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The relocation of the garment industry as an instrument for regional development in the Northeastern region of Thailand

**Nikorn Wattanapanom
Philippe De Lombaerde
Pradit Withisuphakorn
Pradit Wanarat**

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1. Introduction

It has been suggested that the relocation of specific types of economic activities from the Bangkok Area to the Northeastern Region could help in alleviating a number of problems related to regional disequilibria in Thailand.

In this study we focus on the garment industry and look at the issues from the point-of-view of the entrepreneur. We try to find answers to questions like: "why is the garment industry an obvious industry for relocation policies?", "what are the major motivations to locate and relocate in the garment industry?", "what are the relative advantages or disadvantages of locating in the Bangkok Area versus the Northeast?", "how should the inter-provincial locational choice be made?", "how could the government contribute to the promotion of relocation to the Northeast?"

In addition to statistical support and other sources, we will report the results of empirical research, basically on the basis of questionnaires and interviews with entrepreneurs in the garment industry in the Bangkok Area and the Northeast¹, and members of the Chambers of Commerce in the Northeastern Region. For the issue of delivery times in an international context, in-depth interviews have been organised with the management in the garment industry in Thailand, Hong-Kong, Singapore, South-Korea and Taiwan, and with buying agents and trading firms in Hong-Kong and the US.

For several reasons the garment industry² is an interesting industry to study as a potential target industry for relocation policies. We will discuss a number of these arguments below. However, the garment industry is obviously not the only industry which is suitable for regional development policies of this kind; other sectors would also meet a number of relevant criteria to be picked as target industries.³

¹ In order to know how the locational motives are perceived by the management in the garment industry, we surveyed management opinion (during 1994). We considered a sample of 40 companies; 36 in Bangkok, 4 in the provinces. Ten companies have been contacted in four subsectors: (a) fashion, (b) wooven, (c) flat knit, and (d) circular knit. Ten companies had less than 100 sewing machines ("small sized company"); 24 companies had 100-800 sewing machines ("medium sized"); and 6 companies had more than 800 sewing machines ("large sized companies").

² The garment industry is a sub-sector of the textiles industry. The textiles industry comprises: man-made fibre, dying and finishing, spinning, weaving, and garment manufacturing. The garment industry itself can be subdivided into: wooven (e.g. heavy textiles, jackets,...; characterised by large factories, > 500 machines; mainly exporting to US and Europe), flat knit (e.g. sweaters; medium-sized, 100-200 machines; mainly exporting to US, Europe and Japan), fashion (e.g. shirts, pants, ...; small and medium-sized companies, > 100 machines; 50-80% of total garment production; mainly exporting to the US, Europe and Asia), and circular knit (e.g. socks, underwear; small and medium-sized companies, 100-200 machines; mainly exporting to US, Europe and Japan).

³ The authors intend to extend their empirical research to other industries in the future. Douglass (1990b:5,13) suggested as industries to be promoted in rural areas: (a) industries with low transportation costs relative to value added creation (e.g. the electronics component industries), and (b) industries where large-scale assembly-line ways of production are gradually being replaced by smaller-scale production types of flexible specialization organized in industrial complexes (e.g. the automobile industry and electronics, apart from textiles, cfr. *infra*). Other industries which have been suggested include: agro-industry, basic metal industry, gems cutting, leather & footwear, etc. Agro-industry is sometimes a less evident candidate for rural industrialization projects than it might seem: its development requires control over the whole production-cycle (water, energy, etc.), industrial organization, large-scale land use, etc. On the other hand, no industries seem to be excluded *ex ante*; this is shown by the canned seafood industry, attracted to develop activities in Roy-Et.

2. The need for industrial activities in the Northeastern region

From different socio-economic indicators (income levels, poverty incidence, unemployment levels, out-migration, etc.), it can be concluded that the Northeastern region of Thailand has arrears in terms of socio-economic development compared to the other regions.⁴

A policy of rural industrialization seems desirable from different points-of-view. It would raise the standards-of-living in the rural areas and could contribute to the decongestion of the Bangkok Area through lowering the out-migration incentives for the population, and even re-migration from Bangkok, which indeed seems feasible.⁵

Although regional policies should obviously be multi-focused and comprehensive (i.e. considering action in the social, economic, financial, demographic, political, environmental, and physical dimensions), a crucial element in an effective development strategy will necessarily be *employment creation* to raise incomes and standards-of-living, and to reduce migration pressures.

Government policies have recognised this need. Since the *Third National Economic and Social Development Plan* (1972-76), measures have been taken to stimulate rural industrialisation. At this moment, a considerable number of measures from different authorities exist to encourage investment in the area. Usually the measures are not uniquely directed at the Northeastern region but rather at the rural areas of Thailand in general.

The investment incentives of the *Board of Investment* (BoI) are the most important; its new and adapted measures have been operational since April 1993. As a result, investment in Zone III (to which all Northeastern provinces belong) has become even more attractive. The measures for Zone III include: tax waivers for imports of machinery, tax waivers for imports of materials, reductions of import taxes for raw materials, income tax waivers, double deductions of costs of electricity, transportation and water, deductions from net profits of installation or construction costs of the project's infrastructure facilities, and reduced minimum capital requirements. Moreover, joint-ventures or foreign-owned companies are now allowed to sell in the domestic market if located in Zone III. In Section 3 these incentives and their impact on company results will be discussed in detail.

As a result of the introduction of the new measures, the number of applications for BoI promotion in Zone III tripled in 1993, compared to 1992, and this trend continued in 1994 and 1995.

⁴ For detailed statistical information on the Northeastern region, a general discussion of the socio-economic situation, and policy perspectives, we refer to Cuyvers e.a. (1994). Further recent literature on regional policy/rural industrialization in Thailand includes: Douglass (1990a,1990b), TDRI (1990), Loha-Unchit (1990), Wiboonchutikul (1990), Granstaff (1990), Biggs e.a. (1990), Charcomb (1990), Aungsumalin (1990), Na Ranong (1990), Arya (1990), Tambunlertchai (1990), and Suphachalasai (1992). Singhanetra-Renard (1981), Lightfoot e.a. (1983), Ashakul (1989), and Fuller e.a. (1990) studied the issue of intra-national migration.

⁵ The latter is confirmed by company practises like recruitment on festive days (Song Khra), and also by the conviction of the Chambres of Commerce of Nakhon Ratchasima and Ubon Ratchathani (the recently relocated Wing Fat Leather Co. e.g. counts 35% of return labour from Bangkok out of 3000). Others (e.g. the Chambre of Commerce of Khon Kaen) are more sceptical; they point to differences in management styles between province and Bangkok, leading to adaptation problems and a high labour mobility, and making re-migration less obvious.

Bol's *Unit for Industrial Linkage Development* (BUILD) started its activities in 1992 to assist companies seeking to upgrade their products and/or services to international standards, and to form profitable subcontracting with manufacturers. BUILD offers matchmaking services and information on subcontracting opportunities. It is an explicit goal of BUILD to concentrate its efforts on companies wanting to invest in provincial areas and on investors in these areas seeking cooperation and joint-venture partners from Bangkok and abroad.

Besides the Bol, the *Ministry of Finance* also follows a policy in order to support investing in rural areas. The channels of action are the following:

- expansion of loans by public banks (Agricultural Bank, Krung Thai Bank);
- motivation of private banks and financial institutions to expand their loans;
- support of low interest loans for investment in the region;
- giving authority to the Stock Exchange of Thailand (SET) to set-up a policy of supporting provincial investment (in effect since April 1st 1993); the Ministry's Regional Growth Committee has collected venture capital for 70 mio THB (for the 1st year) which will be invested by the SET to temporarily support projects that have a high return and a considerable importance for regional development.

The responsible ministries are making special efforts in infrastructure in the Northeast (sewer systems, electricity provision, water, roads, etc.).

The *Labour and Social Welfare Ministry* allocated a budget of 440 mio THB for 1994 to counter seasonal migration to Bangkok, to be used in three ways: (a) job training in 18 provinces hardest hit by drought⁶, (b) road repairs with hired villagers, (c) establishment of labour and social welfare centers in 15 provinces (The Nation, 1993b).

Worth mentioning is further the *Committee for Rural Development and Decentralisation* which has been set-up by the Prime Minister's Office, and chaired by the Prime Minister. The aims are basically to coordinate the efforts for regional development by the different authorities and to decentralise planning and controlling powers to the provincial authorities.

Finally, consultancy services from government and semi-government agencies to companies investing in the North-East can be subsidised.

A UNDP programme that runs from 1994 to 1996 and which is worth 4 mio USD, supports the efforts of the government to stimulate rural job-creation. It is implemented by the Ministry of Agriculture and Cooperatives and the Ministry of Industry in cooperation with NGOs, the private sector, educational institutions, and UN specialized agencies (FAO, ILO, UNIDO) (The Nation, 1993).

⁶ Khon Kaen, Nakhon Phanom, Buri Ram, Maha Sarakham, Mukdaharn, Roi Et, Si Sa ket, Kamphaeng Phet, Nakhon Sawan, Nan, Uthai Thani, Chai Nat, Prachin Buri, Lop Buri, Sing Buri, Nakhon Si Thammarat, Narathiwat and Surat Thani.

3. The choice of the garment industry as the target industry for relocation policies

A number of arguments can be suggested to choose the garment industry as a target industry for government policies to promote relocation to the Northeastern region. To our understanding, the following arguments might be mentioned: (a) the relative importance of the industry, (b) its geographical concentration, (c) the heavy cost pressure, (d) the relatively low technology content of the production, small production scales, and the trend towards flexible specialization, (e) the relatively high labour intensity, (f) the net inflow of FDI in the industry, (g) the linkage with traditional skills and activities, (h) the relatively low environmental impact, and (i) the government's experience with monitoring the industry.

3.1 The relative importance of the industry

Both in terms of contribution to GDP as in terms of export earnings, the textiles industry has become the first industry in Thailand, representing 15 per cent of GDP and 14 per cent of export earnings (Tables 1 and 3). The growth of the production in volume terms became really spectacular during the second half of the eighties (Table 2).

The growth of exports until 1991 even surpassed the already high average growth of Thai exports (Table 3), so that the textiles share in total exports increased. The major export markets for Thai textiles are the US, the EU and Japan; but also Poland and Saudi-Arabia are important importers (Table 4). Hill & Suphachalasai (1992) showed that Thailand's textile export success is all the more remarkable, given the difficult international circumstances: ever more restrictive quantitative barriers and exclusion from market privileges.

Table 1: Shares of Textiles, Wearing Apparel, and Leather Product in GDP of Thailand (%), 1970-1988

	1970	1975	1980	1985	1988
Textiles	8.99	13.23	14.48	14.08	14.84
Wearing apparel except footwear	9.17	9.71	9.07	10.14	10.82
Leather, leather products and footwear	2.49	2.37	1.80	2.34	3.17

Source: Tambunlertchai (1993:121)

Table 2: Thailand's Clothing and Textile Production, 1975-1993

Year	Clothing (mio pieces)	Fabrics (mio sq. Yards)	Yarns (1000 tons)	Man-made fibre (1000 tons)
1975	488	1128	135	39
1980	722	1821	227	113
1985	946	2494	292	127
1990	1623	4652	502	244
1993	2271	6305	767	446

Source: Suphachalasai (1992:7), Ministry of Commerce (1994a).

Table 3: Thailand's Exports of Textile Products, Footwear and Leather Products

	1988	1989	1990	1991	1992	1993
Textile products						
Mio baht	58625	80550	92037	118994	123183	129418
% of total	14.5	15.6	15.6	16.4	14.9	13.9
of which:						
Garment						
Mio baht	44560	59488	67567	89024	89851	93313
% of total	11.0	11.5	11.5	12.3	10.9	10.2
Footwear						
Mio baht	9658	13524	20219	23803	25642	27942
% of total	2.4	2.6	3.4	3.3	3.1	3.0
Leather prod						
Mio baht	1783	4632	6170	6746	7699	8510
% of total	0.4	0.9	1.1	0.9	0.9	0.9
Total exports	403570	516315	589813	725630	824644	931572

Source: TDRI (1994:6), Bank of Thailand (1993:Table 36), Ministry of Commerce (1994c).

Garment exports for 1994 are estimated by the Thai Garment Manufacturers' Association at 102 bn THB, up 10-12% compared the previous year (Bangkok Post, 1994). This positive result is partly the result of quota cuts of the US against China and Turkey.

That the sector is still dynamic and growing is also illustrated by the growth of the number of firms during the recent years (Table 5).

Table 4: Thai Textile Products Exports By Country, 1991-1994

Country	1991		1992		1993		1994 jan-june	
Quota								
U.s.a.	18532	(15.6)	24939	(20.2)	28197	(21.8)	12945	(19.6)
Germany	9501	(8.5)	8442	(6.9)	8095	(6.3)	3313	(5.0)
France	5159	(4.3)	5118	(4.2)	5120	(4.0)	2399	(3.6)
U.k.	4609	(3.9)	5090	(4.1)	4796	(3.7)	2175	(3.3)
Italy	3587	(3.0)	3273	(2.7)	2418	(1.9)	912	(1.4)
Non-quota								
Japan	9222	(7.8)	10756	(8.7)	10931	(8.4)	5754	(8.7)
Poland	9152	(7.7)	8341	(6.8)	7371	(5.7)	3629	(5.5)
Saoudi-arabia	7105	(6.0)	5314	(4.3)	5927	(4.6)	3226	(4.9)
Singapore	3983	(3.3)	3737	(3.0)	5514	(4.3)	2505	(3.8)
U.a.emirates	5575	(4.7)	4485	(3.6)	5419	(4.2)	2998	(4.5)
Total	118994	(100.00)	123183	(100.00)	129417	(100.00)	66182	(100.00)

All figures in mio Baht (percentage shares between brackets)

Source: Ministry of Commerce (1994b).

Table 5: Number of Firms in the Textile Industry of Thailand, 1987-1993

Year	Man-made Fibres	Spinning	Weaving	Garments
1987	7	65	694	1168
1988	7	76	778	1350
1989	8	80	915	1574
1990	9	96	1038	1796
1991	11	115	1202	2029
1992	13	126	1255	2211
1993	16	131	1356	2530

Source: Suphachalasai (1992:5), Ministry of Commerce (1994a).

In our 1994 survey (cfr. supra), 21 companies (52.5%) had plans to expand their production; 19 (47.5%) had no plans to expand production. The companies that have expansion plans are distributed as follows: circular knit (9 companies), fashion (8 companies), wooven (3 companies), and flat knit (1 company).

3.2 The geographical concentration of the industry

Although exact and complete statistics on the location of firms in the textiles and garment industry are not readily available, it is clear that most of these firms are located in and around Bangkok (Suphachalasai, 1992:3). Consequently, textile and garment firms have to compete for workers, especially skilled and semi-skilled workers, in a limited geographical area (the Bangkok Metropolitan Area - BMA). Therefore, there is already some pressure on wages for specific categories of workers.

The overconcentration of textile companies in the Bangkok Area is also clear from the results of our 1994 survey: 12 companies (30% of total) cannot even expand their present capacity. However, deconcentration does not seem to be a natural evolution; 71% of the companies that want to expand (cfr. supra), want to expand in Bangkok and surrounding areas; only 29% want to expand in other regions.

3.3 The heavy cost pressure on the industry

Presently, the textiles sector in Thailand seems to be under very heavy cost pressure from new and established competitors on the world market. This is considered to be the main reason of the poorer financial results of the sector in 1993 (Table 6). Out of 24 companies listed on the Stock Exchange of Thailand (Thai Iryo, the 25th company, did not submit its results sheet by March 1994), only ten showed improved profitability; the others showed losses or lower profits.

Table 6: Net Profits of Textile Companies Listed on the Stock Exchange of Thailand (mio THB), 1992-1993

Textiles companies listed on the stock market	1993	1992	%Change
Bangkok Nylon	19.12	16.11	+18.7
Boutique New City	12.90	13.10	-1.5
Castle Peek Garment	65.01	101.43	-35.9
Hua Thai Manufacturing	103.22	139.84	-26.2
Hantex Corp	19.33	34.00	-156.7
Luckytex (3rd Q)	32.72	214.95	-84.8
New Plus Knitting	31.93	19.06	+67.5
One Holding	224.79	91.80	+144.8
People's Garment	19.71	16.94	+16.4
S.K. Garment	63.95	79.39	-19.5
Saha Union	624.98	744.22	-16.0
Thai Durable Textiles	-216.75	2.80	-7841.1
Thai Iryo			
Thai Melon Polyester	-137.80	95.40	-244.4
Thanulux	89.40	82.5	+8.4
Textile Prestige Corp	59.90	50.50	+18.6
Thai Rayon (1st Q)	123.60	102.30	+20.9
TRT Garment	-4.40	21.00	-121.0
Thai Textile Industry	151.90	181.40	-16.3
Thai Teijin Textiles (1st Q)	47.60	48.10	-1.0
Thai Toray Textile Mill	141.90	142.10	+0.1
Tuntex	260.80	450.50	-42.1
Union Pioneer	15.00	10.00	+50.4
Union Textile Industries	90.6	189.50	-52.2
Thai Wacoal	132.60	114.70	+15.6

Source: Chanjindamanee (1994)

It was generally expected that the increase in the minimum wages of April 1st 1994 (+ 7 THB in Bangkok) would be problematic for the textiles industry (Polkwamdee, 1994).

In labour-intensive activities like textiles, labour-costs are the major cost component. According to our survey (cfr. supra), the major perceived problems of Bangkok-based companies include: the problem of labour quality (58%), labour scarcity (21%), and high labour costs (16%). Therefore a number of these companies are seriously considering relocation to lower cost locations. These could be abroad (e.g. in: PR China, or Vietnam), but the Northeastern region is also a potential relocation destination.

3.4 The relatively low technology content of production, small production scales, and the trend towards flexible specialization

The technology used in the textiles industry is relatively simple (Suphachalasai, 1992:3). Weaving uses higher technology and is more capital-intensive than the other subsectors, however.

Related to the relatively low technology content is the low *minimum efficient production scale* (reflected in the large number of companies in garments production and also weaving, cfr. Table 5), which is adding to the mobility of the industry: small as well as large companies are technically equally mobile and production units (divisions) as mobile as complete companies.

Relatively low technology content and small production scales make it also easier to approach local businessmen for subcontracting. These are often lacking experience and knowledge in terms of technology and markets.⁷

On the other hand, the high share of *sub-contracting* (inter-firm dependency), for specific tasks (e.g. simple sewing), especially among small garment companies might be a hindrance to firm mobility. However, a new phenomenon (e.g. observed in Kalasin) might provide a solution to this problem: a number of (skilled) workers returning from Bangkok set-up their own small-scale factories in garments, leather and handicrafts, aiming at sub-contracting for Bangkok companies, but obviously able to play the same role for re-locating industries.

Finally, for the large companies in the sector, and for multinational enterprises, a trend seems discernable towards gradually replacing large-scale assembly lines by *flexible specialization* production types of a smaller scale, organized in industrial complexes (Douglass, 1990b:5,13; Junk Taik Hyun, 1989). This type of organization makes industrial relocation to or location in rural areas easier.

⁷ This phenomenon has especially been felt by the Chambre of commerce in Ubon Ratchathani. Although the financial basis and ideas exist, business is hindered by a lack of experience. Therefore, local businessmen sometimes look for strategic partnerships with Bangkok-based businessmen (providing technology and marketing knowledge) or establish business contacts in other sectors first (e.g. tourism), before developing industrial activities.

3.5 The relatively high labour intensity of the industry

As can be seen in Table 2, the industrial activities of the Thai textiles industry are concentrated in the labour-intensive fabrics weaving and garments subsectors. The garment industry, which is the most labour-intensive subsector, is therefore the most important employment creator in the Thai manufacturing industry (Suphachalasai, 1992:9).

Although technological innovations are obviously not absent, the sector is not expected to rapidly lose its labour-intensive character. Especially in garment assembling, the most labour-intensive production phase, the scope for reduction of the labour input seems limited; it is estimated at 4 to 10% of the labour cost (Suphachalasai, 1992:4).

3.6 The net inflow of FDI in the industry

The Thai garment industry is still attracting a considerable share of the *inward foreign direct investment* (FDI). These investments are translated into new production facilities, all faced with the location decision. It is easier for a government to initiate a location policy in sectors with a regular inflow of foreign capital than in a retrograding sector with relatively few new investments.

Since 1960, with the introduction of the *Investment Promotion Act*, foreign capital started to be attracted. Textile mills were taken over by Chinese companies from Shanghai and Hong Kong, but mainly Japanese investment flowed into the industry, starting in the 1960s, but rapidly expanding in the 1970s (Suphachalasai, 1994:19).

The Japanese investors in Thailand had basically three strategic objectives in doing this. First, foreign investment allowed to circumvent the *voluntary export restraint* (VER) on Japanese exports of cotton textiles to the US under the so-called *Long Term Agreement* (now MFA). Second, it corresponded with a national policy to restructure the industry. Third, investment in Thailand (and also in Malaysia, Indonesia and the Philippines) was a way of jumping protective barriers and safeguarding access to the markets (Supachalasai, 1992:2,3). Japanese investments were usually in the form of minority shareholding in joint-ventures, often in made-made fibres.

In the mid seventies other countries followed, often to circumvent restrictions under the *Multi Fiber Arrangement* (MFA); Taiwan and Hong-Kong were among the most important, stepping-up their investment in the eighties as a result of their rising domestic wage levels and currency appreciations (Supachalasai, 1992:3). The flow of inward FDI gradually diversified in terms of sources.

As can be seen in Table 7, the share of FDI destined to the textiles industry oscillated around 5% in 1985-91. A sharp rise could be observed in 1992 and 1994. The trend seems to be that although Thailand is losing low-end labour-intensive activities (and investments) to PR China and Vietnam, it still attracts FDI in the textile industry for activities with higher value added creation and using semi-skilled or skilled labour.

Table 7: Net Inflow of FDI in the Thai Textiles Industry

	1985	1990	1991	1992	1993	1994
Textiles						
mio Bath	59.9	1776.7	1143.0	1462.0	(104.0)	1105
Text. as % of Manufact.	4.4	5.7	4.8	8.4	(0.5)	9.6
Manufacturing						
mio Bath	1358.1	31003.4	23839.6	17467.3	19088.1	11542.0

Source: TDRI (1993:18 and 1994:16)

3.7 The linkage with traditional skills and activities

Generally speaking, it is easier to start industrial activities that are linked with traditional activities and skills of the available labour force than to introduce completely new activities. Garments are an example of the former. Recruiting and training for the garment industry might therefore be more efficient and cost-effective.

3.8 The relatively low environmental impact

One of the problems often encountered with rural industrialisation is its negative environmental impact in ecologically vulnerable environments. A selection criterium to select appropriate target industries should therefore include an assessment of these effects. The garment industry has a relatively low environmental impact, compared to other textiles subsectors (e.g. dyeing, cfr. TDRI, 1990:5) or other sectors (e.g. chemical industry).

3.9 The government's experience with monitoring the industry

From an economic policy point-of-view, government intervention might be smoother in sectors with experience with monitoring than in other sectors. The textiles industry has a long history of government monitoring, starting with the beginning stages of the development of the industry, where protection has been given through the *Import Restriction Act* of 1955 on cotton yarns imports, amended in 1957 to include cotton fabrics. In Table 9 an overview is given of the more recent government policies towards the textiles industry. It gradually evolved from import protectionism and capacity controls to investment promotion and export orientation. However, that import protection is still considerable as evidenced in Table 8. As suggested by TDRI, the future evolution of textile policies will probably go in the direction of more liberalisation of imports, a more specific locational policy, and human resources development.⁸

One should obviously not disregard that protectionist policies have often been mere responses of the government to lobbying by the industry. Intervention seems therefore to be a two-way phenomenon and will probably continue to be so. Offering too many relative advantages to producers in the Northeast might encounter opposition from the Bangkok-based producers.

Table 8: Import Tariffs for Textile and Clothing (%), 1974-1990

⁸ The TDRI proposals include: reductions of import taxes and taxes on machinery parts, measuring and testing machines; the development of dying industrial estates to expand this subsector and control pollution; supporting the technological know-how in the sector and the availability of skilled manpower (TDRI, 1990:5,6).

	1974	1978	1982	1990
Man-made fibre	20(30) ^a	20(30)	22(15)	30 ^b
Yarns (polyester-cotton)	20	20	22	30
Cotton yarns	25	25	27	30
Fabrics	60	80	66	60
Clothing	60	100	66	60

(..): import-surcharge as a % of CIF import price; ^a= 1975 figure; ^b= import-surcharge abandoned;
Source: Suphachalasai (1992:12), Customs Department.

Table 9: Chronological Order of Textile Policies, 1971-1994

Conditions	Date	Government regulations And responses
- A textile capacity of 234800 spindles and 4950 weaving machines was promoted. - Excess capacity expected.	01/09/1971	- Two-year ban on expanding textiles capacity "Textiles" was dropped from the promotion list - Provision of export subsidies and tax rebated on inputs
Textile exports increased (1972-73)	08/03/1973	- Promotions resumed - New capacities allowed for exporting firms - Capacity expansion of 50% allowed for existing firms
Textile exports continued to increase (1974-77)	04/09/1974	New and expanded textile capacities allowed which were granted promotion if producing for exports
Continued export growth, but expected excess capacity	10/03/1978	Ban on new establishments and expansion of capacity for man-made fibre production, spinning, weaving, printing and dyeing and clothing firms; except for those granted privileges by Bol prior to March 10th 1978
	24/08/1979	New firms could be established and garments capacity expanded but only for firms with more than 30 sewing machines were allowed only for firms exporting to non-quota markets
	15/09/1980	The prohibition on investments in the clothing industry ended
High exports growth (1981-83), slump in domestic demand	28/01/1981	Amnesty given to illegal firms not registered with the Ministry of Industry
	18/08/1981	Firms were able to apply to invest in man-made fibre production, but a deposit of 40000 USD had to be made with the Ministry of Industry
Exports continued to expand	21/11/1984	Export-oriented spinning and weaving industries were allowed to establish new firms and expand their capacities
In 1984 US accuse Thai government of subsidising yarn and fabric exports to an extent that caused injury to the American industry, and threat to impose a 3.82% countervailing duty on Thai exports	01/01/1985	Five year <i>Suspension Agreement</i> with the US, in which Thailand agreed to stop subsidising yarn and fabric exports in exchange for the withdrawal of special duties in US on imports from Thailand
Exports continued to grow	20/04/1987	Expanded textile capacities and the establishment of new firms producing both for export and the domestic markets and with Bol privileges were allowed
Export boom of yarns, resulting in yarn shortages	03/06/1987	- Firms not registered with the Ministry of Industry during the prohibition period were legalised - Expanded textile capacity allowed
US Supreme Court ruling that the expiry of the <i>Suspension Agreement</i> did cause injury to the American industry	01/01/1994	<i>Suspension Agreement</i> imposed for another five years (affecting tax reimbursements, Bol promotional privileges, export and packing credits, export promotion for yarn plants in special industrial zones)

Source: Suphachalasai (1992:14-15), Pongvutitham (1994).

4. (Re-)locating from the Bangkok area to the Northeast

We already mentioned a number of arguments for individual companies to (re-)locate to the Northeastern Region. The decision-to-(re-)locate is often a result of a *subjective* perception of determining factors. Our survey of management opinion revealed as important factors in relocating manufacturing: the distance to Bangkok, the land cost, the availability of public services and infrastructure, BoI incentives, and labour cost. According to the NIDA-study, rather than transportation infrastructure and electricity provision, direct production cost differentials compared to producing in Bangkok are relevant parameters (NIDA,1994:3.5).

In this section we endeavour to specify *objective* criteria to compare profitability of investing in one or the other area.

For the micro-economic calculations of the company two sets of data are of particular interest. First, a number of cost parameters (e.g. land prices, labour cost, transportation cost) are different according to location area. Second, the Thai government provides various incentives for rural industrialisation.

We will assume constant levels of production technology. In case relocation to the Northeast would necessarily imply a more labour-intensive technology (e.g. because of the lack of skilled labour), one would have to take a higher labour input into account, but accompanied by a lower investment cost.

4.1 Estimating the differentials in financial results of a garment factory according to area of location

Consider the following notations:

S = sales (= $Q \times P$)
 X = exported sales
 Q = produced quantity of a garment factory (or production unit);
 P = unit selling price of production;
 C = cost of a given production (scale) Q
 IC = investment cost;
 LAND = cost of land;
 INFRA = cost of infrastructure (factory building);
 MACH = machinery;
 MIIC = miscellaneous investment costs;
 PC = production cost;
 ENGY = energy, water, etc.;
 LAB = labour cost
 N = number of employed;
 W = average wage;
 INPUT = primary and intermediary production inputs;
 RAW = raw materials;
 MIIN = miscellaneous inputs;
 TRANS = transportation costs;
 MIPC = miscellaneous production costs;
 D = depreciations;
 R = company result;
 T.. = tax on...;
 t = corporate income tax rate;
 L = company lifetime;
 i = investment period;

d = from domestic market;
 m = imported;
 md = imported input for production for domestic market;
 x = to be exported;
 mx = imported input for exportables;
 pret = before taxes;
 post = after taxes;
 y = year;
 @ : indicates variable which is favourable because of location.

For an individual garment company faced with an investment decision, we can write:

$$R_{\text{post}} = R_{\text{pret}} - TR_{\text{pret}}$$

$$TR_{\text{pret}} = t \cdot R_{\text{pret}}$$

$$R_{\text{pret}} = S - C$$

$$S = Q \cdot P$$

$$C = IC + PC + D$$

$$IC = \text{LAND} + \text{INFRA} + \text{MACH} + \text{MIIC}$$

$$IC_y \# 0 \Leftrightarrow y = 1..i$$

$$\text{MACH} = \text{MACH}_d + \text{MACH}_m + \text{TMACH}_m$$

$$PC = \text{ENGY} + \text{LAB} + \text{INPUT} + \text{TRANS} + \text{MIPC}$$

$$\text{LAB} = N \cdot W$$

$$\text{INPUT} = \text{RAW}_d + \text{RAW}_m + \text{TRAW}_m + \text{MIIN}$$

In order to indicate in which way locating in the Northeast versus locating in Bangkok will imply differentials in financial results, three cases should be considered: non-promoted new investment, genuine re-location, and promoted investment.

4.1.1 Non-Promoted New Investment

A company, committed to expand its capacity, faced with the choice between investing in the Bangkok Area or in the Northeast will have to take at least three parameters into account: land costs, wage levels, and transportation costs.

Since the cost of land and wage levels are lower in the Northeast than in Bangkok, both investment costs and production costs will be lower when investing in the Northeast. Transportation costs however will be higher due to longer distances from markets and transportation nodes (ports, etc.) (Table 10).

We can write:

$$\text{LAND}_@ < \text{LAND}$$

$$W_@ < W$$

$$\text{TRANS}_@ > \text{TRANS}$$

The four companies (out of 40 surveyed companies, all in wooven) that had already made the decision to move to the Northeast, all mentioned the search for lower labour costs as the reason to relocate.

The effect of the cost differentials on the company result after taxes will be:

$$R_{post@} - R_{post} = (1 - t) * [(LAND - LAND@) + N * (W - W@) - (TRANS - TRANS@)]$$

Short term disturbances in the land cost are however possible. The announcement of the location of an industrial zone in the North of Khon Kaen province e.g. led to speculation, thus boosting land prices, to such an extent even that it contributed to the project not taking off at all.

Table 10: Average Labour, Land and Transportation Costs in the Northeast

Cost factor	Bangkok area	Northeast
Effective labour cost (thb/day)	132*	74.1
Distance from bangkok (km)	0	522.5
Transportation cost (cost per round-trip of 10-wheel truck in thb)	0	5732.9
Land cost (thb/rai) **	35,572,800	479,412

* Official minimum wage in effect since April 1st 1994, 7 THB up from the previous level;

** Bangkok area: average landprice according to distance from Central Business District = Bangkok bank Head office on Silom Road. Prices end of 1994.

- Northeast: 10 km from Ampur Muang and accessible via asphalted road

- 1 rai = 1600 m².

Source: Cfr. Table 12, Bangkok Post, 01/03/1996.

4.1.2 Genuine Re-location

The Board of Investment offers incentives for companies wishing to relocate existing production facilities to provincial areas, even if investment is not "promoted". A number of conditions apply however for these advantages to be given. The activity should appear on a list of eligible activities; the production facilities should be relocated from Zone I to Zone 2 or from Zones I or II to Zone III; and the production facility should at least count 100 employees.

The above mentioned relatively low cost levels obviously still apply in this case.

The differentials can thus be summarised as follows:

$$LAND@ < LAND$$

$$W@ < W$$

$$TRANS@ > TRANS$$

$$TR_{pret@} = TR_{pret} - t * (R_{pret} - 0.25 * INFRA)^9$$

$$TR_{prety@} = TR_{prety} - t * [R_{pret} - (ENGY + TRANS)] \Leftrightarrow y = 1..10^{10}$$

$$TR_{prety@} = 0 \Leftrightarrow y = 1..8^{11}$$

$$TR_{prety@} = 0.5 * TR_{prety} \Leftrightarrow y = 9..13^{12}$$

The result after taxes for e.g. the first year of operation ($y = 1$) will be positively affected as follows:

$$R_{post@} - R_{post} = TR_{pret} + (LAND - LAND@) + N * (W - W@) + (TRANS - TRANS@)$$

⁹ Companies located in Zone III receive a deduction from net profit of 25 per cent of the costs of installation or construction of the project's infrastructure facilities.

¹⁰ Companies located in Zone III receive a double deduction from taxable income of water, electricity and transportation costs for 10 years from the date of first sales.

¹¹ Companies located in Zone III receive a corporate income tax exemption for 8 years.

¹² Companies located in Zone III receive a reduction of corporate income tax by 50 per cent for 5 years after the 8 years exemption period.

4.1.3 Promoted Investment

In the case of promoted investment projects the advantages offered by the Bol are even more important than in the case of relocated activities. the resulting differentials can be summarised as follows:

$LAND@ < LAND$
 $W@ < W$
 $TRANS@ > TRANS$
 $TMACHm@ = 0$
 $TRAWmx@ = 0 \Leftrightarrow X \geq 0.3*S$
 $TRAWmd@ = 0.25*TRAWmd \Leftrightarrow RAWd \text{ not available}$
 $TRpret@ = TRpret - t*(Rpret - 0.25*INFRA)$
 $TRprety@ = TRprety - t*[Rpret - (ENGYy + TRANSy)] \Leftrightarrow y = 1..10$
 $TRprety@ = 0 \Leftrightarrow y = 1..8$
 $TRprety@ = 0.5*TRprety \Leftrightarrow y = 9..13$

For the first year of operation the gains in terms of financial results from relocating can be written as follows:

$Rpost@ - Rpost = TRpret + TMACHm + TRAWmx + 0.75*TRAWmd + (LAND - LAND@) + N*(W - W@) + (TRANS - TRANS@)$

As far as the determination of average lengths of the start-up or investment phase (i) is concerned, these seem to vary between one and a half year and three years; government spokesman Abhisit Vejajiva mentioned start-up times for promoted investment of 18-30 months (Bangkok Post,1993); data collected by Petri (1992), in a study of the export effect of Japanese inward FDI, indicated that on average capacity levels were reached after 3 years.

Table 11: Sequencing of Advantages and Disadvantages of Promoted Investment in the Northeast

y = 1..i	y = i+1..5	y = 6..8	y = 9,10	y = 11..13	y = 14..L
LAND@<LAND	LAND@<LAND	LAND@<LAND	LAND@<LAND	LAND@<LAND	LAND@<LAND
W@<W	W@<W	W@<W	W@<W	W@<W	W@<W
TRANS@>TRANS	TRANS@>TRANS	TRANS@>TRANS	TRANS@>TRANS	TRANS@>TRANS	TRANS@>TRANS
TRpret@=0	TRpret@=0	TRpret@=0	TRpret@=0.5*TRpret	TRpret@=0.5*TRpret	TRpret@=0.5*TRpret
TRpret@=t*[Rpret-(ENGY+TRANS)]	TRpret@=t*[Rpret-(ENGY+TRANS)]	TRpret@=t*[Rpret-(ENGY+TRANS)]	TRpret@=t*[Rpret-(ENGY+TRANS)]	-	-
TRAWmx@=0	TRAWmx@=0	-	-	-	-
TRAWmd@=0.25*TRAWmd	TRAWmd@=0.25*TRAWmd	-	-	-	-
TRpret@=t*[Rpret-0.25 INFRA)	-	-	-	-	-

4.2 On the minimum optimum scale of the to-be-relocated production unit

Apart from particular economies of scale that could be reaped (e.g. purchase of capital goods, purchase of inputs, etc...), the determination of the minimum optimal scale of the relocated production unit depends to an important degree on the cost of transportation of the finished product, which is

adversely affected by the relocation decision on the one hand, and the advantages offered to relocating companies by the Bol, on the other hand.

As already mentioned, the Board of Investment grants specific privileges to relocating companies. These advantages are however restricted to production units of minimum 100 workers, so that the minimum optimum scale should at least correspond to 100 workers.

In order to calculate the relationship between production scale and required transportation capacity (Table 12), we use the following technical and economical parameters:

- for transportation, 10-wheel trucks are used which carry 18,000 units of the basic product (pieces of garment);
- one Thai worker produces about 16 units per day (i.e. 96 per week);¹³ and
- 6 working days per week are assumed.

Table 12: Relationship between Production and Required Truck Capacity

Number of workers	Produced units/week	Req. Truck capacity
50	4800	0.27
100	9600	0.53
150	11400	0.80
200	19200	1.06
250	24000	1.33
300	28800	1.66
350	33600	1.87
400	38400	2.13

Given that two round-trips Northeastern Region-Bangkok (including loading/unloading¹⁴) is realistic and the most cost-effective for all or most of the provinces, Table 12 suggests a minimum optimal scale of about 400 workers, since it corresponds with the optimal use of the transportation mode (truck).¹⁵ This is of course only a rough approximation, only taking transportation costs into account, not taking into account differences in distance from Bangkok (e.g. Nakhon Ratchasima compared to the Northern border provinces), depending on the productivity and capacity parameters, etc. Specific investment decisions will obviously require specific recalculations of the optimal scale.

5. The inter-provincial (re-)location decision

Once the decision is made to relocate to the Northeast, still remains the inter-provincial location choice. In this section we try to quantify the important location parameters with which the management in the garment industry is faced, and we point to the provinces which are the most attractive for relocation. For a hypothetical medium-sized company, we calculate the hypothetical gains of locating in the Northeastern provinces compared to locating in Bangkok (i.e.: the surplus variable costs of locating in Bangkok).

¹³ Compare with Hong-Kong where production per worker per day is about 29 units of basic product.

¹⁴ It is assumed that the trucks carry raw materials from Bangkok back to the company. A typical weekly schedule is then: day 1: loading NE + trip NE-BKK, day 2: unloading/ loading BKK, day 3: trip BKK-NE + unloading, day 4: loading NE + trip NE-BKK, day 5: unloading/loading BKK, day 6: trip BKK-NE + unloading, day 7: maintenance.

¹⁵ According to our data, the number of machines corresponding with a given labour force (in the garment industry) is about: (0.75 to 0.83) times the labour force. In our case, with 400 workers, the required number of machines would be between 300 and 332.

In Table 13 eight objective and relevant criteria are brought together that might determine the choice of location in the Northeast. They include: labour cost, distance from Bangkok¹⁶, transportation cost, land cost, population¹⁷, per capita income, electricity, and the existence of an airport.

Table 13: Data on Important Locational Decision-Making Elements for the Northeastern Provinces

Provinces	CRIT. I	CRIT. II	CRIT. III	CRIT. IV	CRIT. V	CRIT. VI	CRIT.VII	CRIT. VIII
Chaiya Phum	60	342	3840	150000	1086331	16143	1	-
Maha Sarakham	60	475	5070	120000	869118	13701	2	-
Kalasin	60	519	5510	100000	925254	13138	2	-
Si Sa Ket	60	571	5950	120000	1335487	11460	2	-
Yasothon	60	531	6040	300000	528277	12379	2	-
Loei	60	520	5860	200000	595444	20947	3	*
Roi Et	70	512	5420	280000	1238930	12661	2	-
Buri Ram	80	410	4720	300000	1417329	13091	2	-
Khon Kaen	80	449	4900	300000	1662512	20316	1	*
Surin	80	457	4980	180000	1341385	12130	3	-
U.Ratchathani	80	629	6660	600000	1945179	13010	1	*
Nong Khai	80	615	6390	500000	836693	15610	2	-
Sakon Nakhon	80	647	7360	500000	1014343	14050	1	*
Mukdahan	80	642	7540	700000	299280	13874	3	-
Nakhon Phanom	80	740	8050	300000	649933	13317	3	-
Na.Ratchasima	90	259	3220	2000000	2467366	18897	1	*
Udon Thani	100	564	5950	1500000	1846154	14936	1	*

Crit.I: Effective labour cost (THB/Day); Crit.II: Distance from Bangkok (Km); Crit.III: Transportation Costs (i.e. Cost per one-way trip of 10 wheel truck) (THB); Crit.IV: Land cost (10 km from Ampur Muang and accessible via asphalted road) (THB/Rai); Crit.V: Population (1992); Crit.VI: Per capita income (1991) (THB); Crit.VII: priority for cutting-off electricity supply in case of emergency (1=lowest probability of cutting-off; 3=highest probability); Crit.VIII: Existence of airport (*).

Sources: Provincial Labour Agencies, Provincial Manufacturing Agencies, Provincial Business Bureaus, Bol, NESDB, NSO, Electricity Authority of Thailand.

Criterion VI is somewhat ambiguous: it reflects labour costs, the inverse of "the willingness to work", and the level of local demand. Criterion VII, the risk of a black-out, indicates the difficulty to control production and the risk of having to pay surplus wages to make-up for lost production time. The availability of an airport may improve management control (from Bangkok) and facilitate the supply of parts and maintenance.

As far as the labour costs are concerned, it is important to mention that the effective labour costs, as reported by local managers, employers' federations, and by public agencies in informal interviews, are well below the official minimum wages. The official minimum wages are: 116 THB/day for Nakhon Ratchasima, and 108 THB/day in all other provinces in the region, since a 6 THB increase accorded by the Wage Committee on March 16th 1994 (in effect since April 1st 1994).

The existence of infrastructure is reflected to some extent in table 13 as well, which seems to be satisfactory in all provinces.

Looking at the different criteria, the data suggest that Chaiya Phum, Maha Sarakham, Kalasin, and Si Saket are somewhat "better" investment locations than the other provinces.¹⁸

¹⁶ The distance from Bangkok is not only relevant to measure transportation costs (Crit. III), but reflects difficulties related to the distance from the administrative center, from access to services, etc. as well.

¹⁷ The variation of this parameter could serve as an approximation of the variation of the active population if the ratio of active population/total population is approximately constant across provinces.

Although important criteria are taken into account, some of these might be respecified (e.g. labour pool instead of population) and other criteria are likely to play a role, e.g.: local demand and the degree of financial infrastructure (Arya, 1990:5,8,9). Also the appearance of *corridors* and border developments might influence location decisions. E.g. a corridor is developing from Bangkok to Laos (via Nakhon Ratchasima), and developments at the border with Cambodia might also be expected. The advantages of the Northeast Region for being close to the Indochinese region can cause, however, also some treats as companies might consider to relocate no longer to the Northeast of Thailand, but directly to these countries, as suggested by the story below.

Cedar Manufacturing is a Thai knitwear company relocating its factories from Bangkok and Nakhon Ratchasima to Burma. The major reason is the cheaper but highly qualified labour (wages are about 600 bath a month in Burma, as compared with wages for skilled workers of 250-300 bath a day in Thailand, 1250 Bath a month in Indonesia and 750 Bath a month in Cambodia and Vietnam). Other major reasons why Burma was selected instead of other neighbouring countries was the perception that Laos faces a labor shortage, that in Vietnam it is difficult "to build loyalty among workers" and that the political stability in Cambodia is still too uncertain. The company estimates that after relocation, production costs will reduce to one sixth of the level of Thailand in terms of wages.

In Burma, the Thai company receives also tax exemptions for the first three years of operations and imported raw materials are duty free. Moreover, most customers of Cedar Manufacturing are willing to accept products made in Burma, also because of the absent quota restrictions.

There are still however some disadvantages by locating in Burma, a.o. the unrealistic exchange rate, the power supply, the poor port facilities and the red tape. Shipping costs are also very high in Burma as the Burmese government has a monopoly in the shipping industry.

Source: Bangkok Post, 15/08/1995

Further, subjective location criteria should not be underestimated (Bar-El & Felsenstein, 1990). From a TDRI survey of 989 factories (of which 218 located in the Northeast), it was very clear e.g. that a large majority of the investment location decisions were inspired by subjective criteria: closeness to the place of birth (more than 50% of the interviewed), or on the grounds of lengthy business contacts in that province (Arya, 1990:11).

Another relevant element which is not clear from considering macro-data, but which appeared in the surveys of management opinion, is that often the company management decides to relocate to the province from which a majority of the work force is originating. In this way the company is likely to benefit from the conservation of at least part of its workforce (those who are willing to re-migrate) and from using the social networks of its workforce for recruiting.

Additional relocation motives include: (a) the availability in almost all provinces of training centers for training in garment, organized by the Thai Garment Manufacturer Association, and (b) the possibility for companies to apply for the BoI incentives in Zone III and (c) the permission for joint-ventures and foreign-owned companies in Zone III to sell on the local market (cfr. supra).

As far as the objective criteria are concerned, there seems to be a consensus among the decision-makers that the main issue is not so much with transportation infrastructure or electricity provision (especially the former seems rather satisfactory), but rather with labour and transportation costs.

¹⁸ These provinces can also relatively easily be reached by airplane (Maha Sarakham and Kalasin via Khon Kaen,

Following this observation, we performed some computations of the surplus variable cost of locating in Bangkok compared to locating in the Northeast. We considered a medium-sized garment manufacturing company with a minimum optimal scale 400 workers (cfr. supra). Computations are based on 26 working days per month (8 hours/day) with 8 round-trips per month to Bangkok for the transportation of supplies and output. Unit labour costs and transportation costs are drawn from Table 13. The comparable labour cost in the Bangkok area equals 132 THB/day.¹⁹

The results of the computations are shown in Table 14. They reflect the additional cost of locating or staying in Bangkok, which is the cost of non-relocation.

From Table 14 it can be concluded that the movement of garment manufacturing industries to the Northeastern region is probably feasible and appropriate because of lower production costs. Labour costs are substantially lower and no problems should be expected with regard to labour availability. The largest cost differential between Bangkok and the provinces, can be found in Chaiya Phum, the smallest in Udon Thani.

Table 14: Calculation of the Monthly Additional Variable Cost of Locating in Bangkok Versus the Northeastern Provinces for a Garment Factory with 400 Workers

Provinces	(I) Direct labour Cost (THB)	(II) Transport Cost (THB)	(I+(II)) Variable Cost (THB)	Surplus cost Of producing In bangkok (THB)
Chaiya Phum	624000	61448	685440	687360
Maha Sarakham	624000	81120	705120	667680
Kalasin	624000	88160	712160	660640
Loei	624000	93760	717760	655040
Si Saket	624000	95200	719200	653600
Yasothon	624000	96640	720640	652160
Roi Et	728000	86720	814720	558080
Buri Ram	832000	75520	907520	465280
Khon Kaen	832000	78400	910400	462400
Surin	832000	79680	911680	461120
Nong Khai	832000	102240	934240	438560
U.Ratchathani	832000	106560	938560	434240
Sakon Nakhon	832000	117760	949760	423040
Mukdahan	832000	120640	952640	420160
Nakhon Phanom	832000	128800	960800	412000
Nak. Ratchasima	936000	51520	987520	385280
Udon Thani	1040000	95200	1135200	237600
<i>Bangkok</i>	<i>1372800</i>	<i>0</i>	<i>1372800</i>	<i>0</i>

Remark: Variable production cost in Bangkok = 325000 THB.

6. Cost reduction versus delivery time reduction: a dilemma?

From the previous analysis it is clear that considerable cost reductions can be obtained from (re-) locating to the Northeastern Region.

Si Saket via Ubon Ratchathani).

¹⁹ It seems that effective wages are close to the official minimum wages in Bangkok, because labour is less abundant in the BMA than in the Northeastern Region.

A dilemma might however occur when relocation leads to longer delivery times. This is possible because a location in a provincial area might lead to delays on several occasions in the logistics chain or delays in the delivery of services.

Short and punctual delivery times are indeed an important competitive factor. In this section we will analyse the current relative position of the Thai garment industry in this respect. A relatively poor performance of the industry would make relocation and relocation policies rather risky because it is likely to lead to longer delivery times or at least additional risks of delays in the logistics chain.

In-depth interviews of managers in four types of companies (lady fashion, outerware, cotton knitted T-shirts, and knitted sweaters) and in five countries (Thailand, Hong-Kong, Singapore, South-Korea, and Taiwan) have been carried out; together with interviews of buying agents and trading firms in Hong-Kong and the US.

A visual scheme of the business cycle in the garment industry and the production path in a typical garment factory are represented in Figures 1 and 2.

Figure 1: Block Diagram of Business Cycle in Garment Industry

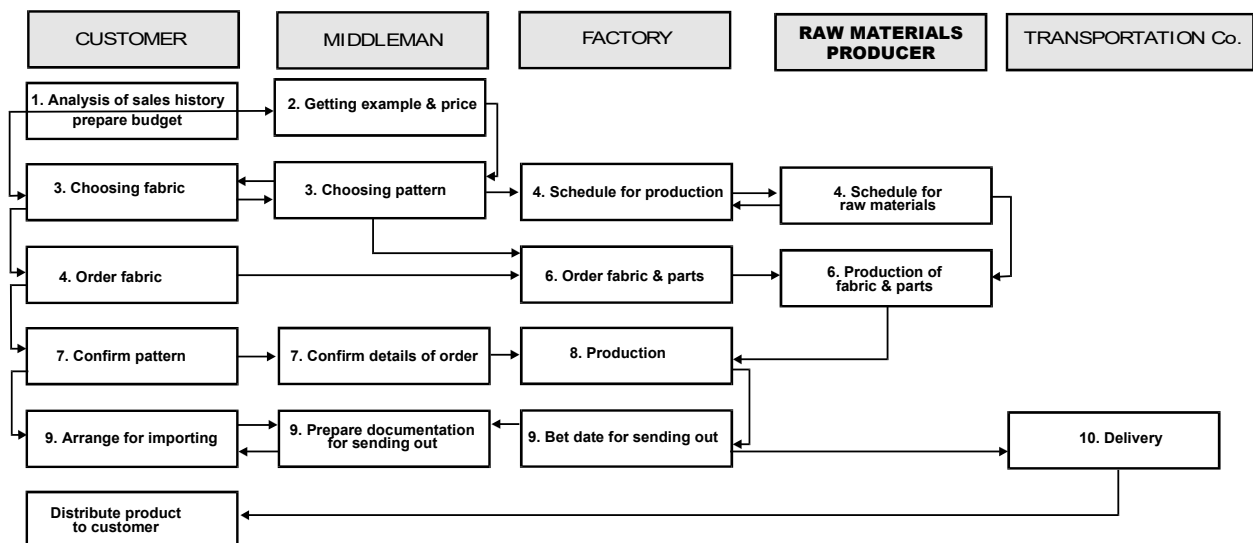
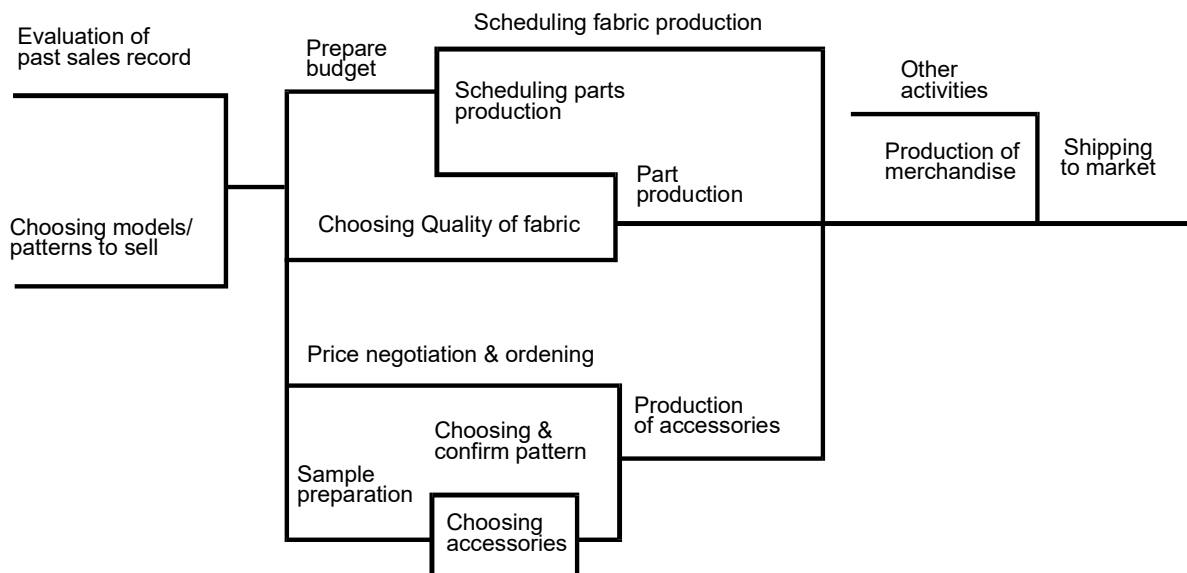


Figure 2: Critical Path Analysis of Garment Factory Delivery Time



Source: NIDA (1994:2-12).

The main message which comes from the gathered information (as well from US buyers perception as from management opinion) is that the delivery time in Thailand is relatively long, compared to that of its competitors (Tables 15 and 16). Especially production phases 2-13 seem to be critical in terms of time differences (Figure 3).

Table 15: Survey of US Buyer/Importer Perception of Thai and Hong-Kong Garment Industry

	Hong-Kong	Thailand
Products	- high ability to make high-quality product; - high price	- ability to make basic product; - price and quality are competitive
Delivery time	- high reliability: (a) Hong-Kong factories have intention to work with customer in order to produce a high-quality product within set time frame; (b) Hong-Kong has advantage in timing and price for import of fabric and parts	delivery time longer than Hong-Kong, Taiwan, Singapore, South-Korea (even if progress is made)
Crucial problems	- many factories reluctant to bring in new technologies in order to improve efficiency - labour cost and land price are high	- although the Thai government has the right attitude, the Thai garment industry still lacks efficiency and the needed support to grow; - there is a need to improve communication systems, logistics, transportation (ports, public infrastructure)

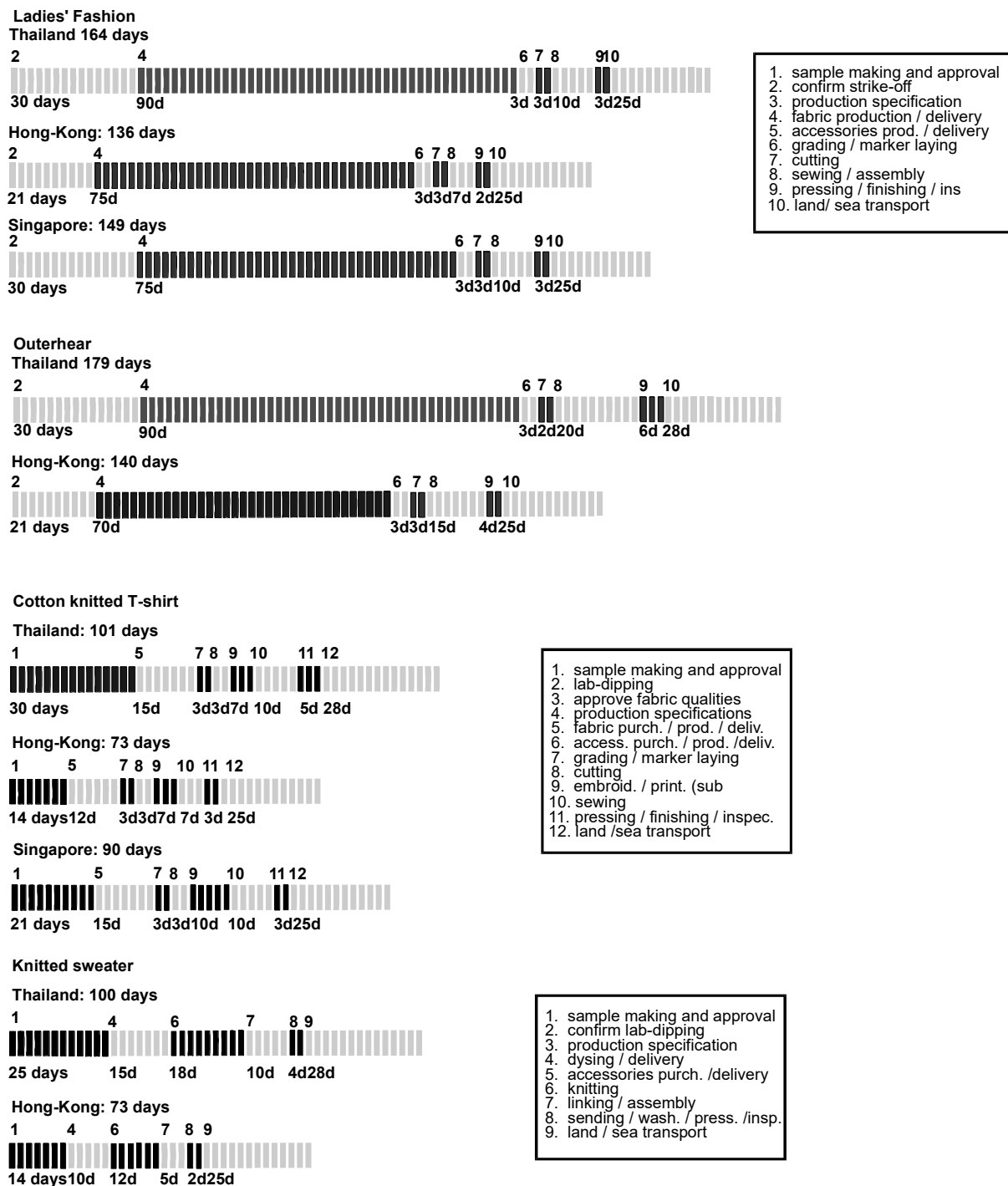
Table 16: Potential of Thai Dyeing and Garment Industry Compared to its Competitors in Hong-Kong, Singapore, Taiwan and South-Korea

Thailand	Hong Kong	Singapore	Taiwan	South Korea
Role of the government				
- import procedures take too long (bonded warehouses take 5-7 days, other take 10-20 days) - procedure of returning import taxes too long - government started to study introduction of EDI	- import of labour is problematic - Hong-Kong government supports relocation of factories to mainland China - government support for EDI	- government support to garment industry for redirection towards high-value production - government support for EDI since 1986	- government supports labour import, given the impossibility of relocating to PRC - government support for setting-up China Textiles Institute (CTI) as consulting body to garment industry	considerable government support via setting-up industrial centers in Taegu and Panwon
Fabrics and accessories supply				
growth of dyeing industry is slower	many dyeing factories have moved to PRC	no raw materials factories so that all	1990-93: spinning & weaving production	many small & medium dyeing firms had to be

Thailand	Hong Kong	Singapore	Taiwan	South Korea
than growth in garment industry because of environmental concerns	(cfr. low labour and land costs) • largest raw materials producers are still located in Hong-Kong; • good relationship with suppliers both in serving and non-serving season	is imported, which lengthens the delivery time	declined with 40% (trend expected to continue) • no growth for dyeing industry • pollution problems (government restrictions apply); • 1989-93: garment sales volume declined with 5% per year; • strength: metallic accessories (e.g. snap buttons); • import tax for dyeing chemicals: 10%	closed because of outdated production system, high labour cost, low-quality product; • (locally produced) dyeing chemicals of lower quality than imported (cost effect: 30%); • water treatment systems (additional cost effect: 30%); • minimum order for dyeing: 1500 yards, delivery time: 15 days; • minimum order printing: 3000 yards, delivery time: 30 days; • dyeing industry started to introduce new technologies for fashion products, but for cheap products: expansion to PRC and Indonesia
Merchandising				
• serious lack of coordination, communication and good relationship with suppliers	• strong foundations with representatives all over the world (with retailing) • good reputation and good relationship with customers and suppliers; • good knowledge and understanding of needs of customers and fashion; • high ability in using English in communication; • communication through EDI and video-conferencing	• lack of coordination; • EDI-system reduces communication time	• strong relationship with customer; • lack of coordination; • long distance between customs office and factories	• trading companies have large size and offices in important cities around the world; • many strengths in garment industry; • investment for improvement of polyester products; • know-how available for the construction of garment factories abroad
Manufacturing				
• manufacturing management do not have quick response production systems; • not enough training for workers about JIT production systems	• considerable experience in production of small quantities with complicated patterns; • good customers relations system; • pattern and cutting often done in HK, dyeing and sewing often in PRC; • HK factories try to help customers in finding source of raw materials by using unit synchronised systems (USS), hanger systems, and modular production in order to reduce delivery time	• reduction of production capacity because of labour costs; • large-size factories started using automatic production system; • many factories expanded into Malaysia and Indonesia	• reduction of production capacity because of labour costs; • large-size factories started using automatic production systems (e.g. computerised pattern grading, marker laying and cutting, hanger systems, USS); • many factories moved to PRC, Sri Lanka, Indonesia; • problem of lack of skilled labour in overseas factories	• because of high labour cost and low availability, factories moved to PRC, Indonesia and Central-America; • strengths in garments because of vertically-integrated large-size companies with automatic systems; • emphasis on material for which South-Korea is leader: polyester

Source: 17 in-depth interviews with management in Garment Industry during 1993-94, reported in: NIDA (1994).

Figure 3: Comparison of Critical Time for Production in Garment Industry



Source: NIDA (1994:2.13-2.16)

From the summary comparison of Thailand with Hong-Kong it follows that the Hong-Kong industry systematically shows shorter delivery times (Table 17). Investment in new technologies might be able to reduce these. However, for sewing, oration (putting-on accessories), inspection and packaging, the time needed is not much different. The main reasons for Thai delivery times being longer than in Hong-Kong lie in the pre-production stages: contact with the customer, sample making, choosing

pattern/colour/style, concluding details, and ordering the fabric. In the pre-production stage the differences are bigger than the average differences.

Three reasons for these longer delivery times seem so emerge:

- there is a problem of coordination with the customers (merchandising takes too long), related to delays in confirmation of orders and production details;
- there is a problem about delays in import and export procedures; and
- there is a problem about the coordination between the garment industry and the dyeing industry.

Table 17: Comparative Delivery Times: Thailand Versus Hong-Kong

	Thailand	Hong-Kong	Differences	
			Days	%
Ladies'fashion	164	136	+28	+20.6
Outerwear	179	140	+39	+27.9
C.knitted t-shirt	101	73	+28	+38.4
Knitted sweater	100	68	+32	+47.1

Source: NIDA (1994:2-17)

Table 18: Timing of Pre-Production Stage: Thailand Versus Hong-Kong

	Thailand	Hong-Kong	Differences	
			Days	%
Ladies'fashion	120	96	+24	+25.0
• Choosing fabric & color	30	21	+9	
• Ordering fabric	90	75	+15	
Outerwear	120	91	+29	+31.9
• Choosing fabric & color	30	21	+9	
• Ordering fabric	90	70	+20	
Knitted T-shirt	45	26	+19	+73.1
• Making pattern & choosing style	30	14	+16	
• Ordering fabric	15	12	+3	
Knitted sweater	40	24	+16	+66.7
• Making pattern & choosing style	25	14	+11	
• Dyeing	15	10	+5	

Source: NIDA (1994:2-18)

First, as far as merchandising is concerned, the message for the industry is that the merchandising manual should be improved. Both industrial merchandising (sample arrangement, pricing, fabric sourcing, production arrangement, order follow-up), customer merchandising (product development, sourcing, sales negotiation, order and production follow-up), and the communication between the two should be optimised.

Second, customs procedures in Thailand clearly cause delays for the industry. Whereas customs procedures for raw materials imports take 15-20 days in Thailand, they take only 1-2 days in Hong-Kong and 10-20 minutes (!) in Singapore. The delays in Thailand come from: (a) the complex import documentation process with 23 steps, (b) complications with the determination of the real value of the products concerned, and (c) the lack of automation.

Singapore is really an example to follow with respect to Electronic Data Interchange (EDI) in an international trade context. Neo (1994) studied the implementation of TradeNet, Singapore's EDI

network.²⁰ In contrast with the situation in other countries, the implementation of EDI to facilitate international trade in Singapore, was clearly initiated and supported by the authorities. Already in 1986, the TradeNet concept was approved by the Committee on National Computerisation (CNC), being an on-line community trading system whereby companies submit single documents electronically to the relevant government agencies. As can be seen in Table 19, the companies implemented the TradeNet system faster than projected by the government.

Table 19: Percentage Volume of Trade Documents Processed Through TradeNet in Singapore

Year	Target	Actual
1989	15	45
1990	40	92
1991	70	95
1992	90	95

Source: Neo (1994:325).

Table 20 illustrates the complex flow of documents between the agents involved, related to an international trade transaction in Singapore. In the TradeNet network, 97% of all trade documents processed, now obtain governmental agency approval within 15 minutes, whereas it was about 2 days before (Neo,1994:324). The companies involved reported significant savings in terms of labour costs and inventory holding costs, and documents are now being processed before the arrival of the goods.²¹ The costs for the companies to adopt TradeNet include: (a) the interface (hardware and software), (b) a one-time connect fee, (c) a monthly subscription, and (d) a charge per transaction sent through tradeNet.

Table 20: Typical Flow of Trade-Related Documents for Imports and Exports in Singapore

	1	2	3	4	5	6	7	8	9
Shipping agent	-	F	F	F		F	F	F	F
Freight forwarder	F	-	F				F		F
Trader	F	F	-	F	F	F	F	F	F
Air cargo agent	F		F	-	F	F	F		F
Air port authority			F	F	-		F		F
Customs	F		F	F		-	F	F	F
Trade devt. board	F	F	F	F	F	F	-F	F	F
Sea port authority	F		F			F	F	-	
Oth. Controlling agencies		F	F	F	F		F		-

Column and row headings are the same or 1: Shipping agent, 2: Freight forwarder, 3: Trader and so on.

"F" indicates the existence of a document flow.

Source: Neo(1994:319).

Thailand recently made some efforts in this area. The Thailand EDI Council has been set-up, the documentation process has been reduced to 10 steps, and a computer system has been designed.²²

Third, an important factor in explaining delays in the Thai garment business chain is the preparation of the raw materials, and especially the lack of coordination with the dyeing industry. Better communication systems should be designed for communication between the dyeing industry and the garment industry on the one hand, and between the dyeing industry and the customers' markets on

²⁰ On the concept and technical and strategic advantages of EDI, see e.g.: Porter & Miller (1985), Emmelhainz (1988), Hansen & Hill (1989), Benjamin e.a. (1990), Dearing (1990), Janssens & Cuyvers (1991), Cuyvers & Janssens (1992), Banerjee & Golhar (1994).

²¹ McGregor Sea & Air Services Ltd reported a 20% productivity gain from implementing TradeNet (Neo,1994:325).

²² It seems however that with a volume of 1 million invoices at the beginning of 1994 and a yearly growth of 15%, the system will only be able to support this growth for 5 years.

the other hand. For the development of the sector a role seems further to be played by the government to provide regulations to concentrate the dyeing factories in industrial estates in order to cope with the problem of water pollution, and to supply the sector with skilled labour for the chemicals industry.

7. Conclusions and policy recommendations

One of the crucial factors in reducing the development gap between the Northeastern region and the national average, and between the Northeastern region and the Bangkok area is the creation of industrial employment in that region.

For a number of reasons the garment industry is a defensible choice as a target industry for governmental investment and relocation policies. These reasons include: the relative importance of the industry, its geographical concentration, the heavy cost pressure with which the sector is faced, the relatively high labour intensity and relatively low technology content, the relatively small production scales and the trend towards flexible specialisation schemes, the continuous inflow of FDI, the linkage with traditional skills and activities, the relatively low environmental impact, and the experience with governmental interventionism and monitoring.

We pointed out that, on the basis of a number of objective criteria, producing in the Northeast is systematically more profitable than producing in Bangkok, and for the near future this will probably continue to be so because of land scarcity (as a cost factor and as a capacity extension constraint) and competition for specific skilled labour categories in Bangkok.

However, factors which are rather difficult to quantify (e.g. agglomeration effects, subcontracting potential, environmental constraints, services availability, information deficiencies, etc.) and subjective factors (e.g. family ties with the area, business links with the area, appreciation of the socio-cultural and physical environment, etc.) clearly also play an important role and explain why the objective advantages of relocating to the Northeast do not materialise to a more important extent.

The gradual opening of the Indochinese neighbours of Thailand might play an ambiguous role with respect to the process of provincial industrialisation in Thailand. On the one hand, it will give the Northeast a less peripheral location, it might provide the Northeastern industries with new sources of cheap (migrant) labour and/or cheap raw materials and/or intermediary inputs; on the other hand, further economic liberalisation and increased institutional stability might make these regions attractive investment locations in their own right. The long-term role of the Northeastern Region should be studied, in a scenario in which Laos, Cambodia and Viet Nam further open their economies, the Northeast might find itself 'between two chairs'.

There is an important role for the government to play in this matter. This is already visible in the efforts to promote industrial investment in rural areas via the Board of Investment, the Ministry of Finance, and the Prime Minister's Office. However, additional efforts would be useful; they could include: more public investment on infrastructure and services, information collection and distribution among the

economic agents involved, matchmaking between investors and potential remigrants and between investors and subcontractors, investment in local training and technological development through the extension of the network of training centers, easing the sometimes problematic link between education and the job-market (e.g. in the case of the dyeing industry), etc.

From our analysis it followed also clearly that the efforts to decentralise industrial activities in Thailand in general, and relocating the garment industry to the Northeastern Region in particular, should preferably be accompanied by supportive actions in order to reduce delivery times in the industry, since these are important competitive elements. This could be done by e.g.: designing a clear stimulating policy towards the dyeing industry (covering locational and environmental aspects), supporting more effective and efficient methods of merchandising (especially on the world markets), and reducing delays caused by import and export procedures through the introduction of a modern Electronic Data Interchange system.

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