petroleum and coal products, plastics, and general machinery (which used to be dominated by local companies). Thus, after the mid-1980s, not only did massive amounts of FDI flow into the manufacturing sector, but also the scope of activity of foreign companies increased.

III. IMPACT OF LIBERALIZATION POLICIES ON THE OVERALL ECONOMY

Before entering into specific analysis of liberalization policies and productivity, this paper first analyzes their wider impact on the Malaysian economy. Table III shows annual growth rates of GDP, exports, imports, and TFP⁷ for two different

⁷ The average annual growth rate of TFP in the manufacturing sector for the first period of the 1980s is taken from World Bank [15]. That of the second period (the period of 1986-90) is calculated by the author. For the purpose of calculation, the same equation as used by the World Bank [15, pp. 130-31] is used here. Specifically, the following equation is used:

$$\begin{aligned} \ln(Q_t) - \ln(Q_{t-1}) = & Sk \cdot [\ln(K_t) - \ln(K_{t-1})] \\ & + Sl \cdot [\ln(L_t) - \ln(L_{t-1})] \\ & + Sm \cdot [\ln(M_t) - \ln(M_{t-1})] + S_t, \end{aligned}$$

where Q stands for gross output (in 1978 prices), Sk for capital share, K for capital input (in 1978 prices), Sl for labor share, L for labor input, Sm for intermediate inputs share, M for intermediate inputs (in 1978 prices), and S_t for the growth rate of TFP. Sk , Sl , and Sm are obtained respectively as follows:

$$\begin{aligned} Sk &= 0.5 \cdot (Sk_t + Sk_{t-1}), \\ Sl &= 0.5 \cdot (Sl_t + Sl_{t-1}), \\ Sm &= 0.5 \cdot (Sm_t + Sm_{t-1}). \end{aligned}$$

Data sources are *Industrial Surveys* of various years, *The Producer Price Index for Malaysia* of various years, and other data (investment) obtained from the Department of Statistics. The value of production was deflated using producer price indices. To obtain intermediate inputs in 1978 prices, the deflator for them was calculated using the 1983 *Input-Output Table for Malaysia* and producer price indices.

Capital stock for the period of 1983-90 was estimated using the perpetual inventory method. Since investment data of the manufacturing sector of Malaysia exist only after 1983, capital stock of 1982 was estimated as the benchmark using *Industrial Surveys* of 1982 and *Report of the Financial Survey of Limited Companies* of various years. Capital stocks of the following years were calculated using that of the benchmark year and investment data of subsequent years. It is important to note here that due to the non-

TABLE III
AVERAGE ANNUAL GROWTH RATES OF GDP, EXPORTS, IMPORTS, AND TFP

	(%)	
	1981-85	1986-90
GDP	5.1	6.8
Agriculture	3.1	4.6
Industry	5.6	9.8
(Manufacturing)	(5.2)	(13.6)
Services	5.7	4.5
Exports	6.8	16.0
Imports	5.6	18.3
TFP	-1.9 ^a	0.3

Sources: Calculated by the author except for TFP of the first period. TFP for the first period is obtained from World Bank [15].

Note: TFP is for the manufacturing sector only. See footnote 7 in the text for the details of TFP.

^a Indicates the period of 1981-84.

periods: the first and latter halves of the 1980s. In the late 1980s the growth of the manufacturing sector was accelerated and played an important role in revitalizing the Malaysian economy. The growth rates of exports and imports were also enormous during the same period, among which manufactured exports increased remarkably (from an average annual growth rate of 9.1 per cent during the first half of the 1980s to as high as 21.1 per cent during the latter half in the nominal value of U.S. dollars). As a result, the average share of exports in the total production of the manufacturing sector increased from 36.5 to almost 50 per cent during the same period. There is no doubt that the expansion of manufactured exports was an engine of high economic growth in Malaysia.

The productivity growth of the manufacturing sector seemed to have also improved in the latter half of the 1980s as the trend of TFP growth rates shows. Although the growth rate itself was not very high even during the latter half of the 1980s (with average annual growth rates of around 0.3 per cent for 1986-90), at least the level of TFP was improving.⁸ Besides, it is important to take into consideration the fact that some part of newly acquired or constructed capital may not immediately have been fully utilized, so it is possible that the growth of TFP for the period of 1986-90 has been underestimated.

Structural changes in the Malaysian economy have also occurred as the economy grew. As Table IV shows, the structure of the manufacturing sector was changed to a great extent during the latter half of the 1980s. According to the table, not only the share of the electronics and electrical machinery industry, but also other

existence of deflator for land, only construction, machinery equipment, and transport equipment are included in capital stock. Their annual depreciation rates are assumed to be 3 per cent, 8.5 per cent, and 10 per cent respectively following the World Bank [16].

⁸ For the growth rates of TFP at the macro level for Malaysia, see the research of Moshe Syrquin cited in Ghee and Woon [4, p. 386].

TABLE IV
SECTORAL SHARES IN PRODUCTION, EMPLOYMENT, AND EXPORTS
FOR 1983 AND 1990

	Production		Employment		Exports	
	1983	1990	1983	1990	1983	1990
Food, beverage, and tobacco	31.06	22.04	14.95	10.04	26.15	12.98
Textiles	3.01	3.05	6.71	4.50	3.20	3.85
Apparel	1.28	2.55	5.61	7.66	1.97	3.95
Leather and footwear	0.09	0.09	0.38	0.36	0.12	0.35
Wood products	5.32	4.29	12.89	10.71	10.72	8.32
Furniture	0.39	0.40	1.64	1.83	0.12	0.70
Paper and printing	2.70	1.96	5.35	4.25	0.23	0.86
Chemicals	6.58	6.53	3.09	2.63	1.95	2.50
Petroleum and coal products	7.51	4.85	0.32	0.26	8.60	6.63
Rubber products	5.72	4.64	6.10	7.00	0.73	1.05
Plastic products	1.19	1.94	3.07	4.33	0.27	0.77
Nonmetallic mineral products	2.89	2.56	5.29	4.33	0.57	1.02
Basic metals	7.63	5.98	2.68	2.20	10.37	3.08
Fabricated metal products	3.21	2.93	4.41	3.97	0.66	1.18
General machinery	2.34	3.32	2.96	3.21	2.95	5.60
Electric machinery	14.69	27.21	17.64	25.75	27.42	38.38
Transport equipment	3.32	3.76	4.29	3.03	2.32	3.69
Precision equipment	0.55	1.23	1.14	1.75	0.85	1.81
Other manufactured goods	0.52	0.68	1.48	2.17	0.79	3.28
Total manufacturing sector	100.0	100.0	100.0	100.0	100.0	100.0

Source: Calculated by the author using data of DOS.

nontraditional, non-resource-based industries such as apparel, plastics, general machinery, transport equipment, and precision equipment showed an increasing trend in production, employment, and exports. On the other hand, the importance of traditional, resource-based industries such as food processing and wood declined during the same period. This indicates the fact that the manufacturing sector has been diversified and expanded more into nontraditional and non-resource-based industries.

In conclusion, in the latter half of the 1980s Malaysia not only expanded production and employment in the manufacturing sector, but also improved the level of productivity to a certain extent and achieved diversification of the industrial structure.

IV. FDI LIBERALIZATION POLICY AND THE MALAYSIAN ECONOMY

The next question is the extent to which each liberalization policy has been important in generating this kind of economic performance in Malaysia. Since an analysis of policy changes and productivity is made in detail in Section V,

Section IV first focuses on other aspects of the economy. In addition, attention is focused on FDI liberalization policy in this section, considering the availability of data and the extensiveness of policy change.

To examine the impact of FDI liberalization policy on the Malaysian economy, this paper compares the performances of foreign and local companies in terms of production, employment, industrial structure, and export activities. Due to a lack of data, the analysis is conducted only from 1983.

A. Comparison of Foreign and Local Companies in Production and Employment of the Manufacturing Sector

Table V compares sectoral annual growth rates of production and employment for the pre-1985 (1984–85) and post-1985 (1986–90) periods by type of ownership. Generally speaking, production and employment of foreign companies increased dramatically during the post-1985 period while those of local companies did so more gradually. Although the economic performance of local companies cannot be neglected, that of foreign companies was spectacular: average annual growth rates of production and employment were negative during the pre-1985 period, but they rose to as high as 21 per cent in the latter half of the 1980s. During the same period capital stock of foreign companies grew at average annual rates of around 24 per cent. There is no doubt that the dramatic deregulation of FDI led to massive inflows of FDI and expanded employment, capital stock, and production in Malaysia.

If we look at each industry of the manufacturing sector, foreign companies expanded dramatically not only in the electronics and electrical machinery industry but also in such industries as furniture, plastics, general machinery, and precision equipment. In consequence, the presence of foreign companies in these industries grew in the manufacturing sector of Malaysia as indicated by the fact that their contribution to total production and employment rose rapidly (Table VI). This demonstrates the fact that the inflow of FDI not only contributed to the expansion of economic activities, but also to structural change in the country: the diversification of the industrial sector into nontraditional, non-resource-based industries as observed in Section III.

It is important to note, however, that local companies also expanded their economic activities. Although their change was much more gradual and their presence declined relative to foreign companies as Table VI shows, local companies also expanded their contribution to total production and employment of the manufacturing sector in such industries as apparel, plastics, electronics and electrical machinery, transport equipment, and other manufactured goods. The production structure of local companies changed almost along the same lines as that of foreign ones.

B. Inflows of FDI and Export Performance

Turning to the question of FDI and exports, it is often said that manufactured exports rapidly increased in the latter half of the 1980s mainly owing to the entry of export-oriented foreign companies. Since trade data by type of ownership are

TABLE
AVERAGE ANNUAL GROWTH RATES OF PRODUCTION AND

	Production			
	Local Firms		1984-90	1984-85
	1984-85	1986-90		
Food, beverage, and tobacco	12.10	5.72	7.49	-15.31
Textiles	-2.01	16.30	10.75	-0.60
Apparel	8.33	26.48	21.00	43.18
Leather and footwear	2.39	5.66	4.46	n.a.
Wood products	-8.94	14.68	7.36	19.86
Furniture	18.05	2.28	6.55	3.27
Paper and printing	-5.12	11.21	5.81	44.03
Chemicals	32.49	5.08	12.17	10.53
Petroleum and coal products	-18.14	-13.15	-14.60	n.a.
Rubber products	-1.03	12.48	8.44	-2.54
Plastic products	7.05	21.68	17.31	5.61
Nonmetallic mineral products	11.44	10.25	10.47	-12.13
Basic metals	12.32	10.71	11.36	-16.64
Fabricated metal products	1.00	16.60	11.91	-34.86
General machinery	-10.49	14.61	6.80	-5.71
Electric machinery	9.97	22.90	19.06	0.37
Transport equipment	1.72	21.32	15.36	-20.80
Precision equipment	-38.33	-35.70 ^a	-36.59 ^a	7.06
Other manufactured goods	2.02	20.80	15.10	2.59
Total manufacturing sector	8.79	11.55	10.76	-1.66

Source: Calculated by the author using data of DOS.

^a Indicates growth rates excluding the year of 1990.

not released to the public, it is not possible to directly test it. However, it is possible to infer the importance of foreign companies in the rising manufactured exports as follows.

Table VII shows changing correlation coefficients between the export structure of Malaysia as a whole (the share of each industry in total manufactured exports) and production structures of foreign and local companies respectively (the share of each industry in production by type of ownership). From this table, it becomes clear that the export structure was very much like that of the production structure of foreign companies even before the mid-1980s and since then the Malaysian export structure of manufactured goods has also become increasingly similar to that of foreign ones. On the other hand, the production structure of local companies has grown to be different from the Malaysian export structure.

Of course, the above result does not mean that exports of local companies decline in absolute terms, because there is no information to show changes in the value of exports in absolute terms by type of ownership. However, at least it implies the fact that the contribution of foreign companies to manufactured exports

V

EMPLOYMENT BY SECTOR AND BY TYPE OF OWNERSHIP

(%)

Employment							
Foreign Firms		Local Firms			Foreign Firms		
1986-90	1984-90	1984-85	1986-90	1984-90	1984-85	1986-90	1984-90
13.09	3.29	0.99	3.64	2.91	-7.42	0.84	-2.01
19.68	13.49	-10.35	6.60	1.45	-6.16	7.20	3.20
21.76	27.53	-1.37	16.17	10.86	21.65	15.03	16.88
n.a.	n.a.	-9.59	3.31	-0.54	n.a.	n.a.	n.a.
22.69	21.87	-8.85	9.29	3.76	31.77	27.17	28.47
99.98	65.57	7.89	4.52	5.47	-2.22	71.47	46.05
31.49	32.33	1.95	4.26	3.30	24.99	35.23	33.75
11.17	10.98	4.29	6.48	6.09	1.36	7.37	5.77
n.a.	n.a.	33.37	-4.96	4.50	n.a.	n.a.	n.a.
13.15	8.43	-3.43	12.75	7.87	-3.55	21.78	13.93
54.69	38.71	1.23	15.12	10.97	-7.16	46.40	28.53
19.40	7.05	2.01	4.67	3.37	4.61	20.25	16.59
13.39	3.78	5.55	3.37	3.98	-12.10	18.04	8.43
25.50	4.06	-0.94	8.39	5.63	-20.78	26.48	10.65
52.26	32.78	-3.80	4.44	2.02	-1.15	41.35	27.62
32.76	22.56	5.35	14.85	12.05	-4.85	23.09	14.36
19.05	5.96	-3.78	4.81	2.28	-12.47	16.52	7.38
36.10	27.08	-23.34	-47.16 ^a	-40.18 ^a	3.42	22.11	16.45
23.23	16.94	-1.01	7.21	4.80	11.35	22.10	18.93
20.86	13.95	-1.62	7.71	4.96	-1.98	20.53	13.62

has been on the increase relative to local ones. In other words, the rapid expansion of manufactured exports could not have been seen without the massive inflow of FDI to Malaysia.

V. LIBERALIZATION POLICIES AND PRODUCTIVITY GROWTH

Section III analyzed the general economic performance of Malaysia in the latter half of the 1980s in comparison with that of the early 1980s and Section IV evaluated the role of FDI liberalization policy in the economic transition. The next important task is to investigate the impact of liberalization policies on the level of productivity. This section, first of all, conducts a cross-industry analysis to examine the relationship between each of trade and FDI liberalization policy and TFP. Second, the impact of FDI liberalization policy on the level of TFP is the focus of the analysis.

TABLE VI
SECTORAL SHARES IN TOTAL PRODUCTION AND EMPLOYMENT BY TYPE OF OWNERSHIP

	Employment (%)											
	Production						Employment					
	Local Firms		Foreign Firms		Local Firms		Foreign Firms		Local Firms		Foreign Firms	
	1983	1985	1990	1983	1985	1990	1983	1985	1990	1983	1985	1990
Food, beverage, and tobacco	22.08	25.76	16.83	8.99	5.93	5.21	12.02	12.67	8.54	2.93	2.58	1.50
Textiles	1.72	1.54	1.62	1.29	1.18	1.44	4.64	3.86	3.00	2.07	1.89	1.51
Apparel	0.88	0.96	1.54	0.40	0.76	1.01	3.91	3.94	4.70	1.71	2.61	2.97
Leather and footwear	0.09	0.09	0.06	0.00	0.00	0.03	0.38	0.32	0.22	0.00	0.01	0.14
Wood products	5.08	3.92	3.85	0.24	0.32	0.44	12.52	10.77	9.47	0.37	0.66	1.24
Furniture	0.38	0.49	0.27	0.01	0.01	0.13	1.58	1.90	1.34	0.06	0.06	0.50
Paper and printing	2.64	2.21	1.75	0.06	0.11	0.20	5.22	5.62	3.80	0.13	0.20	0.45
Chemicals	4.84	7.70	4.88	1.73	1.97	1.65	2.13	2.38	1.81	0.96	1.02	0.82
Petroleum and coal products	1.52	0.95	0.23	5.99	7.05	4.62	0.19	0.35	0.15	0.13	0.17	0.10
Rubber products	3.29	3.00	2.67	2.43	2.14	1.97	4.04	3.90	4.01	2.06	1.98	2.99
Plastic products	1.11	1.18	1.56	0.08	0.09	0.38	2.78	2.95	3.36	0.29	0.26	0.97
Nonmetallic mineral products	2.27	2.60	2.10	0.62	0.42	0.46	4.74	5.10	3.51	0.55	0.60	0.83
Basic metals	4.06	4.73	3.85	3.57	2.31	2.13	2.12	2.44	1.62	0.56	0.45	0.57
Fabricated metal products	2.42	2.29	2.45	0.79	0.31	0.48	3.83	3.90	3.28	0.58	0.38	0.68
General machinery	1.72	1.28	1.25	0.62	0.51	2.07	2.49	2.38	1.67	0.48	0.48	1.54
Electric machinery	2.52	2.83	3.94	12.17	11.39	23.27	2.97	3.41	3.84	14.67	13.75	21.91
Transport equipment	2.60	2.50	3.26	0.72	0.42	0.50	3.94	3.78	2.69	0.35	0.27	0.33
Precision equipment	0.05	0.02	0.00	0.50	0.53	1.23	0.10	0.06	0.00	1.03	1.15	1.75
Other manufactured goods	0.23	0.22	0.28	0.29	0.29	0.40	0.65	0.66	0.52	0.84	1.08	1.65
Total manufacturing sector	59.50	64.25	52.38	40.50	35.75	47.62	70.25	70.40	57.54	29.75	29.60	42.46

Source: Calculated by the author using data of DOS.

TABLE VII
CORRELATION COEFFICIENTS BETWEEN EXPORT AND
PRODUCTION STRUCTURE BY TYPE OF OWNERSHIP

	Foreign Companies	Local Companies
1983	0.899	0.678
1985	0.870	0.637
1986	0.940	0.503
1987	0.942	0.475
1988	0.946	0.495
1989	0.958	0.447
1990	0.964	0.412

Source: Calculated by the author.

Note: Calculated correlation coefficients are statistically significant at 1 per cent level except for the years of 1987, 1989, and 1990 of local companies.

A. Cross-Industry Analysis

Specifically, this section utilizes the following multiple regression equation to evaluate the impact of each liberalization policy on the productivity growth of Malaysia:⁹

$$TFPG_i = a_0 + a_1 \cdot (ERP82_i) + a_2 \cdot (ERP8287_i) + a_3 \cdot (FS_i) + \varepsilon_i, \quad (1)$$

where

$TFPG_i$ (dependent variable) = average annual growth rate of TFP of the i th industry during the period of 1984–90,

$ERP82_i$ = the effective rate of protection of the i th industry for 1982 calculated in Section II,

$ERP8287_i$ = the change in the level of the i th industry's ERP between 1982 and 1987,

FS_i = the average share of foreign companies in total fixed assets of the i th industry between 1983 and 1990, and

ε_i = error terms.

With respect to the sign of each coefficient, a_1 is expected to be negative if the protection policy of Malaysia tends to lower production efficiency. If production efficiency not only depends on the initial level of protection, but also on the degree to which the level of protection changes, a_2 is also expected to be negative. If the entry of foreign companies tends to have a favorable impact on production efficiency, a_3 is expected to be positive. The following is the result:

⁹ See footnote 7 for the method of calculating average annual growth rate of TFP of each industry.

$$\begin{aligned}
 \dot{TFPG}_i = & -1.98 + 0.003 (ERP82_i) - 0.024 (ERP8287_i) \\
 & (-2.04)^* (0.125) \quad (-0.657) \\
 & + 0.034 (FS_i), \\
 & (1.838)^* \\
 R^2 = & 0.14, \quad DF = 21,
 \end{aligned}$$

where the figures in parentheses show t values. Although the overall statistical significance is not strong, the signs of a_2 and a_3 are as expected. And the coefficient of FS_i shows statistical significance at the 5 per cent level (one-tail test).

This result implies two things. First, although import liberalization tends to improve production efficiency, a definite conclusion cannot be drawn. Second, FDI liberalization may improve production efficiency since the industry with the higher share of foreign companies tends to show higher TFP growth rates.

B. FDI Liberalization Policy and the TFP Level

It is important to investigate the mechanism through which FDI liberalization policy, and therefore the entry of foreign companies may have influenced the TFP level of the manufacturing sector. There are two mechanisms through which the entry of foreign companies may have improved the level of productivity. First, foreign companies entering Malaysia are considered to be more productive in comparison with local ones. Second, the entry of foreign companies may contribute to the improvement in the productivity level of local companies.

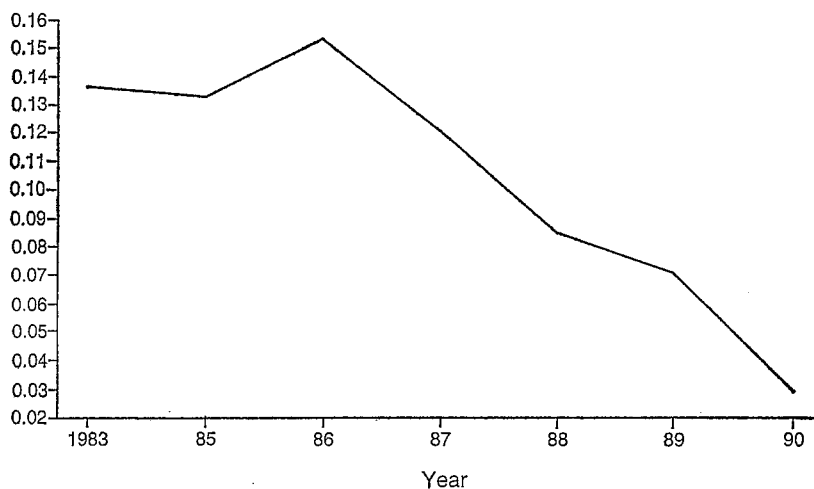
There are two reasons why foreign companies are considered to be more productive. First of all, since the majority of foreign companies in Malaysia are export-oriented, they cannot accomplish their objective without being productive and competitive in the international market. Second, foreign companies are not expected to invest in foreign countries in the first place unless they can be superior to local companies in terms of production technology, management know-how, and other aspects [12, p. 17].

In addition, the entry of foreign companies may also influence the productivity of local companies for three reasons. First, if foreign companies compete with local ones, then the entry of competitors may induce local companies to improve their production and management technology under the increasing pressure of competition. Second, local companies may be able to improve the level of productivity themselves through direct and indirect technology transfer from foreign companies. This will be expected to occur especially if local companies are complementary to foreign ones. Third, if new business opportunities are created for local companies as a result of the entry of foreign ones, capacity utilization may be raised, which leads to improvement in the TFP level.

The above hypothesis is tested using the methodology developed by Jorgenson and Nishimizu [5, p. 721]. Specifically, the level of TFP is compared between two types of companies for each industry by using the following equation:

$$\begin{aligned}
 \ln(TFP_f) - \ln(TFP_m) = & \ln(Q_f) - \ln(Q_m) - Sk [\ln(K_f) - \ln(K_m)] \\
 & - Sl [\ln(L_f) - \ln(L_m)] \\
 & - S_m [\ln(M_f) - \ln(M_m)], \quad (2),
 \end{aligned}$$

Fig.3. Difference in the Level of Total Factor Productivity between Foreign and Local Companies in the Manufacturing Sector as a Whole



Source: Calculated by the author using data of DOS.

where

- Q = gross output (in 1978 prices),
- Sk = value share of capital input,
- K = capital input (in 1978 prices),
- Sl = value share of labor input,
- L = labor input,
- Sm = value share of intermediate inputs,
- M = intermediate inputs (in 1978 prices),
- f = foreign company, and
- m = local company.

Sk , Sl , and Sm are obtained respectively as follows:

$$Sk = 0.5 \cdot (Sk_f + Sk_m),$$

$$Sl = 0.5 \cdot (Sl_f + Sl_m),$$

$$Sm = 0.5 \cdot (Sm_f + Sm_m).$$

The positive sign of the estimates indicates the superiority of foreign companies in the level of productivity. In addition, the closer the estimates are to zero, the smaller is the difference between two types of companies in the level of productivity. Figure 3 shows the trend of the difference in productivity of the manufacturing sector as a whole. Its breakdown into each sector is shown in Table VIII in which three-year moving averages of the difference in productivity are calculated.

According to Figure 3, as hypothesized, foreign companies tend to be more productive in general as the sign of estimates indicates. Nevertheless, the differ-

TABLE VIII
DIFFERENCES IN THE LEVEL OF TOTAL FACTOR PRODUCTIVITY
BETWEEN FOREIGN AND LOCAL COMPANIES
(THREE-YEAR MOVING AVERAGE)

	1983-85	1985-87	1986-88	1987-89
Food, beverage, and tobacco	0.0711	0.0597	0.0672	0.0685
Textiles	-0.0032	0.0604	0.0825	0.0553
Apparel	0.0558	0.0348	-0.0031	-0.0354
Leather and footwear	0.1361	0.1784	0.0489	n.a.
Wood products	-0.0547	-0.0676	-0.0770	-0.1250
Furniture	-0.1066	0.0574	0.0684	-0.0234
Paper and printing	0.7406	0.4234	0.2554	0.1409
Chemicals	0.3072	0.2836	0.2238	0.1745
Petroleum and coal products	0.1915	0.1850	0.1809	0.3230
Rubber	0.0603	0.0262	-0.0004	-0.0074
Plastic products	-0.0265	0.0015	0.0214	-0.0194
Nonmetallic mineral products	0.2767	0.2671	0.1368	0.0507
Basic metals	0.0254	0.0142	-0.0174	0.0062
Fabricated metal products	0.0799	0.0392	0.0660	0.0716
General machinery	0.1204	0.1105	0.0638	0.0314
Electric machinery	0.0827	0.1125	0.0949	0.0495
Transport equipment	0.1822	0.0888	0.1088	0.0471
Precision equipment	0.1355	0.1406	0.0252	-0.1413
Other manufactured goods	0.0718	0.1445	0.1760	0.0830
Total manufacturing sector	0.1352	0.1357	0.1194	0.0918

Source: Calculated by the author using data of DOS.

ence in productivity between the two is becoming narrower.¹⁰ This implies that although the level of productivity of the local companies is lower, it is in the process of reaching the level of foreign companies.

The above trend is also seen in many of the sectors except such industries as wood in which local companies used to be dominant in Malaysia relative to foreign ones. These results imply that FDI liberalization policy generated a favorable effect on the productivity of Malaysia through several mechanisms.

VI. CONCLUSION

In the mid-1980s Malaysia introduced more liberal economic policies. In the early 1980s the second-round import-substitution industrialization strategy was introduced and the degree of protection was intensified. As a result, outward-oriented industrialization strategy receded once during this period. However, unfavorable effects of the protection policy came to be realized and more liberal economic policies began to be reinforced in the late 1980s.

¹⁰ As mentioned by Eng [3, p. 9], the capacity utilization of foreign companies is low, particularly in the late 1980s. Therefore, the results have to be interpreted with caution as there is a possibility of overestimation of the narrowing productivity differentials.

As part of the new industrialization strategy, import and FDI liberalization policies were introduced. However, the speed and degree of the two liberalization policies were very different. While import liberalization was implemented with caution and in a gradual manner, the regulations of FDI were eased drastically and extensively. As a result, foreign companies expanded their activity not only in the electronics and electrical machinery industry but also in many other industries in the latter half of the 1980s.

Generally speaking, liberalization policies as a whole had a favorable effect on the economy. Malaysia succeeded in the expansion of employment and production especially for exports and has recorded remarkable economic annual growth rates of around 8 or 9 per cent since the introduction of liberal policies. A certain tendency of improvement in the level of TFP was also found.

With respect to analysis of each policy, no clear-cut effect of import liberalization policy was found. On the other hand, the impact of FDI liberalization policy were found to be enormous. Foreign companies contributed a great deal to the expansion of production (especially for exports) and employment, and the accumulation of capital stock since the introduction of FDI liberalization policy. In addition, they also contributed to the diversification of the industrial structure into nontraditional, non-resource-based industries.

Most important of all, FDI liberalization policy seems to have had a favorable effect on the level of TFP in Malaysia through two different channels. One is the entry of more productive companies (foreign companies) and the other is the improvement in the level of productivity of local companies.

Although the situation differs among the manufacturing industries, FDI liberalization policy was found to have contributed to the creation of an "economic miracle" in Malaysia.

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