PART I. JAPAN TEAM : 6. Agglomeration of Exporting Firms in Industrial Zones in Northern Vietnam: Players and Institutions

6

Agglomeration of Exporting Firms in Industrial Zones in Northern Vietnam: Players and Institutions

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1. INTRODUCTION

Foreign direct investment (FDI) has contributed to enhancing economic growth in many Asia countries by agglomerating firms in many cities (See Urata [2001]). It is effective in applying Asian experiences to countries in other regions to find out how cities agglomerate multinational corporations (MNCs). Development strategy for industrial agglomeration can be useful once we make clear what kind of players participate and which institutions are established for the strategy. The Poverty Reduction Strategy Papers [2002] repeat the importance of participation in development processes. We must identify players and divide their roles in the processes to maximize the effectiveness of strategy for industrial agglomeration.

Krugman [1993] and others set out industrial location patterns. Hamaguchi and Fujita [2001] focused on the role that intermediate goods play in agglomerating firms. Mori and Nishikimi [2002] emphasized increasing returns in transportation, in particular, economies of transport density. These are theoretical approaches to industrial agglomeration. So, paying attention to the roles of intermediate goods and transportation, this

paper attempts to show what kind of players and institutions were involved to agglomerate firms in cities in East Asia. Kennedy [1999], Weijland [1999], and Sonobe, Kawakami, and Otsuka [2002] analyzed industrial clusters in India, Indonesia, and Taiwan, respectively. These are case studies on industrial agglomeration. No paper has tried to illustrate the case of the Vietnamese experience by focusing on the role of industrial zones (IZs) together with infrastructure and institutions of capacity for development to agglomerate firms, and enhancing the macroeconomic growth.

The purpose of this chapter is to prove that industrial zones as quasi-public goods enhance macroeconomic growth by using a theoretical macroeconomic model and to illustrate that transportation infrastructure such as highways and ports as well as institutions for IZs are effective in agglomerating a leading firm and its related firms in northern Vietnam. The related firms provide the leading firm with parts and components for intermediate goods. The successful players for industrial agglomeration were private companies establishing IZs, official development assistance (ODA) to facilitate transportation infrastructure, and central and local governments to establish institutions. The aim here is to show the positive effects of IZs on enhancing aggregate growth by employing a macroeconomic growth model with quasi-public goods from IZs. Moreover, we will show how in northern Vietnam after 2001 growth was attained by industrial agglomeration.

The theoretical model derives from the condition that establishment of IZs enhances aggregate growth. The condition is that average capital productivity is higher than the critical value of the model. The players for industrial agglomeration are as follows. The Vietnamese government gave preferential taxes to tenant firms of IZs. A Japanese trading corporation (*Sogoshosha*) and a security company in the private sector established IZs in northern Vietnam to seek profits by managing the IZs and related services rather than selling land for IZs to tenants. Official development assistance facilitated the economic infrastructure such as Haiphong port and highway Route 5. A Japanese high-tech company became an IZ tenant together with its related companies to anchor parts and components firms. These players contributed to success in industrial agglomeration in northern Vietnam. A combination of IZs, preferential taxes, a port and highway, and institutions could agglomerate firms in northern Vietnam by raising average capital productivity. The above success story will help apply strategy for industrial agglomeration to other countries.

The chapter is organized as follows. In section 2 we build a theoretical

growth model to explain that an IZ functions as quasi-public goods to invite FDI and enhance aggregate growth. Sections 3-5 make clear that economic agents or players are crucial to establishing IZs and spreading economic growth throughout a country. Section 3 explains that organizations of central and local governments in the quasi-public sector constructed IZs in Malaysia and Thailand in the 1980s and 1990s. Section 4 points out that Japanese trading corporations established IZs in East Asia including Thailand, Indonesia, and the Philippines and that the IZs helped Japanese manufacturing companies invest in the IZs. Section 5 adds the fact that not only Japanese trading corporations but also other Asian companies and governments established IZs in East Asia. Section 6 shows positive macroeconomic effects of national highway Route 5 on the northern Vietnamese economy. Section 7 concludes the chapter.

2. A THEORETICAL MODEL

Industrial zones (IZs) have three distinctive characteristics. First, they facilitate infrastructure and institutions required for investors. The physical infrastructure includes electricity, roads, telecommunications, water supply and sewerage, etc, while institutions include one-stop services and others. Second, preferential taxation is an important factor when foreign companies are making decisions on investment since the main motivation for investing overseas is to reduce their production costs. To be more precise, the exemption of equipment from import tariffs and reduced or exemption from corporation tax are crucial incentives for foreign investors. Third, the permitting of 100% foreign subsidiaries is also effective to induce foreign companies to move into IZs.

Step 1: Kuchiki and Yamada [1997] showed that the public sectors of Thailand, Malaysia and other Asian countries undertook a policy to enhance economic growth nationwide by constructing IZs:

$$Z = Z(G)$$

where Z is construction of IZs and G is government expenditure on IZ infrastructure. Here we can define IZs as quasi-public goods since they are excludable, rival, but indivisible. An IZ is a package of land, infrastructure, and institutions and the package is indivisible like a stadium. That is why an IZ can cluster firms at an area of 300 hectares as is usual in East Asia. But

its tenants can use each lot of the IZ exclusively. The tenant is a rival with other investors since it occupies its lot and then others cannot use it.

We assume for the sake of simplicity that government expenditure (G) is financed by taxes (T), and proportional to GDP (y):

$$T = G = \alpha y$$

where y is real GDP and α is tax rate. Here we also assume without loss of generality that the government expenditure is equal to tax reductions, costs to construct IZs, and other costs related to IZs. In short,

$$Z = \alpha y$$

It is noticed that there are many cases that private companies pay costs to construct IZs instead of the public sector since IZs have the property of quasi-public good.

Step 2: The investment function of FDI can be expressed as follows:

$$I_f = I_f(Z;\ e,\ t)$$

where e is the exchange rate of currency and t is the rate of tax on FDI, and these variables are assumed to be given and constant. So the exchange rate and the tax rate are part of the investment climate for foreign investors. Here we assume that governments implement all the incentive policies mentioned above to invite FDI. We build a model of surplus labor, that is, the existence of cheap labor.

We specify the investment function of FDI as follows:

$$I_f = \beta\alpha y \qquad (1)$$

where β is constant. The value of β expresses the situation of investment climate of a recipient country. That is, the investment function is proportional to Z, and G.

Step 3: First we build the growth model, and then derive the condition that a country can raise the rate of economic growth by constructing IZs and inviting FDI.

We consider the problem of utility maximization of a representative con-

sumer subject to the condition of market equilibrium. The usual utility function (U) is

$$U = \int_0^{\infty} e^{-\rho t} \frac{C_t^{1-\sigma}}{1-\sigma} dt, \tag{2}$$

where t represents time from now on, ρ is time preference, σ is a coefficient of relative risk aversion, and C_t is consumption. We follow the model in Chapter 4 of a textbook by Barro and Sala-i-Martin [1995]. The condition of the market equilibrium is described

$$y_t = C_t + I_t + X_t - M_t$$

where I_t is domestic investment, X_t is export, and M_t is import.

Excess import ($M_t - X_t$) is financed by foreign investment

$$M_t - X_t = I_{ft}.$$

We assume a production function in the following

$$y_t = AK_t$$

where K_t is capital stock and A is constant. Here the production function is a Leontief type and labor is redundant in the economy. So our discussion is focused on capital stock. Using Eq. (1), we can obtain

$$I_t = \dot{K}_t = AK_t - C_t + I_{ft} = A(1 + \beta\alpha)K_t - C_t \tag{3}$$

We will compare the following two cases: the first case is that the government will not tax and not establish IZs and that foreign investors do not invest in IZs; the second case is that the government establishes IZs by taxing the people.

The first case is that I_{ft} is zero. The problem is to maximize Eq. (2) under a constraint of Eq. (3) by putting I_{ft} at zero.

The economic growth rate without tax and IZs (γ_0) is

$$\gamma_0 = \frac{A - \rho}{\sigma}.$$

The economic growth rate (γ) of the second case of establishing IZs and inviting FDI is

$$\gamma = \frac{A(1 + \beta\alpha) - \rho}{\sigma} .$$

The benefit of inviting FDI is the difference ($\gamma - \gamma_0$) multiplied by GDP, that is,

$$(\gamma - \gamma_0)\gamma = \frac{A\beta\alpha}{\sigma}\gamma .$$

The net benefit is the benefit minus the cost that is taxed to the people,

$$\text{the net benefit} = \frac{A\beta\alpha}{\sigma}\gamma - \alpha\gamma = \frac{A\beta - \sigma}{\sigma}\alpha\gamma .$$

The result shows that the higher the tax rate and the GDP are, the higher the net benefit is. It is noticed that this model cannot take account of taxpayers' complaints about higher taxes. We can obtain the condition that makes the net benefit positive,

$$A > \frac{\sigma}{\beta} .$$

If this condition is satisfied, and FDI is invited by construction of IZs financed by taxes, then the national income increases. The government's role is to raise A of capital productivity of the production function. Infrastructure for IZs is, of course, important. One of the most critical policy measures is to permit 100% ownership by foreign capital since it is said that the most difficult hurdle is finding a good partner for a joint venture. This system reduces risk and raises stability of A.

3. DEVELOPMENT OF IZs BY THE QUASI-PUBLIC SECTOR

This section shows that organizations in the public and quasi-public sectors played an important role to invite FDI and particularly to establish IZs. Thailand's Board of Investment is responsible for inviting FDI, while the

Industrial Estate Authority of Thailand handles construction of IZs for FDI. The Malaysia Industrial Development Authority invites FDI, and the State Economic Development Corporations handles construction of IZs. In this section, we will focus our analysis particularly on cases from Malaysia and Thailand.

3.1. State Economic Development Corporation of Malaysia

In the case of Malaysia, for example, more than 160 IZs had been developed by 1992. These IZs were mainly developed by state governments and proved to be particularly effective in attracting foreign investment in the electronics/electrical industry. The high economic growth since 1988 initiated by FTZs (free trade zones which acted as EPZs in Malaysia) acting as pump-primers, spread to the whole western part of Peninsula Malaysia by the public sector establishing IZs. One characteristic of foreign investors moving into IZs in Malaysia in the 1990s was that the government allowed the investors to invest in not only the electronics/electrical industry but also many different types of manufacturing industries.

There were 10 Free Trade Zones and 120 IZs in 1987. The function of the Free Trade Zone is the same as the export-processing zone. Main states that employed large numbers of workers in IZs were located in Johor, Penang, and Selangor.

These IZs were developed by the State Economic Development Corporations, most of which were established in the 1960s. In the cases of Selangor, Penang, and Johor they were established in 1964, 1965, and 1966, respectively. For example, the Penang State Economic Development Corporation constructed Bayan Lepas IZ and Prai IZ. In addition, it managed to enhance the level of technology by establishing the Institute of Precision Molding that belongs to the Penang Skills Development Center. Kedah State Economic Development Corporation developed Kulim IZ and established the Training Center for human resource development. The above illustrate that the role of State Economic Development Corporations were crucial to develop IZs for industrialization throughout the country.

The number of IZs increased from 120 in 1987 to 166 in 1992 (Tables 6.1 and 6.2). States with large areas sold as IZs are Selangor, Johor, and Penang, followed by Terengganu and Perak (Table 6.2). The government planned to develop 94 IZs in 1992. Until that year, Japanese multinational corporations mainly in the electric and electronics industry had invested in the IZs. Other Japanese companies had invested in various manufacturing

Table 6.1: Number of IZs and FTZs of Malaysia

Names of states	Factories (the end of 1989)	%	Employees (the end of 1989)	%	IZs* (1987)	FTZs* (1987)
Johor	748	12.9	103,949	17.3	14	
Kedah	228	3.9	37,071	6.1	6	
Kalantan	107	1.8	11,684	1.9	6	
Malaka	147	2.5	23,198	3.8	9	2
Negari Semibilin	135	2.3	17,273	2.8	10	
Pahang	164	2.8	22,783	3.8	8	
Penang	551	9.5	96,423	16.1	6	5
Perak	552	9.5	49,908	8.3	14	
Perlis	14	0.2	3,581	1.0	2	
Selangor	1,022	17.6	137,699	23.0	14	3
Terengganu	83	1.4	7,688	1.2	13	
Kuala Lumpur	530	9.1	34,626	5.7		
Labuan	27	0.4	1,710	0.5	1	
Sabah	788	13.6	27,090	4.5	7	
Sarawak	686	11.8	23,895	3.9	8	
Total	5,782	100.0	598,578	100.0	120	10

Note: *MIDA, Malaysia, Statistics on the Manufacturing Sector 1988.

Source: Torii, K. [1994] "Malaysia (in Japanese)," *Development and Environment*, 4., Tokyo: IDE.

Table 6.2: IZs of Malaysia

States	Developed Areas	Areas for Sale	Sold Areas	No. of IZs	No. of Planned IZs
Johor	2,922.05	2,254.37	1,438.18	22	7
Malaka	630.16	518.44	501.44	8	6
Negari Semibilin	458.92	334.97	311.84	7	3
Selangor	2,090.78	2,036.24	1,953.33	22	21
Labuan	208.23	198.81	198.81	2	2
Perak	1,487.36	1,206.04	923.18	26	15
Penang	1,658.95	1,316.89	1,301.23	16	8
Kedah	839.29	714.79	688.62	10	4
Perlis	76.94	63.09	38.79	4	3
Pahang	934.48	1,466.08	564.84	7	4
Kelantan	458.99	360.49	295.46	14	6
Terengganu	2,084.96	1,453.92	1,029.80	10	3
Sabah	230.10	143.98	121.57	8	6
Sarawak	1,168.57	719.86	814.46	10	6
Total	15,249.78	12,787.97	10,181.6	166	94

Note: For January 1, 1992

Source: *Berita Harian*, "25th Year Anniversary of MIDA," Kuala Lumpur, August 22, 1992.

Table 6.3: IZs of Thailand (at the end of 1988)

Names of IZs	Economic Agent			Location
	Abbrevuation	Public	Private	Area
(A. IZs by IEAT)				
1. Bangchan	IEAT	○		Bangkok
2. Lartkrabang				
I, II	IEAT	○		Bangkok
III	IRD/IEAT	○	○	Bangkok
3. Bang Poo				
I	TIDC/IEAT	○	○	Samut Prakam
II	TIDC/IEAT	○	○	Samut Prakam
III	TIDC/IEAT	○	○	Samut Prakam
4. Bang Phlee				
I	IEAT/NHA	○		Samut Prakam
II	IEAT/NHA	○		Samut Prakam
III (planning)				Samut Prakam
5. Northern Region	IEAT	○		Lamphun
6. Laem Chabang	IEAT	○		Chonburi
7. Map Ta Phut				
For heavy & Chemical Industry	IEAT	○		Rayong
For coastal area	IEAT	○		Rayong
For supporting industry	IEAT	○	○	Rayong
(B. IZs by the private sector)				
1. Nawa Nakhon				
I	NNC		○	Patham Thani
II	NNC		○	Patham Thani
III	NNC		○	Patham Thani
IV	NNC		○	Patham Thani
2. Sriracha				
I	SPIC		○	Chonburi
II (planning)	SPIC		○	Chonburi
3. Bang Khadi BPIC			○	Patham Than
4. Bang Pakon				
I	BPIC	○	○	Chacheongsao
II (planning)	BPIC		○	Chacheongsao
5. Suranaree				
I	SIZC		○	Nakhon Ratchasima
II	SIZC		○	Nakhon Ratchasima
6. Theparak M.Thai IEC			○	Samut Prakarn

Note: 1 Rai = 1,600m^2, GIE = General Industrial Estate, EPZ = Export Processing Zone
Source: IEAT, BOI, and JETRO (Japan).

Location / Distance from Bangkok	Completion	Area (Rai)	The Situation of Sales
30 km	1979(1972)	677	Sold out (1986)
35 km	1979	1,290	Sold out (1987)
35 km	1989	1,103	CIE, EPZ are almost sold out
34 km		3,733	75% sold out
34 km	1988		95% sold out
34 km	1989	900	
40 km	1984	456	Sold out(1986)
40 km	1989		All reserved
40 km	1990	700	soon for sale
25 km from Chiangmai)	1985	1,762	CIE 10% sold, EPZ: 44%sold
130 km	1990	3,556	CIE:, EPZ to accept reservation
200 km	1989(I)	6,000	All rserved
200 km		Included in the above	60% sold out
200 km	1989(I)	Included in the above	10% sold out
45 km	1984	1,600	Sold out (1987)
45 km	1987	1,009	Sold out (1987)
45 km	1989	2,029	Almost reserved
45 km	1989	Included in the above	Almost reserved
110 km	1977	1,202	91% sold out
110 km	started in 1989	more than 500	40% reserved
40 km	1989	1,023	Almost sold out
80 km	1989	300	All reserved
80 km	started in 1989	1,400	Started to make reservation
(7 km from Korat)	1989	530	57% reserved
(7 km from Korat)	started in 1989	528	Started to make reservation
40 km	1989	824	60% reserved

industries until 1996. The preferential treatment offered by LMW (licensed manufacturing warehouse) was the same as FTZ. Malaysia succeeded in inviting foreign direct investment, creating employment and spreading the growth of FTZs over the development of IZs.

In the next stage, both the public and private sector took part in construction of IZs. But the purpose of the public sector, which was to diffuse growth throughout the country to combat income inequality, was different from that of the private sector, which was the pursuit of profit maximization. We can judge the difference between the two sectors from the location of IZs as follows: One policy measure of Malaysia's Five-Year Plan that started in 1996 was to develop IZs. The development was focused on Sabah and Sarawak, states that are located on the east coast far from Kuala Lumpur. IZs cover a total area of 3,926 ha, or 41.7% of the planned area of the country. The economic growth in the states was slow from the latter half of the 1980s to the mid-1990. So the purpose of the Five-Year Plan was to narrow the gap between the rich and poor states.

3.2. Industrial Estate Authority of Thailand

In Thailand, IZs were first established around Bangkok. As of 1996, site sales took place at 16 major IZs, including Udon Thani IZ located quite far from Bangkok. Local capital was active in developing IZs in Thailand. The Siam Cement Industrial Land and Thai Industrial Estate Corporation developed more than 15 IZs in 1996.

The 1985 Plaza Accords between Summit countries agreed to appreciate exchange rates of Asian currencies including Japan and Korea. The FDI from Asian countries to Thailand increased in the latter half of 1986, and mainly invested in EPZs and IZs (General Industrial Zones) that were established by the public sector, and located in Bangchan, Lartkrabang, Bang Phlee, Bang Poo and Map Ta Phut near Bangkok. However, economic agents who were responsible for construction of the IZs changed from the public to the private sector in 1988. The private sector established IZs in Bang Khadi, Bang Pakon, Suranaree and M. Thai near Bangkok (Table 6.3).

The investment promotion policies to invite FDI into Thailand were directed by the Board of Investment (BOI), which was formed in 1960. The purpose of the BOI was to implement the Industrial Investment Encouragement Law regulated in 1960. The New Industrial Investment Encouragement Law amended in 1972 specified the role of the BOI to give

preferential treatment to FDI. The degree of preferential treatment depended on what category of industry a firm was classified as or where the firm located. First, the BOI intended to diffuse the economic growth to local areas where the per capita income was much lower than that of Bangkok.

One of the characteristics of establishment of IZs particularly in Thailand was joint-projects carried out by both the public and private sectors. The private sector applied to the Industrial Estate Authority of Thailand to develop an IZ. The Industrial Estate Authority of Thailand of the quasi-public sector constructed 90% of the planned IZs. The Authority established an office after it completed investigations into whether an application satisfied the conditions of the law. The office played the role of one-stop service for firms who invested in the IZ. Given the fact that in 1996 IZ construction was scheduled to be in local areas, it is clear that the government's intention was to diffuse the growth in/near Bangkok to local regions to narrow the income gap between Bangkok and local regions (Table 6.4).

Table 6.4: IZs of Thailand

(Unit: Rai)

Name	Completion	Economic Agents	Location	Total Area	Area of IZs	Area of EPZs
Bangchan	1972	IEAT	Minburi, Bangkok	677	509	
Bang Poo IE No.1.2	1977	IEAT/Private	Samut Prakarn	5,930	3,811	272
Bang Phlee IE 1.2.3	1984	IEAT	Samut Prakarn	1,011	796	
Nawa Nakhon IE	1987	Private	Pathum Thani	3,900	2,027	
Pojana Ind.Park 1	1988	Private	Ayuthaya	820	533	
Sriracha IE	1988	Private	Chonburi	1,202	1,202	
Northern Region IE 1	1988	Industrial Zone	Lamphun		356	
Minburi No.1	1988	Private	Minburi, Bangkok		300	
Suranaree Ind Zone 1	1988	Private	Nakhon Rachasima	1,000	530	
Mah Bookhrong IE	1988	Private	Pathum Thani	1,410	1,410	
Bang Khadi IE	1988	Private	Pathum Thani	1,136	1,136	
M.Thai IE	1988	Private	Samut Prakarn	650	650	
Pojana Ind.Park 2	1990	Private	Ayuthaya	605	393	
Saha Rattananajhon	1990	Private	Ayuthaya	1,700	650	267
Leam Chabang IE	1990	IEAT	Chonburi	3,556	1,715	804
Northern Region IE 2	1990	IEAT	Lamphun	1,760		812
Minburi No.2	1990	Private	Minburi, Bangkok		270	
Larkrabang IE	1990	IEAT/Private	Bankok	2,515	1,184	683
Bangkok Airport	1990	Private	Nonthaburi		680	
Well Crow IE	1991	IEAT/Private	Chacheongsao	3,000	1,510	530

(Continued)

Name	Comple-tion	Economic Agents	Location	Total Area	Area of IZs	Area of EPZs
Chonburi Bo-win 1	1991	IEAT/Private	Chonburi	1,500	760	516
Bang Pakon IE	1991	IEAT/Private	Chonburi	2,315	1,594	
Lamphun IE	1991	Private	Lamphun		826	
Eastern (Map Ta Phut)	1991	IEAT	Rayong	1,555	1,401	
Jong Stit Ind Park	1991	Private	Samut Sakhon	650	487	
Nong Khae IE	1991	IEAT/Private	Saraburi	1,420	900	300
Hitech IE No.1	1992	IEAT/Private	Ayuthaya	1,580	430	280
Samut Sakhon IE	1992	Private	Samut Sakhon	1,429	1,046	
Saraburi(Kaebg Khoi)	1992	IEAT/Private	Saraburi	1,420	702	255
Gateway City	1993	IEAT/Private	Chacheongsao	3,450	1,824	431
Suranaree Ind Zone 2	1993	Private	Nakhon Rachasima	2,000	1,500	
Map Ta Phut IE	1993	IEAT	Rayong	6,520	5,030	
Siam Cement Land	1993	Private	Saraburi	1,450	1,450	
Bang Paln IE	1994	IEAT/Private	Ayuthaya	1,080	532	165
Saha Group IP Lamphun	1994	Private	Lamphun	1,000		
Northeaen Region IE	1994	IEAT/Private	Nakhon Rachasima		1,600	
Khanthaburi IE	1996	IEAT/Private	Chacheongsao	197	146	
Chiang Rai IE	1996	IEAT/Private	Chiangrai	2,375		
Nakhon Sawan IE	1996	IEAT	Nakhon Rachasima	1,376		
Pattani IE	1996	IEAT/Private	Pattani	939	565	
Lower North IE No.1	1996	IEAT	Pichit	1,125	763	
Southern Region IE	1996	IEAT	Songkhla	1,200	830	300
Upper Northeast	1996	IEAT/Private	Udon Thani	1,000		
Upper Northeast 1	1997	IEAT	Khon Kaen	1,548	763	
Pha Daeng IE	1997	IEAT	Rayong	554		550
Sourhern IE	1998	IEAT	Surat Thani	1,900		
Narathiwat IE	2000	IEAT/Private	Narathiwat	622	382	
Saha Kabinburi IP	Under Contruction		Private	Kabinburi		
Kabinburi IE	Under Contruction		IEAT/Private	Kabinburi		
Hitech IE No.2	planning	IEAT/Private	Ayuthaya		800	
Buriram	planning	IEAT/Private	Buriran	ignorance		
Phayao Anthani	planning	IEAT/Private	Phayao			
Phrachuap Steel IE	planning	IEAT/Private	Prachuap Khirikhon	5,310		
Saha Ubon Nakhon Ind	planning	Private	Ubon Raychatha			

Source: Suehiro, A. [1996]. "Expanding Central Area and Local Area in Thailand," *Global Area Studies*, Tokyo.

4. DEVELOPMENT OF IZs BY THE PRIVATE SECTOR

This section shows that Japanese trading corporations played an important role in inviting Japanese manufacturing firms to ASEAN countries to invest by establishing IZs. EPZs were developed in Thailand, Malaysia and Indonesia in the 1980s under the leadership of the central government. Around 1990, however, the construction of IZs became more important than that of EPZs since the role of IZs was to manufacture products for both the export and domestic markets. For example, the construction of IZs by the private sector in Indonesia was permitted, partly because of the inadequate funds available in the public sector. So the quasi-public sector was substituted by the private sector to play the role of providing quasi-public goods such as EPZs and IZs.

Six leading Japanese trading corporations; Itochu Corporation, Marubeni Corporation, Mitsubishi Corporation, Mitsui & Co.,Ltd., Nissho Iwai Corporation and Sumitomo Corporation, played a significant role in the development of IZs in Thailand, Indonesia and the Philippines. The IZs developed by these trading corporations made it easy for Japanese manufacturing companies to invest in other Asian countries particularly in the 1980s and the 1990s.

4.1. Thailand

Comparison between Thailand and Indonesia shows that IZs were developed in Thailand in the second half of the 1980s (Table 6.5a), prior to their emergence in Indonesia. In 1988, the Lat Krabang Industrial Estate in Thailand developed by Marubeni and local companies became available for purchase. The total area of development was 200 ha. It is noted that an EPZ had already been developed at Lat Krabang by the Thai government. Itochu Corporation started to market its Ban Pakong Industrial Park (950 ha) in four phases commencing in 1989. In the same year, Mitsui & Co. completed its sale of the 190 ha Bangkok Industrial Park.

4.2. Indonesia

The development of IZs in Indonesia began in the early 1990s, several years after Thailand (Table 6.5b). The first half of the 1990s also saw the marketing of IZs by Marubeni, Nissho Iwai and Itochu. Marubeni developed a 320 ha site named MM2100, where both an EPZ and IZ were located, in 1991.

Table 6.5a: EPZs and IZs in Thailand

Name	Main Developer(s)	Location	Land Area (Unit: ha)	Starting Year of Sales
1. Ladkrabang EPZ/IZ	Private Thai Companies (60%), Marubeni (40%)	30 km east of Central Bangkok	200	1988
2. Bangpakong IZ	Itochu (22%)	60 km southeast of Central Bangkok	950	1989
3. Bankkadi IZ	Mitsui (49%), Toshiba, Private Thai Companies	40 km north of Central Bangkok	190	1989
4. Amata Rayon IZ	Itochu via Bangpakong	108 km southeast of Central Bangkok	442	1995

Note: 1 Located in Inversment Promotion Zone (exemption from corporation tax for 3 years)

2 Located in Inversment Promotion Zone (exemption from corporation tax for 3-7 years)

3 Completely sold; located in Investment Promotion Zone (exemption from corporation tax for 3 years)

4 Located in Inversment Promotion Zone (exemption from corporation tax for 8 years followed by 50% reduction for 5 years)

Source: A.Kuchiki and T.Furukawa.

Meanwhile, Nissho Iwai began acting as the marketing agent for the 790 ha Chikaran IZ in 1992. Itochu also began marketing the massive 1,120 ha Karawan IZ in 1993.

Sumitomo was given permission to establish the East Jakarta Industrial Park in 1989 and sales commenced in 1991 with completion in 1995. Sumitomo's share of investment in the joint venture was 60% and the total area of development was 320 ha. The increase in sales of the IZ can be partially explained by the decision of the Indonesian government in June 1994 to approve 100% foreign subsidiaries, which was effective in marketing the IZ. The development of the IZ created some 30,000 new jobs and approximately 2 billion US dollars was invested from abroad.

Consequently, five Japanese trading corporations of the six corporations until 1996 participated in the development of IZs in Indonesia.

4.3. The Philippines

In the Philippines, five leading Japanese trading corporations except Itochu began marketing IZs in 1991 (Table 6.5c). All the IZs are located within a 60 km radius of Metro Manila, the capital of the Philippines. Mitsubishi developed the Laguna Techno Park (220 ha), Mitsui developed the Light

Table 6.5b: EPZs and IZs in Indonesia

Name	Main Developer(s)	Location	Land Area (Unit: ha)	Starting Year of Sales
1. East Jalaeta IZ*	11 Japaneese comapanies, including Sumitomo and Bank of Tokyo Lippo Group in Indonesia	• 40 km east of central Jakarta • 70 km east of Jakarta Airport • 45 km from port Tanjeng Prioku	Phase 1: 210 Phase 2: 110	1991
2. Surya Cipta IZ**	PT Surya Semesta Internusa (65%) PT Town & City Properties (35%) (Sumitomo acts as sales agent)	• 55 km east of central Jakarta • 85 km east of Jakarta Airport • 60 km from port Tanjeng Prioku	Phase 1: 128 Phase 2: 174	1995 Completely sold;
3. MM2100 EPZ/IZ (Phase 1 and Phase 2)***	BFIE (private) (55%), Marubeni (45%)	• 30 km east of central Jakarta • 60 km east of Jakarta Airport • 35 km from port Tanjeng Prioku	320	1991
4. MM2100 EPZ/IZ (Phase 3)	BFIE (private) (40%), Marubeni (60%)	• 30 km east of central Jakarta • 60 km east of Jakarta Airport • 35 km from port Tanjeng Prioku	400	1995
5. Bukit Indah IZ	Salim Group (Indonesia)(51%), Taisei (46%), Mitsui (3%)	• 50 minutes drive from central Jakarta • 1.3 hours from Jakarta Airport	200	1996
6. Karawan IZ	Sinar Mass Group (Indonesia)(50%), Itochu (50%)	• 50 km east of central Jakarta	1,120	1993
7. Cikarang IZ****	PT Kawasan Industri Jababcka (Nissho Iwai acts as sales agent)	• 40 km east of central Jakarta • 65 km east of Jakarta Airport • 55 km from port Tanjeng Priok	790	1992
8. Surabaya PIER	Indonesian Government (Min.of Finance)(50%) Surabaya Municipal Authority (25%) (Sumitomo acts as sales agent)	• 50 km from central Surabaya • 45 km from Surabaya Airport	Phase 1: 150 Phase 2: 324	1995

Note: 1: * Completely sold; favorable result of revised Foreign Investment Act in 1994 (approval of 100% foreign subsidearies); provides clean water to neighboring villages; creation of 30,000 jobs; total invetment of 2 billion dollars.
2: ** Developed by Obayashi Corporation.
3: *** Completely sold; (Daiwa Purdania Bank).
4: **** Location of a Japanese bank.

Industry and Science Park (106 ha) and Marubeni developed the First Kabite IZ (155 ha) in which JAIDO (Japan International Development Organization Ltd.) made an investment. Meanwhile, Sumitomo and Nissho Iwai acted as the marketing agent for the Gateway Business Park (160 ha) and the Carmel Ray IZ (280 ha), respectively. The master plan for Carmel Ray IZ was prepared by the Jurong Group of Singapore.

All the above IZs were fully occupied mainly by Japanese manufacturing companies, clearly indicating the role played by Japanese trading corporations in assisting overseas investment by Japanese manufacturing companies.

5. IZ DEVELOPMENT BY QUASI-PUBLIC/PRIVATE SECTORS IN VIETNAM

This section shows that not only Japanese trading corporations but also other Asian governments or companies established IZs in Asia. Here we illustrate the case of Vietnam.

The Indonesian government developed IZs at Batum and Bintan in cooperation with the Singapore government that is very active in the development of IZs in various Asian countries. Apart from Indonesia, it assisted the development of IZs at Suchou and Wuxi in China and at Song Be in Vietnam.

The spread of IZs throughout a country, witnessed in many East Asian countries, is also evident in Vietnam where five leading Japanese trading corporations except Marubeni either planned or actually established IZs in 1996 and played a large role in the development of IZs (Table 6.5d). Nomura Securities Co. Ltd. also developed an IZ at Haiphong. The development of many IZs in Vietnam began in 1994 and those at Noi Bai and Lon Bing also constructed EPZs. The development site at Tan Tuan, for which Mitsui acted as a marketing agent, was an EPZ. Other sites at Tang Long (Sumitomo), Amata (Itochu) and VSIP (Mitsubishi) were constructed as IZs.

It is noteworthy that both the private and public sectors of several Asian countries took part in construction of IZs in Vietnam. The VSIP project that Mitsubishi Corporation of Japan joined was a joint project of the Vietnamese government with Jurong Town Corporation of Singapore. Salim Group of Indonesia (a leading business group) also invested in the project. Amata Industrial Estate originated in Thailand. Noi Bai Industrial Estate was developed by VSSB of Malaysia. Danang Export Processing Zone was also constructed by Masscorp of Malaysia, which was composed of shareholder-

Table 6.5c: EPZs and IZs in the Philippines

Name	Main Developer(s)	Location	Land Area (ha)	Starting Year of Sales
1. Laguna Techno Park	Ayara Land, Mitsubishi, Kawasaki Steel	• 40 km east of central Manila • 40 km from Manila Airport • 50 km from port Manila • 80 km from port Batangas	334	1991
2. Light Industry and Science Park	ICCP (FEBTC) (22%), ICCP (35%), PALIC (15%), NDC (3%), Mitsui (10%), Bechtel (9%)	• 40 km east of central Manila • 40 km east of Jakarta Airport • 50 km from Port Manila • 80 km from Port Batangas	143	1991
3. Gateway Business Park	DLRF (60%), FPL (20%), SMG (15%), OG (5%) (Sumitomo acts as sales agent)	•40 km from central Manila	160	1991
4. First Cavite IZ	NDC (60%), Marubeni (32%), JAIDO (8%)	•35 km south of central Manila	155	1991*
5. First Philippine IZ	Sumitomo (30%), Philippine private companies (70%)	• 50 km east of central Jakarta • 63 km east of Jakarta Airport • 47 km from port Tanjeng	300	1997
6. Carnelray IZ	(Nissho Iwai acts as sales agent)	•50 km south of central Manila	280	1991**
7. Lima IZ	Alsons Land (private company)(60%), Marubeni (40%)	•70 km south of central Manila	400	After 1997
8. Ruicita IZ	Itochu, Cojuangco, local banks	• 120 km north of central Manila	Undecided	After 1997

Note 1: * Completely sold.

2: ** Master Plan prepared by Juron Group in Singapore.

Table 6.5d: EPZs and IZs in Vietnam

Name	Main Developer(s)	Location	Land Area (ha)	Starting Year of Sales
1. Now Bai EPZ/IZ	VSSB (Malaysia), HICC (controlled by Hanoi City Authority) (Mitsui assists sales)	• 40 km east of central Manila • Adjacent to Noi Bai Airport	Phase 1:50 Phase 2:50	1991
2. Thang Long IZ	Sumitomo (58%), DAMC (controlled by Vietnamese Ministry of Construction) (42%)	• 13 km east of central Manila • 14 km east of Jakarta Airport	Phase 1:128 Phase 2:174	1997
3. Nomura Haiphong IZ	Nomura Group (70%) Haiphong Sity Authority (30%)	• 15 km west of central Haiphong • 85 km east of central Hanoi	Phase 1:83 Phase 2:70	1995*
4. Amanta IZ	Bampacon (Thailand), Itochu (70%) Dong Nai Provincial Government (30%)	• at Bien Hoa City • 30 km northeast of Ho Chi Minh City	Phase 1:93	1995
5. Long Birth EPZ/IZ	Nissho Iwai (60%), AGTEX (Controlled by Vietnamese Ministry of Defense (40%)	• at Bien Hoa City • 30 km northeast of Ho Chi Minh City	Phase 1:100 Phase 2:100	1996
6. Vietnam Singapore	Sembaan, Julon Town, Temasec, Industrial Park (VSIP) Salim Group, Mitsubishi (5%) City Authority (Mitsui assists sales)	• at Thanh Anh District of Son Be Region • 17 km from central Ho Chi Minh City	500	1996

Note: * Constructed by Obayashi Corporation and Takenaka Komuten, both general contractors in Japan.

ers of the largest 60 firms in Malaysia, and was established by a proposal from Prime Minister Mahatir. CT&D Group of Taiwan joined Tan Thuan Export Processing Zone near Hochimin. CVEC, a Chinese state-owned enterprise constructed Linh Trung Export Processing Zone. In short, IZs and EPZs in Vietnam were developed by ASEAN, Japan and China. The same pattern of development as in Vietnam can be found in many Asian countries including China, Indonesia, and the Philippines.

The role of Mitsui trading corporation in the Tan Tuan EPZ also included promoting the sale of IZs particularly to Japanese manufacturing companies. This means that Mitsui introduced Japanese firms as tenants to an IZ developed by a Taiwanese company. Other Asian countries pursued the same policy and growth pattern and a network of manufacturing industries in IZs in East Asia was formed. In a country like Vietnam or Myanmar where GDP per capita in the 1990s was 200/300 dollars, it was not easy to attract foreign investment for an IZ designed to sell its products in the domestic market (Table 6.5e). Consequently, as the Mingaradon IZ in Myanmar to be developed by Mitsui tried to attract export-oriented businesses, it was not an IZ, but an EPZ.

The development of IZs by Japanese trading corporations had spread throughout East Asia from the coastal areas of China to Myanmar, as of 1996. For example, the 15 IZs developed by Sumitomo Corporation spread all over East Asia. In short, development of IZs throughout East Asia contributed not only to the movement of FDI but also to trade in goods and services, which in turn created an East Asian development network for the development of IZs.

6. CASES OF INDUSTRIAL ZONES IN NORTHERN VIETNAM

Here we will show the macroeconomic effects of national highway Route 5 on the economy of northern Vietnam and that capital productivity A of the production function in section 2 can be enhanced by completing infrastructure and building institutions. The Vietnamese economy grew at 8.2% in 1997 when the Asian crisis happened, but at around 4% in 1998 and 1999 partly due to the crisis. The information technology industry world boom helped the growth rate to recover to 6.1% in 2000 in Vietnam as it did in other ASEAN countries. The growth rate in 2001 was a little short of 6% and was expected to be around 6% in 2002 (Asian Development Bank [2002]).

Table 6.5e: IZs in China and Myanmar

Name	Main Developer(s)	Location	Land Area (ha)	Starting Year of Sales
[China]				
China-Japan Joint Dalian IZ	OECF (40%), Japanese companies (40%), Chinese Government (20%)	• 27 km northeast of central Dalian	217	1992
Suzhou Industrial City	SUDC (China) (35%), SSTD (Singapore) (65% of which Mitsubishi and Mitsui have 2% each)	• 80 km west of Shanghai	1.52	1996*
Qingtao Coastal Economic and Technology Development Zone	Management Committee of Qingtao Development Zone (Sumitomo acts as sales agent)	• 3 km from Qingtao International Airport • 9 km from Port Qingtao • 20 km to urban Qingtao	660	1995
[Myanmar]				
Mingaradong IZ	Mitsui (60%), Housing Bureau (40%)	• 5 minutes walk from Mingaradong Station • 10 minutes drive from the airport	90	1996

Note: *Modeled after Julon in Singapore.

Now we will show growth rates of industrial production value from 1998, before completion of national highway Route 5, to 2002 after its completion. We look at Hanoi, Haiphong, and Hungyen in northern Vietnam, Danang in central Vietnam, and Hochiminh in southern Vietnam. The growth rates are higher than the national average and much higher than Hochiminh and show the positive effects of national highway Route 5 on Hanoi and Haiphong in 2002. The national average rates were stable at 11.5%, 17.5%, 14.1%, and 13.9% from 1998 (1994 fixed price, Department of Statistics [2002]). Those for Hanoi were 8.2%, 14.8%, and 11.1% from 1998 but increased to 24.9% in the first half of 2002 (See Miura [2002]). Those for Hungyen were high and volatile at 108.7%, 21.6%, and 18.2% from 1998 since Hungyen is an agricultural area that industrialized partly due to completion of highway Route 5. Those for Danang were high and stable at 18.9%, 17.6%, and 20.2% from 1998 but decreased to 19.1% in 2002. Those for Hochiminh

were 6.6%, 15.4%, and 16.1% from 1998 and decreased to 10.4% since Hochiminh is the center of Vietnam and started to develop earlier than other cities. Binhthuan next to Hochiminh recorded 33% growth to show that the growth of Hanoi has begun to diffuse over northern Vietnam.

We will show below that foreign investors established factories along highway Route 5 and contributed to high growth rates in northern Vietnam since the level of the production was low.

Inflows of FDI into China in 2001 were the highest and grew at 10.9%, totaling 69.2 billion US dollars. Inflows to India and Vietnam recorded high growth rates of 61.1% and 22.4%, respectively. Vietnam's inflows totaled 2.47 billion US dollars. The reasons why the amount approved by the Vietnamese government increased the growth rate were that European companies invested in an electricity supply project and that Canon and its related Japanese companies established factories in export processing zones in Hanoi (Nihon Keizai Shimbun, April 9, 2002).

6.1. Outlines of Thang Long Industrial Park and Nomura Haiphong Industrial Zone

Highway Route 5 is 100 km long and links Hanoi in the west and Haiphong in the east. Hanoi is the capital of Vietnam and Haiphong is a port city. Thang Long Industrial Park (TLIP) was established by Sumitomo Corporation and located in Hanoi. Nomura Haiphong Industrial Zone (NHIZ) was established by Nomura Security Company and located in Haiphong. In turn, Vietnamese companies agglomerated in the industrial zone in Hungyen along Route 5.

Developed areas of TLIP, NHIZ, and Hungyen are 121 hectare, 180 hectare, and 100 hectare, respectively. TLIP started in 2002 to develop 77 hectare at the second phase and plans to expand another 89 hectare at the third phase. TLIP is near Noibai International Airport and plans to have a logistics center of 45 hectare, an international school, an international hospital, housing for foreigners, and a Hanoi new town of 100 hectare facilitated with schools, hospitals, and housing. NHIZ has its own facilities for electricity supply of 50 mega watts, water supply, a sewage processing plant and 2000 telephone circuits for those preparing to rent standard factories.

We quote the incentives outlined by TLIP and NHIZ to tenant companies (We interviewed on September 11 and 12, 2002). TLIP has the following six: First, administrative functions at the capital of Hanoi; Second, Hanoi is located centrally between Hochiminh, Bangkok, Kunming in China, and

Hong Kong; Third, the educational level of labor around Hanoi is high since 60% of Vietnam's national universities are located in the Hanoi region; Fourth, unskilled labor is abundant and cheap; Fifth, urbanization projects are progressing and infrastructure is well facilitated with further plans; Sixth, there are supporting industries to supply parts and components. NHIZ has the following seven: First, the local government of Haiphong gives preferential treatment to tenant companies; Second, Haiphong has a port to export products; Third, the zone has its own electricity supply of 50 mega watts and other high quality infrastructure; Fourth, tenant companies quickly start operating production at the rental factory; Fifth, they can employ high-quality workers at low wages; Sixth, the one-stop service provided by NHIZ makes it easy to obtain investment licenses; Seventh, the department of investment services supports aftercare for tenant companies.

Both TLIP and NHIZ offer as a common incentive good quality infrastructure. TLIP illustrates national highway Route 5 from Hanoi to the Haiphong port (It takes 105 minutes from TLIP to the port.), an extension project at Noibai International Airport, national highway Route 18 linking Hanoi with Cairong port, projects for electricity supply such as thermal power generation and a transformer substation (We interviewed the first team of foreign industrial zones at Sumitomo Corporation on August 1, 2001). NHIZ analyzes the positive effect in a relatively short time due to completion of national highway Route 5 as follows: It takes 1 hour and 15 minutes by car from Hanoi to NHIP though it took 3 to 4 hours before completion of national highway Route 5. It takes 15 minutes from NHIP to Haiphong port though it took 30 minutes before.

The amount of freight dealt with at Haiphong port was expected to be 4.7 million tons in 2000 but reached 7.5 million tons. It was 8.6 million tons in 2001 and the provisionary amount is 9.5 million tons in 2002, which is twice as much as initially predicted. One noticeable problem of NHIZ to invite Japanese companies is the lack of schools and hospitals.

6.2. Decisive factors of foreign investors

One factor that influences foreign investor decisions on investment is capacity building within recipient countries. Capacity depends on the following four conditions: 6.2.1. human resources, 6.2.2. infrastructure, 6.2.3. living conditions, and 6.2.4. institutions. We will explain each of them below. The existence of a package of public goods will contribute to attracting FDI and promoting investment in industrial zones and raising

macroeconomic growth. We explained a theoretical model in section 2 in considering northern Vietnam as an economic unit.

6.2.1. Human resources

It is well known that in Vietnam wages are low and quality of labor is high. Table 6.6a shows that the minimum wage in Vietnam is 37 US dollars per month while those of Thailand, Indonesia, and the Philippines are 96 US dollars, 64 US dollars, 129 US dollars, respectively. A survey also showed that wages in Haiphong are 10% lower than Hanoi (Table 6.6b).

Many projects intend to develop human resources in Vietnam. The Hanoi Institute of Technology has a project to teach technology in machine processing, metal processing, and electrical control. The Haiphong Hi-tech Skill Training School was established in December 2001. Its main subjects are information and graphic, electric and electronic engineering, polymer, welding, milling and so on. The students of both schools will graduate for the first time in 2003. Roize Robotech Inc., a Japanese company, contributed to

Table 6.6a: Comparison of Wages

Country	Vietnam		Thailand		
	Thang Long Industrial Park	Center of Hanoi Hochiminh City	The First Zone (The third zone is partly included)	The Second Zone, Principal Cities of the Third Zone	Other Areas of the Third Zone
Legal Minimum Wages	37 US dollars	43 US dollars	96 US dollars	83 US dollars	77 US dollars
Days of National Holidays	8 days	8 days	13 days	13 days	13 days
	Indonesia	Philippines		China	
Country	Jakarta	Manila	Sebu	Shanghai	Shenzhen
Legal Minimum Wages	64 US dollars	129 US dollars	100 US dollars	51 US dollars	69 US dollars
Days of National Holidays	13 days	11 days	11 days	12 days	12 days

Note: For April 2002.

Source: Sumitomo Corporation 2002.

Table 6.6b: Comparison of Wages at Cities of Vietnam

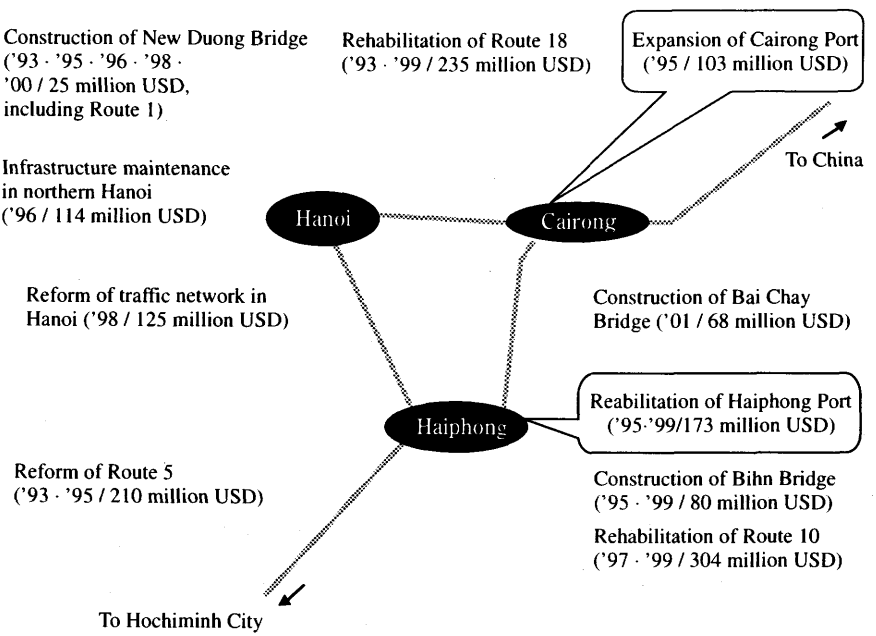
(Unit: VND)

	City	Wages/month
1	Hochiminh City	1,361,000
2	Dongnai	1,111,000
3	Hanoi	745,000
4	Danang	738,000
5	Haiphong	660,000

Note: 1USD = 15,000VND.

Source: Vietnam Investment Review, January 21, 2002.

Figure 6.1: Infrastructure of Logistics in Northern Vietnam by Japan



fostering skilled labor in machine processing by donating industrial machines to a university in Haiphong.

6.2.2. Infrastructure

The Japanese official development assistance loans contributed to facilitating infrastructure in northern Vietnam. National highway Route 5 and the

Haiphong port constructed and rehabilitated by the loans are effective in forming industrial agglomeration. Figure 6.1 shows that 21 billion yen was provided for construction of highway Route 5 in 1993 and 1995 and that 17.3 billion yen was provided to the Haiphong port to rehabilitate it. Loans that contributed to making logistics in northern Vietnam more efficient were as follows: 12.5 billion yen for improving the Hanoi transportation network, 2.5 billion yen for constructing New Duong Bridge, 23.5 billion yen for national highway Route 18, 10.3 billion yen for expanding Cairong port, 6.8 billion yen for constructing Bai Chay Bridge, 8 billion yen for constructing the Bihn Bridge, and 30.4 billion yen for improving highway Route 10.

Remaining infrastructure problems in northern Vietnam are to complete national Route 18 and Cairong port, which will complete the logistic system between Hanoi and Cairong port, and infrastructure to link the triangle of Hanoi, Haiphong and Cairong. Northern Vietnam will also have close industrial linkage with southern China including Hong Kong.

6.2.3. Living conditions

Here we will limit discussion to living conditions for Japanese since Japanese companies mainly invest in TLIP and NHIZ. Apartments, supermarkets, restaurants, hotels, direct air flights from host countries to recipient countries, schools, hospitals, and amusement facilities are key to inviting foreign investment. We will explain below that the Hanoi area cleared the key condition recently. There are such apartments for foreigners as Daewoo, V Tower, Sedona, Somerset Hanoi Tower, MayFair Apartments, Hanoi Garden Lodge, The Hanoi Club, Flower Villages, and Somerset Lakeside. Rental fees have dropped because of increased supply of apartments in 2002. The Japanese supermarket chain Seiyu opened in 1998 selling Japanese food produce. There exist many mini marts in 2002, too. There were 15 Japanese restaurants at the peak and 10 in September 2002. It is possible to buy fresh fish along Route 5. Vietnamese food restaurants the Emperor, Nam Phuong, Soho, and Cha Ca La Vong target foreigners as customers. In 1997 only the Hanoi Hotel and Sofitel Hotel existed as 4/5 star establishments while other smaller hotels were converted private houses. From that time however the Sofitel Plaza, Hilton, Daewoo, Media, and Nikko hotels have been constructed. As a consequence, hotel rates in Hanoi have become lower. Direct air flights between Tokyo and Hanoi started in July 2002. Hanoi is ready to accept Japanese companies' investment since there is a Japanese school and

a high quality hospital. It is noted however that there are some problems with living conditions. For examples, there is no large sized mall to go shopping and no bookstore or suitable convenience store.

6.2.4. Institutions

One-stop service plays a large role in streamlining investment procedures. This means that at an office of NHIZ tenant companies can get all required approval from ministries related to investment licenses, factory operation on export procedures, and so on. For example, the NHIZ office has been able to obtain investment licenses within three days since December 2001. The office is responsible for hiring employees for tenant companies by asking the Haiphong export processing zone agency to find them.

Streamlined customs clearance helps reduce tenant companies' costs. We can illustrate this in the case of TLIP. Dragon Logistics Center is a private logistics company located in TLIP, its functions are as follows: To reduce transportation costs by using containers and a trailer terminal, and realize smooth positioning of containers; To keep bonded cargo by name of vendor; To keep bonded cargo by name of export processing companies; To control cargo to stock by a system of warehouse management; To make customs clearance efficient by using customs officers based at Dragon Logistics Center; To allow customers within TLIP and near Hanoi to specify a given time for Dragon to deliver small packages. Dragon Logistics Center is a Japanese company. Two Japanese companies invested 52% of the company's capital of 4 million US dollars and three of 146 employees at Dragon Logistics Center are Japanese.

Industrial zones in Asia offer preferential tax treatment. Corporate tax in Vietnam is exempted after a company makes profit for four years. After four years the tax rate is 5% for a further four years and then 10% (See Table 6.7). Corporate tax in China is exempted after a company makes profit for two years. After two years the tax rate is 7.5% for three years, then 15%. It is worth noting that the corporate tax rate in Indonesia is 30% or three times higher than Vietnam. Tax treatment is a crucial incentive for foreign direct investment.

The Japan Bank for International Cooperation [2001] survey showed that institutional reform is key to developing the private sector in Vietnam. Japan's minister of finance in April 1999, Miyazawa, pledged to provide 20 billion yen to support programs for developing the private sector as requested by Vietnam's Prime Minister Phan Van Khai. The loan was agreed and imple-

Table 6.7: Comparison of Tax System

		Corporate Tax			Tax on Profit Remittance	Tariff on Imports of Materials	Tariff on Imports of Facilities	Value Added Tax on Imports
		Tax Rates	Tax Exemption	Others Tax Exemption				
Vietnam	EPE	10%	4 years 4 years half	A high-tech company: 8 years	3%	Exempted	Exempted	Exempted
Thailand	The First Zone	30%	3 years	Supporting industry: 8 years	10%	Exempted	Exempted	10%
	The Second Zone	30%	5 years	Supporting industry: 8 years tax	10%	Exempted	Exempted	10%
	The Third Zone	30%	8 years 5 years half		10%	Exempted	Exempted	10%
Indonesia	EPTE (KB)	30%	No		10%	Exempted (allotment tax)	Exempted	Exempted
Philippines	PEZA	5% of incomes	4-8 years		10%	Exempted	Exempted	Exempted
China	Export Processing Zone	15-24%	2 years 3 years half*		Exempted	Exempted	Exempted in the case of a high-tech company	Exempted

Note : *The cases of export processing zones and industrial zones. The minimun rate is 10%.
Source: Sumitomo Corporation 2002.

mented in September 1999. The projects are divided into the following three categories: (i) Financial climate, (ii) Business climate, and (iii) Organizational treatment.

Concerning (i) financial climate, the Vietnamese government established a development support fund, a two-step loan fund, and an export support fund. Concerning (ii) business climate, training was organized based on the law for promotion of domestic investment, controls on industrial property rights were reformed and strengthened, an ordinance on implementation of corporate law was proclaimed, and laws and regulations were made transparent. In order to improve the investment climate for foreign investors, a request for the use of local content was reduced, a request for procuring foreign currency was deleted, Visa application was streamlined, an institution for control of 100% ownership by foreign investment was clarified, and dual prices of telephone fees and water fees abolished. Concerning (iii) organizational treatment, Authority for Small- and Medium-sized Industries was established, a Private Sector Development Committee was established, and job training schools were strengthened.

According to the survey, private companies positively rated abolishment of the industries restricted or prohibited by some ministries, change from an approval system to a registration system to establish companies, and trade liberalization. The number of restricted or prohibited industries was reduced from 400 to 250. The change in establishing companies has streamlined administrative procedures and reduced the average time required to less than one month from as long as three months before 2000. All of the private companies were permitted to export and import without licenses to guarantee free trade. As a result the institutional reforms have been highly rated.

Inversely, low interest loans and new loans to banks were negatively rated. Private companies found procedures unfavorable since low interest loans of the two-step loan fund and export support fund were not well-informed, favorable to state-run enterprises, and had complicated procedures for borrowing. The amount of loans provided to private companies did not increase though the upper limit on interest rates for lending was abolished.

However, we can conclude from the survey that institutional reforms for streamlining the procedures are effective in developing the private sector and promoting investment.

6.3. Industrial clusters in northern Vietnam

We can explain economic development in Hanoi by dividing periods into period 1 and period 2 according to a Sumitomo Corporation Hanoi staffer we interviewed on September 13, 2002. Toyota, Honda, and Yamaha established factories in Vinh Phuc industrial zone near Noibai Airport in period 1 until 2000.

Canon, Sumitomo Bakelite, and TOTO established factories in TLIP after national Route 5 was constructed and Haiphong port rehabilitated in period 2 starting from 2002. A staff member of TLIP said that the companies chose TLIP to avert risk in China though they had established factories in China.

Hanoi is centerally positioned from Hochiminh, Bangkok, Kunming and Guangzhou in China. It is located 1,100 km from Hochiminh, 950 km from Bangkok, 600 km from Kunming, and 850 km from Guangzhou. Therefore we can expect northern Vietnam to be integrated into southern China from the supply chain management viewpoint in the future.

Here we will explain industrial clusters in Hanoi and Haiphong that are located west and east of national Route 5.

6.3.1. Industrial cluster in Hanoi

We will show using Table 6.8 that Canon anchored an industrial cluster in Hanoi. Sumitomo Corporation began selling TLIP land lots in June 2000. Two companies in 2000, six in 2001, and 11 in 2002 singed up. Canon started production in April 2001, but Parker Processing VN Co., whose products are paint and surface treatment for metal parts, had moved into TLIP in August 2000 to provide parts to Canon. Volex Cable Assembly started producing power supply cords and interconnectors in 2001. The Singaporean company started providing products to Canon, though its intention was not only to sell to Canon.

Companies that provided parts to Canon decided to move into TLIP particularly in 2002. One is Sumitomo Coil Center that produces parts for printers, one is a Japanese company producing dye-casting products, and the other is a Malaysian company, Santomas VN Co. that produces precision plastic injection molding. So Canon is an anchor company to lead other companies to provide parts and components.

It is characteristic of 13 of the 42 Japanese companies in Hanoi in June 2002 that they are from the automobile and motorcycle industries and their

Table 6.8. Thang Long Industrial Park: List of Tenants in TRIP

	Company	Date of I/L	Nationality	Land Rental	Products
1	Mitsubishi Pencil VN Co., Ltd.	November 29, 2000	Japan	3.8	Writing implements
2	Vina KDC Wiring Industries Ltd.	January 15, 2001	Japan	0.48 (Reatal Factory)	Wire harness and power supply cord
C3	*Parker Processing VN Co., Ltd*	August 8, 2000	Japan	2.31	Paint & Surface treatment for metal parts
C4	*Volex Cable Assembly (VN) Co.,Ltd.*	August 9, 2001	Singapore	0.47 (Rental factory)	Power supply cord, Interconnectors
C5	*Canon VN Co.,Ltd.*	April 11, 2001	Japan20	20	Ink jet printers
6	Sumitomo Bakelite VN Co., Ltd.	October 4, 2001	Japan	6.55	Flexible printed circuit boards
7	Denso Manufacturing VN Co., Ltd.	November 5, 2001	Japan3	3	Parts for automobiles
8	TOA VN Co.,Ltd.	November 5, 2001	Japan1	1	Security camera
C9	*Santomas VN Co., Ltd.*	January 9, 2002	Malaysia	0.50 (Rental Factory)	Precision plastic injection molding
C10	*Abe Asian Tech Hanoi Ltd.*	March 22, 2002	Japan	Rental Office	Film and Manuals
C11	*Dragon Logistics Co.,Ltd.*	n.a.	Vietnam	5	Logistic services
C12	*Matsuo Industries VN Inc.*	June 13, 2002	Japan1.	1.26	Plastic molding parts and steel processing parts for automobiles and others
C13	*Ohara Plastic VN Co., Ltd.*	July 18, 2002	Japan	0.52 (Rental Factory)	Plastic molding products
14	TOTO VN Co.,Ltd.	March 1, 2002	Japan7.2	7.2	Sanitary wares
15	Sakurai VN Ltd.	April 29, 2002	Japan1	1	Parts of machine tools,machines, laser beam chines, semiconductor equipment
16	Fujikin VN Co., Ltd.	July 3, 2002	Japan	0.52 (Rental Factory)	Super precision flow control systems, equipment and parts
17	Yabashi VN CAD Technology Corporation	July 3, 2002	Japan	Rental Office	Designs, design processing and software products
18	Seed VN Co., Ltd.	August 30, 2002	Japan	0.60 (Rental Factory)	Manufacturing and sale of stationery products
		Total	54.22 ha		

Note: C3, C4 and C9-13 provide parts and components to Canon.
Source: Sumitomo Corporation, June 2002.

related parts and components (See Table 6.8). The motorcycle industry in China has overcapacity. Vietnam imported 2 million motorcycles in 2001 mainly from China and even prohibited imports temporarily. It is generally thought that Vietnam will be unable to form a cluster for the motorcycle parts and components industry. As development of a highway network making transportation between Vietnam and China convenient and the close relationship between the northern Vietnam economy and the economy of southern China would seem to work against it.

6.3.2. Industrial cluster in Haiphong

Table 6.9 shows that it is characteristic of NHIZ that the number of its tenant companies increased. The number was one or two from 1996 to 1999, but the number increased to 5 in 2001 and 11 in September 2002. Four of the 11 have Hong Kong capital and three of the four are textile companies. The four are Office Xpress Manufacturing producing stationary, Vietphong Garment & Textile Co. producing lady's knitwear, R&T Manufacturing VN Co. producing textile fabrics and yarn, and BT Garment Co. producing knitwear and textile fabrics. The companies' investment in NHIZ means that these Hong Kong companies chose to locate in northern Vietnam instead of southern China due to increased costs. One characteristic of NHIZ in 2002 is that Taiwanese, Korean, and Chinese companies invested in NHIZ, a Japanese industrial zone to save costs.

7. SUMMARY AND CONCLUSIONS

We obtained the following three results. First, we built a model to theoretically show that IZs as quasi-public goods enhance aggregate growth under given conditions. Second, we illustrated that there are two types of players to provide IZs for quasi-pubic goods. The players were in both the private sector and the quasi-public sector in East Asia in the latter half of the 1980s and the first half of the 1990s. One agent for them was a Japanese trading corporation (*Sogoshosha*) in the private sector. The other was the Industrial Estate Authority of Thailand in the quasi-public sector in Thailand. The countries in East Asia could not attain high economic growth without the players. Third, we can deduce from the first and second results that IZs were quasi-public goods crucial to introducing foreign direct investment (FDI), and diffusing growth throughout a region to attain high economic growth. We showed that a combination of industrial zones with preferential

Table 6.9: A List of Tenants at Nomura Haiphong Industrial Zone

Company	Capital	District	Products	Date of Investment Permittion
Vietphong Garment &Textile Co., Ltd.	Hong Kong	Standard Factory B-2nd.3rd floors	Ladie's Knitwears	March 28, 2002
R & T Manufacturing VN Co., Ltd.	Hong Kong	Standard Factory A-2nd floor + Na-16 (1 ha)	Textile, Sewing, Knitwears	April 16, 2002
BT Garment Co., Ltd.	Hong Kong	Standard Factory A-4th floor	Textile, Sewing, Knitwears	August 23, 2002
Office Express Manufacturing Co., Ltd.	Hong Kong	Standard Factory B-1st floor	Staples (Ring File)	January 8, 2002
Taiwan Fong Tai Paper Co., Ltd.	Taiwan	F-12b (0.5 ha)	Corrugated Cartons, Package Materials	February 1, 2002
Vietnam Hoa Nguyen Garment Co., Ltd.	Chinese	Standard Factory B-4th floor	Clothing, Sewing	September 8, 2002
Shin Yong Chemical Vietnam Co., Ltd.	Korean	N-7~N-12 (6 ha)	Plastic Products	September, 2002
Rorze Robotech Inc.	Japanese	F-2, F-3, F-4 (3 ha)	Manufacturing Equipment of Semiconductor	October 2, 1996
Hop thinh Co., Ltd.	Japanese	E-4 (1 ha)	Sewing	October 5, 1996
As'ty Vietnam Inc.	Japanese	A-5 (1 ha)	Bags	July 28, 1997
HI-Lex Vietnam Inc.	Japanese	C-8 (1 ha)	Control Cables for Motorcycles	March 16, 1999
Ortec Chemical Co., Ltd	Japanese	J-1 (0.5 ha)	Treatment Chemicals of Industrial Water	October 28, 1999
Estelle Vietnam Inc.	Japanese	Standard Factory C-3rd floor + F-7a (0.5 ha)	Jewelry Processing	February 2, 2001 September 3, 2002
Meicorp Vietnam Inc.	Japanese	Standard Factory C-1st floor	Cring Materials	February 23, 2001
PV Haiphong Inc	Japanese	Standard Factory A-1st floor	Assembly of Gas Appliance	March 6, 2001
Nichias Haiphong Co., Ltd	Japanese	C-5, C-6 (2 ha)	Seal Materials Joint Sheets	July 17, 2001
Yazaki Haiphong Vietnam Co., Ltd.	Japanese	L-1, L-2, L-3, L-7, L8 (5 ha)	Wire Harness	September 17, 2001
Hiroshige VN Corporation	Japanese	A-10 (1 ha)	Electronics Parts	March 14, 2002
Maiko Haiphong Co., Ltd.	Japanese	A-9 (1 ha)	Microscopic Bearings	April 15, 2002
Vina-Bingo Co., Ltd.	Japanese	Standard Factory E	Precision Parts Processing for Semiconductor	June 27, 2002
Vietnam Fuji Mold Co., Ltd.	Japanese	F-8a (0.6 ha)	Pastic Molding Products	July 26, 2002
Nishishiba Vietnam Co., Ltd	Japanese	A Power Plant Office	A Power Plant and Maintenance	October 8, 1996

Source: Nomura Haiphong Industrial Zone.

Table 6.10: A List of Japanese Companies in the Suburb of Hanoi

	Company	Products
1	*Inoue Rubber*	A tire and tube for automobiles and motorcycles
2	*Kyoden*	A plastic molding for two-wheeled vehicles
3	*Goshi Giken*	A metal molding for two-wheeled vehicles
4	*Stanley Electric Co., Ltd.*	A lighting lamp for automobiles and motorcycles
5	*Sumitomo Metals*	A metal component for automobiles
6	*Daihatsu*	A commercial car
7	*TakaNichi*	A seat for automobiles
8	*Denso*	Parts and components related to a car engine
9	*Toyota*	Automobiles
10	*Nissin Kogyo Co., Ltd.*	A brake for automobiles and motorcycles
11	*Nippon Sheet Glass Co., Ltd.*	Glass for automobiles and building materials
12	*Nippon Carbide Industies Co., Ltd.*	Components for automobiles (sticker)
13	*Honda*	Two-wheeled vehicles
14	*Matsuo Industies Inc.* for automobiles	Plastic molding parts & steel processing parts
15	*Yamaha*	Two-wheeled vehicles
16	Pentax	Cameras and optical instruments
17	Ajikawa Steel Construction	CAD design
18	Abe	Manual printing and manufacturing
19	INAX	Sanitary wares
20	Ebara	Pumps
21	Kawamura Harness and power cords	Harnesses for the household electric appliances
22	Canon	Ink jet printers
23	Kyoei Steel	Cast iron
24	Sakurai Manufacture place Co.,Ltd	Parts and components for machine tools
25	Simadzu	X ray devices
26	Shiroki	Moldings
27	Shinken	Markers and ball-point pens
28	Sumitomo Electric / Sumitomo Wiring Systems, Ltd.	Wiring harnesses
29	Sumitomo Bakelite Co., Ltd.	A flexible printing circuit board
30	Daiwa Plastic	Plastic moldings
31	Tsukuba Diecast	Aluminum diecast
32	TOA	Surveillance cameras
33	TOTO	Sanitary wares
34	NEC	A digital telephone exchange machine
35	Nippon Leakless Co.	Gaskets
36	Parker Processing Co., Ltd.	Special coating of cellular phones
37	Hino	Trucks and buses
38	Fujitsu	An optical transmission device
39	HOEI	Apparel products
40	MES	Structural steel
41	Mitsubishi Pencil Co., Ltd.	Pencils
42	Ryukyu Glass	Glassware

Note 1: For June 1, 2002

2: 1-15 are companies related to two-wheeled or four-wheeled vehicles.

Source: Sumitomo Corporation.

Table 6.11: Growth Rates of Industrial Output

(Unit: %)

		1999	2000	2001	2002
North	Hanoi	8.2	14.8	11.1	24.8
	Haiphong	17.6	19.5	20.0	24.9
	Hungyen	108.7	21.6	18.2	n.a.
Central	Danang	18.9	17.6	20.2	19.1
South	Hochiminh	6.6	15.4	16.1	10.4
Vietnam		11.5	17.5	14.1	13.9

Source: Statistical Yearbook.

tax, institutional reforms, and physical infrastructure including national highway Route 5 and Haiphong port formed an industrial cluster in northern Vietnam.

We emphasized the role of economic agents or players in forming clusters. Private companies constructed industrial zones. Japan's official development assistance supported construction of highway Route 5, rehabilitation of Haiphong port, and institutional reforms. The Vietnamese government gave tax incentives. Tables 6.10 and 6.11 show that these players contributed to agglomerating firms and enhancing aggregate growth in the northern Vietnamese economy.

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