

**BOI ZONE 3 INVESTMENT PROMOTION POLICY :
AN ANALYSIS OF POLICY OUTPUTS AND IMPACTS**

by

Manvipa Indradat

**A Dissertation Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy in Development Administration**

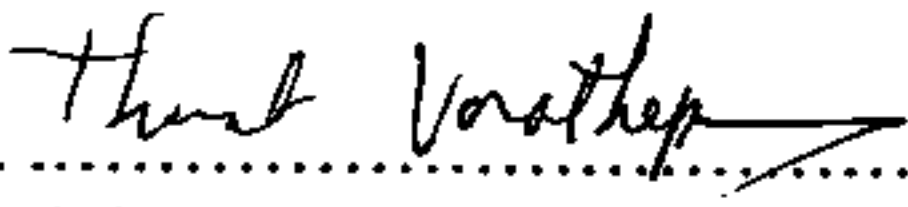
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Title of Dissertation	BOI ZONE 3 Investment Promotion Policy : An Analysis of Policy Outputs and Impacts
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Year	1999

Abstract

This study focused on two major issues : 1) evaluation of the outputs of BOI ZONE 3 Investment Promotion Policy (BOI ZONE 3 IPP) (i.e., whether there was an increase in the total number of BOI-promoted plants in Zone 3 and also whether BOI measures and existing investment conditions were significant factors in attracting entrepreneurial investment in Zone 3); and 2) evaluation of policy impact (i.e. whether this policy increased employment in Zone 3, whether it increased in-migration and decreased out-migration, whether the value of Gross Provincial Product increased at the aggregate level, and at the micro level, whether increased employee incomes after they commenced working at promoted plants would actually mean that overall employees' children would have a greater chance of receiving better education).

The basic policy time-frame decided upon was the period 1989-1996, with 1989-1992 defined as the pre-policy period and 1993-1996 as the post-policy period. The eastern region of Thailand was chosen for the case study focus because of the large number and wide variety of BOI-promoted projects in the area. This study is divided into two levels ; aggregate level and micro level.

The three hypotheses proposed in this study are :

1. At the ^②micro level : BOI promotion measures and pre-existing favourable investment conditions would basically determine the number of promoted-plants in Zone 3 ;
2. At the aggregate level : change in net migration, change in the number of promoted plants, and change in employment number would basically determine the change in income for Zone 3 as a whole ; and
3. At the micro level : individual employee incomes, number of family dependents, family consumption expenditure, and savings level would basically determine change in intention to provide better education to employee's children.

In order to test these three hypotheses, policy output studies, time-series analysis, regression analysis, and path-analysis were conducted. Primary data obtained from questionnaire interviews with entrepreneurs of BOI-promoted plants, employees of BOI-promoted plants, and provincial key persons or experts were used, as well as secondary data from other sources such the Office of the Board of Investment (BOI), the National Economic and Social Development Board (NESDB), and etc. Investigation of policy impacts required analysis of the primary data generated by such questionnaire interviews as well as analysis of secondary data also obtained from the same sources. Multi-stage sampling was also used, with 61 percent of entrepreneurs providing questionnaire and interview data used in this study having operated a BOI-promoted plant for more than a year, 9 percent of the workers providing questionnaire and interview data being employees of the above plants, and 79 percent of the persons providing questionnaire and interview data being key provincial persons.

The main finding of this study at the ^amicro-level was that the first hypothesis was rejected because not enough evidence could be obtained to support it.

Another important ^amicro-level finding was that BOI measures were the single most important factor in determining change in investment, followed by infrastructure (particularly electricity supply), resource endowments (particularly land availability), and prevailing economic conditions.

As for micro-level policy impact, the main finding was that BOI ZONE 3 IPP helped to increase both the incomes of individual employees and total employee income which thus played a major role in creating educational opportunities for employees children. Indeed this finding was strongly supported by employee survey analysis which clearly showed a strong correlation (which had previously been very weak) between the desire to provide education to the bachelor degree level at a government university and the actual ability to afford it.

Accordingly, the third hypothesis was rejected as it was clearly evident that employee incomes, their number of dependents, and family consumption expenditure were the only significant determinants of change in employees' intention to provide such improved educational opportunities.

At the aggregate level, the findings of this study were firstly, while BOI ZONE 3 IPP was indeed responsible for a significant part of the increase in the number of promoted plants in Zone 3 as a whole and that it also had a significant positive impact on both local incomes and employment, it did not have a significant impact on net migration.

Secondly, it was found that while the increase in indirect benefits which improved forward and backward linkages brought to local communities and people (with more than 60 percent of entrepreneurs using

either non-local or imported inputs, materials, and machinery and with more than 80 percent of entrepreneurs surveyed indicating that they were highly dependent on export market) could in part be attributed to BOI ZONE 3 IPP, this increase was not significant. Consequently, the second hypothesis was rejected.

Following the above hypotheses testing, this study makes three major recommendations. Firstly, there should be a single organization within the Ministry of Industry placed in charge of 'Macro-investment Incentive Policy' (MIP).

Secondly, an effective MIP would require amongst other things, a fundamental restructuring of the current tax and tariff system as well as, effective coordination of various other public policies of the Thai government to form what would in effect constitute a significant new policy direction for it.

Thirdly, this new policy direction would need to fully incorporate the concepts of self-sufficiency, sustainable development, and the dynamics of the full investment cycle.

Finally, this study also recommends some profitable directions for further research.

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CHAPTER I

INTRODUCTION

1. SIGNIFICANCE OF THE PROBLEM

The Thai government's central development planning unit is known as the National Economic Development Board (NESDB). Since 1961 the NESDB has set out 8 Economic and Social Development Plans, with all 8 plans have been based largely on the neo-classical growth model which strongly emphasizes industrial development.

The Office of the Board of Investment (BOI) was established in 1959 for the purpose of attracting new investment by various means such as tax and non-tax incentives. The result has been fast growth in the industry sector accompanied by a sharp decline in agricultural sector activity (see Table 1.1). Moreover, the benefits from this 'fast-track' industrial development have so far not included more equitable income distribution ; in fact the gap between the rural/agricultural sector and the urban/industrial sector (see Table 1.2) has not only widened considerably, but continues to do so. To be fair though, this phenomenon has occurred not just in Thailand but in virtually every country around the world which has followed economic policies giving precedence to industrial development while relegating traditional sector mainstays such as agriculture to a subservient role.

Table 1.1 Changes in Economic Structure from 1960-1990

Units : Millions of Baht

Indicator	At 1962 prices		At 1972 prices		
	1960	1969	1970	1980	1990
Value of Agriculture	21399.50	35257.00	42064.00	61770.00	90711.00
Percentage of GDP	38.20	31.30	27.00	20.60	14.40
Value of Crop	15874.00	24542.00	26723.00	39783.00	5607.00
Percentage of GDP	28.30	21.80	17.20	13.30	8.90
Value of Industry	10896.50	29233.00	39201.00	92287.00	226402.00
Percentage of GDP	19.40	26.00	25.20	30.80	35.80
Value of Manufacturing	7320.00	18821.00	24893.00	64984.00	156043.00
Percentage of GDP	13.10	16.70	16.00	21.70	24.70
Value of Service	23773.40	48056.00	74429.00	145514.00	314497.00
Percentage of GDP	42.40	42.70	47.80	48.60	49.80
Value of Banking Insurance and Real Estate	1088.60	4104.00	3846.00	8285.00	33656.00
Percentage of GDP	1.90	3.60	2.50	2.80	5.30
GDP	56096.40	112546.00	155694.00	299472.00	631610.00
Total	100.00	100.00	100.00	100.00	100.00

Source : ESCAP, Asian Population Studies, no. 122, 57 (Table 1).

Table 1.2 Inequalities in GRP Distribution by Region

Unit : %

Region	District	1975/76	1980/81	1985/86	1988/89
North		33.20	21.50	25.50	23.20
	Villages	36.40	23.30	27.70	25.10
	Sanitary Districts	19.20	16.20	20.20	18.70
	Municipal Areas	17.80	8.00	6.90	11.30
Northeast		44.90	35.90	48.20	37.50
	Villages	48.50	37.90	50.50	39.90
	Sanitary Districts	24.70	20.80	33.30	20.10
	Municipal Areas	20.90	18.00	18.70	19.00
Central		13.00	13.60	15.60	16.00
	Villages	14.30	14.20	17.40	19.00
	Sanitary Districts	8.00	11.60	11.40	6.40
	Municipal Areas	11.50	11.70	8.90	8.40
South		30.70	20.40	27.20	21.50
	Villages	33.80	22.20	31.20	24.00
	Sanitary Districts	18.10	6.80	8.10	11.50
	Municipal Areas	21.70	15.20	8.60	11.80
BMR					4.20
	City Core	7.80	3.90	3.50	3.30
	Five Provinces	6.90	3.70	3.10	4.30
	Municipal Areas			6.00	10.80
Whole Country		30.00	23.00	29.50	23.70
	Villages	36.20	27.30	35.80	29.40
	Sanitary Districts	14.80	13.50	18.60	13.20
	Municipal Areas	12.50	7.50	5.80	6.70

Source : Amarita Daniere. TWPR, Vol. 18 No. 41996.

Table 1.3 Shares of Industry Location : 1978-1987

	Unit : %
BMR	54.0
Central	16.4
Northeastern	12.8
Northern	9.4
Southern	7.4

Source : ESCAP. Population Studies Paper, No. 122, 1992.

Table 1.4 Incidences of Poverty by Region and Area (% of total population)

		Unit : %			
Region	District	1975/76	1980/81	1985/86	1988/89
North		33.20	21.50	25.50	23.20
	Villages	36.40	23.30	27.70	25.10
	Sanitary Districts	19.20	16.20	20.20	18.70
	Municipal Areas	17.80	8.00	6.90	11.30
Northeast		44.90	35.90	48.20	37.50
	Villages	48.50	37.90	50.50	39.90
	Sanitary Districts	24.70	20.80	3.30	20.10
	Municipal Areas	20.90	18.00	18.70	19.00
Central		13.00	13.60	15.60	16.00
	Villages	14.30	14.20	17.40	19.00
	Sanitary Districts	8.00	11.60	11.40	6.40
	Municipal Areas	11.50	11.70	8.90	8.40
South		30.70	20.40	27.20	21.50
	Villages	33.80	22.20	31.20	24.00
	Sanitary Districts	18.10	6.80	8.10	11.50
	Municipal Areas	21.70	15.20	8.60	11.80
BMR					4.20
	City Core	7.80	3.90	3.50	3.30
	Five Provinces	6.90	3.70	3.10	4.30
	Municipal Areas			6.00	10.80
Whole Country		30.00	23.00	29.50	23.70
	Villages	36.20	27.30	35.80	29.40
	Sanitary Districts	14.80	13.50	18.60	13.20
	Municipal Areas	12.50	7.50	5.80	6.70

Source : Amarita Daniere, 1996 : Table 5.

Indeed, in Thailand most of this rapid industrial growth has been confined to the Bangkok Metropolitan Region (BMR) and its peripheral cities (see Table 1.3). This can be largely attributed to the disproportionately high level of public investment in infrastructure in this area, such as development of the country's major port and logistics centers, as well as in housing, roads and utilities. Meanwhile the central government's cost sharing policy in relation to public investment for example as manifested in the function which the BOI continues to perform has enabled firms to benefit considerably by locating themselves where they can minimize their costs. Thus Bangkok continues to be not only the focal point of the whole country, but the BMR has become Thailand's industrial heartland - recent developments such as those on the eastern seaboard notwithstanding. Unsurprisingly, such a heavy concentration of activity has had both strongly positive and strongly negative impacts.

The positive impacts have been the lower cost of transportation and better logistics, increased availability of skilled labor, and better facilities sharing (Halvorsen , 1995 : 400). The negative effects have been as follows : rising income inequality in favour of the BMR (see Table 1.4 - also Petchaprasert, 1997: 308, Todaro , 1994 : 135-155, Pasuk & Baker , 1996 : 204-209) ; rising income differentials creating relatively large migration flows from rural areas to the BMR (see Table 1.5 - also Pasuk & Baker , 1996: 98) ; far more rapid environmental degradation and pollution, such as biochemical oxygen demand loads of 50 milligrams per liter in Klong Bangkok, as well as high levels of Hepatitis A (*Vibrio* *teptospira*) and skin disease causing organisms (*Candida albicans*) in 12 major canals in the BMR (Daniere, 1996 : 382) ; extremely heavy traffic

congestion ; inadequate housing ; and areas of high population density combined with inadequate public utilities.

Table 1.5 Net Migration by Region : 1965-1990

Unit : number of persons

Region	1965-1970	1975-1980	Rate of Change (%)	1985-1990	Rate Change (%)
Bangkok	64,500.00	212,300.00	69.62	365,900.00	72.35
Central	11,200.00	-5,800.00	93.10	293,400.00	5,158.62
Northern	-3,200.00	-23,900.00	86.61	-89,300.00	273.64
North Eastern	-47,600.00	-181,300.00	73.75	-553,700.00	205.41
Southern	-2,500.00	-1,300.00	92.31	-16,300.00	1,153.85

Source : The National Statistics Office, 1993.

The dispersion of industrial investment to other regions would seem to be one obvious remedy for most of the problems caused by this steady process of over concentration, and indeed under both the 3rd and 4th NESDB Plans the government pursued a policy of expanding industry far beyond the BMR by promoting regional industrial development. However, the large imbalance between the BMR and regional areas remained. Under the 5th and the 6th NESDB Plans, the promotion of regional industry, small-scale industry and labour-intensive industry was given high priority in a new attempt to create more jobs and boost incomes in regional areas, but these efforts were an overall failure basically due to a lack of investment support facilities (i.e. infrastructure) and the lack of any significant difference in the regional investment privileges on offer compared to the BMR (Hongladarom, 1990).

Under the 7th NESDB Plan (1992-1996), one of the main development objectives became the wider redistribution of income through decentralization of industrial development to regional and rural areas by means of monetary, fiscal and capital market development incentives. Administration of these policy instruments became the responsibility of the Office of the Board of Investment.

On April 1, 1992 the BOI announced its Investment Promotion Zone 3 Policy (BOI ZONE 3 IPP). Under this policy, provinces throughout the country (including Laem Chabang Industrial Estate but excluding provinces in Zone 1 : i.e. Bangkok, Samut Prakan, Pathum Thani, Nonthaburi and Nakhon Pathom, and Zone 2 : i.e. Samut Songkram, Ratchaburi, Kanchanaburi, Suphanburi, Angthong, Ayudthaya, Saraburi, Nakhon Nayok, Chachoengsao and Chonburi) were designated as Investment Promotion Zone 3. The stated goal of this new policy was to attract industrial expansion away from the BMR to regional areas in order to reduce the problem of industrial over concentration in the BMR, increase regional employment opportunities, reduce migration to the BMR, and improve the distribution of benefits from the industrial development process to regional inhabitants. The basic strategy employed by the BOI was to provide relatively low-cost investment opportunities in Zone 3 through the granting of attractive tax and duty privileges which would not be available in Zone 1 or Zone 2.

Although the 8th NESDB Plan (1997-2001) strongly emphasized both sustainable development and human resource development, decentralization of industrial development remained the major focus of BOI policy. In fact, the BOI subsequently claimed success (based on its

own assessment) in expanding industry significantly in Zone 3. Unfortunately, this assesment showed significant bias and questionable evaluation (see details in Chapter II) and as a result the BOI eventually came under heavy attack. Various international governmental organizations (IGOs) attacked BOI policy as ineffective and unfair ; the IMF charged that BOI policy was ineffective and that over the past 30 years the government of Thailand had lost potential revenue income of over 90,000 million baht due to the BOI's fiscal incentive program ; and the World Trade Organization (WTO) pressed strongly for the incentive program to be classified as 'unfair trade'. In response to such attacks, in March 1998 the BOI publicly admitted to the failure of these policies. In hind sight, the BOI really only deserves praise for what the Zone 3 IPP was they intended to accomplish rather than : for it dubious achievement. Details of the actual achivements of BOI ZONE 3 IPP are in Chapter 6.

Although over the years there has been some critical assessment of the BOI from outside the organization, so far there has been no serious and systematic evaluation of it by anyone or any organization without a vested interest in the BOI or the policies of such governmental organizations. Clearly, what is needed at this point is an unbiased, objective re-evaluation of the BOI itself and specifically its ZONE 3 IPP. This would require the use of appropriate policy analysis tools in order to correctly ascertain the true effectiveness of the organization.

In 1996 the BOI reviewed its investment zoning and incentive policies. The 'low-potential' provinces (i.e : those which had few favorable investment factors, attracted few investment projects and which had the lowest per-capita income over the previous 10 years) were

designated as a 'Special Promotion Zone'. Areas forming part of this zone would receive the same privileges and incentives as those in Zone 3, as well as a reduction in the minimum investment requirement and the minimum number of employees required. These revisions to the BOI's investment promotion policy were originally intended to run for a 5 - years period from January 1, 1997 to December 31, 2001.

Unfortunately for the BOI, the announcement of this new 'Special Promotion Zone' (or 'Zone 4') increased rising public disquiet about the role of the BOI : whether the existing 'Zone 3' IPP was broadly achieving its goals ; and specifically whether the privileges and incentives available under the policy sufficiently lowered the higher risks and higher costs associated with investments in these areas having relatively poor infrastructure and/or relatively low investment potential anyway.

In addition, both the government and the BOI came under strong criticism by the IMF, WTO and others for taking advantage of a loop-hole in the WTO agreement in order to effectively subsidize domestic investment through BOI Zone 4 IPP in areas having less than 85 percent of the nation's average per capita income or having an unemployment rate higher than the national average by 10 percent.

Therefore it has now become essential for the BOI and its 'Zone 3' policy to be thoroughly re-evaluated in terms of their intended objectives and actual achievements.

2. MAJOR OBJECTIVES OF THIS STUDY

This dissertation has three major objectives :

1. To evaluate the outputs of Zone 3 IPP in terms of increased number of regional industries which would result in desirable impacts
2. To evaluate the impacts of BOI Zone 3 IPP
3. To propose recommendations with respect to policy implication and management option as well as direction for future research

3. SCOPE OF THIS STUDY

1. This study focuses on BOI ZONE 3 IPP which officially took effect on April 1, 1992. The policy initially specified a three-zone approach, compared to the four-zone approach subsequently adopted in January 1, 1997. In fact the Three-Zone policy was the original or core policy for facilitating industrial expansion to regional areas, with the Four-Zone policy basically amounting to the insertion of a loop-hole in the government's 1996 agreement to join the WTO.
2. Data used in this study covers the period 1989-1996. Figures from the period 1989-1992 are used to illustrate conditions prior to policy inception. The period 1993-1996 is considered to be the post policy inception period.
3. The study focuses on BOI Zone 3 IPP outputs and impacts rather than on the successes or failures of the BOI or its policies in general.
4. The eastern region is a case study which cover, the provinces of Chantaburi, Trat, Prachinburi, Rayong and Sakeao as well as Laem Chabang industrial estate

Although the actual study area was further limited due to time and budget constraints. The eastern region was chosen for the following reasons : 1) it has the largest number of BOI promoted industries, 2) it includes every type of industry found locally, and 3) it has an interesting combination of both rich and poor communities.

5. Policy outputs and impacts are divided into 2 categories : 1) the aggregate level (i.e. Zone 3 as a whole as well as the 58 Zone 3 provinces) and, 2) the micro level (i.e. individual employees and entrepreneurs of BOI Zone 3 IPP promoted-plants in the eastern region of Zone 3)

4. EXPECTED OUTPUTS OF THIS STUDY

The expected outputs of this study are as follows :

1. A report on the analysis of BOI Zone 3 IPP outputs which will provide a clear and objective understanding of all major policy achievements
2. A report on the analysis of BOI Zone 3 IPP impacts which will provide a clear and objective assessment of whether the policy has been effectively implemented
3. A report which recommends policy alternatives and also provides various recommendations in terms of the policy alternatives and management options which need to be pursued by the Thai government if effective policy development and implementation is to become a reality

In summary, the findings of this dissertation are expected to be of assistance to those in the field of public policy studies and to policy makers and administrators, as well as to provide a local example study of an incorporating the cause - effect analysis technique.

5. DEFINITION OF TERMS

In order to facilitate a better understanding of this study, some of the terms used are defined below :

The term 'promoted plant' means that the plant is both a BOI-promoted plant and also that it has received BOI approval requiring the issue of a BOI promotion certificate (Investment Promotion Act 1977). In this dissertation the term 'promoted plant' refers to plants that have been issued with such a certificate and that are operating.

The term 'Zone Three' refers to all provinces throughout the country (as well as Laem Chabang Industrial Estate) but excludes the provinces of Bangkok, Samut Prakan, Samut Sakhon, Pathum Tani, Nonthaburi, Nakhon Pathom, Samut Songkram, Ratchaburi, Kanchanaburi, Suphan Buri, Ang Thong, Ayuthaya, Sara Buri, Nakhon Nayok, Chachoengsao and Chon Buri.

The term 'effectiveness' refers to the degree to which policy implementation maximizes or achieves its intended goals while minimizing adverse effects or at least keeping them within acceptable constraints (Van Horn and Van Meter, 1976 : 96). Kerr defines 'policy effectiveness' as the percentage of successful policy outcomes achieved in the target group (Kerr, Donna H., 1977 : 361). Similarly Berman, and Mc. Laughlin observe that one indicator of effective project implementation is whether

the policy has met its own goals. (Berman, Paul and McLaughlin, M.W, 1977 : 50). In this dissertation the term 'policy effectiveness' refers to the degree to which policy outputs and policy impacts are achieved in relation to policy objectives : i.e. the increase in the number of regional industries and the improvement in regional employment opportunities, incomes, and educational opportunities.

The term 'policy output' refers to a good, service, or resource received by target groups or other beneficiaries. Per capita welfare expenditure is one example of a policy output (Dunn, 1981 : 333). More generally, Anderson considers policy output to be any specific action taken in order to implement policy decisions and statements, such as the collection of taxes or the paying of benefits (Anderson, 1994 : 297). According to Dye, policy output may be defined as a measure of government activity - such as dollars spent per member on the target group or per capita welfare expenditure (Dye, 1981 : 368). In this dissertation the term 'policy output' refers specifically to the number of promoted plants in Zone 3.

The term 'policy impact' may be defined as the actual change in behavior or attitudes resulting from a given policy output. For example the improvement in the overall health of a given target group (in contrast to the number of doctors per capita) may be considered to be a policy impact (Dunn, 1981 : 333). More broadly, Anderson considers policy impact to be the effect or consequences of a policy, either intended or unintended (Anderson, 1994 : 297 and Dye, 1981 : 367). In this dissertation the term 'policy impact' refers to the effect or results of policy outputs i.e.,

improvement in employment opportunities, incomes and educational opportunities.

The term 'existing favorable investment conditions' generally means the environment in which policy operates. Indeed the major factors in the decision making process of investors are the cost of land, capital, fuel and power, labor, material, equipment, and transportation. (Chapman and Walker, 1992 : 36-57). In this dissertation the term 'existing favorable investment conditions' specifically refers to the infrastructure, resource endowments, and economic conditions pertaining to Zone 3.

CHAPTER II

BOI ZONE THREE INVESTMENT PROMOTION POLICY

This chapter discusses : (1) the origin and nature of BOI Zone 3 IPP, (2) the content, objectives and conditionalities of BOI Zone 3 IPP, and (3) the policy evaluation process and its limitations.

1. ORIGIN & NATURE OF BOI ZONE 3 IPP

1.1 The BOI : Organizational Structure and Responsibilities

The BOI was established in 1959 as an independent Thai government agency under the Office of the Prime Minister. The organization is regulated under the Investment Promotion Act (1977) and its stated purpose is the provision of incentives to stimulate investment in Thailand.

The organization is chaired by the Prime Minister. Board members include the Minister of Finance, Industry, Commerce and Transport as well as the heads of certain public utilities and state enterprises, senior civil servants, representatives of the major private sector organizations and senior academics.

The structure of the organization and the function of its various divisions are shown in Figure 2.1.

The BOI has seven divisions which specialize in the following areas :

The Office of the Secretary handles general administration, organizes meetings, issues promotion certificates, and manages ad-hoc matters that do not fall under the jurisdiction of other divisions.

The Planning and Development Division creates investment promotion plans and policies, collects investment statistics, prepares monthly and annual BOI activity reports, and conducts research activities aimed at identifying promising investment opportunities in Thailand.

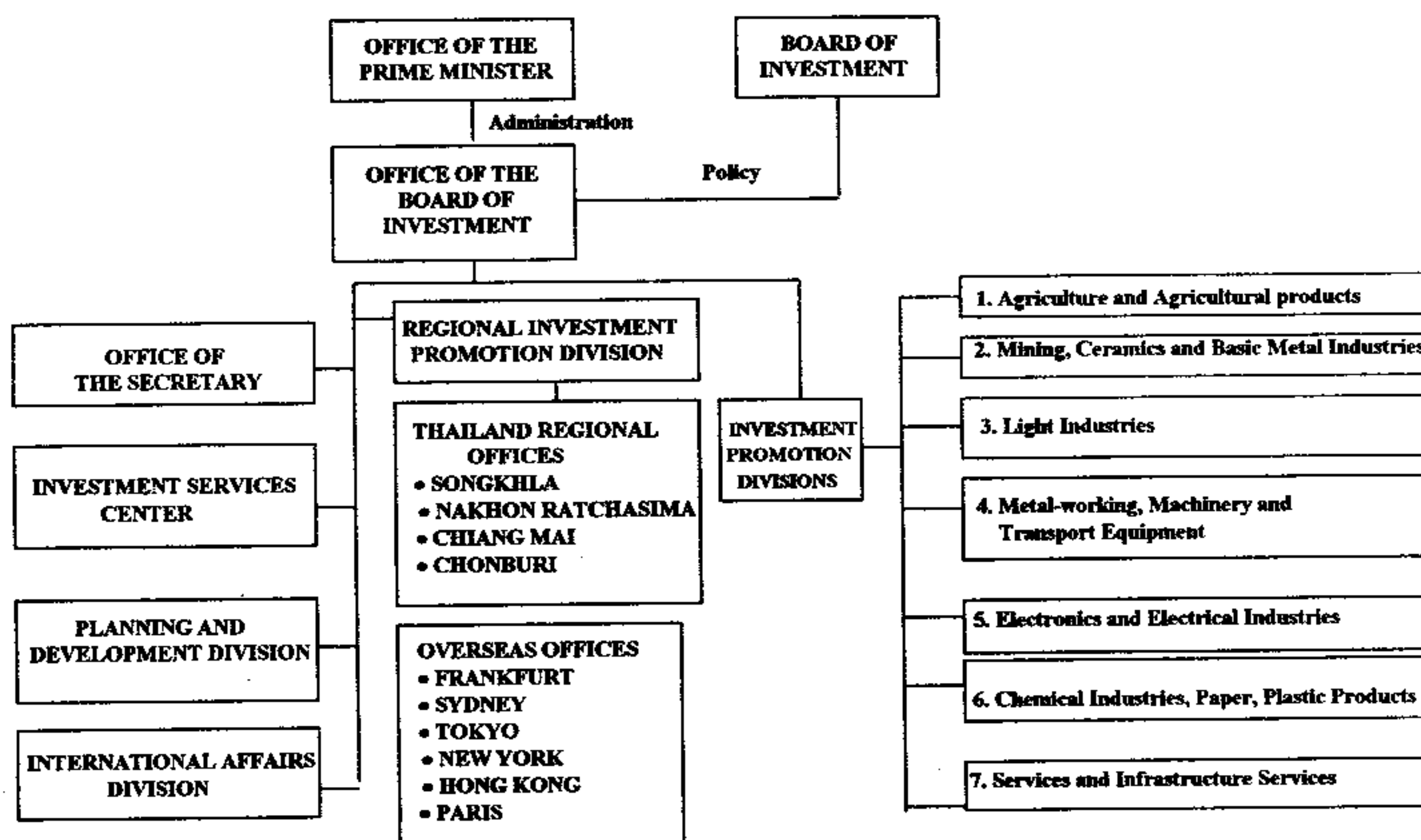


Figure 2.1 Board of Investment : Organizational Chart

Source : BOI 1993

The Investment Services Center serves as the BOI's arm for publicity, public relations, and distribution of promotional literature. It also welcomes foreign missions and introduces them to potential local partners and government officials, as well as helping investors to obtain permanent residence permits.

The International Affairs Division is responsible for handling the foreign affairs of the BOI. It maintains statistics on foreign investment in Thailand, represents the BOI in bilateral and multilateral trade and investment forums, and also coordinates the BOI's investment promotion campaigns overseas. The division maintains an extensive data base on Thai firms seeking foreign partner participation which is used to assist foreign investors in identifying suitable joint venture partners.

The Regional Investment Promotion Division coordinates the work of regional offices in organizing local investment promotion activities. This assists regional firms in identifying potential joint venture partners - both local and foreign.

Overseas Offices make available to potential foreign investors a complete range of information on business opportunities and incentives in Thailand.

Regional Offices in Thailand provide information and assistance to investors in regional areas as well as to investors considering investment in regional areas.

Investment Promotion Divisions 1 to 7 are specialist divisions which are usually able to deal with all the business aspects of promoted projects which the BOI needs to concern itself with. Indeed, these seven divisions all provide the following 'one-stop' services : screening, appraisal of applications for investment incentives, consideration of various measures to assist promoted industries, monitoring of the operations of BOI promoted projects to ensure that they comply with the conditions stipulated in their promotion certificates, and provision of information to investors and potential investors in various BOI promoted

projects so that individual investors usually only need to deal with one division during most of their business with the organization.

The BOI was originally founded in 1959 with the main objective of promoting and supporting various industries by boosting public policy effectiveness through the means of granting 'tax holidays'. In fact some claim that the introduction of such measures during the period 1960-1975 is largely responsible for Thailand's swift increase in industrial production from Bt 10,860 million p.a. in 1960 to Bt 92,287 million p.a. in 1975, or from less than 20 percent of GDP to well over 30 percent. Of course, the BOI's apparent success has, in turn, generally ensured its good standing with the government of the day.

Over time, due to its success in increasing the industrial component of the economy, the BOI became a powerful government organization with the authority to waive or restructure income taxes, corporate taxes, import and export duties, indirect taxes, to provide certain promotional privileges in relation to monetary policy (such as arranging credit or loans at below market interest rates) and to facilitate the construction of or provision of public utilities and infrastructure to BOI promoted companies.

1.2 Policy Formulation Process

From an in-depth interview with the Head of the Planning and Development Division, the inputs used in policy formation were ascertained as follows : government sector input - 80 % , private sector input - 20 %. Government sector input consists of government policy (which the Office of the Prime Minister sends directly to the BOI's Planning and Development Division) and the NESDB Plan. Private sector input basically consists of claims made by potential investors - plus input

from private sector representatives on the BOI board of directors. Of all these inputs, the BOI gives first priority to government policy.

The Planning and Development Division is responsible for integrating all these inputs and submitting policy proposals to the Board of Investment Committee for scrutiny, after which the committee sends them back to the Planning and Development Division for specific policies to be drafted in detail. Once policy drafting is complete, the Planning and Development Division submits them to the Board for final approval. If the Board gives its approval, the Prime Minister, as Chairman of the Board of Investment, signs his name and it becomes official BOI policy (see Figure 2.2).

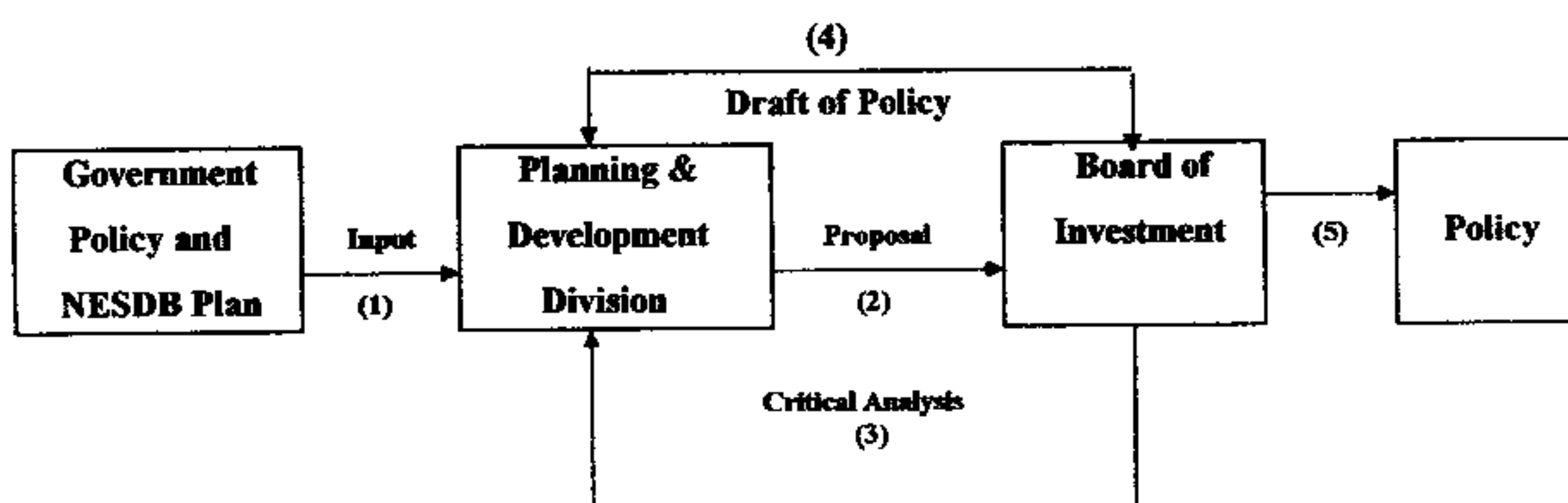


Figure 2.2 BOI Policy Formulation

From 1959 to 1992 the BOI has not only made changes to itself, it also changed its policies in response to NESDB and government policy. The first NESDB five-year plan (1961-1966) began the focused on industrial investment as the main driving force of Thailand's economic development effort. During this period the BOI itself focused on various measures aimed at attracting as much industrial investment to the country as it could, such as exempting tax & duty on raw material imports and

capital machinery as well as providing corporate income tax exemptions for 5-8 years. However, while evidently quite successful, in this regard, most of this new industrial growth was concentrated in the BMR.

In response, both NESDB and government policies attempted to divert more growth to areas outside the BMR. For example, BOI policy was modified to provide more attractive incentives in Zone 1 and Zone 2. During, the 4th - 8th NESDB Plans and government policies became increasingly focused on boosting regional development within the country as a means of addressing the burgeoning income and wealth disparity between the BMR and the overwhelming number of poor regional areas. This process culminated in 1992 with the implementation of the BOI ZONE 3 IPP in which special new tax and duty privileges were to play an important part in attracting such investment to these regional areas.

2. BOI ZONE 3 IPP

2.1 Policy Contents and Objectives

On April 1, 1992 the BOI ZONE 3 IPP was officially inaugurated, with Zone 3 designated as an Investment Promotion Zone. This was defined as covering all Thai provinces as well as Laem Chabang Industrial Estate, except those in Zone 1 (Bangkok, Samut Prakan, Pathum Thani, Nonthaburi and Nakhon Pathom) and Zone 2 (Samut Songkran, Ratchaburi, Kanchanaburi, Suphanburi, Angthong, Ayudthaya, Saraburi, Nakhon Nayok, Chachoengsao and Chonburi). In other words, the Zone 3 consists of those areas outside of the BMR (see Figure 2.3).

The main objective of ZONE 3 IPP has been the expansion of industrial investment to regional areas in order to help solve the

burgeoning problem of over-centralization of industry in the BMR (i.e. Zone 1). Under this policy the BOI has awards maximum investment privileges and incentives to projects which are to be located in Zone 3 in order to encourage new industrial investment in regional areas. An important part of this process has been the BOI's often play pivotal role in matching potential investments with specific Zone 3 locations according to project feasibility and potential by tailoring its investment incentives to suit.

Specific tax and duty privileges available to Zone 3 investors are as follows :

1. Exemption from import duties on machinery
2. Corporate income tax exemption for 8 years
3. Exemption of import duties on raw or essential materials used in export products for a period of 5 years for projects exporting at least 30% of total sales value,
4. A reduction of 75 percent for 5 years on import duties for raw and/or essential materials to be used in goods and products for domestic sale, provided such materials comparable in quality and of sufficient volume are not being produced locally. The only exception to this requirement is projects at factories in Laem Chabang Industrial Estate, and
5. Further special Zone 3 privileges may be granted as follows :
 - 1) Reduction of corporate income tax by 50 percent for 5 years after the initial 8 -year exemption period
 - 2) Double deduction allowed of taxable income on water

electricity and transport costs for 10 years from the date of first sales

- 3) Deduction from net profit of 25 percent of the cost of installation or construction of project infrastructure or similar facilities

Although by these tax and duty privileges had already successfully established Zone 3 as a very attraction area in which to invest in Zone 3, in 1994 the BOI considered additional non-tax privileges must be included to reinforce the areas appeal. These measures included :

- 1) Slashing of the minimum capital requirement from \$400,000 to only \$40,000
- 2) Capital subsidies available through commercial banks totaling up to \$1,568 million per annum
- 3) Provision of labor training, product development, and market development assistance for both the domestic and international markets provided through the BUILD (BOI Unit for Industrial Linkage Development)
- 4) Government guaranteed funding of \$5.22 billion to be invested in providing various infrastructure improvements and public utilities in designated areas of Zone 3

(Source : **The Bangkok Post**, July 26, 1994 : BOI Supplement).

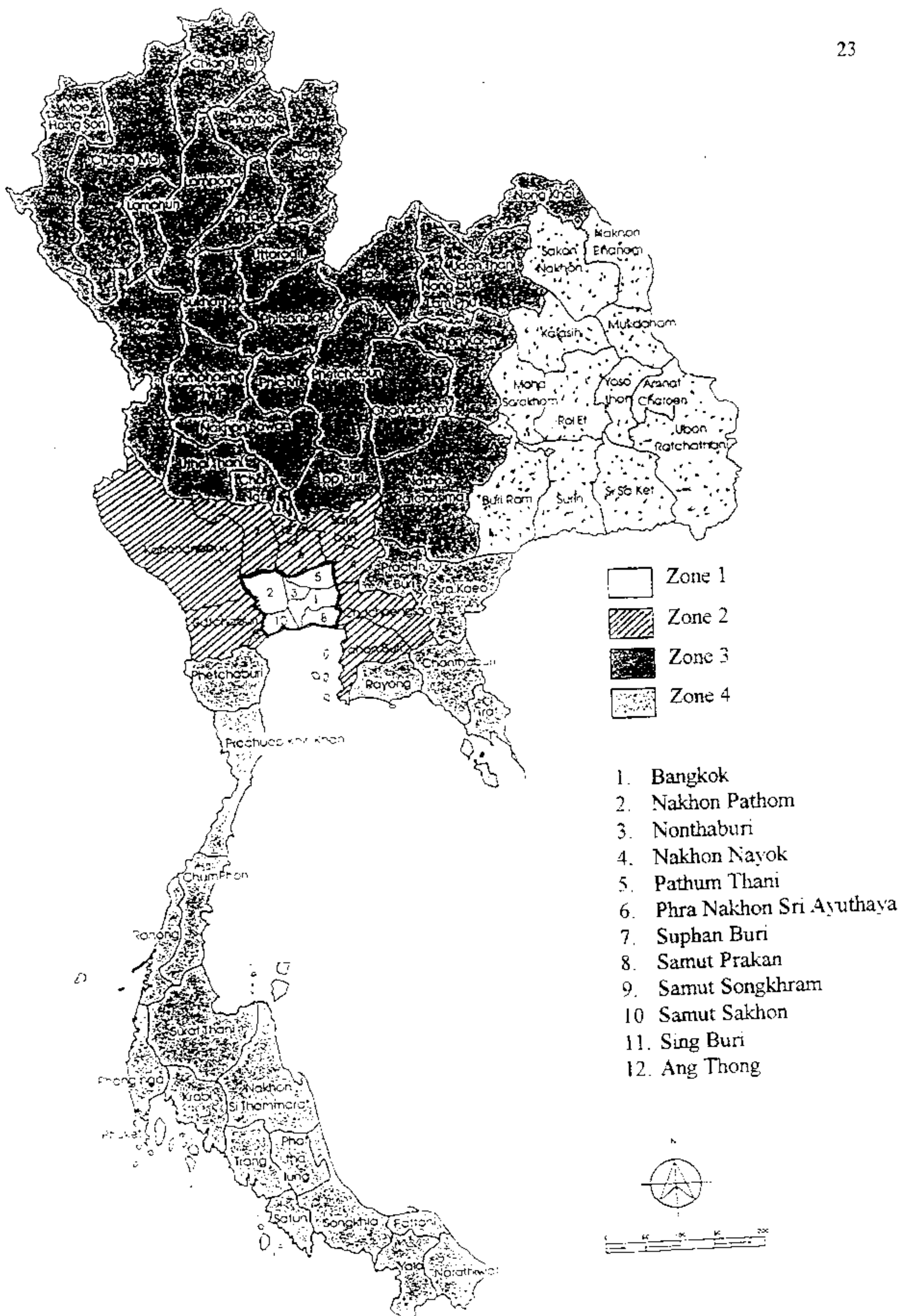


Figure 2.3 BOI Promotion Investment Zoning Map

2.2 Conditions relating to Industrial Location and Relocation contained in the BOI ZONE 3 IPP

The two main motives for providing incentives are : 1) to help existing operations relocate to Zone 3, and 2) to attract new operations to Zone 3 instead of other areas. However, these policy objectives do not specifically quantify the expected policy outputs and policy impacts. This is a major weakness of the BOI Zone 3 IPP. Of course the BOI does require certain criteria to be met before it can grant investor privileges and these are as follows :

2.2.1 Basic Criteria for Existing Operations

1. Existing operations must relocate from Zone 1 or 2 to Zone 3
2. The type of activity and size of investment must be in accordance with those specified on the BOI's Promotion List

2.2.2 Special Criteria for Existing Operations

1. Programs with environmental problems are ordered by the Ministry of Industry to relocate their operation as follows :
 - (a) Operations must relocate to either an industrial estate or a BOI industrial zone
 - (b) Existing operations at the old site must be closed down and all machinery must be moved to the new location. The new factory must start operating within 2 years of receiving the promotion certificate

2. For other types of operation :

- (a) The existing operation must employ no less than 100 people
- (b) Main production machinery must be moved to the new location and the new factory must start operating within 2 years of receiving the promotion certificate

2.2.3 Basic Criteria for New Operations

Factories which relocate in line with the above BOI criteria are eligible to receive all standard package of tax privileges and non-tax privileges as outlined below :

- (a) Factories which relocate operations to Zone 2, are eligible to receive the following benefits upon successful application to the BOI :
 - 1) Corporate income tax exemption for a period of 3 years
 - 2) Corporate income tax exemption for a period of 7 years if they relocate to industrial estates or promoted industrial zones
- (b) Factories which relocate to industrial estates or BOI promoted industrial zones may also be provided with additional advantages. This applies also to factories which relocate to Zone 3. The additional privileges which may be provided are :
 - Corporate income tax exemption for a total of 8 years

- Reduction of corporate income tax by 50 percent for 5 years after the initial exemption period
- Double deduction from taxable income of water, electricity and transport costs for 10 years
- The income tax exemption period not to start until the day on which the factory receives its first revenue from the relocated operation

The overall policy objective is to stimulate industrial activity in industrially underdeveloped regional areas by the granting of investment promotion privileges. This is because the industrial sector often plays a pivotal role in bringing industry and employment to rural areas, which helps to raise local living standards and reduce income disparities by the creation of new business and employment opportunities. Importantly, new investment in Zone 3 (especially foreign investment) also provides local workers with increased on-the-job training opportunities and Thailand with the opportunity to upgrade its industry (BOI, 1994 : 1).

3. POLICY EVALUATION AND POLICY LIMITATIONS

Basically, the agenda laid out in the BOI ZONE 3 IPP calls for the effective manipulation of fiscal policy in order to stimulate lagging regional investment in Thailand. Thus the critical issues involved in achieving quality policy outcomes are as follows :

- 1) an increase in the number of applicants
- 2) an increase in overall regional development
- 3) an improvement in local public utilities and local business opportunities as a consequence of this policy

These three issues are the focus of this evaluation of the BOI ZONE 3 IPP. Their importance lies in the relationship between the granting of various tax exemptions and increased regional investment. To prove policy success, a sufficiently positive relationship must be demonstrated to exist between both policy outputs and policy impacts, with 'success' defined as a demonstrable and significant boost to local economic and commercial activities in line with BOI claims.

3.1 BOI Claims of Policy Success

The BOI has claimed that its policy of Development Dispersion (see Figure 2.3) to Zone 3 was big success - citing rising applicant numbers, accelerating Gross Provincial Product (GPP), and an improved investment environment. For example, the increase in applicant numbers indicates greater investor interest in obtaining tax holidays and other privileges from the BOI by investing in Zone 3. In fact, for 1996 the BOI was able to demonstrate the existence of a strong and direct relationship between successful implementation of the fiscal incentives on offer through the Zone 3 IPP and increased development dispersion. Firstly, it cited higher GPP as a strong indicator of successful regional development. Secondly, it cited the upgrading of the public utilities available and increased commercial activity as strong indication that BOI policy helped to create a more attractive investment climate in Zone 3. Figure 2.4 illustrates both the policy issues and the nature of the agency's claims involved as well as where they stand in relation to each other.

3.2 INVESTMENT ISSUES

Investment promotion lies at the heart of the BOI's activities. Indeed, since its inception 1959 the BOI has been helping to increase local

investment through various fiscal incentives, i.e. by granting various kinds of tax and duty privileges). However while such incentives have indeed attracted a significant share of this increase, they have not been a decisive factor (Horvensen, 1996). In fact, despite the strong body of evidence supporting the contrary view, the BOI has continued to advocate these broad fiscal incentives, remaining adamant that they are the most cost-effective inducements which the Thai government can offer to investors of course their true cost and true effectiveness is something which this study intends to establish much more clearly than has been done to date.

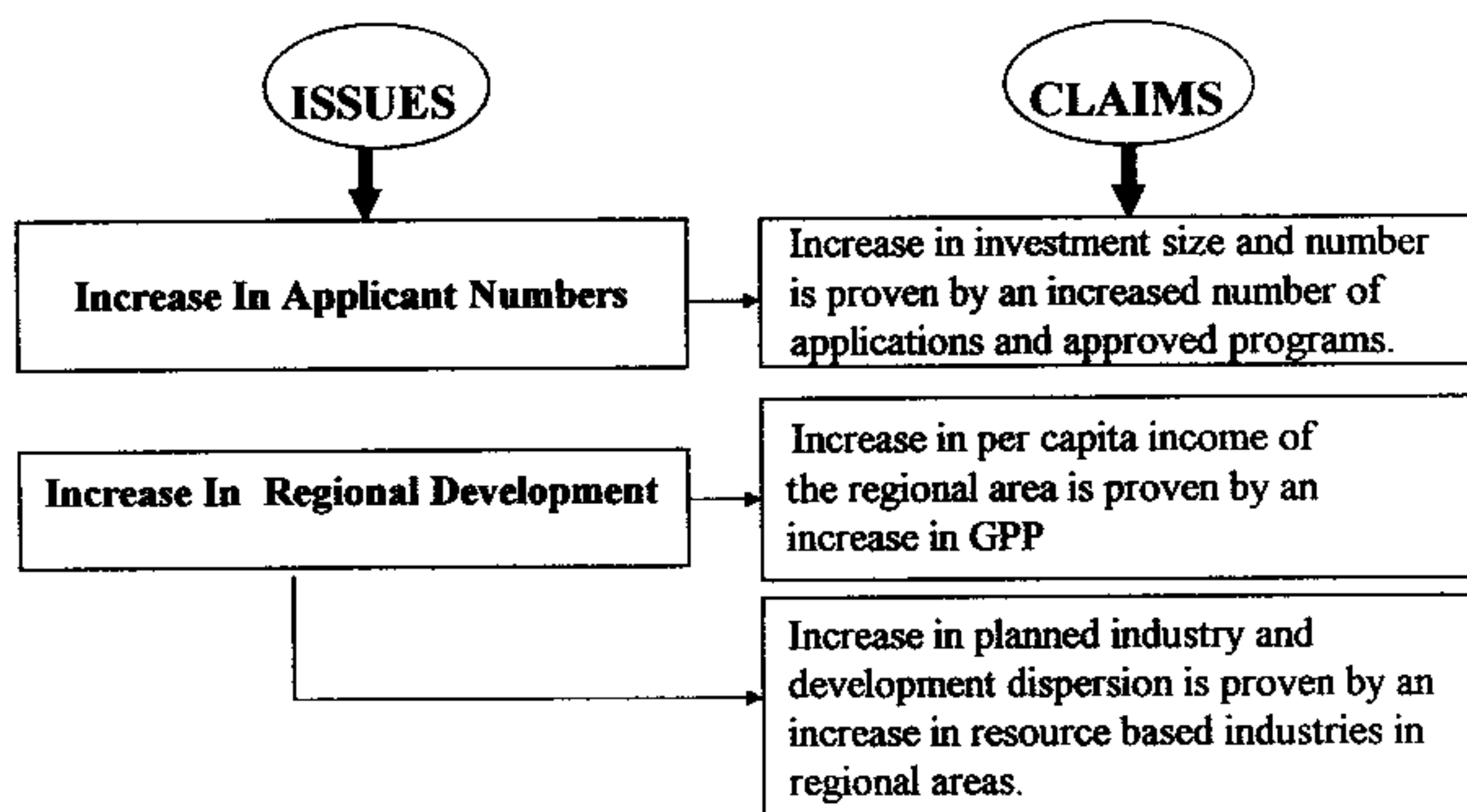


Figure 2.4 Schematic View of the Major Policy Issues and the Main BOI Claims

The BOI also offers supplementary benefits in the form of non-tax incentives and the granting of more favorable investment conditions which also require either significant additional public expenditure or higher forgone government revenue. Accordingly we can conclude that, from the BOI's perspective, boosting Zone 3 investment significantly likewise

requires significant provision of both these kinds of incentives. However, if the BOI's contention is true then it begs two questions : 1) Why has the BOI never demonstrated any evidence to show that such a relationship exists? and 2) Why instead has it merely chosen to regularly provide figures showing increases in the number of applicants and claimed these to be accurate measures of both the success of the organization and its policies?

As Tables 2.1 and 2.2 indicate, the BOI has conducted research which confirms that investors were indeed interested in tax breaks and the other privileges on offer. However, the specific goal of the agency's study was merely to assess how many project licences had been requested and how many were actually approved. The methodology used in the assessment was the pre-(before) and post-(after) approach, and most people shown the rise in both the number of applications and the number of approved projects, would probably be very impressed with the good - looking figures presented. For example, they reveal that the net gain from 1992 - 1995 was 180.50 percent in approved projects compared to the period 1990 - 1991 immediately before 'Zone 3 IPP' was implemented.

One important observation to make in analyzing the BOI's applicant numbers concerns the investment flows from Zone 1 to Zone 3 over the same period. The Zone 3 IPP study outlined in Table 2.2 shows that in this regard the number of approved projects and the number of project applications both achieved positive growth and thus enjoyed a positive relationship with each other. Final figures show a net gain of 235.38 percent in approvals compared with the pre - period and a rate of increase

in approvals from pre - period to post - period far greater in Zone 3 than Zone 1.

However, neither these figures nor the BOI study itself suggest that this dramatic increase might have been due in part also to the dramatic growth such as that experienced by the petrochemical industry in Thailand's Eastern Region by transnational giants such as Shell and Exxon - and others such as Thai Petrochemical Industries. Furthermore, the automotive, electronics assembly and computer parts manufacturing industries and others have also recorded consistently high growth in their Zone 3 operations. Thus, looking at the whole country, all that the BOI can legitimately claim is that its Zone 3 IPP has been successful in the sense that it has merely increased both the number of investment assistance applications and approvals in Zone 3.

Unfortunately, further research now contradicts even these modest BOI claims. By synthesizing the growth rate of the change in numbers of applicants and approvals one actually sees a steadily declining rate of growth in the number of investors indicating that new investment and development in Zone 3 were both slowing down. Unfortunately, the BOI seems to have been unaware of this highly significant new investment trend as it has never mentioned anything about it.

At this juncture, naturally the question arises as to which analysis (the BOI's analysis or the growth rate of change analysis conducted for this study) provides the best assessment of the BOI Zone 3 IPP performance. Unfortunately, there seems to be no correct answer, since the BOI points to the increasing number of applicants as evidence of successful policy while the shrinking growth rate indicates the opposite.

The question which many are now asking is whether we can really know if the much touted long-term gains of BOI policy will in fact make up for the foregone short and medium term government revenue and losses due to biased allocation of government spending to support BOI Zone 3 IPP especially as most of the overall cost is indivisible. However it is quite clear that the BOI's fiscally-driven policy seems to significantly underestimate the social costs incurred.

3.3 Regional Development Issues

The first of these issues is that the BOI has cited rising GPP as evidence that Zone 3 IPP was producing a net gain in the trade-off against foregone government revenue and biased allocation of state spending. Indeed 1994's top five provinces in terms of annual income were Samut Sakorn (Bt.248,216), Pathumthani (Bt.245,555), Chonburi (Bt.208,905), Bangkok (Bt.203,650), and Samut Prakarn (Bt.173,006). These figures are important because provincial income is a primary measure of regional development and analysis of these figures should therefore provide strong evidence about the nature of the relationship between GPP and the success of BOI Zone 3 IPP. Specifically, it should show how these factors are related and whether it can be concluded that BOI policy is working successfully - i.e. stimulating new investment.

In fact, analysis conducted for this study reveals that the relationship between GPP and BOI ZONE 3 IPP is at best insignificant. Furthermore, it also suggests that if a relationship were thought to exist between the GPP and BOI Zone 3 IPP (as the BOI claims) then any proper accounting of this would cite only the income which could be specifically attributed to the policy, not gross figures such as GPP.

The second regional development issue is the BOI's use of a 'resource-base' approach as one of its zone evaluation criteria in deciding whether to grant investment licences. Resource-based approaches focus on the local resources available to industry. For example, the availability of agricultural products is an appropriate 'resource-base' factor in relation to agribusiness. Thus, the oil and natural gas 'strip' on the Eastern Seaboard is the dominant location for the petroleum refining industry because it is adjacent to the Gulf of Thailand and the gas fields there. Similarly, the abundance of cheap labor in Thailand's northeast attracts electronic and computer parts producers. These three are all examples of resource-based assessment - such as the BOI uses to evaluate investment permit applications.

The critical argument about this approach is whether the use of 'resource-base' criteria should be the dominant justification for distorting or introducing bias into the process of public investment in infrastructure and facilities to favour such areas. Under BOI policy the bigger the commitment by investors (usually judged by total investment size), the bigger the distortions in public investment to favor the locality of investment have been. However, this has created rather lop-sided public investment in the Eastern Region compared to other regions (except Bangkok) - primarily because the Eastern Region has received such heavy investment in the petrochemical and automobile Industries. Moreover, beyond a certain point development in the region begins to contradict the original intention because regional development is generally accepted to be synonymous with development dispersion. In stark contrast to this aim however, the Eastern Region as a Regional Development Pole now is

double the size of the Northern, Southern, and Northeastern Regional Development Poles. Fortunately, one consequence of this has been that as the development of the Eastern Region has continued unabated, the debate about Development Dispersion has resurfaced.

The third issue is that public investment in utilities and other public facilities has become the foremost issue in this new debate over the distribution of regional development. In fact, one of the most important questions currently being debated is whether it is actually such a good idea to have dispersed industrial location. Since the feasibility of dispersion depends so much on how good the government is at providing basic services such as water, electricity, and waste management.

In theory, if industrial growth in a regional area can be dispersed at the same rate as these public utilities can be provided, then the benefits of industrial development will be maximized. However, if they are not well matched, the imbalance will distort the dispersion with the result that some areas may not have sufficient water supply or industry's energy needs may be too great (or too little) or severe pollution problems may arise - as was the case in Laem Chabang, Chonburi from 1988-1993 (Saiboa Et.al, 1996).

To be fair, the issues surrounding regional development and dispersion of development present quite a complex problem for government administrators. However, it is clear that neither fiscal incentives or public expenditure cannot by themselves be expected to balance the need to maximize the speed of development with the need to effectively manage the dispersion of development. What the BOI should do now is to refocus on fostering cooperative efforts and broad

Table 2.1 Number and Rate of Change of Project Applications : 1990 -1995

Zone	1990	1991	Rate of Change (%)	1992	Rate of Change (%)	Total 1990-1992	1993	Rate of Change (%)	1994	Rate of Change (%)	1995	Rate of Change (%)	Total 1993-1995	Pre-Post Rate of Change (%)
1	299	151	-49.50	107	-29.14	557	110	2.80	97	-11.82	106	9.28	310	-44.34
2	202	116	-42.57	72	-37.93	390	104	44.44	147	41.35	195	32.65	446	14.36
3	193	189	-2.07	138	-26.98	520	444	221.74	646	45.50	654	-1.24	1,744	235.38
Total	694	456	-34.29	317	-30.48	1,150	658	107.57	890	35.26	955	7.30	2,503	117.65

Source : BOI and Calculated.

Table 2.2 Number and Rate of Change in Project Approved : 1990 -1995

Zone	1990	1991	Rate of Change (%)	1992	Rate of Change (%)	Total 1990-1992	1993	Rate of Change (%)	1994	Rate of Change (%)	1995	Rate of Change (%)	Total 1993-1995	Pre-Post Rate of Change (%)
1	392	195	-50.26	133	-31.79	720	173	30.08	205	18.50	167	-18.54	545	-24.31
2	234	142	-39.32	80	-43.66	456	133	66.25	185	39.10	229	23.78	547	19.96
3	298	265	-11.07	165	-37.74	728	523	216.97	767	46.65	752	-1.96	2,042	180.50
Total	924	602	-34.85	378	-37.21	1,526	829	119.31	1,157	39.57	1,148	-0.78	3,134	105.37

Source : BOI and Calculated.

**Table 2.3 Correlation Between Number of Approved Projects and
Various Factors**

FACTOR		CORRELATION COEFFICIENT
Gross Provincial Product		0.7682
Gross National Product		0.7182
Electricity		0.5850
Distance from Bangkok		-0.58
Banks		0.5701
Labor (over 13 years old)		0.5584
Hospitals		0.5390
Industry		0.5364
Telecommunications		0.5352
Skilled Labor Availability		0.5072
Water		0.4822
Freeway Access		-0.2431
Size of the Province		0.2000

Source : BOI 1996 : 45

participation in local government as the best way to ensure proper local administration of public utilities/services because local stakeholders such as residents and other consumers are generally far more interested in and aware of the local situation and local needs.

In retrospect, it is clear that both the BOI's assessment methodology and its performance have been hampered significantly by an unacceptably low level of competence for an organization which plays such a pivotal role in the development process. The agency's long-established aim is the use of fiscal policy to induce regional investment which will create regional development and development dispersion. This remains appropriate. However, evaluation of its success in achieving this goal by measuring numbers of applicants, GPP, and the increase in public

infrastructure provided is not. For example, the figures for the number of applicants really only tell us the number of investors interested in getting a 'tax holiday'.

The main issues raised by the BOI's current evaluation methods may in fact be summarized in the following five points :

- 1) How can the nature of any relationship between the tax incentives and applicant number be established?
- 2) Does BOI Zone 3 IPP increase regional development and, if so, how?
- 3) How can the BOI provide acceptable proof of the relationship between the provision of local infrastructure and the success of its BOI Zone 3 IPP in terms of development dispersion and long term budgetary and social costs?
- 4) How should policy performance be evaluated?
- 5) To what extent can BOI Zone 3 IPP outputs and outcomes be quantified?

Self - assessment by the BOI itself over the years has clearly been biased in its favour. As with all public policies, BOI Zone 3 IPP must be evaluated objectively on merit and performance. This requires : (1) measuring policy output in term of actual rather than intended investment, and (2) the benchmarking of outcomes in terms of industry concentration problems. Obviously, proper evaluation of BOI Zone 3 IPP performance based solely on the policy's actual 'achievements' rather than supposition and projections is essential if the BOI - which is a government agency - is to be held properly accountable to the public for both its policies and its performance.

3.4 Clustering of Industries

From 1993 onwards the BOI has awarded maximum privileges and incentives to projects to be located in Zone 3 in order to encourage investment expansion to regional areas. This policy initiative has resulted in a huge increase from 728 investment projects (amounting to 30 percent of all the projects receiving approval) during the 1990-92 period to 2,042 projects (amounting to 65 percent) for the 1993-95 period. These projects were granted investment privileges based on the BOI's assessment of their feasibility and potential benefits.

The provinces that have received these special investment promotion have also enjoyed a sharp rise in personal income for the last 10 years. Some provinces have moved from being low per capita income areas to high per capita income areas : i.e. Lamphun, Ayudhaya and Prachinburi.

However, most of the BOI approved projects in Zone 3 are still located in each region's major provinces, namely, Rayong, Nakhon Ratchasima, Songkla and Chiangmai. In fact projects in these provinces total 25 percent of all approved projects nationwide. These four provinces provide an excellent range of investment opportunities, for example, special industrial estates and zones, as well as adequate public utilities, labor supplies, and modern transport services. Interestingly, many industrial estates, (such as those in Prachin Buri and Lum Phun) manage to attract investment despite having few attractions other than relatively good infrastructure and public utilities favorable to investment.

Although Zone 3 areas are all eligible for maximum investment privileges and incentives, many Zone 3 provinces have attracted only a

few investments, indicating that privileges and incentives available to investors under BOI policy are, by themselves, not enough to create much investment. The only exceptions seem to be provinces which straddle or share a common border with Zone 2 and Zone 3 and which have similar potential. Indeed, privileges and incentives available under the Zone 3 investment policy are an important factor in deciding, whether to locate investment in Chonburi or Rayong, Chachengsao or Nakhonnayok or Prachinburi, Ratchaburi/Phetchaburi, Angthong or Singburi, Saraburi or Lopburi, (the first-named provinces being in Zone 2 and the others being in Zone 3).

This type of industry clustering should be considered a negative impact of the policy because it does not effectively address the disparity of development problem, rather it recreates the over concentration problem as in other provinces. In fact, this phenomenon reveals one of the major and obvious limitations of BOI policy : the even spread of industrial development is seriously hampered in most regional areas by the inadequacy of existing investment conditions in terms of attracting new investment.

CHAPTER III

THEORETICAL FRAMEWORK AND PROPOSED MODEL FOR ANALYSIS

This chapter discusses the theoretical framework presented by current scientific literature and then examines the proposed analytical model in this light.

1. THEORETICAL FRAMEWORK : REVIEW OF LITERATURE

The objective of reviewing current scientific literature on this subject is to discover or develop the best means of understanding the problem and the best means of addressing it. This will require both the development of a set of relevant determinants and finding out the best ways to fill some of the gaps in existing research.

1.1 Research on Problems Associated with Concentration of Industry and How They Have Been Addressed in Foreign Countries

In their 1992 paper Chapman & Walker used the concentration of industry in the metropolitan area of Manchester as their case study. They found that industrial concentration created both cumulative and cyclical inner-city problems. While Manchester problem of high population densities in industrial areas had received a lot of public attention, its inner city area was also suffering from a severe shortage of housing and recreation areas, as well as often heavy pollution from industry as well. Other serious environmental consequences soon emerged : poor sanitation,

inadequate public services, and malpractice with regard to industrial waste (Chapman & Walker, 1992). Scott noted a similar experience in his Michigan case study. He concluded that city planning in Detroit, Michigan was based on the assumption of continued growth in the automobile industry (Scott, 1985) and that the concentration of industry problem there was similarly both cyclical and cumulative.

These studies have helped shed light on the negative impact of industry concentration in the U.S. and there is no compelling reason why a similar impact (i.e. overly high population densities, heavy pollution from industry, poor sanitation, inadequate public services and malpractice with regard to industrial wastes) should not be expected to exist in Thailand.

In his 1956 research paper Gunnar Myrdal formulated the Principle of Circular and Cumulative Causation. His study showed that a cumulative pattern of concurrent growth in industry and metropolitan centers brought both advantages and disadvantages and concluded that, over time, this would create wider disparities.

The principle of Circular and Cumulative Causation explains how new industry creates a 'multiplier effect' on jobs in the original sector (i.e. creating further new opportunities) which in turn stimulates more investment in community infrastructure and services. Moreover, new jobs not only increase the vocational training and education opportunities available for local people, but also increase number of skilled workers and educational institutions. In addition, these new industries require additional raw or semi-finished material inputs which stimulates production growth in various ancillary industries. Therefore this principle should also be applicable to the impact of government-promoted

industrialization on regional areas, such as those promoted by the BOI in Thailand.

Myrdal's 1956 study implies that BOI promoted industry could be expected to have a positive impact on new job opportunities, improvement in infrastructure, utilities and education services in areas which BOI promoted industries relocated to.

However, Myrdal concluded that the development process contains both the cause and effect, i.e. that new job opportunities, new capital investment, and government investment in improved infrastructure, utilities, health and education services in the target area will support the development of the target area as a new location for industry. Moreover, this relationship creates a dynamism that supports the creation of new markets, which in turn creates (or recreates) the problem of an overconcentration in the metropolis that starts off another cycle of industry relocation (Chapman, Keith and David F, Walker. 1992 : 173-177).

In 1993 the United Nations conducted case studies in the Philippines, Vietnam, Malaysia and Indonesia in order to find out what the effect of industry location policies such as the BOI Zone 3 IPP had been in these countries. According to their research, such policies have had the following consequences :

1. Job Creation

- Creation of a balance between urban and rural income disparities
- Creation of a job opportunities in rural areas and the maintenance of skill training programs in urban areas

2. Educational Expansion

- Modification of education systems in line with social demands and characteristics of the rural areas
- The establishment of better linkage between education and employment

3. Wages and Prices

- Reduction of factor-price distortions
- A boost for small local businesses which rely heavily on labor-intensive production

4. Rural Development

- A reduction in local tension between government, residents, and various organizations through participation and creation of a stronger local identity
- A preservation of the local culture, environment, and way of life (Economic and Social Commission for Asia and the Pacific, UN, 1993)

Because of the many basic similarities between these neighbouring countries and Thailand, BOI ZONE 3 IPP can be expected to have much the same outputs and impacts in Thailand as the UN found in its case studies of the other four South-East Asian countries, except for rural development. This is largely because, unfortunately, local people in rural Thailand usually have no interest group actively negotiating on their behalf.

A Massachusetts Institute of Technology (MIT : 1972) research team identified five major trends of 'global concern' in their 1992 study, *Limits to Growth*

- Accelerating industrialization
- Rapid population growth
- Widespread malnutrition
- Depletion of non-renewable resources
- Environment Deterioration

(Cameron, 1993 : 404).

These five trends were found to exist in all countries which used industrial development as the main way of priming their economic development and indeed much of the importance of these findings to this study lies in their relevance to the industrial concentration that has occurred in Thailand. Unfortunately, problems such as the overcrowding of the central metropolis, inadequate government - run social services, and environmental degradation are found to occur in all many major cities around the world during different the stages of their development. This implies that Thailand can and should learn from the past experiences of foreign countries and proceed wisely by implementing appropriate policy measures to solve its problems or at least keep them manageable, especially in the case of non-renewable resources and the environment.

1.2 Research on Concentration of Industry - Problems and Solutions for Thailand

In the research paper titled 'Review of Economic Development in Thailand' Pabbawesa (1989) examined its past and present development performance noting that there were many socio-economic problems remain to be attended to and concluding that prominent among these is the concentration of industrial production in Bangkok and its surrounds. In addition, he found there is still a high degree of this concentration in

government supervised and promoted regional investment projects which resulted in high costs, considerable inconvenience and limited access to promotional privileges. While on the other hand, basic infrastructure and public utilities in most regional areas remain inadequate as well as costly.

A 1989 study entitled 'Thailand's Industrial Strategy in the Sixth Economic and Social Development Plan' by Thambunlertchai found that most of the industries located in Bangkok and its nearby provinces were large-scale, while most of the industries located outside the central region were small scale - a large proportion of these being rice mills, saw mills, and other primary product processing enterprises. In fact more than 80 percent of the total value-added by the manufacturing sector was found to be generated in Thailand's Central region, with Bangkok alone accounting for over 50 % of this.

The study found that main factors responsible for the clustering of industries in and around Bangkok are : 1) the sheer size of its consumer market (approximately one in seven Thais live in the BMA), 2) the wider availability of modern facilities and services (both for industrial production and personal amenity), and 3) the fact that Bangkok serves as the dominant transportation hub for the whole country. However, this concentration of industry has created serious social and economic problems, such as large income disparities (both within Bangkok and between different regions) and severe traffic congestion and pollution in Bangkok and its nearby provinces. Similarly, a 1990 study on 'The Rise of Trade Unions and the Industrial Relations System in Thailand' by Hongladarom concluded that the concentration of industries in the Bangkok Metropolitan area was determined primarily by the prevailing

economic structure - i.e., investor facilities are far more readily available in Bangkok.

More recent studies have helped reveal the major factors determining investors' decision of where to locate their production facilities : the cost of transportation and production, the availability of labor, raw material, suppliers, infrastructure and public utilities, and also the availability of BOI privileges and incentives. The investors decision process is examined in greater detail below.

Most of Thailand's secondary industry is located within 100 kilometres of Bangkok basically because the greater the distance from Bangkok the greater the transportation cost to market usually is (Ouitrakul, 1990). However, different industries give different weighting to the factors they consider during the selection of a production location. For example the major concerns of the plastic product manufacturing industry are : 1) the infrastructure currently in place, 2) the benefits available from BOI investment promotion, and 3) the cost of land (Kultakerng, 1994). As for electronics producers, BOI privileges are the single main determinant, and the fact that they have helped many producers to relocate to provincial areas is a strong evidence that the industry is satisfied with the privileges available (Sripoka, 1990).

For BOI promoted firms as a group, the main incentive factors for them to locate their factories in the provinces are 1) whether or not the investors themselves are from that area, 2) the ready availability of labor, and 3) the incentives provided by the BOI (Sampan, 1997). Meanwhile according to studies conducted by Team Consulting Engineer Co., Ltd. and TIS Consultants Co., Ltd., for local investors the main incentive

factors are : 1) the type of industry and products to be manufactured, 2) proximity to their local market, 3) whether or not good infrastructure and public utilities are available, 4) BOI privileges and incentives such as rights and taxation benefits, 5) proximity to sources of raw materials, 6) the quantity and quality of these raw materials, 7) the services and facilities provided by the public sector, 8) existing and projected local income levels 9) the size of the local labor pool, 10) proximity to supporting industries or suppliers, 11) the quantity and quality of local labour and wage levels, and 12) how entrepreneurial these investors are.

As the above lists indicate different industries give different importance to different factors.

Various Thai governments have sought to address the problems created by this over-concentration of industry by using the BOI to offer a variety of investment incentives which would hopefully have reduced it significantly at least. These have included tax holidays as well as reductions to corporate income taxes, import duties, and other business taxes on machinery and raw material imports. In addition, the BOI has also granted non-fiscal incentives such as the easing of various business restrictions and other requirements such as the local employment of foreign experts.

Turning to the BOI's Zone 3 Investment Promotion Policy, it does provide some of its incentives in the form of tax holidays which confer 'tax-free' status on the companies for an initial specified period. In his investigation, Anwar Shah (Shah, Anwar 1995 : 8) noted that tax holidays generally have major effects on the user-cost of capital. Thus, the overall influence of tax holidays on investment decisions depends largely on the

extent to which capital consumption allowances and tax losses can be carried forward to the period after the holiday, for without attractive carry forward provisions some firms would benefit more by paying taxes in their early years when they may still be making operating losses. However, if a full carry forward is allowed then the effective subsidy in some cases will be overly generous.

The above conceptualization of the investment incentives on offer indicates that the main rationale for offering incentives is to solve problems created by market imperfections that distort the aggregate amount of and the composition of private investment. The sources of these market distortions appear to be government itself and the existence of positive and negative externalities in relation to the investment (Boadway and Shah, 1995 : 34).

In the case of Thailand, the negative externalities of investment outweigh the positive externalities - especially in Bangkok. As a result BOI Investment Promotion Policy has aimed primarily to increase the aggregate amount of investment as a whole, and secondly to counter the lack of private investment outside Bangkok by providing these areas with additional investment incentives.

1.3 Certain Major Factors from Location Theory

According to location theory, the single most important factor in the decision-making process of investors regarding which area to locate their factories in is costs-i.e. the cost of land, capital, fuel and power, labor and management, materials and equipment, and transportation. Thus the dominant tendency will be for investors to locate their production facilities in those areas where they can minimize these costs factors.

Still other investors have their own personal reasons for selecting a particular location, some investors will select the location where they believe they can maximize profit by reducing the influence competitors are able to exert in their market (Chapman and Walker, 1992 : 36-57).

These are the five major factors in the 'location-decision process' of local investors which were used to help establish the conceptual framework for this study. However, while Hayter and Walts have noted that large firms generally make a decision to invest first and then decide on the location, this was not considered to be raise any significant difficulties with employing the conceptual framework above. (Hayter and Walts, 1983 : 161).

1.4 Policy Evaluation

There are many definitions of policy evaluation. Indeed, scholars have developed various definitions of policy evaluation.

James E. Anderson defines policy evaluation as being :

..... being concerned with the estimation, assessment, or appraisal of plicy, including its content, implementation, and effects. As a functional activity, evaluation occurs throughout the policy process and not simply as its last stage (Anderson, 1994 : 238).

Joseph S. Wholey, et al. (Dye, 1981 : 367) define policy evaluation as : 'the assessment of the overall effectiveness and relative effectiveness of the program.'

David Nachmias (Dye, 1981 : 367) defines policy evaluation as :
 ‘The objective systematic, empirical examination of the effect which ongoing policies and public programs has on their targets in term of the goals they are meant to achieve’

George C. Edward III. (Edard III, 1980 : 8) defines policy evaluation as : ‘Comparing the goals of programs to their outcomes, measuring program impacts that may be attributable to policies with these goals’.

Thus, policy evaluation may be thought of as the estimation of the content, implementation, output and impact of the policy, in terms of efficiency, effectiveness, equality and justice. Accordingly, this study will be objective, systematic, and based solely on empirical evidence.

Policy or program evaluation may be sought for any or all of the following reasons :

1. Fulfillment of accreditation requirements
 2. Accounting purposes
 3. To facilitate the completion of surveys
 4. To facilitate administrative decision-making
 5. To obtain further information for the purpose of improving business practice and program structure
 6. To discover any unintended effects of the program
- (Posavac and Carey, 1992 : 6).

The purpose of this study is to determine whether or not the BOI ‘Zone 3’ IPP has been successful and, if not, to determine if and how it can be changed in term of legitimate policy alternatives and management options.

Posavac, Emil J. and Carey, Raymond G. (1992 : 24-27) grouped most of the existing evaluation models into 9 classifications as follows :

1. The Traditional Model in Practice : Program personnel conduct self-evaluation. This evaluation is informal and can be done without any outside assistance. However it also tends to produce a relatively high degree of bias.

2. Social Science Research Model : This model uses the experimental research method (i.e. comparison an experimental group with a control group).

3. Goal-based Evaluation : Examination of goals and objectives is the essential aspect of this evaluation method. It also requires evaluators to examine why programs succeed or fail and to consider any side-effects of the program.

4. Goal-free Evaluation : Evaluators evaluate the program, staff, clients, setting, and the record in order to determine the total impact of the program.

5. Black Box Evaluation : This approach involves an examination of program output without examination the internal operation of the program.

6. Fiscal Evaluation : This type of evaluation is based strictly on financial considerations.

7. Accountability Model or Audit Model : An authority such as the Office of the Inspector General conducts the evaluation in order to be sure that government funds are being used to provide well-defined support services to an appropriate group of people.

8. Expert Opinion Model : Expert opinions are often used when the entity being evaluated is large, complex and/or unique.

9. Naturalistic Model or Qualitative Evaluation : In this model the evaluator itself is the data-gathering instrument. The evaluator enters the setting without preconceived ideas about the crucial variables and merely seeks to understand the operation of the program and its effect on stakeholders. This type of report usually includes rich description of the program (Posavac and Carey, 1992 : 24-27).

Although this study of BOI 'Zone 3' IPP is goal-based, expert opinion has also been sought and incorporated as necessary where appropriate.

The next step in the policy evaluation process is to divide it into 2 categories : formative and summative evaluation and decide which will be employed.

James E. Anderson (1994 : 254) defines formative evaluations as those that are 'designed to assist officials in making mid-course corrections or adjustments in programs to improve their operation'. Nicholas Henry (1989 : 183-184) considers program monitoring to be a type of formative evaluation : 'It assesses whether the target population is being affected, whether staff performance matches program objectives, and whether policies are in accordance with pre-established standards and regulations ...or...it means to improve a program while it is still ongoing and fluid'.

As for summative evaluation, James E. Anderson (1994 : 254-255) defines it as those evaluations that are 'broader and more through in scope and area (such as those) used to inform upper-level policy makers of the

overall effect of important policies and programs'. Nicolas Henry (1989 : 184) concluded that summative evaluation is 'designed to assess a program's result after the program has been established'.

In this study evaluation of the BOI ZONE 3 IPP will proceed according to the principle of summative evaluation because after due consideration it seems able to produce the most meaningful evaluation. Summative evaluation requires comprehensive evaluation followed by evaluation of both the outputs and impacts of the policy.

All of the above are legitimate definitions of policy evaluation, which in this study is defined as a purposeful activity design to estimate as proposed by Edward III (1980), 'the content, implementation, output and outcome of the policy in such a manner that the effectiveness, equality and justice of the policy' can be properly evaluated. The results of policy evaluation can then be used to further develop or modify policy, to otherwise improve the quality of policy, or to justify the continuation or discontinuation of the policy which has been evaluated.

In reporting their research, John Herman, et al. (1987 : 9-88) made some relevant observations regarding various evaluation-process models and the evaluator's role. They observed that in summative evaluation the model is focused on the outcome of effects (i.e. the policy impact). The goal of summative evaluation is to collect and to present the information needed to make summary statements and judgements about the program and its value. Evaluators should try to find or develop reference point against which they can compare the program's accomplishments. For example, the kinds of questions that evaluators pose during the course of a summative evaluation may take the following forms :

1. What are the goals and objectives of 'Program X'?
2. What are 'Program X's' most important characteristics, activities, services, staffing, and administrative arrangements?
3. How do these particular activities serve its goals?
4. Has the program actually been implemented as planned?
5. Will the program lead to goal achievement?
6. What programs are available as alternatives to 'Program X'?
7. How effective is 'Program X' in comparison to alternative programs?
8. Does the program effectiveness differ according to participant-type or location-type?
9. How costly is the program?

The information obtained from summative evaluation helps decision-makers to decide whether or not to continue their programs, and whether or not to expand them - and if so, how?

The kinds of question that evaluators usually pose for outcome studies are, according to John Herman, et al. ;

1. What are the goals of the program?
2. How can these goals be measured or otherwise assessed?
3. What do these measures reveal about the degree of goal attainment?
4. Which other outcomes are associated with the program?
5. Which objectives and sub-objectives are essential to the attainment of program goals?
6. What gaps exist in the attainment of objectives or sub-objectives?

There are two technical approaches which are also commonly encountered : quantitative and qualitative analysis.

The quantitative approach is often used for measuring program effects, summarizing, aggregating, and comparing measurements, and also to derive meaning from quantitative analyses. This approach is deductive, often utilizing experimental designs, and it is particularly useful when program effectiveness is the primary evaluation issue.

By contrast, qualitative approaches are inductive, and they are usually preferred in the following situations :

1. When the program emphasizes individualized outcomes
2. When decision-makers are interested in understanding the dynamics of program processes and program implementation
3. When program staff require detailed descriptive information to help them improve the program
4. When there is concern about the nuances of program quality
5. When decision maker/funders want an evaluator to be their surrogate eyes and ears
6. when unobtrusive observation is needed
7. When the goals of a program are vague, general, or non-specific
8. When unanticipated outcomes or unexpected side effects are a major concern
9. When there is a need to add depth, details, and meaning to empirical findings

Evaluators need to find the most suitable balance of quantitative and qualitative investigative approaches for their particular investigation.

There are four phases of evaluation, namely. These are as follows :

1) setting the boundaries of the evaluation, 2) selecting the most appropriate evaluation methods, 3) collecting and analyzing information, and 4) the reporting of findings.

In summative evaluation, the procedures involved in these four phases are as follows ;

Phase 1 : Setting the boundaries of the evaluation

1. Determine the purpose of the evaluation
2. Find out as much as possible about the program (s) in question
3. Describe the programs
4. Focus the evaluation on objectives
5. Evaluators negotiate their own role (i.e. develop outline of the evaluation and obtain agreement of evaluation sponsor)

Phase 2 : Selection of an appropriate valuation method

1. Choose data collection approaches and instruments
2. Consolidate enquiry into a few evaluation instruments
3. Plan the construction and purchase of instruments
4. Plan the data analysis
5. Choose evaluation designs
6. Choose sampling strategy for data collection
7. Estimate cost of evaluation
8. Reach agreement about services and responsibilities

Phase 3 : Collection and analysis of information

1. Set deadlines
2. Set up the evaluation designs
3. Employ instruments, determine scores, and record data

4. Proceed with data analysis

Phase 4 : Reporting of findings

1. Plan the report
2. Choose the method of presentation
3. Assemble the report

The conceptualization, the technical approach used, and the completion of the evaluation phases can then be used in the planning and conduct of the study.

Social Impact Assessment

Merry Morash (1984 : 323-334) concludes that there are three steps which every social impact assessment requires.

Step 1 : Identification of possible impacts

One of the methods used to identify possible impacts is called the 'category tree'. This is developed from interviews with local and other experts, familiarity with relevant literature and the evaluators own experience. The purpose of developing a category tree is to generate a comprehensive list of the possible effects of each program option on each sub-category of each 'branch' of the social system.

Step 2 : Identification of probable impacts to be studied

This involves the screening of impacts according to the prevailing constraints on time, resources and information. Furthermore, the impacts that are chosen should : 1) reflect the importance of the program objective to be achieved, 2) take into account any potential evidence that third parties who might be able to influence program implementation would be able to benefit

unfairly from any of the program options, 3) identify potential indicators that would show whether any third parties are in a position to block program implementation in order to avoid being adversely affected by selection of one of the program options available.

Step 3 : Collection of data to reflect social impacts

Impacts of a social nature are assessed both by drawing general conclusions about the results of similar research programs and by collecting new data.

Thus social impact assessment involves the prediction and comparison of policy impacts, and the results of this kind of assessment can be used by administrators to support the policy program and to correct negative impacts as well as provide further input to decision-makers.

In this study of the effectiveness of BOI Zone 3 IPP, these three steps in social impact assessment constitute the methodology employed. The results of this study should serve as valuable new input to the decision making process, thereby helping to correct negative social impacts by helping to improve current public policy.

Criteria for the Evaluation.

Jonathan Z. Shapiro (1986 : 362-374) developed the notion of applying social justice models to policy analysis and evaluation. He concluded that evaluators should not reach conclusions solely on the basis of experimental results in relation to cause and effect, but rather after consideration of the six criteria below.

1. Utilitarianism. This is the concept of maximizing the greatest good for the greatest number of people. In utilitarianism, the distributive

issue is determined by analysing the need of the majority - which should thus receive the majority of the benefits provided by the state. By treating every sample as equal (as in the randomization process) the evaluator can compare results via before-after comparison. Thus the program that achieves the highest score for the highest number of people is considered the best.

2. Equality. This concept focuses on the equality of benefit dispersion to various groups : i.e. which people/organizations/communities need the program most. By dissecting the sample population according to needs assessment, the state is thought to achieve better distribution than by treating the population all the same way.

3. Pareto Optimality. The 'pareto optimum' concept states that no one should be worse-off economically than others. In fact, program A, B, and C results will be compared according to this criteria. Ideally, comparison of the three programs should reveal that none of the participants is worse off because of the program. This is where the distributive concept comes in : i.e. hopefully we arrive at the conclusion that the policy has provided a positive outcome for all stakeholders.

4. Majority. This is a similar concept to (but more moderate than) 'pareto optimality'. According to this approach a valid program result will yields benefits for the majority of the population. In the distributive sense, the 'majority' concept is quite similar to 'utilitarianism'.

5. Minimax. This is a concept taken from Rawl's 'Theory of Justice' which focuses mainly on disadvantaged recipients. According to Rawl's theory, the state should provide the program budget, equipment, and personnel to conduct a compensation program for the disadvantaged

people. The distributive element lies in helping the disadvantaged members of the group become better-functioning individuals.

6. Dominance. This is a further development of the minimax and pareto optimal models. The focus of dominance evaluation is to construct a model which includes both the disadvantaged recipient groups of these two models and the resulting evaluation is then put to the 'no disadvantage' test (i.e. no recipients will be worse-off). In order to compare these two groups (which exist in two different 'states' following policy implementation), rank-ordering is used. The evaluator then tries to find stakeholder pairs in the same state that are equally better off.

In this study of BOI Zone 3 IPP impact, the 'utilitarianism' concept will be used to determine the basic criteria for assessing such impact, the policy impact on people in regional areas in terms of employment opportunities, income and educational opportunities will be either positive, negative, or zero.

2. A PROPOSED MODEL FOR ANALYSIS : THE CAUSE - EFFECT APPROACH

2.1 Application of the Cause – Effect Approach to the BOI ZONE 3 IPP

The 'Cause and Effect' model has been chosen as the most appropriate analytical approach to take towards understanding BOI ZONE 3 IPP. The basic idea of this approach is to disregard the influence of political institutions and political actors involved as well as the influence of the policy making process itself, and instead to focus on the action or results which the policy under examination is producing (Thawanrat, 1997 : 85). Strategically, the cause and effect approach (see Figure 3.1) seeks to directly penetrate to : 1) the causes - i.e. the reasons why the

government formulated such policy, and 2) the effects - i.e. the consequences of implementing such policy. (Nagel, 1984 : 1).

In other words, when one conducts policy study in this way, the scope of the study tends to narrow down to finding the factors related to the essence of the policy concerned. Consequently, deductive analysis will focus on two main points of investigation : a) the major determinants of policy creation, and b) policy output, policy impact and policy effectiveness exclusively as effects. Once these two factors are combined in policy analysis, they should be able to explain : 1) how BOI ZONE 3 IPP was formed and what premises it was based on, and 2) whether BOI Zone 3 IPP is achieving its stated goals - i.e. if it is actually affecting the kinds of changes intended.

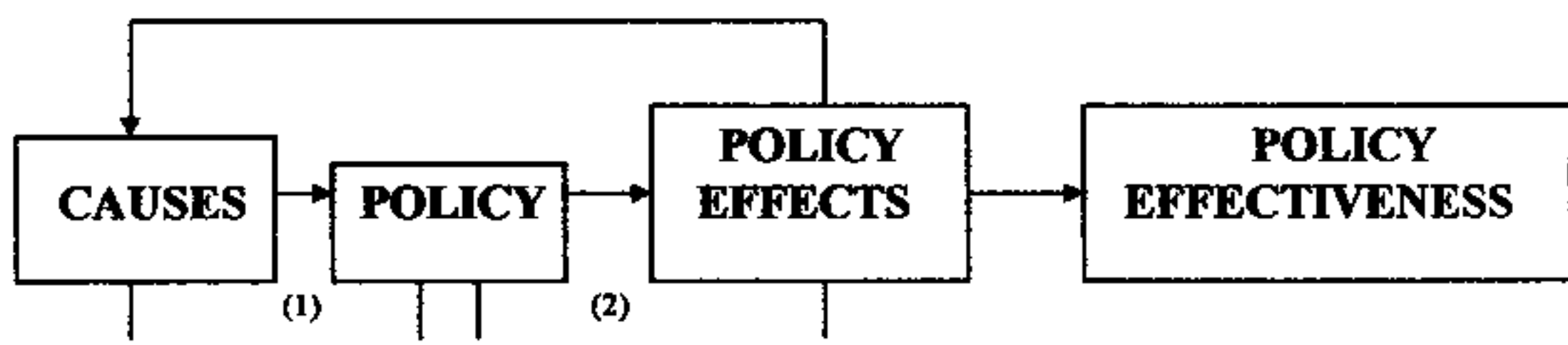


Figure 3.1 Diagram of the Cause - Effect Approach

Source : Thawanrat, 1997 : 86 .

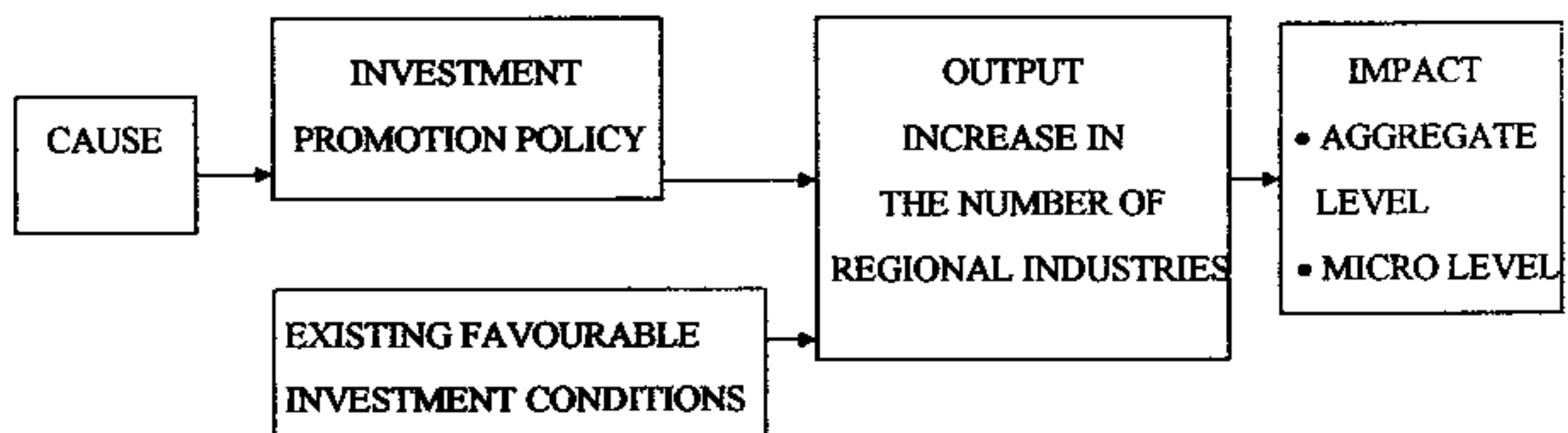


Figure 3.2 Application of the Cause – Effect Approach

The diagrammatic overview of this conceptual framework (Figure 3.2) illustrates the process of this dissertation, which is basically process which analyzes the policy in terms of the problem itself, policy formulation, legislation, policy implementation, and evaluation. Ideally, full completion of this process should reveal how investment promotion policy is developed and implemented, in addition to how it has performed. However, as there is already clear empirical evidence available about how investment promotion policy is developed, this line of enquiry does not need to be taken up in this study.

However, before trying to assess policy effectiveness, the reasons why the policy exists must first be established. At this stage we can already state that the policy exists because the BOI perceived certain problems which led it to adopt this particular policy solution :

1) Over-concentration in BMR.

While the BOI has significantly remedied this problem by dispersion of industrial investment to other regions, it has also created regional clustering and other problems.

2) - Steadily-Rising Income Gap Between the BMR and Regional Areas

- Steadily rising net migration inflow to the BMR
- Steadily rising traffic congestion in the BMR
- Steadily rising pollution levels in the BMR

3) The multiplication of many of these problems in regional center 'clusters' (albeit at lower levels of concentration)

These are the 3 main types of problems which have led to the development and implementation of the BOI ZONE 3 IPP. However, it is

important to note that centralization is not a necessarily problem per se. Rather it is one of the manifestations of a far more fundamental problem : the dual economy, or the idea that an 'income gap' divides society basically into two economic categories - the industrial and the agricultural (i.e. the rich and the poor, the haves and the have-nots).

Of course the gap between the capital rich and the capital poor is 'prima facie' a socio-economic problem. Naturally, the attractiveness of the resource - rich industrial sector draws labor away from agricultural/rural areas, giving rise to many of the socio-economic problems associated with over centralization in areas where industry is highly concentrated - for example the BMR. The high internal migration which has resulted has itself become a serious problem as 'prima facie' it is one of the main causes of inner-city congestion and pollution. In response, this study sets an agenda for diverting investment away from its 'traditional' centralized focus on Bangkok and the BMR (as the only major power center in Thailand) to a far broader, far more even spread of investment encompassing all areas of Thailand.

To restate this aspect of the problem, migration inflows from regional areas raise a variety of problems for the inner city areas, urban management, and the environment. Reducing this migration inflow requires both the creation of better employment opportunities in regional areas and improving living standards in rural areas. In fact, this study focuses on three major problems : 1) how to improve employment opportunities, 2) how to reduce the large income disparity between the BMR and regional areas, and 3) how to improve educational opportunities in regional areas.

Ironically, these are also three of the stated goals of BOI ZONE 3 IPP : i.e. to tackle the centralization - migration - environmental problem. For example, tax exemptions for eight years are provided under the Investment Promotion Policy, with the first eight-years of plant operation being a grace period during which income earned is basically tax - free. However, for most new operations the first eight years are not a very profitable period anyway. Establishment costs, market development, and administrative expenses usually require relatively heavy investment during this period. Non-tax incentives serve both to supplement these tax-exemptions and to offset their end.

The term 'non-tax' incentives' itself refers to various other commercial inducements available under BOI ZONE 3 Investment Promotion Policy. For example, loans at relatively low interest rates are often arranged for BOI promoted firms (i.e. those which seek and receive BOI approval). By gaining the cooperation of the Bank of Thailand (BOT) which has to decide whether to authorize these low interest rate loans for promoted firms. Apart from reducing the capital cost (at least to the private sector), the policy also helps to provide job training, market development assistance, product development assistance, investment in basic industrial infrastructure, and the development of industrial estates in regional areas, with most or all of these advantages are usually offered to attract potential investors.

However this study proposes that despite this array of attractive features, there are other important factors involved in the investment decision-making process and that BOI policy either does not acknowledge or does not properly take these into account. Indeed, the provision of

favorable investment conditions as described above is one of the main focuses of this dissertation due to the basic conflict between foregone tax revenues and the desire to attract investment. For example, such factors as the positioning of infrastructure, the availability of skilled labor, and docile labor unions (where they exist) are usually considered to be major factors in the investment decision, yet unfortunately these factors have never really been addressed by the BOI's Investment Policy. In fact, it could be argued that BOI Investment Promotion Policy has amounted to tacit approval of the suppression of organized labor and the deliberate distortion of infrastructure spending priorities. Furthermore, it can be argued that while tax breaks are an important factor in the investment decision, they are not usually the decisive factor. For example, in his study of international taxation and investment, Joseph Frankel concluded that tax exemption is not sufficient (by itself) to spur additional investment.

This study proposes that favorable investment conditions must be provided as a prerequisite to the Investment Promotion Policy and accordingly it will attempt to demonstrate two propositions : 1) the inadequacy of providing tax exemptions as the prime investment motivator, and that 2) the overall investment climate is one of the most important factors in the investment-decision process.

2.2 BOI ZONE 3 IPP as an Independent Variable

Once the BOI ZONE 3 IPP is considered as an independent variable, analysis can determine the effect which the policy has had. The term 'policy effect' is defined here as the result or outcome of the policy. Policy outcome consists of policy outputs and policy impacts (Quade, 1982).

Addressing the centralization problem through ZONE 3 IPP presents both a challenge and an opportunity for the BOI. As the prime investment authority of Thailand, it has the power to direct, monitor, and control much of the country's domestic and foreign investment inflow - equating it to the comptroller of Thailand's future economic development, a role that requires a rigorously thought-out and implemented policy process. This is because an increase only in the number of regional industries will not by itself, constitute proof of a successful policy performance because one of the fundamental rules of policy analysis is that policy outputs represent only the surface of the policy process. To evaluate policy in its entirety, analysts must also conduct a full impact-assessment. Therefore any proper assessment of the effect of the BOI ZONE 3 IPP must examine both the policy output and the policy impact.

In this study, output means the increase in the number of regional industries, especially in Zone 3. The 'zone' concept is an important policy success indicator because Zone 3 is the area to which policy has been targeted. Hence, correct policy success measurement needs to quantify any improvement in employment, income, and education in this area.

While BOI policy is designed to stimulate industrial investment in regional areas, tax incentives are not the only important factor in spurring such investment. Favourable investment conditions also play an important role in attracting new investment. In fact, it is the interaction of broad public policy and the public policy environment which will lead to an increase the number of industries in regional area.

Measuring any change in the number of regional industries requires statistical endeavor. However, improvement in socio-economic conditions

is a far truer measure of policy performance as policy should produce both improved living conditions - not only increased investment and reduced migration.

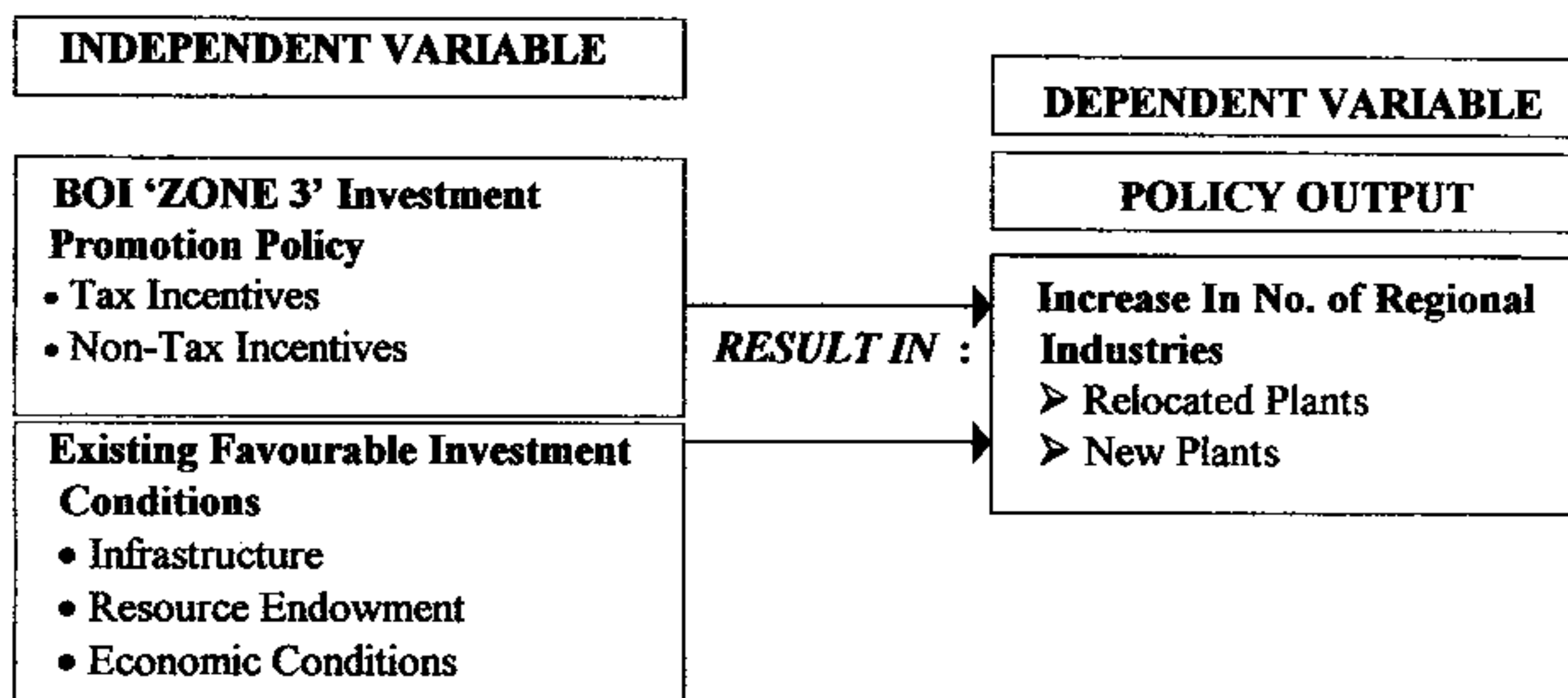


Figure 3.3 BOI ZONE 3 IPP and Expected Policy Outputs

2.3 Measuring Policy Impact

As already mentioned, an increase in the job opportunities and living standards for regional areas and their inhabitants should help ease over-centralization. Therefore measurement of policy impact (see Figure 3.4) must take into account these two concepts.

This study proposes that an increase in the number of promoted firms in regional areas should have the following three impacts :

1. Increased employment (which should help to raise incomes and decrease migration outflow from regional areas to the BMR)
2. Increased actual income at the micro-level in the provinces (which should decrease migration to the BMR)

3. Increased employment and income (which should help develop a higher skilled workforce and its members quality of life - which can be quantified by measuring the inter-generation educational opportunity)

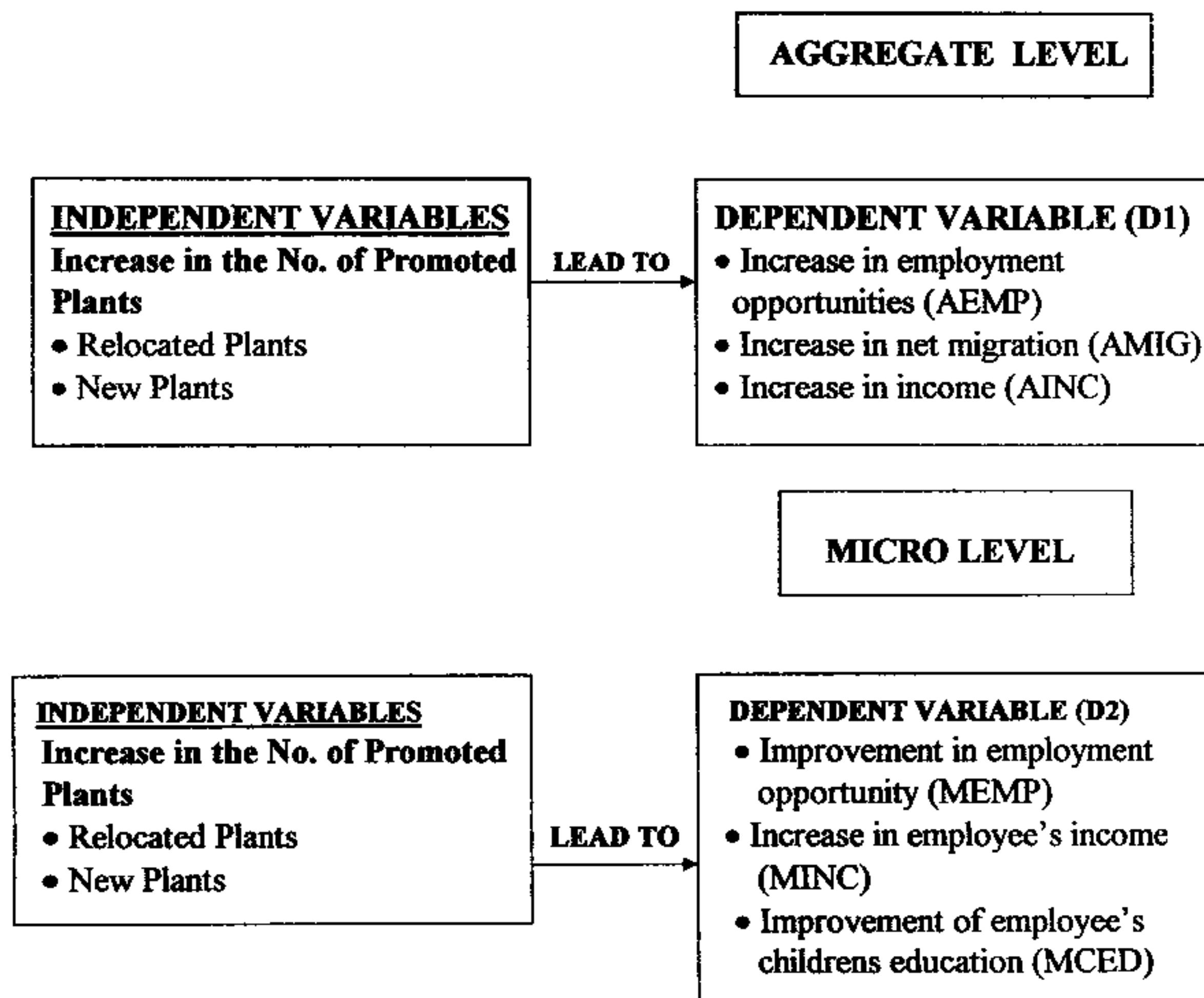


Figure 3.4 BOI ZONE 3 IPP and Expected Impact

1) Improvement in Employment Opportunities and Incomes at the Aggregate level

Obviously an increase in the number of promoted plants in regional areas will be most beneficial if these plants employ 'Zone 3' people (D1). In fact, because employment is one of the policy benchmarks

of Goal-Based Evaluation, this focus on the level of hiring of local people in Zone 3 is used to measure whether or not the policy is stimulating employment opportunities in the target area (AEMP) because, if this is the case, net migration to Zone 3 areas should increase (AMIG). Of course Zone 3 will also benefit if the policy leads to an increase in actual income at the aggregate level (i.e. the 58 provinces in Zone 3) (AINC).

2) Improvement in Incomes and Education at the Micro Level

New Employment opportunities (MEMP) must be accompanied by an increase in individual employee incomes (MINC) if policy is to be considered successful. In order to measure any such increase, this study will determine the relationship between the increase in the number of promoted plants and the increase in individual income (as measured in terms of wages and personal income) by constructing before - and - after scenarios and by conducting path-analysis. The comparison between these two periods should then reveal whether or not employees of promoted plants have gained a direct improvement in income. Furthermore, improvement in employees' living standards should reveal a positive change in employees' intention to provide better education to their children (MCED).

The UNDP'S Human Development Index has long held that improving childrens' educational opportunities is one of the most important components of its 'Quality of Life Standard'. At the employees' children level, this study should be able to reveal any improvement from the before to the after period by : 1) determining employee intentions, 2) determining their ability to provide education, and 3) employees path-analysis to reveal this impact. In so doing, this study

intends to reveal the nature of the relationship between BOI Zone 3 IPP and any regional improvement in the Quality of Life Standard.

In summary, policy impact will therefore focus on the aggregate level (Zone 3 as a whole as well as the 58 Zone 3 provinces) and the micro level (individual entrepreneurs and employees in each BOI-promoted plant in the 5 provinces and 1 industrial estate in eastern region of Zone 3).

3. HYPOTHESES OF THE STUDY

1. At the ^amicro level, policy output (i.e. the number of BOI-promoted plants in Zone 3) depends on the adequacy of both the tax and non-tax incentives and the BOI investment incentives offered under BOI ZONE 3 IPP and also whether or not they were implemented in any particular area. Thus areas in which favourable investment conditions already exist will tend to attract a higher number of BOI promoted plants as compared to the other areas.
2. At the aggregate level (Zone 3 as a whole), change in net migration, change in the number of promoted plants, and change in employment number are responsible for the change in income experienced in Zone 3.
3. At the micro level, employee's income, number of family dependents, family's consumption expenditure, and savings are be responsible for the change in intention to provide better education to employee's children.

CHAPTER IV

RESEARCH METHODOLOGY

This chapter discusses the research methodology used in this study. The chapter is divided into 5 major sections :

1. Research design
2. Operational definitions and measurements
3. Sampling procedure
4. Data-collection method
5. Data analysis

1. RESEARCH DESIGN

A non-experimental research design and empirical approach were chosen for this research study because of their suitability for the examination of naturally occurring phenomena.

Accordingly, policy output studies, time-series analysis (both before and after the adoption of BOI Zone 3 IPP) and path-analysis were conducted in order to determine whether the policy outputs concerned actually matched the stated policy objectives.

The study used primary data obtained from the questionnaire interviews conducted with both business entrepreneurs and employees, as well as secondary data from the Deputy Governor of each province, Provincial Commerce Officers, Provincial Industry Officers, directors of Provincial chamber of Commerce, director of Provincial Chamber Industry and directors of each industrial estate in BOI Zone 3.

Investigation of the impacts created by policy output required information from questionnaire interviews with entrepreneurs and

employees in the eastern region as well as secondary data from other local sources and the NESDB. The hypotheses mentioned in the third chapter were tested using time-series analysis and path-analysis. Furthermore the study was conducted on two levels : the aggregate level and the micro level.

2. OPERATIONAL DEFINITION AND MEASUREMENT OF THE VARIABLES

The type of measurement techniques chosen were very important because they determined the process used to transform the abstract or conceptual framework into concrete variables of both qualitative and quantitative data. (Prasith-rathsint 1993 : 94). However in order to do so, each variable required both an operational definition and/or a measurement. Those employed in this study are described below :

BOI Promoted Plants are the plants that got BOI ZONE 3 IPP certificate and operated between 1993-1996.

Zone 3 covers all of provinces as well as Laem Chabang Industrial Estate, except provinces in Zone 1 and Zone 2 (see details in Chapter II). The study of policy impact at micro level in Zone 3 refers to individual entrepreneurs and employees of BOI-promoted industries in the 5 provinces and 1 industrial estate of the eastern region (Rayong, Chanthaburi, Trat, Prachiburi, Sakeao and Laem Chabang Industrial Estate) which were used as sources of case-studies.

Business Entrepreneur (s) refers to high-level executives of BOI-promoted companies who make the investment decisions and know the process of production.

New Plants refers only to new plants that are located in Zone 3, not those relocating from other provinces to Zone 3. This was measured

by determining the total number of new promoted plants in 5 provinces and 1 industrial estate in Eastern region in 1993-1996. The scale of this variable was interval.

Relocated Plants refers to those plants which relocated from either Zone 1 or Zone 2 to Zone 3. This was measured by determining the total number of BOI-promoted plants which relocated to these 5 provinces and 1 industrial estate during the period 1993-1996. The scale of this variable was interval.

Effectiveness means that following the implementation of investment promotion policy, the number of industries in Zone 3 increases, and that this increase has a positive impact on employment opportunities, incomes, and educational opportunities for employee's children.

Policy Outputs refers to the number of promoted plants in Zone 3. How well policy outputs matched policy objectives was measured by comparing the time-series for the number of promoted plants with the time-series for the number of non-promoted plants in Zone 3 both before and after implementation of BOI Zone 3 IPP. If the number of promoted plants after implementation of BOI Zone 3 IPP was found to have risen above the number of non-promoted plants, this would mean that the policy had achieved its objective. A second measurement compared the number of promoted plants in Zone 3 with the number of promoted plants in Zone 1 and Zone 2. If the rate of growth in the number of Zone 3 plants was higher than the rate of growth in the number of Zone 1 and Zone 2 plants, this would mean that BOI Zone 3 IPP had attracted investment to Zone 3 and thus policy output could be considered at least satisfactory. The scale of this variable was interval.

Change in the Total Number of Promoted Plants at Macro Level is the difference between the total number of promoted plants during 1989-1992 and 1993-1996 in the 58 provinces in Zone 3 as a whole and in the 5 provinces and 1 industrial estate in eastern region of Zone 3. The scale of these variables were interval.

Policy Impacts means that if BOI ZONE 3 IPP was successful in increasing the number of promoted plants in Zone 3 it would consequently a positive impact on employment opportunities, incomes, and educational opportunities for employee's children. The study divided the impacts into 2 categories : micro-level impacts (on individual employees) and macro level impact (on employees in the 58 provinces in Zone 3 as a whole). The scale of these variables were interval, and for the education of employee's children was used as the dummy variable.

Aggregate Level impact is the measure of the change in employment opportunities of all the people in Zone 3 as a whole according to : 1) total employment at promoted plants in Zone 3 as a whole as well as in individual provinces of Zone 3 pre and post policy implementation, and 2) the net migration increase to Zone 3 and every province in Zone 3 pre and post policy implementation. Income improvement in Zone 3 and each province was determined according to GPP values pre- and post-policy implementation. The scale of these variables was interval.

Micro Level impact is the measure of individual employees' incomes at BOI promoted plants according to wages received and overall real wages (i.e. including welfare and other employee benefits). Micro level impacts on income were measured according to the difference between individual employee incomes before and after they commenced

working for promoted plants. Educational opportunities for employee's children were determined by : 1) assessing individual employees's responses in relation to the level of education to their children, and 2) assessing parent's or guardian's ability to provide the intended level of education by comparing individual employee incomes with average expenditure on this level of education in the post policy-implementation period. The scale used to determine these variables was interval, with employee's intention to provide education to their children, as the dummy variable.

Factors Affecting the Investment Decision-Making Process with regard to Zone 3 refers to the factors which attract investment there. If BOI tax and non-tax incentives were an important factors in this process, these factors would receive a high rating/score from investors. Conversely, if these factors were considered to be relatively unimportant then this should be reflected in a lower/rating score. These variables were measured according to the average/ rating score given by business entrepreneurs in the 5 provinces and 1 industrial estate. However because this process depends not only on policy measures but also on the existing investment conditions (see Chapter I for details). Evaluation of this process required the influence of these two factors first is individually determined and then compared by having investors rate the importance of each factor on a ten-point scale. A score of 10 indicated highest importance and a score of 1 indicated lowest importance. The scale of this variable was interval.

Existing Favorable Investment Conditions refers to the sum of the following 3 variables :

Variable 1 - infrastructure includes water supply capacity, electricity supply capacity, the number of available telephone lines, road transport capacity, rail transport capacity, air transport capacity and the capacity of port facilities

Variable 2 - local resource endowment : covers quantity of available land resources, quantity of available natural resources, and quantity of available labor resources

Variable 3 - economic conditions : consist of GPP or per capita income, the number of financial institutions involved, and the number of primary industries which supply input to promoted plants.

The ratings given to these variables by business entrepreneurs were then used to determine overall ratings for the above three factors as well as individual ratings for each area. Thus the area with the highest individual rating should also have the most attractive investment conditions.

These three variables were then measured by determining their average rating/score by business entrepreneurs in the 5 provinces and 1 industrial estate. The scale of these variables were ordinal.

Change in Net Migration was determined by calculating the difference between the number of people who moved into Zone 3 provinces and the number of people who moved out to other provinces before and after policy implementation in Zone 3. The scale of this variable was ratio.

Gross Provincial Product (GPP) means the total value of all the products produced at constant price by the province annually. This study

compares these values before and after policy implementation. The scale of this variable was ratio.

Per Capita Income means the income per person per year in each province in Zone 3. These values were compared before and after implementation. The scale of these variable was ratio.

Change in Income at the Aggregate Level was the difference in average GPP or Per capita income between the periods 1989-1992 and 1993-1996 in each Zone 3 province. The scale of this variable was ratio.

Change in Employment Number was the difference between the average number of employees at BOI promoted plants during the periods 1989-1992 and 1993-1996 in each Zone 3 province. The scale of this variable was ratio.

Change in Intention to Provide Education to Children was the difference (in year) between employees' intentions to provide education for their children before and after they worked in promoted plants according to numbers derived from the following scale :

Education Level	Number of Years Required
- Primary school	6
- Secondary school	9
- High school	12
- Certificate level	12
- Diploma level	14
- Bachelor level	16
- Master level	18
- Doctoral level	21

Change in Income at the Micro Level is the difference between the average change of employee wages value and benefits before and after they worked in promoted plants. The scale of this variable was ratio.

Savings is the difference between average total income (wage, welfare and benefits) of employees and average total consumption expenditure of the employee's family. The scale of this variable was ratio.

Family Expenditure is the average consumption expenditure of families for which employees were responsible. The scale of this variable was ratio.

Number of Family Dependents is the number of people in the family that are financially dependent on the employee. The scale of this variable was ratio.

3. SAMPLING PROCEDURES

3.1 Target Population and Units of Analysis

The target population of this study was all those people living in the Zone 3 provinces as well as the business entrepreneurs and employees of the BOI-promoted plants in the 5 provinces and 1 industrial estate of Thailand's eastern region Zone 3.

In evaluating Zone 3 policy output the two units of analysis chosen were promoted plants and non-promoted plants.

In evaluating Zone 3 policy impact the level of impact was divided into 2 categories - aggregate level impact and micro level impact. The four units of analysis chosen were Zone 3 as a whole, every province in Zone 3, BOI-promoted plants, and employees of these plants.

3.2 Sampling Techniques

The target population in this study consisted of the inhabitants of Zone 3 as a whole as well as individual provinces in Zone 3, business entrepreneurs of BOI promoted plants, and the unskilled employees of these plants in the five eastern region provinces and Laem Chabang Industrial Estate. This required decisions to be made about which areas to study and observe, who to interview, the timing of these activities, and how best to analyse policy output and impact. This in turn required the use of multi-stage sampling technique designed to provide appropriate and representative data and information samples in order to accurately assess policy output and impact.

The multi-stage sampling technique that used in the study consists of the following five stages :

- Stage 1. Purposive selection of Zone 3 study area : selection of an area having both a high number and a good variety of BOI-promoted industries
- Stage 2. Purposive selection of plants : these plants must have been in operation for no less than 1 year
- Stage 3. Entrepreneurs and employees sampling : this resulted in the selection of 17 out of 28 investors (approx 60.7 % of population) and 141 out of 1,580 unskilled employees (approx 8.9 % of population). According to Yamane's table, with a sample size at 95 % and 99 % level of significance at S.D = 0.1, if the size of the population is 20,000 - 50,000 then the appropriate sample size required was 100. This meant that the chosen sample was therefore appropriate, and entrepreneurs and

employees were then selected from the areas and firms in the Stage 1 and Stage 2 above

Stage 4. Division of entrepreneurs and employees numbers : these samples were divided according to the proportion of new industry to relocated industry in each area

Stage 5. Entrepreneurs and employees in each type of industry : these were randomly selected

4 DATA COLLECTION METHODS

The acquisition of reliable and valid empirical data is always one of the most important requirements in conducting good scientific research. In this study it was therefore decided to combine of data obtained from two different collection methods in order to make the resulting analysis both more reliable and more complete. The two data collection methods employed were :

Method 1. Document research and secondary data collection

Method 2. Structured interviews and questionnaire interviews

4.1 Documentary Research and Secondary Data

Both the government and the private sectors were used as sources of research documents and secondary data.

The number of BOI-promoted plants and the number of employees of BOI promoted plants in Zone 3 were obtained from the BOI and then which plants were still operating was established by telephoning each plant for confirmation.

The macro level income required data either about differential GPP or income per capita pre and post the implementation of ZONE 3

IPP. These were obtained from the NESDB and from other research documents and academic papers published in Thailand and abroad.

Establishing migration patterns and numbers required that the number of people migrating in and out of each province be ascertained. Records from the Ministry of Labor, Ministry of Interior, and NESDB, as well as various research documents and academic papers from Thailand and abroad were used for this purpose.

In addition, secondary data examining the issues below was obtained from the following sources :

ISSUE	INFORMATION - SOURCE	TYPE OF DATA
Infrastructure	Ministry of Transportation	Road Transport, Water Transport, and Air Transport.
Resource Endowments	NESDB, Ministry of Labor, and Local Interior Ministry offices	Land Resources, Natural Resources, Labor Force Numbers in Each Province
Economic Conditions	NESDB, Bank of Thailand, Ministry of Industry	GPP and Per Capita Income, Number of Financial Institutions Involved, Number of Primary Industries Involved, Labor Force Numbers in Each Province.

4.2 Structured Interviews and Self-Administered Questionnaire

The purpose of this process was to obtain primary data. Information gained from structured interviews helped in the design of questionnaires as well as providing secondary data, comments and opinions. These structured interviews were conducted with entrepreneurs and employees from BOI-promoted plants in eastern region of Zone 3 as well as local officials from the Ministry of Industry, Commerce, and the

Interior as well as other key persons involved in eastern region industrial investment : the director of the local Chamber Commerce, the director of the local Chamber of Industry, and the directors of industrial estates. Unfortunately, these interviews could not be conducted as face to face private meetings between the interviewer and these interviewees because of the economic crisis, most of the plants were fully occupied with changing their business strategies and improving their efficiency in order to survive. The questionnaires were sent to all of the entrepreneurs, officers and key persons mentioned above to be filled in and returned in the envelopes supplied. The final response was : 61 percent of entrepreneurs, 9 percent of employees, 100 percent of local officers in Ministry of Commerce, 100 percent of local officers from the Ministry of Industry, 40 percent of local Chamber of Industry directors 66.67 percent of local Directors of Chamber of Commerce directors, 100 percent of the directors of industrial estates, and 66.67 percent of local deputy governors responsible for economics activities returned filled-in forms.

Field Surveys

These interviews were conducted with business entrepreneurs from all BOI promoted plants in Thailand's 5 eastern region provinces and Laem Chabang.

The entrepreneur questionnaire used in the interviews consisted of various questions designed to elicit information regarding the following :

1. Background information on the characteristics of BOI promoted plants :
 - a) Year of commencing operation
 - b) Type of industry

2. Investment Factors :

- a) Inputs and machinery used in production : percentage of local, non-local and foreign source
- b) Product output : percentage of local, non-local and foreign sale
- c) Thai unskilled labor :
 - i) Percentage of local and non-local employees
 - ii) Training
 - iii) Salary expenses
 - iv) Welfare

3. Incentive variables for both newly located and relocated operations :

- a) Rating privileges and incentives given by the BOI. The most important factor(s) were scored as 10 and the least important factor(s) were scored as zero
- b) Ratings given to infrastructure, resource endowments, and local economic conditions were scored in the same way as BOI privileges and incentives

4. Opinions on the BOI ZONE 3 IPP and existing facilities :

Opinion were rated on a scale of 1 to 10, with 10 being the most important

5. Opinions on investment change :

- i) Value of investment
- ii) Number of employees

6. Opinions and suggestions on BOI Zone 3 IPP (open-ended)

Interviews were conducted with employees from the same BOI promoted plants as the business entrepreneurs interviewed. These interviews consisted of questions designed to elicit information regarding the following :

1. Background
 - a. Age
 - b. Domicile
 - c. Marital status
 - d. Number of children
 - e. Number of family dependents
 - f. Education
 - g. Child education level
 - h. Occupation before and after working in this plant
 - i. Family consumption expenditure per day
 - j. Savings
2. Employment Conditions
 - a. Wages and salaries
 - b. Welfare and other employee benefits
3. Comparion of salary, welfare and benefits before and after employment at BOI promoted plants.
4. Parental intentions before and after working for promoted plants regarding the education of their children
5. Opinion of the situation during 1993-1996 and 1996-1999
6. Opinions and suggestions or BOI Zone 3 IPP and promoted plants (open-ended)

Pretests

The questionnaires were pretested on a sample consisting of 4 entrepreneurs and 12 employees connected with BOI-promoted plants in Laemchabang and Rayong which had either relocated there from another province or set up a new venture there. The purpose of conducting this pretest was to assess the validity of the questionnaire in terms of content, comprehension and structure. In fact, following the pretest the questionnaire was revised : some questions were modified, some instructions were made clearer and the question sequence was improved.

Field Work

Two graduate students from the Faculty of Economics, Kasetsart University and researcher went to each province in the eastern region to meet entrepreneurs of BOI plants, observe the standard of living of people living near by the plants and industrial estates and to talk with local people, local government officer, and local entrepreneurs.

At the end of each trip a discussion between the graduate students and the researcher was held in order to sort out the nature of BOI plants, their impact on local people and the province, the views of local government officers and key persons in the province visited

The field survey was carried out between October 1998 and February 1999.

Data Processing

All questionnaires from employees, entrepreneurs and provincial key persons were manually processed and checked for completeness, accuracy and uniformity. The data was then coded and verified before being entered into a computer and put through a series of range and

consistency checks using a standard statistical package in order to ensure that the results were highly satisfactory.

5. DATA ANALYSIS

The data used in evaluating policy outputs and impacts came not only from questionnaires but also from secondary data obtained from government agencies and private agencies (see Section 4). Although most of the data obtained was quantitative, some was nominal - such as the background characteristics (e.g. site, type of industry and type of product) of promoted plants and general information about employees (e.g. occupation, marital status, education and domicile). Some additional data would be interval, such as the scores which were calculated in order to rate investment priorities.

Time-series analysis was then conducted to obtain both the pre- and post-policy circumstances of a representative selection of promoted plants and non-promoted plants both pre- and post-policy inception. Regression analysis was also conducted in order to determine whether any significant differentiations exist between pre and post period factors. A cross analysis was then conducted using Chi-square tests and F-tests.

5.1 Policy Outputs

The main objective of BOI ZONE 3 IPP has been the expansion of investment to regional areas. The basic strategy for achieving this has been to increase the number of regional industries by awarding maximum investment privileges and incentives to plants to be located in Zone 3.

In evaluation, policy outputs are measured at two levels as follows:

Aggregate Level

1. Comparing the number of promoted plants with the number of non-promoted plants in all the provinces of Zone 3 as a whole between the periods 1989-1992 (pre-policy) and 1993-1996 (post-policy).

2. Calculation of various indicators to show whether the number of promoted plants actually increased and if so to what extent.

2.1 Zone 3 as a whole

$$RPP_1 = \frac{\text{No. of Promoted Plants in Zone 3 in 1989-1992}}{\text{No. of Non-Promoted Plants in Zone 3 in 1989-1992}}$$

$$RPP_2 = \frac{\text{No. of Promoted Plants in Zone 3 in 1993-1996}}{\text{No. of Non-Promoted Plants in Zone 3 in 1993-1996}}$$

If RPP_2 is greater than RPP_1 , it would indicate an increase in number of promoted plants after the implementation of BOI ZONE 3 IPP

2.2 Comparision of Zone 3 with Zone 1 and Zone 2

$$RPPZ (3-1)_1 = \frac{\text{No. of Promoted Plants in Zone 3 in 1989-1992}}{\text{No. of Promoted Plants in Zone 1 in 1989-1992}}$$

The proportion of promoted plants in Zone 3 to promoted plants in Zone 1 in 1989-1992

$$RPPZ (3-1)_2 = \frac{\text{No. of Promoted Plants in Zone 3 in 1993-1996}}{\text{No. of Promoted Plants in Zone 1 in 1993-1996}}$$

The proportion of promoted plants in Zone 3 to promoted plants in Zone 1 in 1993-1996

$$RPPZ (3-2)_1 = \frac{\text{No. of Promoted Plants in Zone 3 in 1989-1992}}{\text{No. of Promoted Plants in Zone 2 in 1989-1992}}$$

The proportion of promoted plants in Zone 3 to promoted plants in Zone 2 in 1989-1992

$$RPPZ (3-2)_2 = \frac{\text{No. of Promoted Plants in Zone 3 in 1993-1996}}{\text{No. of Promoted Plants in Zone 2 in 1993-1996}}$$

The proportion of promoted plants in Zone 3 to promoted plants in Zone 2 in 1993-1996

If $RPPZ (3-1)_2$ is greater than $RPPZ (3-1)_1$, it indicates an increase in promoted plants in Zone 3 after policy implementation implying that entrepreneurs invested more in Zone 3. The second proportion also indicated the same as the above-mentioned.

Micro Level

1. The proposition that the maximum investment privileges and incentives was awarded to plants to be located in Zone 3 were importance factors in the investment decision-making process of entrepreneurs can be proven by establishing the relationship between individual rating scores given by these entrepreneurs to the BOI measures and to the existing investment conditions in the 5 provinces and 1 industrial estate in the eastern region of Zone 3 (i.e. the case-study area).

2. Path analysis was employed to determine whether the tax and non-tax incentives available under BOI Zone 3 IPP and whether the existing investment conditions were sufficient incentive for entrepreneurs to increase investment in Zone 3. In fact, path analysis did prove the first hypothesis : policy output (the number of promoted plants in Zone 3) did depend on the adequacy of both tax and non-tax incentives offered under BOI Zone 3 IPP and whether or not they were implemented in any

particular area. In other words the effectiveness of these BOI measures does depends on the quality and quantity of existing investment conditions. Thus areas in which favourable investment conditions already exist would tend to attract a higher number of BOI plants as compared to other areas. The path diagram supporting the above conclusion is illustrated below.

The structural equation for the above factors were as follows :

$$BOI\ M = P_{12}\ INFR + P_{13}\ RESO + P_{14}\ ECON$$

$$CINV = P_{y1}\ BOI\ M + P_{y2}\ INFR + P_{y3}\ RESO + P_{y4}\ ECON$$

Where : $BOIM$ = Rating Score of BOI measures

$INFR$ = Rating Score of infrastructure

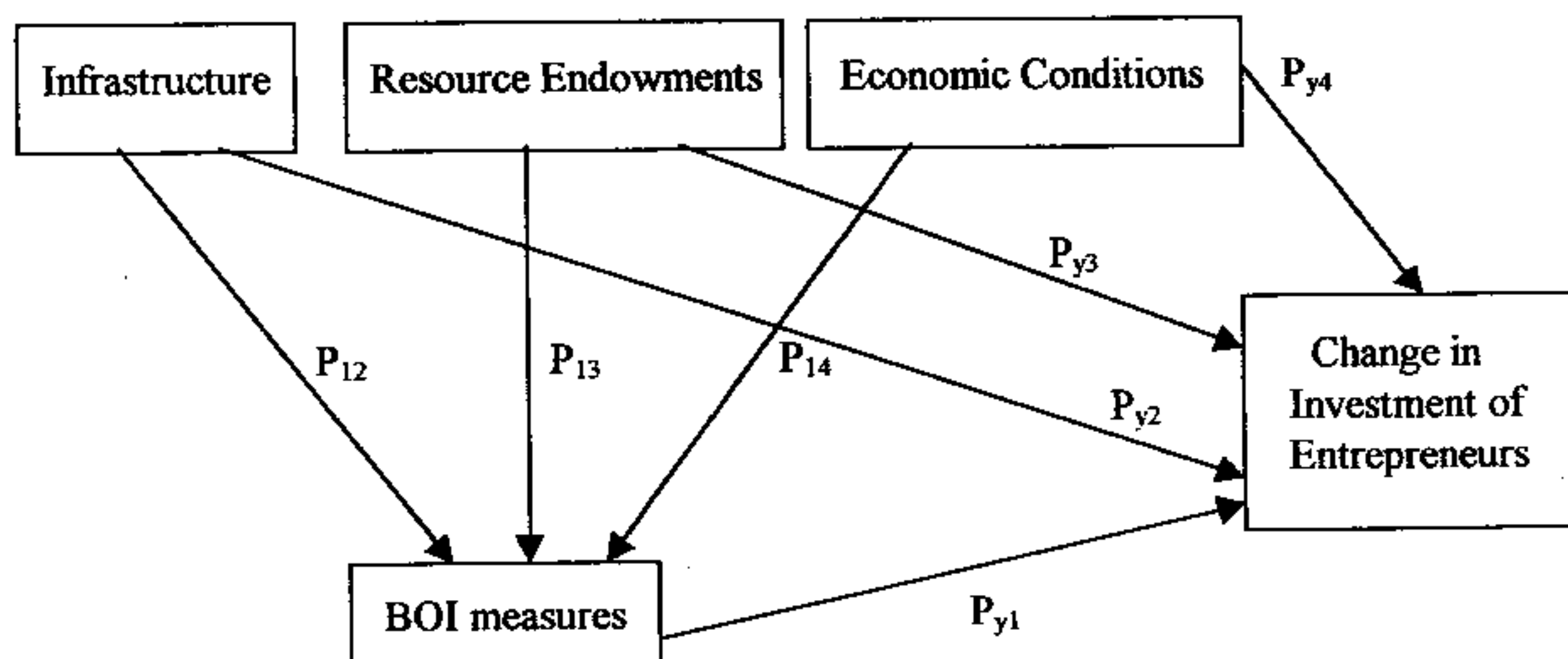


Figure 4.1 Causal Model of Change in BOI-Promoted Investment

$RESO$ = Rating score of resource endowment

$ECON$ = Rating score of economic conditions

$CINV$ = Value of change in investment

P_{12} = Path coefficient between BOI measures and infrastructure

P_{13} = Path coefficient between BOI measures and resource endowment

P_{14} = Path coefficient between BOI measures and economic conditions

- P_{y1} = Path coefficient between change in investment and BOI measures
- P_{y2} = Path coefficient between change in investment and resource endowments
- P_{y4} = Path coefficient between change in investment and economic conditions

In Figure 4.1 the direct effect of BOI measures on the change in investment is shown by P_{y1} , the direct effect of infrastructure on the change in investment is shown by P_{y2} , the direct effect of resource endowment on the change in investment is shown by P_{y3} , and the direct of economic condition on the change in investment is shown by P_{y4} . The indirect effect of infrastructure, resource endowments and economic conditions on change in investment due to BOI measures are shown by P_{12} , P_{13} , and P_{14} respectively.

Descriptions, operational definitions and measurement level of dependent and independent variables in this path model are listed in Table 4.1 below.

Table 4.1 Descriptions, Operational Definitions and Measurement Levels for Variables used in the Causal Model (Change in BOI-Promoted Investment)

Variable	Description	Operational Definition	Measurement Level
CINV	Change in investment (The average of the total amount of money which each entrepreneur of promoted plants in	(From questions number 23-27 in the entrepreneur's questionnaire.) Will you increase	Ratio. The unit of this variable was million baht.

Table 4.1 (continued)

Variable	Description	Operational Definition	Measurement Level
	Eastern region of Zone 3 would invest given the infrastructure, resource endowments and economic conditions which existed were of appropriate quality and quantity and BOI ZONE 3 IPP measures were offered)	your investment if, the infrastructure is existed with appropriate quality and quantity? If the answer is YES, the entrepreneur will specify the amount of money. If the answer is NO, the entrepreneur will specify the reason. The same question but with the term 'infrastructure' replaced by 'resource endowments' economic conditions and BOI measure.	
BOIM	BOI Measures (The rating given to factors in the investment decision-making process. For example, if BOI measures received a high rating score from entrepreneurs, It showed that this factor was considered to be an important factor.	(From questions 17-19 in the entrepreneur questionnaire.) Consider the important factors in the investment decision making process and give a rating score from 0-10 on the importance of tax and non-tax privileges available for both new plants and relocated plants.	Interval. A ten-point scale was used : a score of 10 indicating highest importance and a score of 0 indicating lowest importance.

Table 4.1 (continued)

Variable	Description	Operational Definition	Measurement Level
	Conversely, if this factor was considered to be relatively unimportant, a lower rating score should reflect this. This variable was measured according to the ratings given by entrepreneurs in the 5 provinces and 1 industrial estate. These entrepreneurs each rated the importance of this factor on a ten-point scale.)		
INFR	Infrastructure (The average of individual rating scores for water supply capacity, electricity supply capacity, the number of available phone lines, road transport capacity, rail transport capacity and port facilities capacity : entrepreneurs rated the importance of these factors on a ten-point scale)	(From question 20 in the entrepreneur questionnaire) Consider the important factors in the investment decision-making process, and give a rating score give rating score from 0-10 on water supply capacity, electricity supply capacity, the number of available phone lines, road transport capacity,	Interval. A ten-point scale was used : a score of 10 indicating highest importance and a score of 0 indicating lowest importance.

Table 4.1 (continued)

Variable	Description	Operational Definition	Measurement Level
RESO	Resource Endowment (The average of individual rating scores of quantity of available land resources, quantity of available natural resources and quantity of available labor resources. The entrepreneurs rate the important of this factor on a ten-point scale.)	rail transport capacity, and port facilities capacity. (From question 21 in the entrepreneur's questionnaire) Consider the important factors in the investment decision-making process and give a rating score from 0-10 on quantity of available land resources, natural resources and labor resources.	Interval. A ten-point scale was used : a score of 10 indicating highest importance and a score of 0 indicating lowest importance.
ECON	Economic Conditions The average of individual rating score of Gross Provincial Product or Per capita income, the number of financial institutions involved, and the number of primary industries which supply input to promoted plants.	(From question 22 in the entrepreneur's questionnaire) Consider the important factors in the investment decision-making making process and give a rating score from 0-10 on Gross Provincial Products, the number of financial institutions involveds, and the number of primary industries.	Interval. A ten-point scale was used : a score of 10 indicating highest importance and a score of 0 indicating lowest lowest importance.

5.2 Policy Impacts

An increase in the number of promoted plants in Zone 3 would be beneficial if these plants provided new employment opportunities to people living in Zone 3 because net migration should increase (migration in should be higher than migration out), incomes in the area should increase, and employees' children should have the opportunity to get a better education.

In order to test whether the number of promoted plants, and changes of income, employment and migration were due to implementation of BOI ZONE 3 IPP a time-series analysis between the periods 1989-1992 and 1993-1996 was conducted on the aggregate level and the micro level as explained in the next two section.

Aggregate Level

- 1) Comparison of the number and rate of change of promoted plants, the value and rate of change of GPP, the number and rate of change of employment of promoted plants, and the number and rate of change of net migration in the Zone 3 areas in 58 provinces from 1989-1996. These comparisons should show that trends in these areas pre- and post- the implementation of this policy in Zone 3 as a whole. For example if the rate of change increased over all and the slope of the representative lines was positive this would show that BOI Zone 3 IPP was a positive factor in attracting investment to Zone 3 as a whole.
- 2) In order to prove whether change in net migration, change in the number of promoted plants, and change in employment number were responsible for change in income in Zone 3 (i.e. to test the

2nd hypothesis), path analysis was conducted according to the following path diagram.

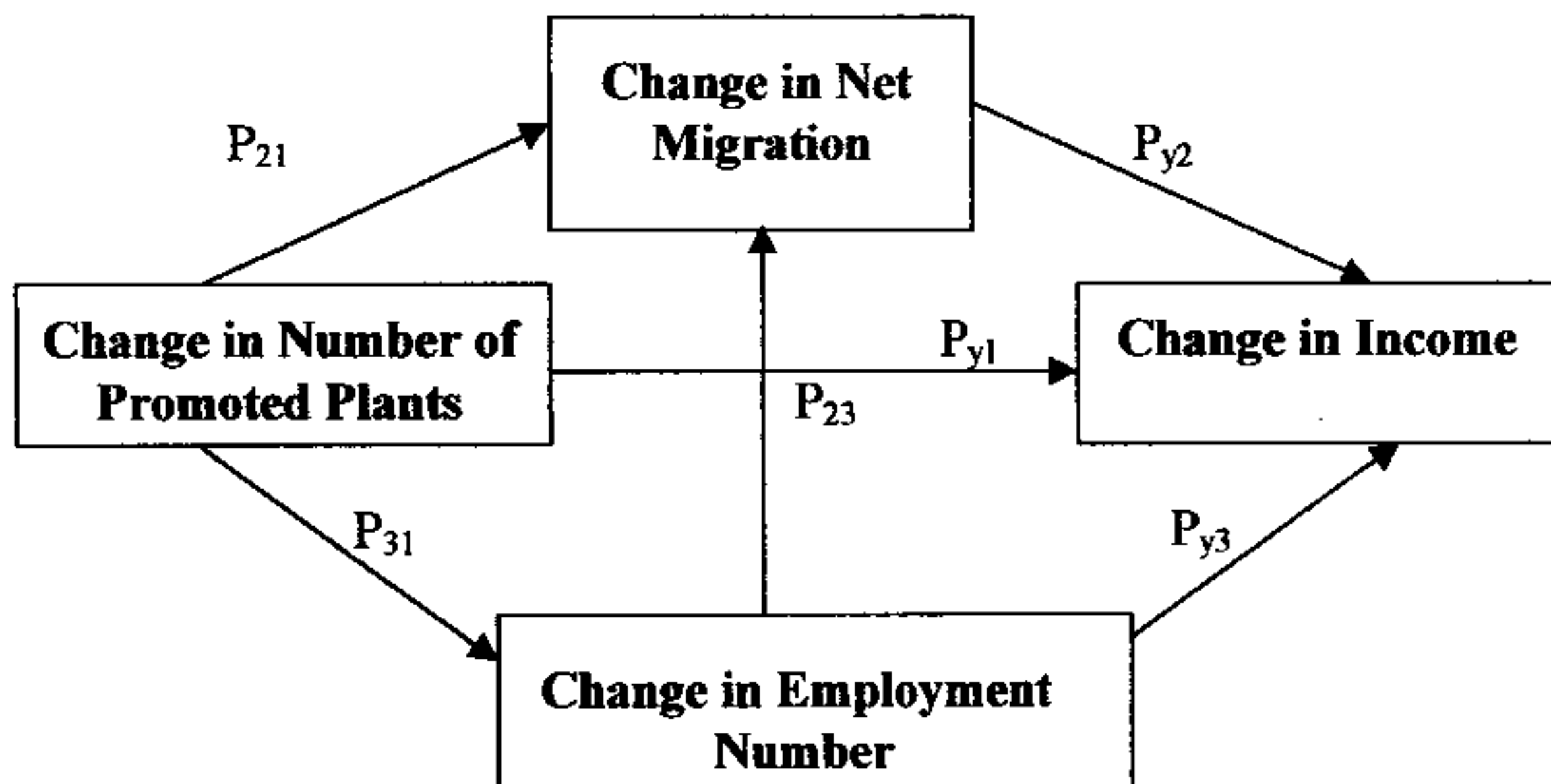


Figure 4.2 Causal Model of Change in Income.

The structural equations for the above factors were as follows :

$$CNM = P_{21} CNPP + P_{23} CEMP$$

$$CEMP = P_{31} CNPP$$

$$CINC = P_{Y1} CNPP + P_{Y2} CNM + P_{Y3} CEMP$$

Where : CNM = Change in net migration

CNPP = Change in number of promoted plants

CEMP = Change in employment number

CINC = Change in income

P₂₁ = Path coefficient between change in net migration and change in number of promoted plants

P₃₁ = Path coefficient between change in employment number and change in number of promoted plants

P₂₃ = Path coefficient between change in employment number and change in net migration

- P_{y1} = Path coefficient between change in income and change in number of promoted plants
- P_{y2} = Path coefficient between change in income and change in net migration
- P_{y3} = Path coefficient between change in income and change in employment number

In Figure 4.2 the direct effect of change in net migration on the change in income is described by P_{y2} , the direct effect of change in the number of promoted plant on change in income is described by P_{y1} , and the direct effect of change in employment numbers on the change in income is described by P_{y3} . The indirect effect of change in the number of promoted plants on change in income was due to change in net migration is P_{21} and due to change in number of employment is P_{31} . The indirect effect of change in employment number on change in income due to change in net migration is P_{23} .

The description, operational definition, and measurement level of dependent and independent variables in this path model are listed in Table 4.2 below.

Table 4.2 Descriptions, Operational Definitions and Measurement Levels for Variables used in the Causal Model (Change in Income)

Variable	Description	Operational Definition	Measurement Level
CINC	Change in income	The total value of GPP during 1993-1996 minus the total value of GPP during 1989-1992 in each Zone 3 province.	Ratio. The unit of this variable was baht.

Table 4.2 (continued)

Variable	Description	Operational Definition	Measurement Level
CNPP	Change in number of promoted plants	The total number of promoted plants during 1993-1996 minus by the total number of promoted plants during 1989-1992 in each Zone 3 province.	Ratio. The unit of this variable was baht.
CEMP	Change in employment number	The total number of employment at promoted plants during 1993-1996 minus the total number of employment at promoted plants during 1989-1992 in each Zone 3 province.	Ratio. The unit of this variable was persons.
CNM	Change in net migration	The number of people who moved into each Zone 3 province minus the number of people who moved out to other provinces during 1993-1996 minus the number of people who moved into each Zone 3 province minus the number of people who moved to other provinces during 1989-1992.	Ratio. The unit of this variable was persons.

(All the data of these variables were secondary data of each Zone 3 province)

Micro Level

1. The policy impact on the individual employees of promoted plants in Zone 3 (this study focused on the 5 provinces and 1 industrial estate in eastern region of Zone 3) was measured according to the difference between individual employee income before and after they commenced working at BOI-promoted plants. This was measured by time-series analysis of employee incomes for each type of industry before and after they commenced working.

2. Policy impact on individual employees of promoted plants was also measured by the educational opportunities for their children. Path-analysis was used to test whether employee income, number of family dependents, family consumption expenditure and savings were responsible for the change in intention to provide better education to employee's children (i.e. to test the 3rd hypothesis).

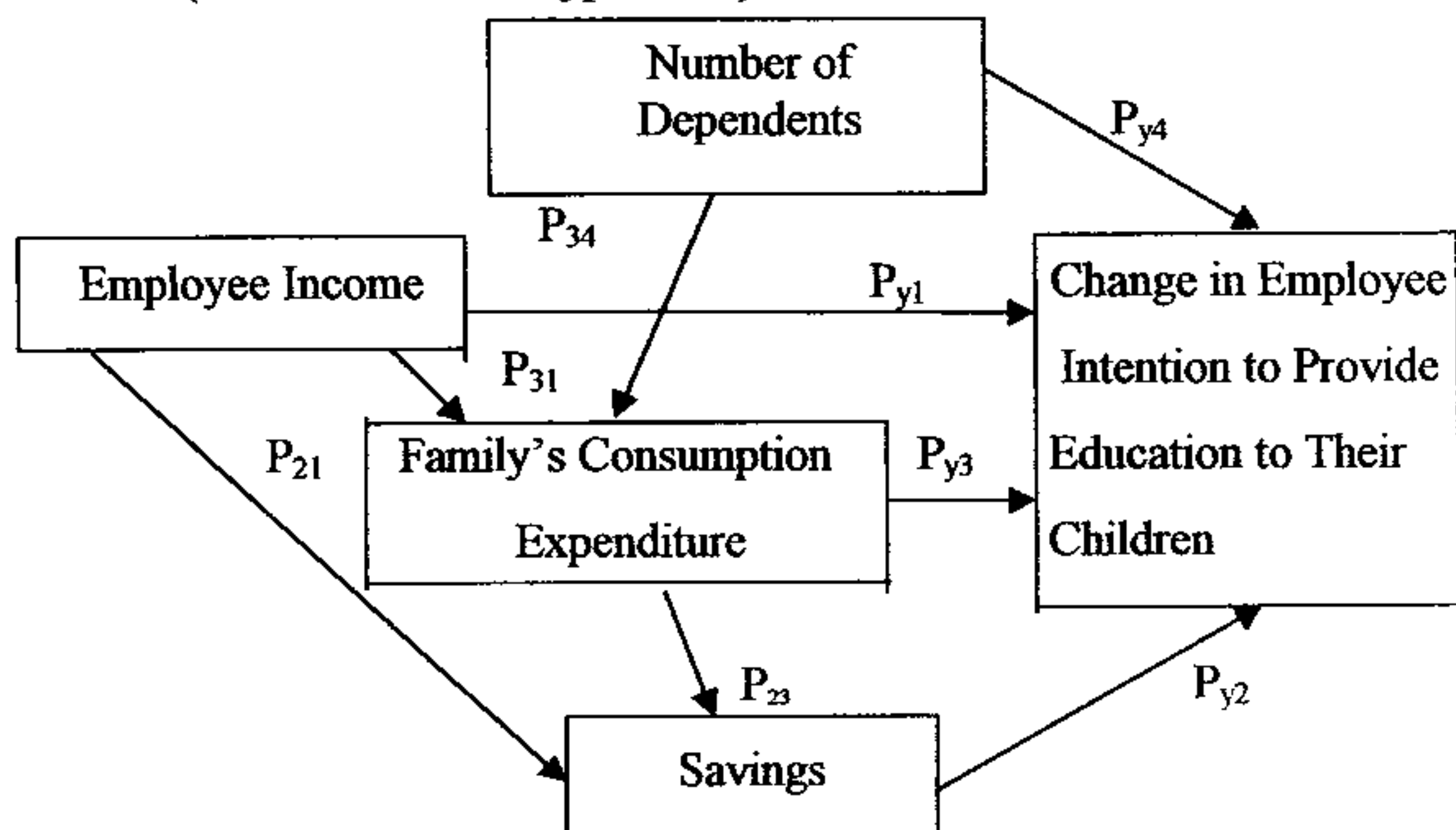


Figure 4.3 Causal Model of Improvement in Educational Opportunities for Employee's Children

The Structural Equations for the above factors are as follows :

$$\text{SAVE} = P_{21}.\text{INC} + P_{23}.\text{FEXP}$$

$$\text{FEXP} = P_{31}.\text{INC} + P_{34}.\text{DEP}$$

$$\text{CHED} = P_{y1}.\text{INC} + P_{y2}.\text{SAVE} + P_{y4}.\text{DEP} + P_{y3}.\text{FEXP}$$

Where : SAVE = Amount of employee savings

INC = Amount of employee income

FEXP = Amount of employee family consumption expenditure

DEP = Number of dependents of employee

CHED = Change in employee intention to provide education to their children

P_{21} = Path coefficient between savings and employee income

P_{23} = Path coefficient between savings and family consumption expenditure

P_{31} = Path coefficient between family consumption expenditure and employee income

P_{34} = Path coefficient between family consumption expenditure and number of dependents

P_{y1} = Path coefficient between change in employee intention to provide education to their children and employee income

P_{y2} = Path coefficient between change in employee intention to provide education to their children and employee savings rate

P_{y3} = Path coefficient between change in employee intention to provide education to their children and family consumption expenditure

P_{y4} = Path coefficient between change in employee intention to provide education to their children and number of dependents

In Figure 4.3, the direct effect of employee income on the intention to provide education is described by P_{y1} , the direct effect of savings of employee on the intention to provide education is described by P_{y2} and the

direct effect of the number of dependents on the intention to provide education is described by P_{y4} . The indirect effect of employee income on the intention to provide education due to the savings is P_{21} and due to family consumption expenditure is P_{31} . The indirect effect of family consumption expenditure on the intention to provide education due to the savings is P_{23} . The indirect effect of number of dependents on the intention to provide education due to the number of dependents is P_{34} . The indirect effect of family's consumption expenditure on the intention to provide education was due to savings is P_{23} .

Descriptions, operational definitions and measurement levels for the dependent and independent variables in this path model are listed in Table 4.3 below.

Table 4.3 Descriptions, Operational Definitions and Measurement Levels of Variables used in The Causal Model (Improvement in Educational Opportunities for Employee's Children)

Variable	Description	Operational Definition	Measurement Level
CHED	Change in employees intention to provide education to their children (The individual employees intention to provide education for his children before and after they worked	(From question number 23 of the employee questionnaire) Please compare before and after you commenced working for promoted plants, Do you intend to provide better education to your children? If the answer is YES, please	Interval. Primary School = 6 Secondary School = 9 High School = 12 Certificate from vocational school at Lower level = 12 Diploma or Higher Vocational school = 14 Bachelor = 16

Table 4.3 (continued)

Variable	Description	Operational Definition	Measurement Level
	at a promoted plant.)	specify to what level of education. If the answer is NO, please specify the reason.	Master = 18 Doctoral = 21
INC	Employee income (The amount of individual employees wage and benefits per month in money terms when they worked for promoted plants.)	(From question numbers 18-20 of the employee questionnaire) Please specify your wage/month, average bonus/year from 1993-1997) and the type of welfare that you receive at the promoted plant.	Ratio. The unit of this variable was baht.
SAVE	Savings (The amount of savings per month of individual employees who worked in promoted plants)	(From question number 16 of the employee questionnaire) Your income is more than your expenditure or not. If the answer is YES, please specify the average amount per month by which it is more than your expenditure. If the answer is NO, please specify your average deficit per month	Ratio. The unit of this variable was baht.

Table 4.3 (continued)

Variable	Description	Operational Definition	Measurement Level
FEXP	Consumption expenditure on employee's family (The total amount of money per month which individual employee spent on consumption by all persons under their responsibility.)	(From question number 13 of employee questionnaire) Please specify the total amount of money per month spent on consumption by all persons under your responsibility per month.	Ratio. The unit of this variable was baht.
DEP	Number of dependents (All persons financially dependent on the individual employee.)	(From question number 8 of employee questionnaire) Please specify the number of persons that are financially dependent on you.	Ratio. The unit of this variable was persons.

These path analyses were developed under the assumption that the correlation between variables was linear, additive and asymmetrical or specify unidirectional (Prasith-rathsint, 1994 : 261). Path analysis was used to break down the complex overall relationship into a number of smaller sub-models that could be readily solved by multiple regression analysis. Apart from being able to help assess the overall causal effect, (both direct and indirect) of any variable on its dependent variable (s) in the overall model, path-analysis could be used to determine interrelationships among the independent variables (as long as they were not both from the same sub-model). Thus, path-analysis was one step

further from ordinary multiple regression analysis in making a more realistic model possible (Siraprapasiri, 1996 : 70).

Micro level impact was also investigated regarding the educational opportunities for employee's children. This was determined by assessing parents (or guardians) ability to provide the level of education intended by comparing employee income (from questions number 17-22 of the employee questionnaire) with average expenditure on this level of education (from secondary data sourced from the Ministry of Education) when they commenced working at BOI-promoted plants.

VALIDITY AND RELIABILITY

It is essential that measurements for all factor variables used in the study are valid and reliable. Validity requires that measurements measure what to be measured pertain directly to the main points of the research. Reliability requires that all measurements provide at least consistent results (Prasith-rathsint, 1993 : 94-97).

Accordingly, this study examined the issue of validity from the standpoints of economic theory, public administration theory, policy theory and social science theory. This entailed reviewing relevant academic literature, the gathering of empirical data and evidence, and the consideration of constructive suggestions and comments from various specialists and experts. Once this had been conducted, these variables were assumed to be valid indicators of causes, policy outputs and policy impacts. The study would also employed multiple regression analysis using SPSS (Statistical Package for Social Science) as part of the path-analysis technique employed in order to test the validity of various

measurements according to mean, standard deviation, correlation matrix, R square, F-value, and t-value.

As for reliability, this was ensured by carefully constructing the interview schedule to encompass appropriate items or questions needed to construct the required variables. Data and information obtained from these questionnaires was then cross-checked with secondary data obtained from the BOI, NESDB, and the Ministries of Industry, Interior, Labor, Education and Commerce. SPSS was then used to check internal consistency by computing the alpha and standard item alpha reliability coefficients.

CHAPTER V

SAMPLE CHARACTERISTICS, COMPOSITE VARIABLES OF INVESTMENT DECISION-MAKING AND THE BENEFITS PROVIDED BY BOI-PROMOTED PLANTS

The objectives of this chapter are to provide a general description of both the sample's characteristics and the sub-variables of investment decision-making. The samples in this study are provincial key persons or experts, entrepreneurs of BOI-promoted plants and employees of BOI-promoted plants in the eastern region of Zone 3. All of the key 'provincial persons' are treated as a single group. The 'entrepreneur' sample is divided into 'type of industry' sub-sample and the employee sample is divided into male and female sub-samples.

1. KEY PROVINCIAL PERSONS

1.1 Characteristics of Respondents

The provincial key persons concerned with local industrial activity and BOI Zone 3 IPP are : 1) the Deputy Governor - who is responsible for economic activity in the province, an Industrial Officer from the Ministry of Industry - who is directly concerned with industrial activity in the province, a Commerce Officer from the Ministry of Commerce - whose duties are indirectly concerned with industrial activity in the province, the president of the Industrial Councils - who officially represents the interests of local private-sector industry, and the president of the Commerce Council - who is the representative of local private-sector commerce. Note that these samples come from just two sources, the government sector and the

private sector, which because of their different backgrounds and roles have different philosophies and objectives. Table 5.1 shows that exactly half of the samples came from the industrial sector of which 30 percent came from industry officers and 20 percent came from the presidents of Industrial Councils. Similarly, the commercial sector accounted for 43.3 percent of the sample, of which 20 percent came from Commercial Officers and 13.3 percent came from presidents of Commercial Councils. The remaining 16.7 percent of the sample came from Deputy governor. The highest number of responses (26.7 percent) came from Rayong province, followed by Chonburi and Prachinburi (16.7 percent) respectively.

Details of how these respondents' perspectives changed with regard to the factors involved in investment decision making after BOI Zone 3 IPP was implemented can be found in Tables 6.3, 6.10 and 6.11 of Chapter 6.

Table 5.1 Percentage Distribution by Province and Position of Key Provincial Persons

Province and Position	Key Provincial Persons (n = 30)
Province	
Chonburi	16.7
Prachinburi	16.7
Sakao	13.3
Rayong	26.7
Chantaburi	13.3
Trat	13.3
Position	
Deputy Governor	16.7

Table 5.1 (continued)

Province and Position	Key Provincial Persons (n = 30)
Industrial Officer	30.0
Commerce Officer	20.0
Industrial Council President	20.0
Commerce Council President	13.3

1.2 Composite Variables of Investment Decision-Making

One of the objectives of this study was to find out which of 4 factors chosen (BOI measures, infrastructure, resource endowment, and economic conditions) was the most important factor in investment decision making by entrepreneurs of BOI-promoted industries.

Table 5.2 Percentage Distribution and Mean Score of Investment Decision-Making Factors (as rated by key provincial persons)

Investment Decision-making factors	Range of significance rating											Total	Mean	S.D.
	10	9	8	7	6	5	4	3	2	1	0			
1. BOI measures	43.3	3.3	23.3	13.3	0.0	6.7	3.3	3.3	0.0	3.3	0.0	100 %	8.9	2.4
2. Infrastructure	20.0	33.3	6.7	20.0	6.7	6.7	3.3	3.3	0.0	0.0	0.0	100 %	7.9	1.9
3. Resource endowment	10.0	13.3	23.3	23.3	26.7	3.3	0.0	0.0	0.0	0.0	0.0	100 %	7.5	1.4
4. Economic conditions	6.7	23.3	30.0	13.3	6.7	13.3	0.0	0.0	6.7	0.0	0.0	100 %	7.3	2.0

Table 5.2 shows that BOI measures were the most important factor in this decision making process, followed by infrastructure, resource endowment, and economic conditions. Interestingly, the order determined here was the same as that determined from entrepreneur information (see Table 5.7) thus strongly reinforcing the

view that BOI measures are the most important factor in investment decision making - albeit not the only one.

2. ENTREPRENEURS

2.1 Characteristics of Respondents

BOI-promoted plants in Zone 3 were divided into two categories : new plants and relocated plants (both of which must have been in operation for no less than 1 year). In fact 82.4 percent of the entrepreneurs who responded to surveys for this study were entrepreneurs of new plants (see details in Table 5.3).

Table 5.3 Percentage Distribution by Type of Plant and Province (as reported by entrepreneurs)

Type of plant and province	All Entrepreneurs (n = 17)	Entrepreneurs By Industry Type	
		Agriculture	Other
Type of Plant			
Relocated Plant	17.6	0.0	27.3
New Plant	82.4	100.0	72.7
Province			
Rayong	64.7	50.0	72.7
Prachinburi	29.4	33.3	27.3
Sakao	5.9	16.7	0.0

Similarly, well over half of these new plants (64.7 percent) were in Rayong, reflecting the province's strong agricultural sector (especially in fruits) and agriculture's role as an important resource-base industry. Supporting this role are the many industrial estates and extensive infrastructure investments such Mab-Tha-Phut Port, the modern highway system and the well established railway.

Table 5.4 Descriptive Statistics of Amount of Investment (as reported by entrepreneurs)

Amount of Investment (mil. baht)	All Entrepreneurs	Entrepreneurs by Industry Type	
		Agricultural	Other ^{1/}
Less than 20	29.4	33.3	38.5
20-100	52.9	66.7	30.8
Over 100	17.7	0.0	30.8
Mean(million baht)	1,105.7	42.7	1,685.6
Maximum(million baht)	17,500.0	100.0	17,500
Minimum(million baht)	10.0	10.0	10.0
S.D.	4,226.2	33.4	5,246.7

1/ Other refers to mining, ceramics and basic metal industries, light industries, metal-working, machinery, transport equipment, electronic and electrical industries, chemical industries, paper and plastic products.

Just over half of the BOI promoted plants (52.9 percent) were set up for medium-scale industry (i.e. investments of 21-100 million baht) with 29.4 percent of plants set up for small-scale industry (less than 20 million baht) and the remainder of the plants (17.7 percent) set up for large-scale industry (more than 100 million baht). Surprisingly, none of these large-scale investments were in the agriculture industry, nor were any of them in small-scale agricultural investment. (see details in Table 5.4) Furthermore, with 61.5 percent of plants being either large or medium scale, this may be assumed to have resulted in relatively high output, and this would have therefore been a strong influence in locating these plants where transport links are good, thus boosting provincial income (GPP)-particularly in Rayong where most of these plants are sited.

However, as for the production processes, most entrepreneurs used non-local and imported production inputs, non-local materials, and either non-local and imported machinery. Even in agricultural industries, most entrepreneurs used non-local inputs, materials and machinery. Other industries use non-local and imported inputs, materials and machinery (see details in Table 6.14 chapter 6.). Similarly their markets are also non-local and foreign (see details in Table 6.15 Chapter 6.).

Income and other benefits which these BOI-promoted plants provided to their employees were in the form of wages, bonuses, and welfare (see details in Table 5.5).

Table 5.5 Descriptive Statistics of Wage and Other Benefits Provided to Employees (as reported by entrepreneurs)

Wage and other benefits	All Entrepreneurs (percent)	Entrepreneur in Industry Type		χ^2 (p value)
		Agriculture (percent)	Others (percent)	
Wages/month (baht)				3.6
0-4,500	52.9	83.3	36.4	(0.055)
Over 4,500	47.1	16.7	63.6	
Median	4,350.0	3,870.0	4,770.0	
Mean	4,526.5	4,035.0	4,794.6	
Maximum	6,090.0	4,710.0	6,090.0	
Minimum	3,690.0	3,690.0	3,840.0	
S.D.	778.0	407.3	813.3	
Bonus/month (baht)				0.0
0-50	47.1	50.0	45.5	(0.9)
Over 50	52.9	50.0	54.5	
Median	154.0	167.0	154.0	

Table 5.5 (continued)

Wage and other benefits	All Entrepreneurs (percent)	Entrepreneur in Industry Type		χ^2 (p value)
		Agriculture (percent)	Others (percent)	
Mean	239.5	279.0	217.9	
Maximum	875.50	624.0	875.0	
Minimum	0.0	0.0	0.0	
S.D.	271.3	262.9	281.1	
Welfare in money terms/month (baht)				0.2
0-100	58.8	66.7	54.5	(0.6)
over 100	41.2	33.3	45.5	
Median	40.0	25.0	42.0	
Mean	228.5	177.8	256.1	
Maximum	1,667.0	600.0	1,667.0	
Minimum	0.0	0.0	0.0	
S.D.	417.5	262.9	491.9	
Type of Welfare				
Housing				0.7
Have	52.9	33.3	54.5	(0.4)
None	47.1	66.7	45.5	
Lunch				0.2
Have	11.8	16.7	9.1	(0.6)
None	88.2	83.3	90.9	
Health care				0.9
Have	94.1	100.0	90.9	(0.3)
None	5.9	0.0	9.1	
Health care for family				0.9
Have	5.9	0.0	9.1	(0.3)
None	94.1	100.0	90.9	
Others				1.5

Table 5.5 (continued)

Wage and other benefits	All Entrepreneurs (percent)	Entrepreneur in Industry Type		χ^2 (p value)
		Agriculture (percent)	Others (percent)	
Have	35.3	16.7	45.5	(0.2)
None	64.7	83.3	54.5	

1/ Others are uniforms, child care, education for employee's children and transportation.

Table 5.5 shows that wages at most BOI-promoted plants were lower than 4,500 baht/month, whereas other industries (except agricultural and services industries) paid more than 4,500 baht/month because the skill and education background of employees in those type of industries are higher. In fact, while the average wage/month which BOI-promoted plants provided to their employees was higher than the legal minimum wage (128 baht/day or 3,840 baht/month), the minimum wage which BOI-promoted plants provided to their employees (3,690 baht/month) was actually lower than the legal minimum wage, implying strongly that the labor market was in fact a buyer's market. This should come as no surprise because it is common knowledge that Thai workers rarely have much labour bargaining-power and labor supply is generally far higher than demand in those industries. Indeed, labor exploitation is known to be rife in Thailand, and BOI-promoted plants are no exception.

Another kind of income is bonuses. While more than half (52.9 percent) of BOI-promoted plants pay an average bonus of more than 51 baht/month to their employees, the agricultural industries pay them average bonuses of less than 50 baht/month and more than 50 baht/month in the same proportion. By contrast, the average bonus

received by employees at BOI-promoted plants was 240 baht/month. While this would obviously offset to some degree (at least in theory) the lower than legal wages often paid, in fact this 'bonus' system (which prevails throughout Thailand) is used to coerce workers to do more work for the same money that they would have received had they been paid a straight wage/salary. Thus, these 'bonuses' are not usually thought of as bonuses in the usual sense - although employers and at times the government may speak of them as such for propaganda purposes. Nevertheless, these 'bonuses' do (technically at least) count as extra income for employees, and they do account for a significant part of their purchasing power. Of course this is reflected not only in higher demand for local products, but also for the output from BOI-promoted plants (providing such products are both desirable and in an affordable price-range).

Another dubious benefit that BOI-promoted plants often provide to their employees is welfare. However most employees of BOI-promoted plants received welfare benefits worth less than 100 baht/month in money terms, although the average was 229 baht/month. This was probably a reflection of the huge differences in pay rates between workers and senior managers (another prominent feature of Thailand's employment scene) rather than differences between individual companies. Most of this welfare took the form of free or subsidized housing and health care which directly contributed to their standard of living, and attracted many potential employees who would otherwise not been interested to compete for jobs, thus keeping wage demand down by increasing labour supply.

Table 5.6 Percentage Distribution and Mean Score of Significance of Unskilled Labor (as rated by entrepreneurs)

Type of labor	Range of significance rating											Total	Mean	S.D.
	10	9	8	7	6	5	4	3	2	1	0			
Unskill labour	0.0	18.0	29.0	6.0	0.0	23.0	6.0	6.0	0.0	0.0	12.0	100	5.9	4.8

As Table 5.6 above indicates, most of the entrepreneurs surveyed (29.0 percent) reported that unskilled labor was a significant production input for them. This would appear to be correct because, according to the above examination most BOI-promoted plants are of medium-scale, a size which in Thailand has proven to be generally labor-intensive.

2.2 Composite Variables of Investment Decision-Making

Another major objective of this study was to discover the significance of the following 4 factors - 1) BOI measures, 2) infrastructure, 3) resource endowment, and 4) economic conditions - was in the investment decision-making process of these entrepreneurs. The terms used in this investigation are defined below.

BOI measures : the full range of BOI incentive measures which may be granted is as follows :

1. Tax Measures

TAX 1 is import tax exemption on machinery

TAX 2 is corporate income tax exemption for 8 years

TAX 3 is import tax exemption on raw or essential material used in export products for a period of 5 years for

plants exporting at least 30 percent of total sales value

TAX 4 is import tax exemption on raw and essential materials to be used in goods and products for domestic sale, provided raw or essential materials comparable in quality and of sufficient volume are not being produced locally (plants in Laem Chabang Industrial Estate are exempt from this requirement)

TAX 5 is a 50 percent income tax exemption during the first five years of production

TAX 6 is a reduction of income tax by 2 times the plant's public utility cost for 10 years from the date of first sales

TAX 7 is a deduction from net profit of 25 percent of the cost of constructing infrastructure and other facilities

2. Non-Tax Measures.

N-TAX 1 is slashing the minimum capital requirement from \$400,000 to only \$40,000

N-TAX 2 is capital subsidies are made available through commercial banks totaling up to \$1,568 million per annum

N-TAX 3 is provision of labor training, product development, and market development assistance at both the domestic and international level

N-TAX 4 is government guaranteed funding of \$5.22 billion to be invested in infrastructure and public utilities in designated areas of Zone 3

3. In the case of relocated plants the following tax measures are granted :

R-TAX 1 is corporate income tax exemption for 8 years

R-TAX 2 is reduction of corporate income tax by 50 percent for 5 years after the initial exemption period

R-TAX 3 is double deduction from taxable income of water, electricity and transport costs for 10 years

R-TAX 4 is an income tax holiday period to start from the day that the plant receives its first revenue from the relocated operation

4. Infrastructure.

INF 1 is quantity and quality of water supply

INF 2 is quantity and quality of electricity

INF 3 is quantity and quality of telephones

INF 4 is quantity and quality of road transportation

INF 5 is quantity and quality of railways

INF 6 is quantity and quality of air transportation

INF 7 is quantity and quality of sea port(s)

5. Resource endowment.

RES 1 is quantity of available land

RES 2 is quantity of available natural resources

RES 3 is quantity of available labor

6. Economic conditions.

Table 5.7 (continued)

Investment Decision-making factors	Range of significance rating											Total	Mean	S.D.
	10	9	8	7	6	5	4	3	2	1	0			
R-Tax	66.7	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	9.7	
R-Tax 1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0	100	10.0	
R-Tax 2	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	9.0	
R-Tax 3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	10.0	
2. Infrastructure	23.5	0.0	52.9	17.6	0.0	0.0	5.9	0.0	0.0	0.0	0.0	100	7.6	2.0
INF 1	11.8	23.5	5.9	0.0	0.0	11.8	0.0	0.0	0.0	5.9	0.0	100	7.6	
INF 2	52.9	23.5	5.9	5.9	0.0	0.0	0.0	11.8	0.0	0.0	0.0	100	8.6	
INF 3	29.4	23.5	23.5	5.9	0.0	5.9	0.0	11.8	0.0	0.0	0.0	100	8.0	
INF 4	32.3	11.8	17.6	23.5	5.9	0.0	0.0	5.9	0.0	0.0	0.0	100	8.2	
INF 5	11.8	0.0	11.8	11.8	23.5	11.8	5.9	5.9	0.0	5.9	0.0	100	5.4	
INF 6	11.8	0.0	17.6	5.9	11.8	23.5	5.9	11.8	0.0	11.8	0.0	100	5.6	
INF 7	11.8	23.5	29.4	11.8	0.0	5.9	0.0	5.9	0.0	11.8	0.0	100	7.1	
3. Resource Endowment	5.9	11.8	17.6	23.5	23.5	11.8	5.9	0.0	0.0	0.0	0.0	100	6.9	1.6
RES 1	17.6	23.5	23.5	17.6	5.9	5.9	0.0	0.0	5.9	0.0	0.0	100	7.8	
RES 2	5.9	11.8	11.8	17.6	17.6	5.9	0.0	11.8	5.9	0.0	11.8	100	5.6	
RES 3	17.6	17.6	11.8	23.5	17.6	5.9	0.0	0.0	0.0	5.9	0.0	100	7.4	
4. Economic Conditions	5.9	0.0	11.8	17.6	23.5	17.6	11.8	11.8	0.0	0.0	0.0	100	5.9	1.9
ECON 1	11.8	0.0	17.6	23.5	17.6	5.9	5.9	11.8	5.9	0.0	0.0	100	6.3	
ECON 2	11.8	0.52	11.8	17.6	23.5	17.6	0.0	11.8	5.9	0.0	0.0	100	6.1	
ECON 3	11.8	5.9	11.8	17.6	11.8	5.9	0.0	11.8	11.8	11.8	0.0	100	5.6	

The above analysis reveals that, of the four factors which were examined to determine the extent of their influence on the investment decision-making process of entrepreneurs, BOI measures were of the most significance - with an average rating score from entrepreneurs of

8.9, followed by infrastructure (7.6), resource endowment (6.9), and of economic conditions (5.9). The result clearly implies that value of GPP, quantity of financial institutions and quantity of primary industries are not important factors for investment decision making- especially the last factor because when the entrepreneurs select what area to be the site of their plants, they will already have their input-supplier arrangements made and their financial sources also arranged.

As for BOI tax and non-tax measures, tax measures were more significant than non-tax measures - the average score for tax measures being 9.4 and non-tax measures being 7.6. Tax exemption on imported machinery was found to be the single most important BOI inducement for entrepreneurs, followed by the 8-year income-tax holiday, and the double tax rebate on the cost of utilities and transportation for the first 10 years. These results confirm expectations that tax measures which directly and significantly reduced production cost were the most important BOI inducement for entrepreneurs.

While non-tax measures were held to be relatively insignificant, government guarantees of infrastructure and public utilities to service such investment projects were the most significant non-tax measures. However, in general such non-tax measures were not highly significant to entrepreneurs because they affected the production process only indirectly. As for relocated plants, tax-measures were found to be highly significant, with the 8-year income-tax exemption and the 10-year utilities/transport rebate being the two most significant of these inducements.

The second most significant determinant of investment decision-making was found to be infrastructure, with quantity and

quality of electricity supply the most significant factor because again they effect the production process directly.

The third most significant set of factors in investment decision-making was resource endowment, with the quantity of land available being the most significant factor because land is counted as a fixed cost and therefore if the price of it is higher, the cost of production will be higher also and business competitiveness will accordingly be lower.

The least significant of the four factors examined was found to be economic conditions, of which Gross Provincial Products value was the most significant factor because it is a very good indicator of the consumer and purchasing power demand of the people in the province.

3. EMPLOYEES

3.1 Characteristics of Respondents

Most employees (55.3 percent) were found to be between 26 and 35 years old, with 52.1 percent of males and 58.8 percent of female being in this age-range. By contrast, in the 36 years old over range, there were more male employees, implying BOI-promoted plants more readily employed males at higher ages than females and/or that perhaps older females find the work they can get at such plants to be less attractive than that which older males can find. The average age of employees was 29 years old, the minimum was 18 years old, and the maximum age was 53 years old (see details in Table 5.8)

Survey responses indicated that most employees (55.3 percent) were married at the time, with female employees more likely to be married than male employees. Similarly, there were more male than female employees who were single and/or divorced. These responses suggest that as a group female employees played a greater role as providers of family/household income than male employees.

Table 5.8 Descriptive Statistics of Various Socio-Demographic Characteristics of Employees

Socio-demographic Characteristic	All Employees	Male Employees	Female Employees	χ^2 (p value)
Age (years)				1.1
0-25	28.4	28.8	27.9	(0.59)
26-35	55.3	52.1	58.8	
36 and over	16.3	19.2	13.2	
Median	28.0	29.0	28.0	
Mean	29.3	29.5	29.1	
Maximum	53.0	53.0	52.0	
Minimum	18.0	18.0	20.0	
S.D.	6.1	6.5	5.8	
Marital status				1.5
Single	36.9	39.7	33.8	(0.46)
Married	55.3	50.7	60.3	
Divorced and separated	7.8	9.6	5.9	
Domicile				11.1
Eastern provinces	65.2	56.2	75.0	(0.00)
BMR and Central provinces	14.2	12.3	16.2	
Northern, North-eastern and Southern provinces	20.6	31.5	8.8	

Table 5.8 (continued)

Socio-demographic Characteristic	All Employees	Male Employees	Female Employees	χ^2 (p value)
Family dependents (persons)				1.4
1-2	56.7	60.3	52.9	(0.49)
3-4	35.5	34.2	36.8	
5- and over	7.8	5.5	10.3	
Median	2.0	2.0	2.0	
Mean	2.5	2.5	2.5	
Maximum	7.0	7.0	6.0	
Minimum	2.0	1.0	1.0	
S.D.	1.3	1.3	1.4	
Education level				10.49
Primary School	22.0	26.0	17.6	(0.03)
Secondary School	38.3	42.5	33.8	
High School and Certificate	7.1	6.8	7.4	
Diploma	12.8	15.1	10.3	
Bachelor Degree	19.9	9.6	30.9	

With regard to domicile, most employees (65.2 percent) indicated that they lived in the eastern provinces, with females outnumbering males. The effect of employees gender on domicile was of less than 0.05 significance, with more than 40 percent of male employees living in the BMR, central provinces, and other areas. Moreover, as it emerged that most employees of both sexes lived in the eastern provinces, this confirmed that BOI-promoted plants did in fact employ a large number of employees from the provinces which their plants were in or near, thus achieving one of the main objectives of BOI Zone 3 IPP : i.e. to create local employment and reduce out-migration.

With regard to number of family dependents, most (56.7 percent) male and female employees (56.7 had 1-2 dependents with an average of 2.5 dependents for every family. This 2.5 average is widely regarded as a relatively comfortable number of persons for employee(s) to properly support and care for, which in turn suggests strongly that their children will likely become good citizens and responsible adults.

Examining the educational attainment of employees, it was discovered that the education of most employees (60.3 percent) both male and female finished at the primary or secondary school level, thus classifying them as 'unskilled' labor according to prevailing standards. Only 7.1 percent of them finished high school or obtained a certificate, while 19.9 percent finished at bachelor degree level-with males outnumbering female in the latter. The gender of employees was found to be related to their educational attainment because the level of significance for this factor was below 0.05.

As for the type of industry in which they are employed, the largest number of respondents (47.5 percent) indicated that they were not employed in agricultural or services industries, but rather in light industry or the electronics industry. More males than females were employed in the agricultural industry, while in the service industry, the proportion of male to female employees was nearly equal. (see Table 5.9 for details)

Table 5.9 Percentage Distribution of Employees by Industry Type

Type of Industry ^{1/}	All Employees	Male Employees	Female Employees	χ^2 (p value)
1	42.6	49.3	35.3	3.0
2	47.5	41.1	54.5	(0.23)
3	9.9	9.6	10.3	

^{1/} Type 1 : agriculture and agricultural industries

Type 2 : mining, ceramics and basic metal industries, light industries, metal-working, machinery, transport equipment, electronics and electrical industries, chemical industries, paper and plastic products

Type 3 : services and infrastructure services industries

3.2 Main and Secondary Occupation Categories Before and After Commencing Working for BOI-Promoted Plants

Another interesting issue which was examined in this study was how employee occupations differed before and after they began working for BOI-promoted industries. Survey results given in Table 5.10 show that by far the most common occupation before working for BOI-promoted industries was 'general employee' (e.g. an employee of a food-shop or grocery, agricultural-sector employee, etc.). In fact, over half of all male employees (50.7 percent) worked as general employees beforehand, whereas only 38 percent of females employees had done so. In addition, the gender of employees did affect their type of main occupation before they were employed by BOI-promoted industries because the level of significance was less than 0.05.

While almost half of all employees had secondary job, gender had a significant effect on type of secondary job as indicated by a significance of less than 0.05.

In fact, three in four male respondents (76.3 percent) and three in five female respondents (66.2 percent) had a secondary job, implying that most employees used their spare time to earn more money for their family, which is generally regarded as the most productive and praiseworthy thing to do.

With regard to employees who had already commenced working for BOI-promoted plants, over half of them (51.8 percent) reported not having a second main occupation, presumably because they either a) considered that they did not need another main job, or b) did not have enough time to work a second main job. However there was a higher number of male employees than female employees who had another main occupation after they had commenced working for promoted plants which is probably because Thai females once they marry, nearly always have to also play the role of being a wife and a mother in addition to being a wage earner for the family.

Overall most of employees (59 percent) did not have a secondary occupation after they commenced working for BOI-promoted plants. Male employees who had secondary jobs outnumbered females presumably because Thai males always assume the role of the family's main provider. Once more, employee gender was shown to be important, with a level of significance of less than 0.05 for this factor.

Table 5.10 Percentage Distribution of Employees by Main and Secondary Occupations (before and after commencing work for BOI-promoted plants)

Main and Secondary Occupation	All Employees	Male Employees	Female Employees	χ^2 (p value)
Main occupation				
Before working for BOI-promoted plants				8.6
General employees	42.6	50.7	33.8	(0.03)
Self-agricultural employees	16.3	16.4	16.2	
Others ^{1/}	17.7	19.2	16.2	
None	23.4	13.7	33.8	
After working for BOI-promoted plants				6.5
General employees	27.0	26.0	27.9	(0.09)
Self-agricultural employees	16.3	23.3	8.8	
Others ^{1/}	5.0	2.7	7.4	
None	51.8	47.9	55.9	
Secondary occupation				
Before working for BOI-promoted plants				13.7
General employees	19.9	28.8	10.3	(0.00)
Self-agricultural employees	10.6	13.7	7.4	
Others ^{1/}	19.9	21.9	17.6	
None	49.6	35.6	64.7	
After working for BOI-promoted plants				13.3
General employees	10.6	16.4	4.4	(0.00)
Self-agricultural employees	12.8	17.8	7.4	
Others ^{1/}	17.7	20.5	14.4	
None	58.9	45.2	73.5	

^{1/} Agricultural employees, construction laborers, peddlers, hawkers and other small retailers.

3.3 Incomes and Other Benefits from BOI-Promoted Plants

In addition to employee income in the form of salaries, wages and bonuses there are other obvious benefits provided by BOI-promoted plants, such as welfare. Nevertheless, as the preceding section showed, over 40 percent of employees had second job which provided them with another source of income.

As Table 5.11 below indicates, most employees earned incomes of more than 5,500 baht/month with the average income being 9,150 baht/month, and the minimum income being just 3,400 baht/month – which is lower than the legal minimum wage of 123 baht/day or 3,690 baht/month.

Although most employees (55 percent) did not receive bonuses, the average bonus for those that did was 858 baht/month. Gender evidently had little effect on employee bonuses because the level of significance was above 0.05.

Welfare was the last ‘income’ source provided by BOI-promoted plants to be examined in this study, with over half of all employees receiving welfare benefits worth more than 500 baht/month in money terms. Although male employees received more in welfare benefits than females, gender of employees had little effect on welfare received in money terms because the level of significance was above 0.05.

Over a quarter of employees (26 percent) reported details of other sources of income. The average income from these other sources was 1,415.6 baht/month.

Employee responses also showed that while over half (53 percent) of all employees had total monthly incomes of more than 8,000 baht, with a slightly higher proportion of female employees in

this level of income, gender of employees did not had any effect on amount of total monthly income because the level of significance was above 0.05.

Table 5.11 Descriptive Statistics of Employee Incomes

Type of income	All Employees	Male Employees	Female Employees	χ^2 (p value)
Wage (baht/month)				1.42
3,500-5,000	39.0	39.7	38.2	(0.70)
5,501-7,500	17.7	20.5	14.7	
7,501-9,500	13.5	13.7	13.2	
Over 9,500	29.8	26.0	33.8	
Median	6,700.0	6,200.0	7,400.0	
Mean	9,150.0	8,629.3	9,710.9	
Maximum	30,000.0	30,000.0	30,000.0	
Minimum	3,400.0	3,400.0	3,500.0	
S.D.	6,324.1	5,988.7	6,664.3	
Bonus (baht/month)				1.7
0	54.6	57.5	51.5	(0.43)
1-1,000	27.7	28.8	26.5	
over 1,000	17.7	13.7	22.1	
Median	.0	.0	.0	
Mean	857.6	732.6	991.8	
Maximum	25,000.0	25,000.0	16,667.0	
Minimum	0.0	0.0	0.0	
S.D.	2,815.5	2,987.7	2,633.8	
Welfare in money terms				
(baht/month)				4.4
0-500	48.9	43.8	54.4	(0.22)
501-1,500	12.1	9.6	14.7	

Table 5.11 (continued)

Type of income	All Employees	Male Employees	Female Employees	χ^2 (p value)
1,501-2,000	17.7	19.2	16.2	
Over 2,500	21.3	27.4	14.7	
Median	55.0	1,300.0	500.0	
Mean	1,375.7	1,620.0	1,113.5	
Maximum	6,550.0	6,550.0	6,500.0	
Minimum	40.0	40.0	50.0	
S.D.	1,437.5	1,516.0	1,309.0	
Income from other sources				
(baht/month)				0.18
0	74.5	75.3	73.5	(0.91)
1-4,400	16.3	16.4	16.2	
Over 4,400	9.2	8.2	10.3	
Median	0.0	0.0	0.0	
Mean	1,415.6	1,305.5	1,533.8	
Maximum	40,000.0	40,000.0	25,000.0	
Minimum	0.0	0.0	0.0	
S.D.	4,623.6	4,979.5	4,242.3	
Total income (baht/month)				5.41
1-8,000	46.8	56.2	36.8	(0.07)
8,001-12,000	25.5	21.9	29.4	
Over 12,000	27.7	21.9	33.8	
Median	8,550.0	7,300.0	9,173.0	
Mean	10,700.5	9,483.4	12,007.0	
Maximum	34,866.0	30,000.0	34,866.0	
Minimum	2,900.0	3,900.0	2,900.0	
S.D.	7,191.1	5,973.7	8,146.3	

Families where both the husband and wife were employees of BOI-promoted plants had an average total income 21,401 baht/month, which is two-thirds higher than the average income per household in Thailand for 1998 (12,835 baht/month) or about 114.7 percent higher than average expenditure per household in Thailand for 1998 (9,968 baht/month).

4. CONCLUSIONS

A large proportion (26.7 percent) of the survey responses from key provincial persons came from Rayong province because in this province has the highest number of BOI-promoted plants. A very attractive feature of Rayong province is that offers both good quality and quantity investment support. The largest group of the respondents (30 percent) were industry officers from the Ministry of Industry.

As for entrepreneurs, they are mostly involved in newly-promoted promoted BOI plants (particularly in Rayong) because the eastern region not only has more new plants than relocated plants, but because so many of Thailand's new plants are also located there. Most of the plants they have established are of medium to small scale, being in either mining, ceramics and basic metal industries, light industries, metal-working, machinery, transport equipment, electronics and electrical industries, chemical industries, paper, or plastic products. The average wage per month that these industries were found to pay to their employees was 4,527 baht/month, with an average bonus of 240 baht/month and average welfare benefits in money terms of 229 baht/month - although most employees only received housing and health care benefits.

Four main factors were suspected to be involved in investment decision-making : BOI measures, infrastructure, resource endowment and economic conditions. Analysis undertaken for this study determined that BOI measures were the most significant, with BOI tax-measures of higher significance than BOI non-tax measures. The second most significant factor was infrastructure - with electricity supply being of most significance. The third important factor was resource endowment. The amount of land available was found to be especially significant in this because when construction of a new plant is being considered, there must be enough suitable land available which is not too expensive. Prevailing economics conditions were the least significant factor with Gross Provincial Products found to be especially significant in this, which tends to confirm popular belief that in general Thai entrepreneurs prefer to build their plants in or near by provinces which have a high income level and high purchasing power. Obviously, this was also one of the factors which originally attracted so much investment to the BMR.

The average employee age was found to be 29 years old, (which is generally considered to be a good age for workers) with most being married and domiciled in the eastern provinces, thus helping to achieve the main objectives of BOI Zone 3 IPP : to provide employment for local people and to reduce out-migration. The average number of dependents per employee family was found to be 2.5 persons (a relatively light burden) while their educational attainments were mostly lower than high school graduation level. Most of employees employed by industries other than agriculture and service industries.

Most employee respondents indicated that they had a second main job before they commenced working for BOI-promoted plants, and about half of them also indicated that they had a second (part-time) job. However after they commenced working for BOI-promoted plants, most of them did not have second main and secondary occupation.

As for income, most employees reported earnings of more than 5,500 baht/month, with the average employee income being 9,150 baht/month. In addition, they received an average monthly bonus of 858 baht, although more than half (55 percent) reported they received no bonus payment at all. Another significant source of income was welfare, with half the employees receiving welfare worth more than 500 baht/month in money terms and most receiving housing and health care benefits. Overall, it was found that 26 percent of employees had other source(s) of income amounting to 1,415.6 baht/month on average, thus bringing the average total income of employees of BOI-promoted plants to 1,375.7 baht/month.

In summary, it can be stated that BOI-promoted plants did help to increase local employment, which in turn reduced out-migration while also helping to boost employees incomes in local and regional areas above the average level of household income in Thailand in 1998.

CHAPTER VI

OUTPUT AND IMPACT OF BOI ZONE 3 IPP

This chapter presents the findings from output and impact analysis of BOI ZONE 3 IPP. The analysis focused on two areas : 1) the aggregate level - in which all of the provinces in Zone 3 as a whole were examined and the eastern region of Zone 3 was used as the case study, and 2) the micro level - at which various individual entrepreneurs and employees of BOI promoted plants in the eastern region of Zone 3 were examined.

1. OUTPUT OF BOI ZONE 3 IPP

Policy outputs in this study were examined in the context of the overall increase in the number of promoted plants in Zone 3 during the period 1993-1996. Policy outputs were divided into 2 categories : aggregate level output and micro level output. The extent to which policy outputs achieved policy objectives was determined according to the procedures which are described in the following two sections.

1.1 Aggregate Level Output

1) The ratio of promoted plants to non-promoted plants in BOI Zone 3 during the periods 1989-1992 and 1993-1996, the ratio of promoted plants between Zone 3 and Zone 1 during the periods 1989-1992 and 1993-1996, and the ratio of promoted plants between Zone 3 and Zone 2 also during the periods 1989-1992 and 1993-1996 all began to

record positive trends due to implementation of BOI Zone 3 IPP. These ratios were as follows :

(1) Promoted and non-promoted plants in Zone 3 : 1989-1992 and 1993-1996.

$$RPP_1 < RPP_2$$

$$\frac{464}{6,459} < \frac{709}{1,522}$$

$$0.07 < 0.47$$

This ratio changed from 0.07 to 0.47 thus indicating that implementation of BOI ZONE 3 IPP was responsible for the increase in the number of BOI promoted plants.

(2) Promoted plants in Zone 3 and Zone 1 : 1989-1992 and 1993-1996

$$RPPZ(3-1)_1 < RPPZ(3-1)_2$$

$$\frac{464}{858} < \frac{709}{522}$$

$$0.54 < 1.28$$

This ratio changed from 0.54 to 1.28 thus indicating that after policy implementation the number of promoted plants in Zone 3 increased to a level surpassing that of the number of promoted plants in Zone 1.

(3) Promoted plants in Zone 3 and Zone 2 : 1989-1992 and 1993-1996

$$RPPZ(3-2)_1 < RPPZ(3-2)_2$$

$$\frac{464}{250} < \frac{709}{358}$$

$$1.86 < 1.98$$

This ratio changed from 1.86 to 1.98 thus indicating that after policy implementation the number of promoted plants in Zone 3 also increased to a level surpassing that of Zone 2.

The increase in these three ratios clearly indicates that entrepreneurs invested more in Zone 3 than in Zone 1 and Zone 2 following implementation of BOI Zone 3 IPP - which leads to the conclusion that the policy was indeed successful in promoting the expansion of industries to regional areas, thereby easing the problem of industrial over-concentration in the BMR.

2) Comparison of the number of promoted plants with the number of non-promoted plants in all the provinces in Zone 3 as a whole in the periods 1989-1992 (pre-policy) and 1993-1996 (post-policy).

Table 6.1 and Figure 6.1 show that in the pre-policy period the total number of promoted plants increased (albeit at a decreasing rate), but the number of non-promoted plants fluctuated.

They also show that in 1993 (the first year after policy implementation) the total number of promoted plants decreased, but in subsequent years (to 1996) the number of promoted plants increased at an increasing rate. Similarly, they show that number of non-promoted plants decreased in 1993, although thereafter they did increase at an increasing rate.

The year 1993 was also the first time in five years that Thailand's economic growth rate fell below double digits (from 11.6 percent in 1992 to 8.1 percent in 1993).

Comparing the proportion of promoted plants to non-promoted plants after 3 years of policy implementation this had increased greatly

Table 6.1 Comparison of Number, Rate of Change, and Proportion of Promoted to Non-Promoted Plants Operating in Zone 3 in the Pre-Policy and Post-Policy Period

Indicator of change	Pre-Policy						Post-Policy				Change : Post-Pre
	1989	1990	1991	1992	1989-1992	1993	1994	1995	1996	1993-1996	
Promoted Plant (Units) ^{1/}	65	108	140	151	464	127	143	163	276	709	245
Rate of Change (%)	-	66.2	29.6	7.9	34.6	-15.9	12.6	14	69.3	32	52.8
Non-Promoted Plant (Units) ^{2/}	1,674	1,748	2,119	918	6,459	269	158	241	854	1,522	-4,937
Rate of Change (%)	-	4.4	21.2	-56.7	-10.4	-70.7	41.3	52.5	254.4	69.4	-76.4
Proportion of Promoted Plants to Non-Promoted Plant (%)	3.9	6.2	6.7	16.5	7.2	47.2	90.5	67.6	32.3	46.6	30.1

Source : 1/ BOI

2/ Ministry of Industry

from 7.18 percent to 46.58 percent, as a reflection of the much increased level of entrepreneurial investment in Zone 3 under BOI Zone 3 IPP.

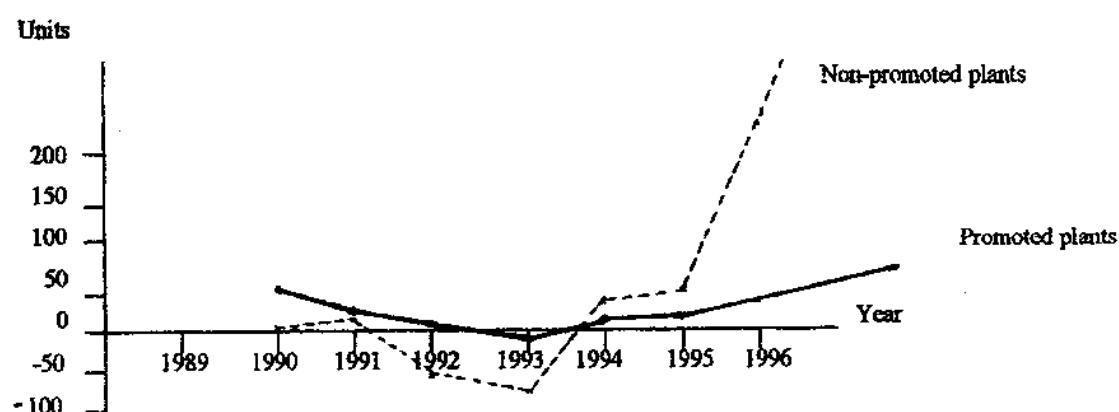


Figure 6.1 Promoted and Non-Promoted Plant Number in Pre-Policy and Post-Policy Periods : Rate of Change

3) Regression analysis was employed to determine what relationship, if any, existed between BOI Zone 3 IPP and the number of promoted plants. The regression equations are shown in Table 6.2 below.

Table 6.2 Regression Analysis of Promoted Plant Numbers in Pre-Policy and Post-Policy Periods

Model	Results of Analysis
Plant = a + b Year	$P = 74.25^{**} + 20.68 Y^{***}$ (3.22) (3.75) $R^2 = 0.70$ $F = 14.06$ $Sig = 0.010$
Plant = c + d Year + e Policy	$P = 59.23^{**} + 37.85 Y^{***} - 90.15 P^*$ (3.12) (4.35) (-2.26) $R^2 = 0.85$ $F = 14.39$ $Sig = 0.008$

*** $P < 0.04$, ** $P < 0.05$, * $P < 0.10$

The regression equations above reveal that for each 1 unit change in year (the independent variable) the number of promoted plants changed 20.68 units, thus explaining about 70 percent of the increase in the number of promoted plants. When policy (the second independent variable) was added, these 2 independent variables together explained about 85 percent of the increase in the number of promoted plants - giving a higher, the power of explanation than provided by the first equation. The level of significance of each variable (in the first equation the level of significance of the constant and year were respectively 0.018 and 0.010 ; in the second equation they were 0.026 and 0.007) was also higher than the first equation. Furthermore, the level of significance of all variables (change from 0.010 to 0.008) was also higher than the first equation.

The above analysis thus proves that BOI Zone 3 IPP was one of the major determinants of promoted plant numbers.

1.2 Micro Level Output

1) Individual rating scores provided by entrepreneurial investors and provincial key persons or experts in the 5 eastern region provinces of Zone 3 were used to help determine the main factors in the investment decision-making process. There were found to be two main factors : 1) BOI policy measures, and 2) existing investment conditions (i.e. infrastructure, resource endowment and economic conditions). Table 6.3 reveals that, BOI policy measures were the most important factor in the decision-making process of these entrepreneurs and experts, with quantity and quality of infrastructure of second importance, and resource endowment and economic conditions in the third and fourth place

respectively. However further analysis revealed that the mean of every factor rating score was more than 5.9 thereby demonstrating that these four factors were indeed the dominant factors in the entrepreneur decision-making process and, that pre-existing conditions (i.e. infrastructure, resource endowment and economic conditions) were complementary factors to these BOI policy measures.

Table 6.3 Percentage Distribution and Mean Score of Investment Decision-Making Factors (as rated by entrepreneurs and key provincial persons)

Entrepreneurs and Key Provincial Persons	Range of significance rating											Total	Mean	N	S.D.
	10	9	8	7	6	5	4	3	2	1	0				
Entrepreneurs															
BOI measures	41.2	17.6	35.3	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%	8.9	17	1.0
Infrastructure	11.8	0.0	47.1	17.6	5.9	5.9	5.9	0.0	5.9	0.0	0.0	100%	7.2	17	2.0
Resource endowment	5.9	11.8	17.6	23.5	23.5	11.8	5.9	0.0	0.0	0.0	0.0	100%	6.9	17	1.6
Economic conditions	5.9	0.0	11.8	17.6	23.5	17.6	11.8	11.8	0.0	0.0	0.0	100%	5.9	17	1.9
Provincial Key Persons															
BOI measures	43.3	3.3	23.3	13.3	0.0	6.7	3.3	3.3	0.0	3.3	0.0	100%	8.0	30	2.4
Infrastructure	20.0	33.3	6.7	20.0	6.7	6.7	3.3	3.3	0.0	0.0	0.0	100%	7.9	30	1.9
Resource endowment	10.0	13.3	23.3	23.3	26.7	3.3	0.0	0.0	0.0	0.0	0.0	100%	7.5	30	1.4
Economic conditions	6.7	23.3	30.0	13.3	6.7	13.3	0.0	0.0	6.7	0.0	0.0	100%	7.3	30	2.0

2) The number of BOI promoted plants in Zone 3 was thus found to be determined by two major factors : 1) the attractiveness of both tax and non-tax incentives available under BOI Zone 3 IPP, and 2) existing investment conditions. These results therefore proved the first hypothesis that “Policy output (the number of promoted plants in Zone 3) depended on BOI measures (i.e. the adequacy of both tax and non-tax incentives) offered under BOI Zone 3 IPP and also on any given implemented area.

Thus areas in which favourable investment conditions already exist tend to attract a higher number of BOI promoted plants as compared to other areas”. Path analysis as illustrated by the diagram below was employed to test this hypothesis.

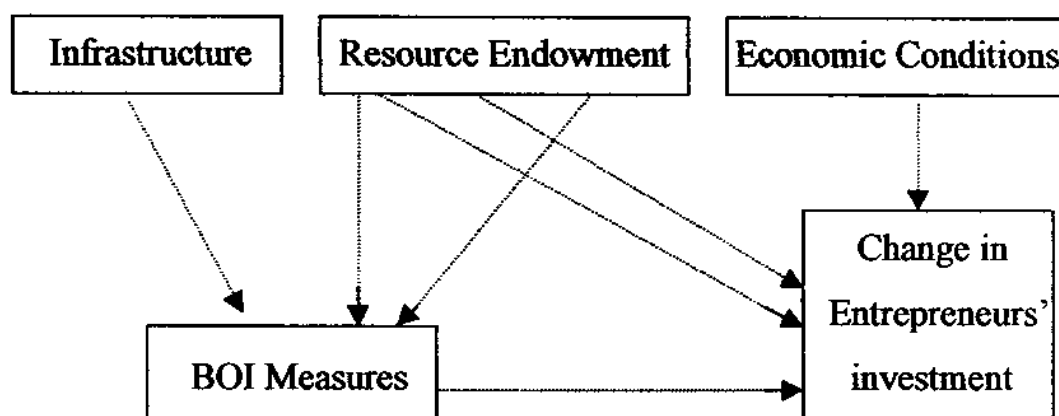


Figure 6.2 Causal Model of Change in BOI-Promoted Investment

The structural equations for the above path diagram are shown in Table 6.4 below.

Table 6.4 Path Analysis of Change in BOI-Promoted Investment

Model	Results of Analysis
$\text{BOIM} = P_{12} \text{INFR} + P_{13} \text{RESO} + P_{14} \text{ECON}$	$\text{BOIM} = 0.45 \text{INFR} - 0.15 \text{RESO} + 0.07 \text{ECON}$ (1.61) (-0.53) (0.22) $R^2 = 0.22$ $F = 1.2$ $\text{Sig} = 0.35$
$\text{CINV} = P_{y1} \text{BOIM} + P_{y2} \text{INFR} + P_{y3} \text{RESO} + P_{y4} \text{ECON}$	$\text{CINV} = 0.02 \text{BOIM} + 0.10 \text{INFR} - 0.27 \text{RESO} - 0.31 \text{ECON}$ (-0.07) (0.31) (-0.91) (-0.96) $R^2 = 0.21$ $F = 0.78$ $\text{Sig} = 0.56$

Figure 6.2 and Table 6.4 show that BOI policy measures and existing investment conditions did not have any significant direct or indirect effect on investment by entrepreneurs in BOI-promoted plants, thus implying that other factor(s) were responsible for the increase in their investment. Indeed during interviews undertaken for this study most entrepreneurs mentioned that market demand and product competitiveness were the most important consideration in their investment deliberations. Furthermore, in Chapter 3 investors revealed that they preferred to locate their plants in areas where they could minimize their costs of production and transportation.

Because the dependent variable was change in investment - the value of this variable being 1 (increasing) and 0 (non-investing), logit regression was employed to prove whether BOI measures, infrastructure, resource endowment and economic conditions had a significant effect on change in investment. Results from this logit regression (see Appendix G) revealed that these 4 variables had no significant effect on change in investment.

Table 6.5 Descriptive Statistics for Entrepreneur Ratings of Change in Investment, BOI Measures, Existing Investment Conditions

Variables	Mean	S.D.	Max	Min
Change in investment	93.1	131.96	480.0	0
BOI measures	95.7	15.41	110.0	55.0
Infrastructure	50.5	13.44	70.0	16.0
Resource endowment	20.2	5.51	30.0	11.0
Economic conditions	17.7	5.72	30.0	9.0

In addition to path analysis and logit regression, the descriptive statistics was also employed. Table 6.5 shows the combined rating scores given by entrepreneurs for BOI measures compared to those for existing infrastructure, resource endowment and economic conditions and this reveals that the most important factors affecting change in investment were (in order) BOI policy measures, infrastructure and then resource endowment. This meant that the least important factor was found to be economic conditions.

According to the entrepreneur interviews, their main cost of production were land, construction, inputs, materials, and machinery. Their responses also revealed that some of their cost varied according to their production volume and some did not. The three variable cost factors considered were materials, machinery, and inputs. The remaining two factors, land and construction cost were considered to be fixed cost factors. These interviews further confirmed that with regard to total revenue most of the companies surveyed began to receive revenue during their third year of operations.

Following micro-economic theory, it was also assumed that both promoted and non-promoted plants in the same type of industry and producing similar products possessed or were equally likely to have possessed very similar cost characteristics with regard to production inputs, materials, and machinery as well as land and construction costs.

Illustrating these results, Figure 6.3 below features a set of three parallel curves, with curve TC_1 representing the total cost for promoted plants, curves TC_2 representing the total cost for non-promoted plants, and curve TR representing the total revenue for both types of plant.

During analysis it was assumed that fixed costs for BOI-promoted plants equaled 'a' and for non-BOI-promoted plants equal 'b'.

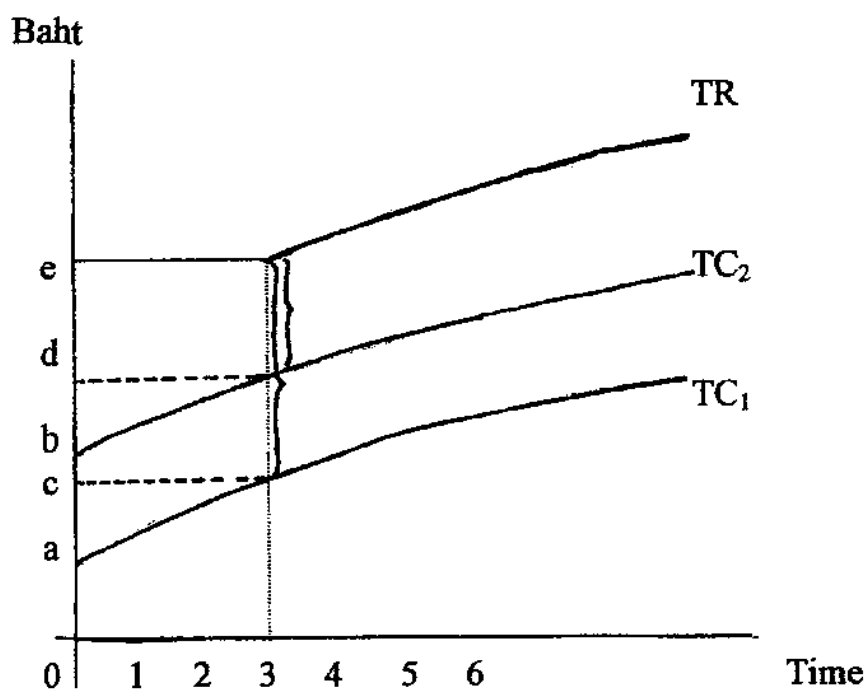


Figure 6.3 Total Cost and Total Revenue for both BOI-Promoted Plants and Non-BOI-Promoted Plants

Because BOI-promoted plants received tax and non-tax privileges which non-promoted plants did not, their total cost were correspondingly lower. Therefore, with the cost of imported materials, machinery and production inputs for promoted plants calculated on c.i.f (cost of production plus insurance plus freight) without any import tax charges, curve TC₁ follows a path clearly lower than but parallel to curve TC₂.

Once revenue begins to show up (i.e. after 3 years), curve TR parallels the two cost curves, albeit at a higher level again, reflecting the sustained and significant cost advantages which BOI-promoted plants continued to enjoy over time. For example, three years after opening

(time = 3) the difference in cost was 'cd'. Similarly, the difference in profit was 'de' in favour of BOI-promoted plants.

Moreover, as public utility costs (water, electricity, telephone, etc.) were allowed as a double deduction (i.e. 200 percent of cost) from taxable income the profit advantage of promoted plants were further enhanced substantially.

Thus BOI Zone 3 IPP clearly presented investors with a significant cost-benefit advantage and indeed this was one of the major factors behind the huge surge in manufacturing investment during Thailand's now somewhat tarnished period of 'fast-track' development in recent times.

While this evidence was not enough to prove this hypothesis, it did prove that BOI measures and existing infrastructure, resource endowment and economic conditions were the main factors in the investment decision-making process of entrepreneurs of promoted plants in Zone 3 and that BOI measures were the most important of these.

Increasingly, although BOI measures were found to offer investors cost-benefit advantages, some investors did not apply to be BOI-promoted plant. During non-BOI-promoted plants interviews,^{1/} the main reasons cited for this were as follows : 1) conditions set by the BOI did not suit their projects (i.e. the percentage of product to be exported, the proportion of share to be held by Thai and foreign investors, the proposed site of the plants, and the scale of production required), 2) differences in tax assessment method by the BOI and the Excise Tax Department, 3) BOI rules and regulations were complicated,

^{1/} Interview with the director of a non-promoted light industry in Rayong province on July 15, 1999.

difficult, and inflexible, there was too much 'red tape' involved in issuing promotion certificates and monitoring, and 4) there was no difference between costs and benefit for their industries whether or not they had BOI Zone 3 IPP privileges.

2. IMPACT OF BOI ZONE 3 IPP

For the purpose of this study, positive policy impact requires not only that BOI ZONE 3 IPP was successful in helping to increase the number of BOI promoted plants in Zone 3, but also that it consequently had a positive impact on employment opportunities and income as well as educational opportunities for the children of employees. The first step in this process was to divide the impact into 2 categories : aggregate level impact (on the 58 provinces in Zone 3 as a whole) and micro level impact (on individual employees).

2.1 Aggregate Level Impact

In order to determine to what extent change in the number of promoted plants, income, employment and migration were due to implementation of BOI ZONE 3 IPP a time-series analysis between 1989-1992 (pre policy) and 1993-1996 (post policy) was conducted as follows :

1) Time-series analysis was carried out on the number and rate of change of promoted plants, the value and rate of change of GPP, the number and rate of change in employment of promoted plants, and the number and rate of change in net migration in all the provinces in Zone 3 as a whole.

Table 6.6 and Figure 6.4 indicate that in the pre-policy period (1989-1992) the number of promoted plants increased (albeit at a

decreasing rate) roughly in line with GPP and employment, while migration was high and also unstable. By contrast, in the post-policy

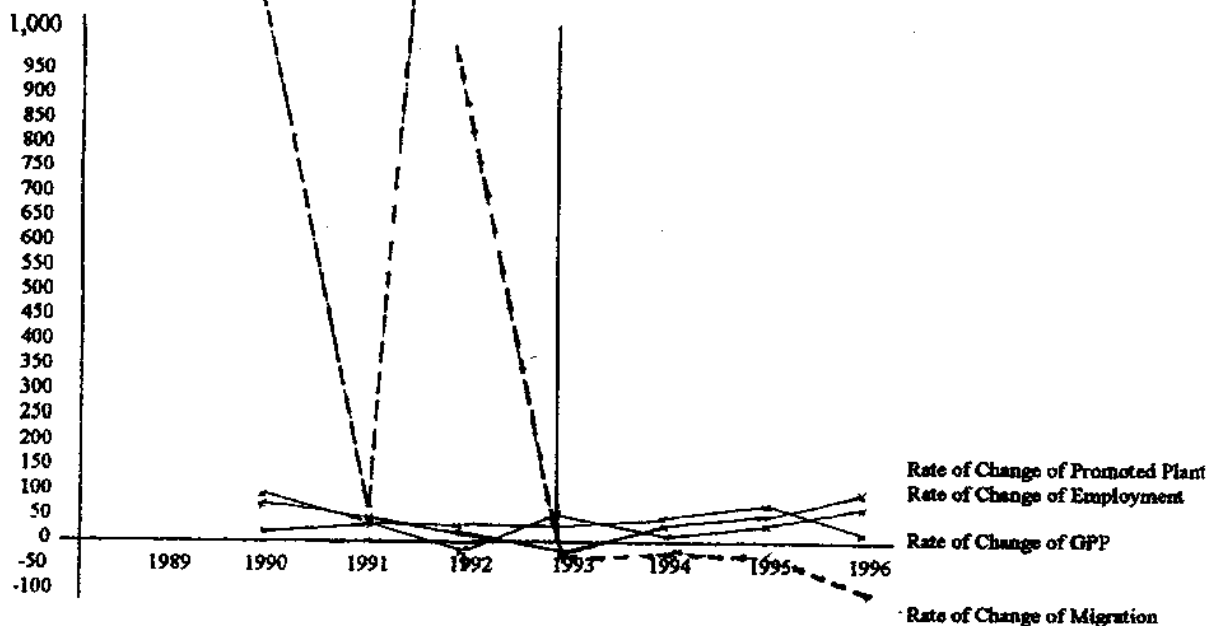


Figure 6.4 GPP, Employment, Promoted Plants and Net Migration : Rate of Change

period (1993-1996), the number of promoted plants was increased exponentially and GPP also increased (although the rate of increase now fluctuated) while employment increased exponentially. However, net migration decreased, except for 1996 when out-migration was greater than in-migration.

In other words, after implementation of BOI Zone 3 IPP in 1993, GPP and employment in Zone 3 increased but net migration into Zone 3 decreased.

2) The regression analysis detailed in Table 6.7 below was employed to determine to what extent there was a relationship between GPP and employment numbers to BOI Zone 3 IPP, and net migration to BOI Zone 3 IPP.

Table 6.6 Comparison of Number (Value) and Rate of Change of Promoted Plants, GPP, Employment and Net Migration for All Zone 3 Provinces in Pre-Policy and Post-Policy Periods

Indicator of change	Pre-Policy						Post-Policy			
	1989	1990	1991	1992	1989-1992	1993	1994	1995	1996	1993-1996
Promoted Plant (Units) ^{1/}	65	108	140	151	464	127	143	163	276	709
Rate of Change (%)	-	66.2	29.6	7.9	34.6	-15.9	12.6	14	69.3	32
Value of GPP (Mil.Baht) ^{2/}	786.6	883.8	1,033.3	1,146.4	3,850.1	1,264.7	1,453.4	1,699.3	1,882.5	6,300
Rate of Change (%)	-	12.4	16.9	10.9	13.4	10.3	14.9	16.9	10.8	13.2
Employment (Persons) ^{2/}	11,924	21,713	27,000	22,459	83,096	35,600	40,785	47,262	74,708	198,355
Rate of Change (%)	-	82.1	24.3	-16.8	29.9	58.5	14.6	15.88	58.1	36.77
Net Migration (Persons) ^{3/}	-1,890	-317,833	46,434	1,391,746	1,118,457	478,398	295,618	146,869	-279,695	641,190
Rate of Change (%)	-	16,716.6	46.1	2,897.3	6,553.3	-65.6	-38.2	-50.3	-90.4	-61.1

Source : 1/ BOI

2/ NESDB

3/ Ministry of Interior

Table 6.7 Regression Analysis of GPP and Employment in Pre-Policy and Post- Policy Periods

Model	Results of Analysis
GPP = a + b Year	$\text{GPP} = 721.78^{***} + 156.28 Y^{***}$ $(18.69) \quad (16.93)$ $R^2 = 0.98 \quad F = 286.66 \quad \text{Sig} = 0.00$
GPP = c + d Year + e Policy	$\text{GPP} = 712.91 + 166.41 Y^{***} - 53.19 P$ $(16.31) \quad (8.30) \quad (-0.58)$ $R^2 = 0.98 \quad F = 127.61 \quad \text{Sig} = 0.00$
Employment = f + g Year	$E = 9276.00^* + 7401.54 Y^{***}$ $(1.78) \quad (5.95)$ $R^2 = 0.86 \quad F = 35.39 \quad \text{Sig} = 0.00$
Employment = h + i Year + j Policy	$E = 8722.03 + 8034.65 Y^{**} - 3323.85 P$ $(1.44) \quad (2.90) \quad (-0.26)$ $R^2 = 0.86 \quad F = 1.98 \quad \text{Sig} = 0.01$

*** P < 0.01 , ** P < 0.05 , * P < 0.10

Results from the above regression analysis show that for every 1 unit change in year the value of GPP changed 156.28 units, meaning that the year factor explains about 97.90 percent of any given GPP value. When BOI ZONE 3 IPP is used as a second independent variable, all these independent variables above explain about 98.10 percent of GPP value.

As the higher power of explanation after the inclusion of the policy variable indicates strongly that policy was one of the factors determining GPP value.

As shown above in the first employment equation, for every 1 unit change in year the employment number increased 7401.54 units

meaning that the year variable alone explains employment numbers to about 85.50 percent. When policy is used as a second independent variable, these two independent variables explain employment numbers to about 85.70 percent. The power of explanation being higher than before indicates strongly that policy was one of the factors determining employment numbers.

The net migration equation produced no significant explanation, meaning that policy did not have a significant impact on net migration numbers. The reason for this seems to be that, although the implementation of BOI Zone 3 IPP had a positive effect on employment numbers by creating job opportunities for people in regional areas as proven above, these people still left to find worked in which they could maximize their income. In otherwords, higher local employment was not proven to result in significantly lower out-migration. Furthermore, the empirical data from Table 6.6 show that while net migration was very high and fluctuated at very high rate before the implementation of BOI Zone 3 IPP, afterwards the rate of change of net migration decreased, although it did remain positive overall, the exception being 1996, when out-migration was greater than in-migration.

Thus, the expected positive impact of BOI Zone 3 IPP on Zone 3 GPP and employment was confirmed.

3) Examining policy impact at the aggregate level in order to test the 2nd hypothesis (i.e. change in net migration, change in the number of promoted plants and change in employment number would be responsible for the change in income experienced in Zone 3), path analysis was conducted according to the path diagram below.

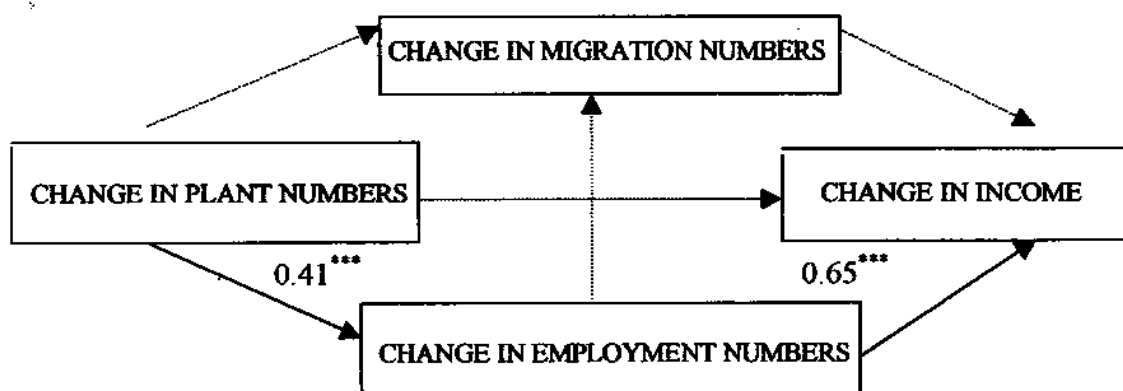


Figure 6.5 BOI ZONE 3 IPP : Impact on Income

Figure 6.5 illustrates that change in net migration did not have any significant direct effect on change in income, nor did change in the number of promoted plants. However, it does reveal that change in employment numbers did have a strong direct effect on change in income, as the coefficient value of 0.65 implies each unit change in employment resulted in a change in income for the 58 provinces in Zone 3 as a whole of 0.65 units. The income data used in this model was GPP at constant prices for all sector activity in the 58 provinces of BOI Zone 3. Figure 6.5 also shows that while change in the number of promoted plants had no indirect effect on the change in income due to change in net migration, but that change in the number of promoted plants did have an indirect effect on the change in income due to change in employment.

Table 6.8 Path Analysis of BOI ZONE 3 IPP Impact on Income

Model	Result of Analysis
$CNM = P_{23} CEMP + P_{21} CNPP$ $CEMP = P_{31} CNPP$	$CNM = 0.37 CEMP - 0.134 CNPP$ (0.22) (-0.79) $R^2 = 0.02$ $F = 0.32$ $Sig = 0.73$ $CEMP = 0.41 CNPP^{***}$ (2.89)

Table 6.8 (continued)

Model	Result of Analysis
$CINC = P_{y1} CNPP + P_{y2} CNM + P_{y3} CEMP$	$R^2 = 0.17$ $F = 8.34$ $Sig = 0.01$ $CINC = -0.24 CNPP - 0.10 CNM + 0.65 CEMP^{***}$ (-1.69) (-0.79) (4.70) $R^2 = 0.36$ $F = 7.54$ $Sig = 0.00$

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.10$

The structural equations and variables in Table 6.8 reveal not only how GPP or income of the 58 provinces in Zone 3 as a whole changed due to change in employment, but also how change in employment was the cause and GPP or income changes were the effect. However, they also reveal that change in the number of promoted plants did not affect the change in income directly, but rather that this was caused indirectly due to changes in employment. Every unit change in the number of promoted plants, change in employment was 0.41 units.

Thus BOI Zone 3 IPP not only succeeded in increasing the number of promoted plants in regional Thailand, it also succeeded in creating new employment opportunities for people in BOI Zone 3 who by their input to the industrial process helped both to produce products in their provinces and raise GPP by the income they received from those plants for their work. Furthermore, higher spending by new employees helped to boost demand for these local products, thereby increasing both the velocity of money in the local economy and the multiplier effect, which both boosted GPP value. Therefore, in this sense, the BOI's strategy to increase employment as a means of driving economic growth and development in Zone 3 must be considered successful.

This strategy was also successful in another sense. In this analysis GPP value was calculated on the basis of overall sector activity, therefore higher employment due to BOI-promoted plant recruiting should have also shown up in broadly higher production values across Zone 3 due to the fact that BOI- promoted plants in Zone 3 operated inter-dependently. This is indeed what was found to have occurred. For example, activity at Mapthaput Industrial Estate consisted of 5 groups of activities : oil refining (4 percent), utilities - electricity, steam, gas (10 percent), steel production (15 percent), chemical and fertilizer production (31 percent), and downstream production (40 percent), (Industrial Estate Authority of Thailand, 1998 : 4) Analysis of these activities revealed strong forward and backward linkages to each other and/or to input-output linkages based on resource endowments such as natural gas and output-input linkages ; for example the basic material input to the Mapthaput gas refinery plant was natural gas, with the plant's output forming a large part of the input to the estate's chemical and fertilizer plant, dry ice plant, steel plant, oil refinery, and nylon factory. In fact, the entire output from the five activities above serves as input to other activities in Mapthaput Industrial Estate and as shown above, expenditure by locally-hired employees of these industries gives a significant boost to money velocity and, in turn, demand in other industries/sectors. Thus it can be concluded that BOI Zone 3 IPP has not only given a strong boost to the GPP of the local manufacturing, construction, and mining sector but in fact far more broadly both to many local industries and to local economies.

As the above analysis revealed that the significant variables involved in the path analysis include the number of promoted plants, employment number and GPP value, a new path diagram was required and this was constructed as follows :

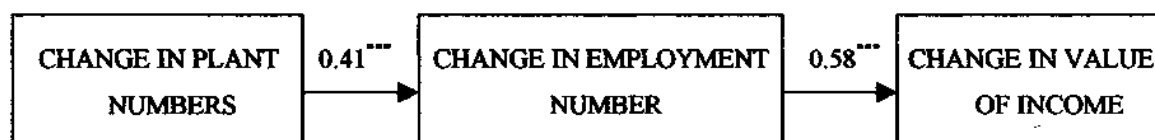


Figure 6.6 Impact on Income Value of BOI ZONE 3 IPP

The structural equations for the above variables are shown in Table 6.9 below.

Table 6.9 Path Analysis of BOI ZONE 3 IPP Impact on Change in Income

Model	Result of Analysis
CEMP = P_{21} CNPP	CEMP = 0.41 CNPP*** (2.89)
CINC = P_{32} CEMP	$R^2 = 0.17$ $F = 8.37$ Sig = 0.01 CINC = 0.58 CEMP*** (5.32)
	$R^2 = 0.34$ $F = 28.30$ Sig = 0.00

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.10$

Figure 6.6 reveals that while change in the number of promoted plants had no direct effect on change in income (with GPP calculated at constant prices for all sectors in each province of Zone 3) nevertheless it did have an indirect effect. This indirect effect,

consisting of the change in number of promoted plants on the change in income, was due to change in employment and was measured at 0.41 units per unit change in the number of promoted plants, compared to the direct effect of change in employment number on the change in income being 0.58 units per unit change of employment.

The above path analyses illustrate why the second hypotheses had to be rejected. This led to a new conclusion : Change in the number of BOI-promoted plants and change in employment numbers were the dominant factors that change in Zone 3 income.

4) The level of change in the income of key provincial persons, entrepreneurs, and employees of BOI-promoted plants is examined below.

Most of the key provincial persons, entrepreneurs, and employees of the 6 provinces in eastern region of Zone 3 were assessed as having higher incomes after policy implementation as the table below illustrates.

Table 6.10 Descriptive Statistics of Change in Income and Standard of Living Evaluation by Key Provincial Persons, Entrepreneurs and Employees

Change in Variables	Key Provincial Persons	Entrepreneurs	Employees	F (p value)
Income				0.69
Higher	96.7	11.8	9.9	(0.50)
High	3.3	82.4	78.0	
Constant	0.0	5.9	8.5	
Low	0.0	0.0	2.8	
Lower	0.0	0.0	0.7	

Table 6.10 (continued)

Change in Variables	Key Provincial Persons	Entrepreneurs	Employees	F (p value)
Mean	4.0	4.1	3.9	
Maximum	5.0	5.0	5.0	
Minimum	4.0	3.0	1.0	
S.D.	0.2	4.1	0.6	
Standard of living				2.39
Higher	20.0	11.8	14.2	(0.09)
High	66.7	70.6	75.9	
Constant	13.3	5.9	9.2	
Low	0.0	5.9	0.7	
Lower	0.0	5.9	0.0	
Mean	4.0	3.7	4.0	
Maximum	5.0	5.0	5.0	
Minimum	3.0	1.0	2.0	
S.D.	4.1	1.2	0.5	

Table 6.10 reveals that the assessments by key provincial persons, entrepreneurs and employees regarding the change of income factor after the policy implementation were basically in the same level and direction ($F = 0.69$ and $p > 0.05$, with a mean value for three groups are nearly 4.0)

5) The 'Standard of living' value is an indicator of the quality of life of people, which survey results showed to have risen overall following implementation of BOI Zone 3 IPP. The results of this survey are shown in Table 6.10 above, which reveals that most of the key provincial persons, entrepreneurs and employees in these provinces had achieved a higher living standard after policy

implementation. In fact, the results for the three groups were the same in both level of change and direction of change ($F = 2.39$ and $p > 0.05$ and mean values approximately 4.0)

6) The main objective of BOI Zone 3 IPP was to stimulate industrial activity in regional areas in order to reduce out-migration of local people. The impacts of this policy emphasis on both in-migration and out-migration in the eastern region of Zone 3 are shown in the Table 6.11 below.

According to the assessment of key provincial persons, entrepreneurs and employees in BOI Zone 3 as detailed in Table 6.11 the implementation of BOI Zone 3 IPP in their provinces caused in-migration to increased. By contrast, the same assessments also revealed that the rate of out-migration was unchanged. Which can be attributed to the booming national economy in the decade to 1996 which encouraged regional people to believe that chances of improving their income by finding employment in Bangkok or its surrounding provinces were better than if they stayed where they were. A further inducement for many was the common perception that life in Bangkok was more civilized because it was far more developed, its citizens generally more prosperous, and because it exuded a seductive image of modern sophistication. However, these assessments of out-migration by key provincial persons, entrepreneurs and employees showed a high differentiation from one another which is significant at 0.00, as shown by the different mean value for each group.

Table 6.11 Descriptive Statistics of Change in In-Migration and Out-Migration Evaluation by Key Provincial Persons, Entrepreneurs and Employees

Change in Migration	Key Provincial Persons	Entrepreneurs	Employees	F (p value)
In-migration				2.38
Higher	33.3	29.4	13.5	(0.10)
High	56.7	64.7	72.3	
Constant	6.7	5.9	9.9	
Low	0.0	0.0	2.1	
Lower	3.3	0.0	2.1	
Mean	4.2	4.2	3.9	
Maximum	5.0	5.0	5.0	
Minimum	13.0	3.0	1.0	
S.D.	0.83	0.56	0.71	
Out-migration				23.5
Higher	3.3	29.4	19.9	(0.00)
High	13.3	11.8	36.2	
Constant	50.0	29.4	37.6	
Low	26.7	11.8	4.3	
Lower	6.7	17.6	2.1	
Mean	2.8	2.2	3.7	
Maximum	5.0	4.0	5.0	
Minimum	1.0	1.0	1.0	
S.D.	0.81	1.5	0.91	

Thus no conclusive evidence that BOI Zone 3 IPP played a significant role in solving the out-migration problem. However these results did provided further evidence of the causal relationship

between policy output and change in migration (as illustrated in Figure 6.4 and Table 6.8) leading to the conclusion that BOI Zone 3 IPP was ineffective in tackling the problem of out-migration of regional people in large numbers.

7) BOI Zone 3 IPP investor privileges are provided in order to stimulate regional investment and thereby increase regional employment. The impact of BOI Zone 3 in these two areas is shown in the table below.

Table 6.12 Percentage Distribution of Change in Local Employment Level (as reported by key provincial persons and employees)

Change in Local Employment	Key Provincial Persons	Employees
Higher	16.7	12.8
High	56.7	75.9
Constant	23.3	5.7
Low	3.3	2.1
Lower	0.0	3.6
Mean	3.9	3.9
Maximum	5.0	5.0
Minimum	2.0	1.0
S.D.	13.42	36.82

Most assessments provided by key provincial persons in the 6 Zone 3 provinces and by employees of BOI-promoted plants in these areas indicated that policy implementation had been followed by higher local employment levels. This supports the findings shown in

Figure 6.4 and Table 6.8 that policy output had a direct effect on local employment.

8) BOI Zone 3 IPP has been shown conclusively to have had a significant and positive impact on both local employment opportunities and local incomes due to the large number of new industrial plants it has helped to attract to these areas. Of course, plants promoted under this policy had a further positive impact on local employment and incomes during their construction period as well as on local production and distribution capabilities once they commenced operations. These two impacts are shown below by Tables 6.13, 6.14 and 6.15

Table 6.13 Descriptive Statistics of Material and Labor Inputs to the Construction Process (as reported by entrepreneurs)

Sources of material and labor	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Sources of material				
Local (percent)				0.7
0-20	47.1	33.3	54.5	(0.4)
21-100	52.9	66.7	45.5	
Median	25.0	45.5	10.0	
Mean	33.2	42.7	28.0	
Maximum	90.0	90.0	80.0	
Minimum	0.0	5.0	0.0	
S.D.	31.7	31.9	31.9	
Non-local (percent)				0.0
0-50	52.9	50.0	54.5	(0.9)
51-100	47.1	50.0	45.5	

Table 6.13 (continued)

Sources of material and labor	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Median	49.0	54.5	40.0	
Mean	51.7	56.5	49.1	
Maximum	100.0	95.0	100.0	
Minimum	10.0	10.0	10.0	
S.D.	32.4	31.0	34.3	
Import (percent)				0.1
0	70.6	66.7	72.7	(0.8)
1-100	29.4	33.3	27.3	
Median	0.0	0.0	0.0	
Mean	11.2	1.7	16.4	
Maximum	90.0	5.0	90.0	
Minimum	0.0	0.0	0.0	
S.D.	28.0	2.6	34.1	
Sources of labor				
Local (percent)				0.8
0-25	29.4	16.7	36.4	(0.4)
26-100	70.6	83.3	63.6	
Median	70.0	60.0	76.0	
Mean	54.8	54.3	55.1	
Maximum	100.0	95.0	100.0	
Minimum	0.0	1.0	0.0	
S.D.	37.3	34.7	40.3	
Non-local (percent)				0.0
0-30	52.9	50.0	54.5	(0.9)
31-100	47.1	50.0	45.5	
Median	30.0	40.0	24.0	

Table 6.13 (continued)

Sources of material and labor	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Mean	45.2	45.7	44.9	
Maximum	100.0	99.0	100.0	
Minimum	0.0	5.0	0.0	
S.D.	37.3	34.7	40.3	

1/ 'Other' means other type of industry - except agricultural and services industries.

Table 6.14 Descriptive Statistics of Sources of Input, Material and Machinery in Production Process (as reported by entrepreneurs)

Sources of input, material and machinery	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Sources of input Local (percent)				0.1
0	70.6	66.7	72.7	(0.8)
1-100	29.4	33.3	27.3	
Median	0.0	0.0	0.0	
Mean	20.4	26.7	17.0	
Maximum	100.0	100.0	93.0	
Minimum	0.0	0.0	0.0	
S.D.	35.6	43.2	32.5	
Non-local (percent)				0.1
0	29.4	33.3	27.3	(0.8)
1-100	70.6	66.7	72.7	
Median	35.0	37.5	20.0	
Mean	37.8	37.5	37.9	

Table 6.14 (continued)

Sources of input, material and machinery	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^U	
Maximum	100.0	100.0	100.0	
Minimum	0.0	0.0	0.0	
S.D.	37.1	37.1	38.9	
Import (percent)				1.8
0	29.4	50.0	18.2	(0.2)
1-100	70.6	50.0	81.8	
Median	26.0	25.0	26.0	
Mean	36.0	36.0	36.0	
Maximum	100.0	100.0	100.0	
Minimum	0.0	0.0	0.0	
S.D.	36.8	42.6	35.4	
Sources of material Local (percent)				2.5
0	41.2	66.7	27.3	(0.1)
1-100	58.8	33.3	72.7	
Median	11.0	0.0	20.0*	
Mean	15.5	16.8	14.7	
Maximum	90.0	90.0	32.0	
Minimum	0.0	0.0	0.0	
S.D.	22.0	36.1	10.9	
Non-local (percent)				0.7
0-80	47.1	33.3	54.5	(0.4)
81-100	52.9	66.7	45.5	
Median	85.0	100.0	70.0	
Mean	78.4	77.5	78.9	

Table 6.14 (continued)

Sources of input, material and machinery	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ¹⁷	
Maximum	100.0	100.0	100.0	
Minimum	10.0	10.0	48.0	
S.D.	25.1	37.7	17.2	
Import (percent)				2.5
0	58.8	83.3	45.5	(0.1)
1-100	41.2	16.7	54.5	
Median	0.0	0.0	10.0	
Mean	6.1	5.7	6.4	
Maximum	34.0	34.0	20.0	
Minimum	0.0	0.0	0.0	
S.D.	9.4	13.9	6.7	
Sources of machinery				
Local (percent)				
0	100.0	100.0	100.0	
Non-local (percent)				1.5
0	35.3	16.7	45.5	(0.2)
1-100	64.7	83.3	54.5	
Median	10.0	80.0	2.0	
Mean	26.8	61.3	7.9	
Maximum	100.0	100.0	30.0	
Minimum	0.0	0.0	0.0	
S.D.	35.9	40.9	10.5	
Import (percent)				7.2
0-80	41.2	83.3	18.2	(0.01)
81-100	58.8	16.7	81.8	
Median	90.0	20.0	98.0	

Table 6.14 (continued)

Sources of input, material and machinery	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Mean	73.2	38.7	92.1	
Maximum	100.0	100.0	100.0	
Minimum	0.0	0.0	70.0	
S.D.	35.9	40.9	10.5	

1/ 'Others' means other type of industry - except agricultural and services industries.

Table 6.15 Descriptive Statistics of Market Destination (as reported by entrepreneurs)

Market Destination	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Local (percent)				0.0
0	64.7	66.7	63.6	(0.9)
1-100	35.3	33.3	36.4	
Median	0.0	0.0	0.0	
Mean	6.4	7.5	5.8	
Maximum	51.0	25.0	51.0	
Minimum	0.0	0.0	0.0	
S.D.	13.7	11.7	15.1	
Non-local (percent)				0.0
0-60	47.1	50.0	45.5	(0.9)
61-100	52.9	50.0	35.3	
Median	69.7	45.0	69.7	
Mean	55.0	46.8	59.5	
Maximum	100.0	100.0	100.0	
Minimum	0.0	3.0	0.0	
S.D.	37.9	38.4	38.6	

Table 6.15 (continued)

Market Destination	All Entrepreneurs	Entrepreneur by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Export (percent)				0.3
0-30	58.8	50.0	63.6	(0.6)
31-100	41.2	50.0	36.4	
Median	15.0	45.0	15.0	
Mean	38.5	45.7	34.7	
Maximum	100.0	97.0	100.0	
Minimum	0.0	0.0	0.0	
S.D.	41.1	45.0	40.6	

1/ 'Others' means other type of industry - except agricultural and services industries.

Demand for locally-supplied materials and labor during plant construction was found to have a strong 'backward effect' on both local incomes and local employment by giving both a significant boost - even though most entrepreneurs reported using mostly non-local materials during plant construction, analysis of with survey responses indicating that 50 percent of these material came from Bangkok and other provinces, 12.5 percent from foreign countries, and only 37.5 percent from local sources.

Table 6.13 shows that the average proportion of local material used in plant construction was 33.2 percent, with entrepreneurs in the agricultural sector using more than 20 percent local materials and other industries using less than 20 percent. The average proportion of non-local materials used in construction was 51.7 percent, with the majority entrepreneurs in other industries using less than 50 percent non-local materials. However, a majority of the entrepreneurs in the

agricultural industry and others do not use imported materials in construction, but type of industry does not effect percent of using any sources of material in construction due to the level of significance is higher than 0.05.

As for sources of labor, survey responses indicated that 62.5 percent of construction workers were locals. Table 6.13 also shows that the average proportion of local labor used in construction was 54.8 percent, while entrepreneurs in both the agricultural and 'other' industry used local content of more than 25 percent. The average proportion using non-local labor in construction was 45.2 percent, while most entrepreneurs in 'other' industries used less than 30 percent non-local labor. Type of industry did not effect the percentage for using local or non-local labor in construction.

Overall, the 'backward effect' of using local compared to non-local materials and labor in construction was diluted significantly by non-local sourcing, with the local materials which entrepreneurs purchased and the local labor which they employed resulting in a substantial and substained boost to both local incomes and demand. Thus when the 'backward effect' caused demand for local materials to increase, local plants produced more in order to meet a share of this increased demand - which also required more labor and hence more to be spent by these local plants on wages and salaries to local people and to employ more local workers than before.

Similarly, once production started, the extent to which input, materials, and machinery were sourced locally largely determined the extent of the 'backward effect' on boosting the incomes and employment of local people. However, according to interviews with

many entrepreneurs, a large majority of them used mostly non-local and imported input, with those using mostly local input accounting for only 25.0 percent of all entrepreneurs surveyed. The percentage of them using mostly local materials in the production process was even lower at 18.8 percent, while those using mostly local machinery was significantly higher at 31.3 percent.

Table 6.14 shows that most entrepreneurs in the agricultural and 'other' industries used predominantly non-local and imported inputs of material and machinery in the production process. However, it also shows that the type of industry did not affect the percentage using any particular source of input, material and machinery (the level of significance was greater than 0.05) except for imported machinery (level of significance was 0.01). Thus, 'other' industry clearly relies more on imported-machinery than the agriculture industry.

The statistics and analysis above strongly confirm that once new industrial plants began production the 'backward effect' on local incomes and employment became marginal, with roughly three quarters of the money invested by entrepreneurs for this purpose flowing outside their local area (s). Accordingly, the BOI should place far more emphasis on the agriculture industry because this will give a far stronger 'backward' boost to the economy.

As for the distribution process, according to entrepreneur interviews market destinations were as follows : local 3.8 percent, non-local 48.7 percent and foreign countries 47.5 percent. Table 6.15 shows that most entrepreneurs in both the agricultural and 'other' industries sold their products on either the non-local or foreign market, the individual percentages being 55 percent and 39 percent

respectively. However, type of industry again showed no direct relationship to market destination, as evidenced by a chi-square significance level of over 0.05. In other words, the 'forward linkage' in the distribution process was weak.

Interviews with provincial key persons revealed that the majority of them considered that the proportion of promoted plant output used as production input in other local plants/industries increased after implementation of BOI Zone 3 IPP and (as Table 6.16 indicates), 'forward' and 'backward' activities (such as services, wholesaling, and retailing) also received a boost.

Table 6.16 Percentage Distribution of Change in Output-Input Relationship and Forward and Backward Activity Levels (as reported by key provincial persons)

Level of Change	Key Provincial Persons
Output-input relationship	
Higher	10.0
High	40.0
Constant	36.7
Low	10.0
Lower	3.3
Forward-Backward activities	
Higher	23.3
High	63.3
Constant	13.3
Low	0.0
Lower	0.0

However, empirical data from entrepreneurs and opinions provided by key provincial persons indicated that although 'backward' and 'forward' linkages were both received a boost, in fact, they were still relatively weak.

9) BOI Zone 3 IPP not only had direct impact as mentioned above, but it also had an indirect impact on employee productivity. Its impact on employee productivity was examined by considering changes in the level of on-job training, off-job training and pre-service training provided.

According to the local entrepreneurs interviewed (see Table 6.17) for this study, about 59 percent of them provided some form of employee training, with 64 percent of the entrepreneurs in 'other industries' providing training but the type of industry did not have any effect on training provided due to the chi-square level of significance more than 0.05. Nevertheless, according to survey responses, training did increase following Zone 3 policy implementation from 12 percent in 1993 to 48 percent in 1996, indicating indirectly that promoted plants did improve employee productivity. Unfortunately, the extent to which this may have been merely a reflection of the training which new production team at new plants needed was an issue which fell outside the boundaries of this study.

It was assumed that the training provided by entrepreneurs of promoted plants increased the overall provincial income in which promoted plants were sited by increasing product value, taxation revenues, expenditure by both the promoted plants and their employees and further, due to higher wages and salaries through improved employee productivity.

Policy impact may be considered as having two sides : positive impact and negative impact. While most of the above assessment concerned the major positive policy impact, the major negative policy

impacts are discussed in part 10 below, which is the final part of this section.

Table 6.17 Percentage Distribution of Provision of Training (as reported by entrepreneurs)

Provision of Training	All Entrepreneurs	Entrepreneurs by Industry Type		χ^2 (p value)
		Agriculture	Others ^{1/}	
Have	58.8	50.0	63.6	0.3
None	41.2	50.0	36.4	(0.6)

10) With regard to policy impact on the environment, the consensus of key provincial persons in the eastern region of Zone 3 was that following policy implementation pollution problems in the region had become bad - especially air pollution. By contrast, as the following table indicates, employee assessment of the pollution problem in the region basically remained unchanged with a clear general opinion that the problem was not getting any better.

As the level chi-square significance of less than 0.05 indicates that experts and employees had differing opinions on what was happening with regard to the pollution problem in Zone 3, with the experts clearly having a more negative view. This was presumably a reflection of their generally better informed view, as academics, of the overall situation.

Indeed viewed overall it seems clear that while BOI Zone 3 IPP had a positive impact on local employment opportunities and incomes, its impact on the environment was strongly negative. In response to this finding it is imperative for current and future policy makers to take into account the negative as well as the positive policy impacts

far more fully in order to avoid such poorly balanced cost-benefit outcomes in the future.

Table 6.18 Percentage Distribution of Change in Pollution from Pre-Policy to Post-Policy Period (as reported by key provincial persons and employees)

Change in Pollution Problem	All	Key Provincial Persons	Employees	χ^2 (p value)
Better	4.7	0.0	2.8	34.92
Good	24.0	0.0	17.0	(0.00)
Unchanged	37.4	30.0	39.0	
Bad	29.8	56.7	36.2	
Worse	4.1	13.3	5.0	

In conclusion, policy impact at the aggregate level resulted in higher regional income or GPP, improved employment opportunities, and enhanced backward and forward linkages between these plants and both local people and local industries. However, BOI Zone 3 IPP also had a serious negative impact on pollution, which was already considered to be at high levels. Accordingly, the BOI must learn from its mistakes (however well intended they may have been) and become one of the government agencies leading the way to solving the problem of bad and worsening pollution in Zone 3, not least because it was BOI Zone 3 IPP which brought so many of these new industries to the area in the first place.

2.2 Micro Level Impact

The term 'micro level impact' refers to the effect of BOI Zone 3 IPP on individual employees of promoted plants. This study

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2.2 Micro Level Impact

The term 'micro level impact' refers to the effect of BOI Zone 3 IPP on individual employees of promoted plants. This study

focuses on the 5 provinces and 1 industrial estate in the eastern region of Zone 3 by comparing the pre-policy period with the post-policy period. Two micro-level impacts were investigated : impact on employee income and impact on change in educational opportunities for employees' children.

1) Policy impact on individual incomes of Zone 3 BOI-promoted plant employees was calculated by totaling the difference between employee's incomes before and after they commenced working at promoted plants by the following two methods.

Method 1 : Comparing the difference in employee's income before and after they commenced working, with the employees themselves providing the comparison figures used.

Analysis of data provided by employee interviews revealed that following implementation of BOI Zone 3 IPP slightly over half (52.5 percent) earned higher incomes, 10.6 percent earned less, and the remainder (36.9 percent) reported no change. Table 6.19 below shows that the majority of employees in every industry type earned less than 500 baht/month more after gaining employment at a BOI-promoted plant. However, type of industry did not effect the amount of increased income because almost all industries surveyed paid have the same wage rate for unskilled labor, i.e. around the minimum legal wage. By contrast, the average income increase per month per employee was 1,252.5 baht. The increased income of most employees was not high because most (60.3 percent) entered the workforce as unskilled labors with only primary or secondary school education. Nevertheless, after policy implementation about half of them were able to earn higher income, which would have mostly been spent (thus

boosting demand for local products) as this group showed a high marginal propensity to consume.^{2/}

As for employees who earned less income than before, the majority (87.9 percent) of these employees fell by less than 500 baht/month. Industry type significantly affected the amount of decreased income as the chi-square level of significance was less than 0.05. The average decrease was 352.7 baht/month per employee compared to the average increase per employee of 1,252.5 baht/month. In fact, the size of the income decrease reported was slightly low, because before they worked in BOI-promoted plants most of them (42.6 percent) were general workers (such as employees in food-shops, small plants, groceries etc.) and their wages were lower than the legal minimum of 128 baht/day or 3,840 baht/month. Thus when compared with BOI-promoted plants' wage it was not significantly different.

With regard to income change, most employees (63 percent) earned the same or more income, with the average income increase per month being 899.8 baht higher than the average income decreased per month. This supports the conclusion that BOI Zone 3 IPP helped increase employee income in overall terms.

Method 2 : Comparing the total income of all respondent employees according to industry type, including additional income from all other sources, bonus payments (monthly averages), and welfare payments (monthly averages). Results are shown in Table 6.20.

^{2/} Marginal propensity to consume means the amount of change in consumption when the income changes 1 unit.

Table 6.19 Descriptive Statistics of Change in Income from Pre-Policy to Post-Policy Period (as reported by employees)

Change in income	All Employees	Employees by Industrial Type			χ^2 (p value)
		Agriculture	Other	Service	
Increase in income (baht/month)					4.0
0-500	72.3	70.0	70.1	92.9	(0.4)
501-2,500	13.5	16.7	13.4	0.0	
Over 2,500	14.2	13.3	16.4	7.1	
Median	0.0	0.0	0.0	0.0	
Mean	1,252.5	1,113.0	1,600.3	185.7	
Maximum	20,000.0	9,200.0	20,000.0	2,600.0	
Minimum	0.0	0.0	0.0	0.0	
S.D.	3,047.2	2,138.9	3,889.7	694.9	
Constant income					0.7
Changed	45.4	48.3	41.8	50.0	(0.7)
Constant	54.6	51.7	58.2	50.0	
Decrease in income(baht/month)					8.7
0-500	87.9	88.3	92.5	64.3	(0.01)
Over 500	12.1	11.7	7.5	35.7	
Median	0.0	0.0	0.0	0.0	
Mean	352.7	468.3	167.6	742.9	
Maximum	9,999.0	9,999.0	3,700.0	5,000.0	
Minimum	0.0	0.0	0.0	0.0	
S.D.	1,232.7	1,621.5	652.0	1,368.2	

Table 6.20 Descriptive Statistics of Post-Policy Employee Incomes

Type of income	All Employees	Employees by Industry Type			χ^2 (p value)
		Agriculture	Other	Service	
Wage (baht/month)					11.5
3,400-5,500	39.0	40.0	31.3	71.4	(0.07)
5,501-7,500	17.7	23.3	16.4	0.0	
7,501-9,500	13.5	11.7	14.9	14.3	
Over 9,500	29.8	25.0	37.3	14.3	
Median	6,700.0	6,250.0	8,000.0	4,200.0	
Mean	9,150.0	8,430.6	10,216.7	7,137.9	
Maximum	30,000.0	29,775.0	30,000.0	30,000.0	
Minimum	3,400.0	3,770.0	3,400.0	3,600.0	
S.D.	6,324.1	5,463.1	6,778.0	7,028.3	
Bonus (baht/month)					12.0
0	54.6	63.3	52.2	28.6	(0.02)
1-1,000	27.7	20.0	26.9	64.3	
Over 1,000	17.7	16.7	20.9	7.1	
Median	0.0	0.0	0.0	235.0	
Mean	857.6	387.5	1,373.6	402.6	
Maximum	25,000.0	25,000.0	25,000.0	2,500.0	
Minimum	0.0	0.0	0.0	0.0	
S.D.	2,815.5	706.7	3,971.3	648	
Welfare in money terms(baht/month)					11.4
0-500	48.9	53.3	52.2	14.3	(0.08)
501-1,500	12.1	8.3	11.9	28.6	
Over 2,500	21.3	18.3	19.4	42.9	
Median	550.0	500.0	500.0	2,175.0	
Mean	1,375.7	1,379.0	1,280.4	1,817.9	

Table 6.20 (continued)

Type of income	All Employees	Employees by Industrial Type			χ^2 (p value)
		Agriculture	Other	Service	
Maximum	6,550.0	6,500.0	6,550.0	3,250.0	
Minimum	40.0	50.0	40.0	50.0	
S.D.	1,6437.5	1,517.5	1,402.1	1,251.2	
Income from other sources (baht/month)					3.5
0	74.5	71.7	76.2	78.6	(0.48)
1-4,400	16.3	20.0	11.9	21.4	
Over 4,400	9.2	8.3	11.9	0.0	
Median	0.0	0.0	0.0	0.0	
Mean	1,415.6	1,545.0	1,498.5	464.3	
Maximum	40,000.0	40,000.0	25,000.0	4,000.0	
Minimum	0.0	0.0	0.0	0.0	
S.D.	4,623.6	5,413.8	4,322.8	1,117.4	
Total income (baht/month)					9.6
1-8,000	46.8	41.7	43.3	85.7	(0.05)
8,001-12,000	25.5	26.7	28.4	7.1	
Over 12,000	27.7	31.7	28.4	7.1	
Median	8,550.0	9,400.0	8,566.0	5,560.0	
Mean	10,700.5	11,246.5	11,100.2	6,447.3	
Maximum	34,866.0	34,866.0	34,750.0	12,750.0	
Minimum	2,900.0	4,100.0	2,900.0	4,060.0	
S.D.	7,191.1	6,815.7	7,920.7	2,425.7	

One of the first facts to emerge from the above was that the wages of most employees at BOI-promoted plants were 3,400-5,500 baht/month, with those employees who worked in 'other' industries having the highest average wage/per month (10,216.7 baht.). By

contrast, the average wage per month across all industries was 9,150 baht. Type of industry do not effect on monthly wage levels, which suggests that such wage differentials depended largely on the perceived value of individual employees. However, almost all (96 percent) of employees earned wages per month higher than the legal minimum wage,^{3/} with receiving average monthly wages higher than the 6,020 baht minimum set by the government for newly graduated bachelor degree holders.

Nearly half (45.4 percent) of all employees received extra income in the form of bonuses, although most (82 percent) of those who did reported receiving bonuses of less than 1,000 baht/month. The type of industry in which the employee worked effected the size of the bonus which they received. Clearly, if workers were looking for high monthly bonuses they would be far more likely to find them working in 'other' type of industry (such as light industries, electronics and electrical industries, and chemical industries etc.) rather than in the agriculture and services industry. As noted above, higher bonus payment usually correspond to higher perceived employee value.

Welfare benefits received by employees were also defined as additional income. Indeed, all employees of BOI-promoted plants received such benefits, although most (48.9 percent) reported receiving benefits worth less than 500 baht/month. The average value of employee welfare benefits was 1,376 baht/month across all industry

^{3/} The legal minimum wage (1996-1997) was 128 baht/day or 3,840 baht/month.

type. Employees in the service industry reported the highest average welfare benefits (over 2,500 baht/month), probably because they need to have an outwardly pleasant and positive attitude in this industry, and providing welfare benefits is a cost-effective way of achieving this.

A sizeable portion of employees (26 percent) reported having other source(s) of income (especially those working in the agricultural industry), although analysis of employee response data indicated that most of this group still earned less than 4,400 baht/month. In fact average employee income from other source(s) of employees was only 1,415 baht/month.

Most of these agricultural industry employees are in fact farmers who tend to look for other sources of income only in their off seasons. This is generally acknowledged to be the main reason why many plants often have difficulty in retaining enough employees throughout the year.

Across all industries considered here, most of the employee of BOI-promoted plants (53 percent) earned more than 8,000 baht/month. Analysis of data provided by employee interviews revealed that most employees in agricultural industry (58 percent) earned highest income and most employees in services industry (86 percent) earn the least income. The average of total income per month of all employees were 10,701 baht/month. The type of industry does have a significant effect on total income of employees because the level of significant of chi-square is 0.05 (see Table 6.20).

In general then, it is clear that most individual employees who worked in BOI-promoted plants received higher total incomes than

they had before. Moreover their average total income per month was higher than the average per capita income of the eastern region during 1993-1996 (1,795 baht/month) and also higher than total consumption per household in 1999 (10,391 baht/month). Assuming freedom of choice on their part, this must be considered to be a positive policy outcome.

2) The main objective of BOI Zone 3 IPP has been the expansion of investment to regional areas, as such investment was expected to increase regional development (improve the standard of living of regional people by providing them with the opportunity to earn higher incomes). One policy assumption implicit in this scenario has of course been that, if successful, it should result in the children of employee having a better chance of getting a better education. Accordingly, attention shall now be focused on this final area to be examined, specifically the change in educational opportunities for employee's children which thus provided a test of the third hypothesis.

(1) The factor described as individual employee intention to provide better education for their children is illustrated in Table 6.21 below. In fact, every survey response from employees indicated an intention to provide their children with a better education, with over three-quarters of respondents (77 percent) evidently intending to provide education to bachelor degree at least. The second most common intention was either high school or certificate level followed by primary, secondary school, and diploma level. Furthermore, according to survey responses a majority of employees in every type of industry intended to provide education to bachelor degree. The

average schooling that employees intended to provide to their children was 15.2 years.

Table 6.21 Percentage Distribution of Employee Intentions to Provide Better Education to their Children

Level of Education	All Employees	Employees by Industry Type			χ^2 (p value)
		Agriculture	Other	Services	
Lower than bachelor degree	23.4	18.3	26.9	28.6	3.2
Bachelor degree	68.1	73.3	62.7	71.4	(0.05)
Higher	8.5	8.3	10.4	0.0	
Median (year of schooling)	16.0	16.0	16.0	16.0	
Mean (year of schooling)	15.2	15.5	15.0	14.9	
Maximum (year of schooling)	21.0	21.0	21.0	16.0	
Minimum (year of schooling)	6.0	12.0	6.0	12.0	
S.D.	2.6	2.0	3.2	1.9	

Thus analysis of Table 6.21 confirms that BOI Zone 3 IPP did achieve one of its regional development goals, that of improved educational opportunities for regional children. Indeed, this is also a key objective of the current Eighth National Social and Economic Development Plan (1997-2001) which is centred around the concept of human resource development for sustainable development.

(2) The actual ability, rather than mere intention of employees to provide better education to their children was determined by grouping employees according to level of intended education for their children and comparing their incomes with average expenditure on each level of education. For this purpose, income was defined as the total income and benefits in money terms which employees received

from BOI-promoted plants as well as income from other sources, as shown in Table 6.20. More than 60 percent of employees reported that educational expenditure on their children was 15-25 percent of their total income. The standard tuition fees for each level of education are given in Table 6.22 below.

Table 6.22 Tuition Fees Per Head Per Year

(Unit : baht)

Level and type of Education	Tuition Fees	
	Government Institution	Private Institution
Primary School	-	1,389
Secondary School	358	2,238
High School	849	2,943
Vocational School	1,304	-
• Diploma		
Rajamongala	2,018	-
Rajapatra	1,696	-
• Bachelor's degree		
Rajamongala	3,813	-
Rajamongala(2 years)	1,964	-
Rajapatra (4 years)	1,639	-
• Close University	1,641	8,829
• Open University	1,130	-

Source : Dr. Nongram Setapanichand (1989) and Educational Commission (1994), quoted in the Sunday Post, 26 February 1995.

The average tuition fee per head per year at government institutions for education lower than the bachelor degree level was 1,245 baht, while at private institutions it was 2,190 baht. Similarly, a

bachelor degree from a government institution cost 2,037.4 baht and from a private institution cost 8,829 baht per head per year.

Total income of employees compared to level of intended education is shown in the Table 6.23 below.

Table 6.23 Percentage Distribution of Intended Education Level for Employees' Children by Level of Income

Level of Intended Education	Employees' Total Income Level (baht/month)			χ^2 (p value)
	1-8,000	8,001-12,000	Over 12,000	
Lower than bachelor degree	40.9	11.1	5.1	21.99
Bachelor degree	53.0	80.6	82.1	(0.00)
Higher than bachelor degree	6.1	8.3	12.8	

As Table 6.23 shows, a majority of employees at every level of income reported the intention to provide their children with a bachelor-degree education. Most of employees who earned 1-12,000 baht/month intended to provide education to their children at bachelor level or lower, while most employees who earned over 12,000 baht/month intended to provide education to their children at bachelor level and higher. This implies that if the employees earned more income, they would intend to provide higher level of education to their children and this was confirmed by the level of significance of chi-square which was 0.00.

Table 6.20 shows that the minimum income of all employees was 2,900 baht/month, the maximum income was 34,866 baht/month and the average income of these employees was 10,700.5 baht/month. Thus in determining the actual ability to provide education to

children, tuition fees were broken down from yearly averages to monthly averages for each level and employee spending in this regard was calculated conservatively at 15 percent of income because the mean figure for education spending amongst this group was 15-25 percent.

Furthermore, the employee group selected was employees who formed the lowest income group (2,900 baht/month) because if this group had the actual ability to finance their children at bachelor-degree level, other groups on higher incomes should be able to also. The average employee in this group would need to set aside 15 percent of his income on such educational expenditure or 435 baht/month. With their stated intention to provide education to the bachelor level (tuition fees : 169.75 baht/month/head for government institutions ; 735.75 baht/month/head for private institutions) total educational expenditure for 2.5 children per month at bachelor level at a government institution would be 424.4 baht/year, and at a private institution it would be 1,839.4 baht/year.

This raised a serious discrepancy. Comparing income with tuition fees revealed that the average employee in this group in fact only had the ability to provide bachelor level education to his children at a government institution and not at a far more expensive private institution.

Similarly, the average income of all employees (10,700.5 baht/month) indicated that, at 15 percent of earnings, average education expenditure by this group should be 1,605.1 baht/month, which strongly suggests that tuition at the much more expensive private institution would not be affordable for employees on average

earnings either, whereas 27.7 percent of all employees who earned 12,262.67 baht/month or more would actually be able to pay for bachelor-degree level education at either a government or private institution.

(3) BOI Zone 3 IPP was largely responsible for the increase in the number of industries in regional areas which in turn were largely responsible for the big increase in regional employment and the incomes of individual employees in Zone 3 and Zone 3 as a whole. This was proven by analysis of policy impact at the aggregate level in Sections 1-6 and 8-9 and at the micro level in Section 1. According to macroeconomic theory, people generally use their income for 2 purposes : consumption and savings. As for consumption, in this survey most employees reported 15-25 percent of their consumption expenditure was for their children's education, with the number of children obviously being a strong influence on education expenditure at the individual family level.

Path-analysis was conducted in order to determine the influence that the four factors (i.e. employee income, number of family dependents, family consumption expenditure and employee savings) had on employees' intentions to provide better education for their children - as described by the third hypothesis.

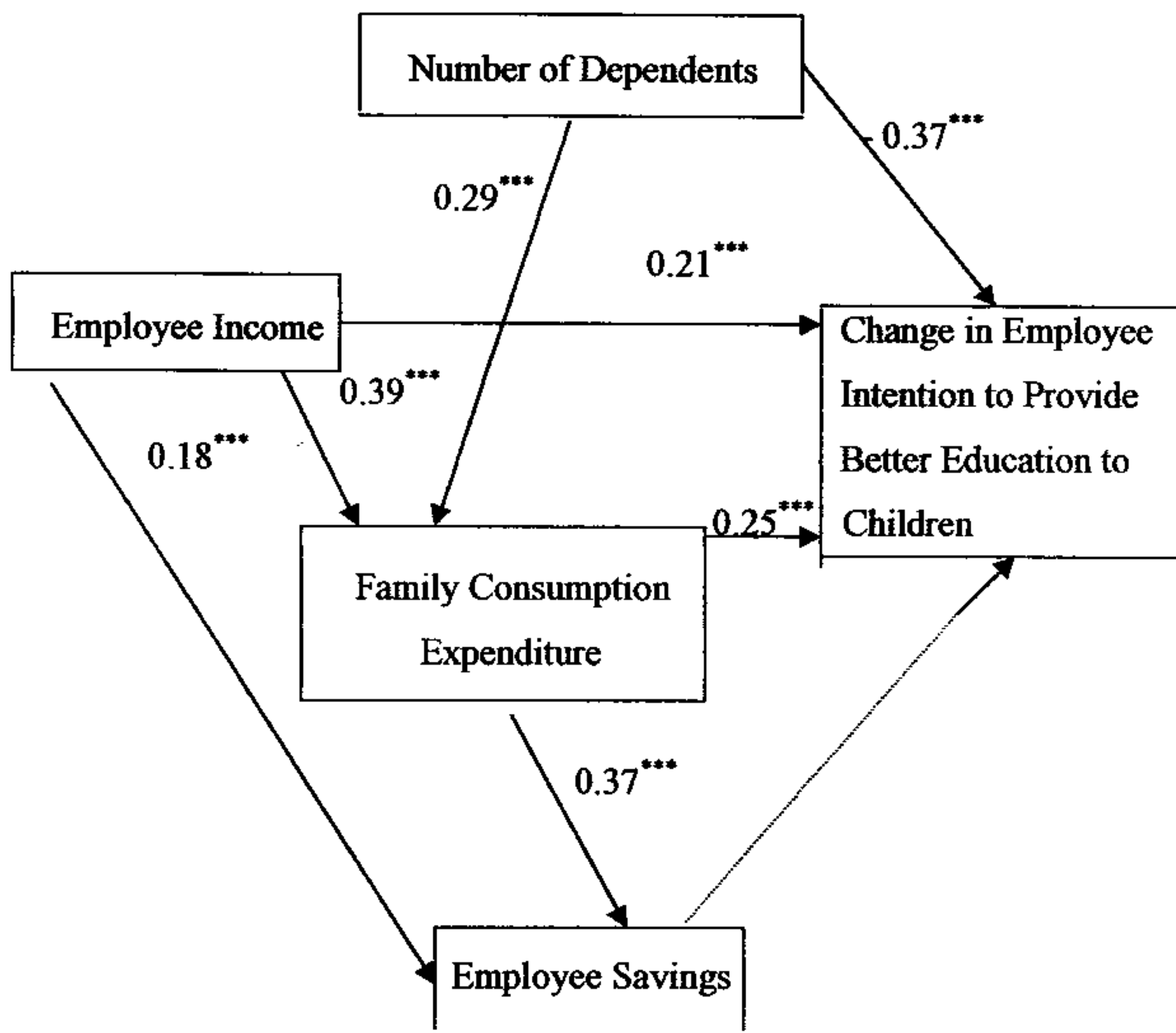


Figure 6.7 Improvement in Educational Opportunities for Employee's Children

The structural equations used to determine the above factor relationships are shown in Table 6.24.

Table 6.24 Path Analysis of Improvement in Educational Opportunities for Employee's Children

Model	Result of Analysis
SAVE = P ₂₁ INC + P ₂₃ FEXP	SAVE = 0.18INC ^{***} - 0.37FEXP ^{***} (2.07) (-4.19) R ² = 0.11 F = 8.90 Sig = 0.00
FEXP = P ₃₁ INC + P ₃₄ DEP	FEXP = 0.39INC ^{***} + 0.29DEP ^{***} (5.19) (3.83) R ² = 0.24 F = 21.22 Sig = 0.00
CHED = P _{y1} INC + P _{y2} SAVE + P _{y4} DEP + P _{y3} FEXP	CHED = 0.21INC ^{***} - 0.05SAVE - 0.37DEP ^{***} (2.52) (-0.57) (-4.62) + 0.25FEXP ^{***} (2.81) R ² = 0.23 F = 10.89 Sig = 0.00

1/ *** P < 0.01 , ** P < 0.05 , * P < 0.10

The above statistical values indicate that the direct effect of employee income on the intention to provide better education to their children was 0.21, the direct effect of the number of dependents on this intention was -0.37, and the direct effect of family's consumption expenditure on this intention was 0.25. They also indicate that the indirect effect of employee income on the intention to provide their children with better education due to the savings factor was 0.18, and due to the family consumption expenditure factor was 0.39. Further indirect effects were family consumption expenditure on the intention to provide better education due to the savings was 0.37, employees' number of dependents on the intention to provide education was 0.29,

and family consumption expenditure on the intention to provide education due to savings was 0.37.

The factor relations cited above from path-analysis clearly show that change in employee intention to provide their children with better education depended on three factors : employee incomes, their number of dependents, and family consumption expenditure, thus proving that these were the primary causal factors in deciding employees intentions and, by logical extension, that change in employees intentions to provide education itself was not a causal factor, but an effect or result. They also show that employee savings did not effect change in employees intentions because savings was amount of money that employees would use in the future, but the expense for children education was already in family consumption expenditure which in this case was 15% of this expenditure.

Accordingly, the third hypothesis was rejected, leaving only three major factors responsible for employees' change in intention to provide better education : employee income, number of dependents, and family consumption expenditure.

3. CONCLUSIONS

In conclusion, it is clear that following implementation of BOI Zone 3 IPP the number of BOI-promoted plants in Zone 3 rose significantly, and that the proportion of promoted plants to non-promoted plants was also significantly higher. Furthermore, these BOI-promoted plants were shown here to not only have had a strong positive effect on incomes indirectly due to resulting higher employment levels, but they were also shown to boost to employment

opportunities directly at the aggregate level throughout the 58 provinces in Zone 3 as a whole. At the micro level, the number of new BOI-promoted plants was shown to provide significant benefits to the individual employees in terms of higher income, increased local employment opportunities, and by significantly increasing the educational opportunities employees could realistically provide to their children.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

In this chapter a summary of the main points of the study are presented and major findings are concluded. Recommendations in terms of policy implications and management options as well as direction for future research are also proposed.

1 CONCLUSIONS

The early (1st to 4th) National Economic and Social Development (NESDB) Plans were based largely on the neo-classical economic growth model which strongly emphasized industrial development. Thus the Office of the Board of Investment (BOI) was established in 1959 for the purpose of attracting new investment by various means such as tax and non-tax incentives. Since then and until recent times industrial growth has been both rapid and mainly confined to the Bangkok Metropolitan Region (BMR) and its peripheral cities, basically due to heavy public investment in infrastructure in the BMR and because this region is also the focal point of the whole country. One consequence of this is that as individual companies have sought to rationalize their investment by locating their operations in the BMR, the region has become overdeveloped industrially, as evidenced by the overconcentration of industry there, which in turn has created various problems such as high income inequality, heavy in-migration to the BMR, and severe environmental degradation. Dispersion of industrial investment to other regions was seen as one obvious remedy for most of these problems. During the 3rd to 7th NESDB Plans, the Thai government pursued a policy of vigorously expanding industry beyond

the BMR by decentralizing industrial development to regional and rural areas which was to be achieved by a combination of monetary and fiscal incentives as well as capital market development incentives. Implementation of these incentives become the responsibility of the Office of the BOI.

On April 1, 1992 the BOI publicly unveiled its new Investment Promotion Zone 3 Policy (BOI ZONE 3 IPP). Under this policy, provinces throughout the country (including Laem Chabang Industrial Estate) but excluding provinces in Zone 1 (Bangkok, Samut Prakan, Pathum Thani, Nontha Buri and Nakhon Pathom) and Zone 2 (Samut Songkram, Ratchaburi, Kanchanaburi, Angthong, Ayudthaya, Saraburi, Nakhon Nayok, Chachoengsao and Chonburi) were designated as Investment Promotion Zone 3 areas. The stated goals of this new policy were to encourage the expansion of industry from the BMR to regional areas (in order to reduce the problems arising from industrial over-concentration in the BMR), increase regional employment opportunities, reduce migration to the BMR, and improve the distribution of benefits from the industrial development process to people in regional areas. The basic strategy employed by the BOI to achieve these goals was to provide low-cost investment opportunities in Zone 3 through the granting of attractive tax, duty privileges and various non-tax measures which would not be available in Zone 1 or Zone 2.

In the third year of policy implementation the BOI carried out a thorough review of its investment zoning and incentive measures, whereby the 'low-potential' provinces were designated as 'Special Promotion Zones' which were given the same privileges and incentives as Zone 3 areas, but with a reduction in the minimum investment

requirement and the minimum number of employees. This revised investment promotion policy was set to run for a 5-year period from January 1, 1997 to December 31, 2001 (although this period can be extended for another 2 years because none of Thailand current WTO agreements relate specifically to incentive programs for attracting new-investment ^{1/}) In effect then, the strategy of introducing these new 'Special Promotion Zones' has meant taking advantage of a loop-hole in these WTO agreements in order to subsidise private investment in new industry in what are basically the poorest areas of Thailand, having less than 85 percent of Thailand's average per capita income and an unemployment rate higher than the national average by 10 percent.

Indeed, it is precisely because of the potentially huge costs and benefits involved and strong criticism of BOI policies that a thorough policy evaluation in terms of their intended objective and actual achievement has been needed.

The major objectives of this study were to evaluate the outputs of BOI ZONE 3 IPP (i.e. whether there was an increase in the aggregate number of BOI-promoted plants in Zone 3, and whether BOI measures combined with existing investment conditions were significant micro-level factors attracting entrepreneurial investment in Zone 3) and to assess the BOI ZONE 3 IPP impacts (i.e. whether it increased employment of people in Zone 3, whether in-migration was

1/ Information obtained in correspondence with the Ambassador attached to the Permanent Mission of Thailand to the World Trade Organization in Geneva, Switzerland on April 12, 1999.

higher than out-migration, whether the value of Gross Provincial Product increased at the aggregate level, and whether increased employee income after they commenced working at promoted plants would mean that employees' children would have a better opportunity to receive a better education at micro level)

The scope of this study focused on BOI ZONE 3 IPP as it stood on April 1, 1992 because this was the original or core policy instrument for expanding industry to regional areas. The main policy time-frame was 1989-1996, with 1989-1992 being the pre-policy period and 1993-1996 the post-policy period. The eastern region of Thailand was chosen for the case study focus because it had the largest number of BOI-promoted plants in the country and because it also included nearly every type of industry to be found in Thailand as well as having an interesting combination of both rich and poor communities. This study focuses only on the policy output and impact. Policy output and impact are divided into two categories : 1) the aggregate level (Zone 3 as whole as well as the 58 Zone 3 provinces) ; and 2) the micro level (individual employees and entrepreneurs connected with promoted plants in the eastern region of Zone 3).

The expected outputs of this study include a report on BOI ZONE 3 IPP output which provides a clear and objective understanding of the major policy achievements and impacts involved, which provides an assessment of how effectively the policy has been implemented, and which recommends policy alternatives and management options the government needs to pursue if truly effective policy making and execution is to become a reality.

This study is expected to prove valuable not only in the field of public policy studies but also to policy makers and administrators, as

well as providing an empirical comparison in cause and effect with regard to the policy in question.

Indeed, because this 'Cause-Effect' approach was taken, the study has been able to narrow its focus to two points of investigation : a) the major determinants of policy creation (i.e. how policy was formed and what premise(s) it was based on), and b) policy output and policy impact (i.e. whether policy achieved its stated goals or was at least affecting the kinds of changes intended).

However, as the empirical evidence of overconcentration of industry in the BMR was clear and already available, the development of BOI ZONE 3 IPP enquiry will not be taken up in this study.

At a deeper albeit more global level, a study by Joseph Frankel in international taxation and development concluded that tax exemption such as those available under the BOI ZONE 3 IPP in order to attract investors to regional areas were not sufficient (in themselves) to spur significant additional investment. While some non-tax incentives such as provision of infrastructure and public utilities have been available under BOI ZONE 3 IPP, this study suggests that favorable investment conditions in terms of infrastructure, resource endowments and economic conditions are important complementary factors in the investment decision process (and that in fact they are vital to achieving policy goals).

Analysis of policy output does however only uncover the surface of the policy process. To evaluate policy in its entirety or at least in reasonable depth, the analysis process must include comprehensive impact assessment.

The independent variables used in this process were : 1) tax and non-tax incentives or BOI measures and 2) existing favourable

investment conditions (i.e. infrastructure, resources endowment, and economic conditions) with the increase in number of regional industries as the dependent variable.

As for aggregate policy impact, increase in the number of promoted plants was the sole independent variable, with 1) increase in employment opportunities, 2) increase in net migration (i.e. in-migration is higher than out-migration) and 3) increase in Zone 3 income being the three dependent variables. At the micro level, the three dependent variables were : 1) increase in employment in each province, 2) increase in individual employee's incomes and 3) improvement in the prospects for individual employee's childrens' education. Moreover, for the improvement of individual employee's childrens' education, employees' actual ability to pay was also assessed.

The three hypotheses proposed in this study are :

1. At the micro level - the number of promoted plants in Zone 3 depended on both BOI measures and pre-existing favourable investment conditions.
2. At the aggregate level (i.e. Zone 3 as a whole) - change in net migration, change in the number of promoted plants, and change in employment number basically determined the change in income of Zone 3 as a whole.
3. At the micro level - individual employee income, number of family dependents, family consumption expenditure, and savings level basically determined the change in intention to provide better education to employee's children.

Rather than only using a non-experimental research design, an empirical approach was also used for this research study. Accordingly,

policy output studies, time-series analysis, regression analysis, and path-analysis were carried out in order to determine whether or not the various policy outputs obtained actually matched with stated policy objectives. The study used primary data obtained from questionnaire interviews conducted with entrepreneurs of BOI-promoted plants, employees of BOI-promoted plants and provincial key persons or experts as well as secondary data from the Ministry of Transportation and Ministry of Interior (in relation to infrastructure), the NESDB, Ministry of Labor and Social Welfares, Local Administration Department (in relation to resource endowments) and the NESDB, Bank of Thailand and Ministry of Industry (in relation to economic conditions) in the process of this analysis.

Investigation of the impacts created by policy output required information generated by questionnaire interviews with the same persons as mentioned above in relation to policy output research and secondary data was also from these sources. Time-series analysis, path-analysis, regression analysis, chi-square analysis, t-tests and F-tests were used to test the policy impact. Policy output and policy impact research was conducted on two levels : the aggregate level and the micro level.

The target population of this study was all those people living in the Zone 3 provinces, entrepreneurs of BOI-promoted plants, employees of BOI-promoted plants, and provincial key persons or experts in the 5 provinces and 1 industrial estate in the eastern region of Zone 3. In evaluating policy outputs, the two units of analysis chosen were promoted plants and non-promoted plants. In evaluating policy impacts, the four units of analysis chosen were Zone 3 as a

whole, every province in Zone 3, BOI-promoted plants, and employees of those plants.

The sampling technique employed in this study consisted of five stages : 1) purposive selection of the Zone 3 study area (i.e. the eastern region of Zone 3) because of its high number and wide variety of BOI-promoted plants ; 2) purposive selection of plants which had been in operation for no less than 1 year (i.e. plants which commenced operation in the post-policy period) ; 3) selection of 17 entrepreneurs from initial sample of 28 and selection of 141 employees from an initial sample of 1,580 (based on the results of earlier entrepreneur and employee sampling) and chosen from the areas and plants as described in stages 1) and 2) above ; 4) division of entrepreneur and employee numbers in the sample according to the proportion of new industry and relocated industry in each area ; and 5) random selection of entrepreneurs and employees in each type of industry.

Documentary research and secondary data collection, and structured interviews and questionnaire interviews were the two data collection methods employed to acquire reliable and valid empirical data in line with the requirements for conducting good scientific research.

Results from the structured interviews conducted were helpful to the process of designing questionnaires as well as providing secondary data, comments and opinions. These structured interviews were conducted with entrepreneurs, employees and key provincial persons.

Due mainly to the ongoing regional economic crisis, few interviews could actually be conducted as face to face private meetings between the interviewer and interviewees because at the time most company executives were already fully occupied with efforts to revise

and improve their efficiency and business strategies in order to survive. Therefore questionnaires were sent to all those to be sampled, which they requested were to fill in and return using the pre-paid envelopes attached. The proportion of questionnaires filled in and returned was as follows - entrepreneurs : 60.71 percent, employees : 8.92 percent, local officers from the Ministry of Commerce : 100 percent, local officers from the Ministry of Industry : 100 percent, Deputy Provincial Governors with significant responsibility for local economic activity : 66.67 percent, local Chamber of Industry directors : 40 percent, local Chamber of Commerce directors : 66.67 percent, and Industrial Estate directors : 100 percent.

Field surveys were carried out in October 1998 to February 1999.

Policy outputs at the aggregate level were evaluated by the following methods : 1. comparing of the ratio of promoted plants to non-promoted plants, and the ratio of promoted plants in Zone 3 to Zone 1 and Zone 2 in both pre-policy and post-policy periods ; 2) comparing the number of promoted plants with the number of non-promoted plants in Zone 3 as a whole in both pre-policy and post-policy periods ; and 3) conducting regression analysis to determine the relationship between BOI ZONE 3 IPP and the number of promoted plants. The findings from this evaluation were as follows :

1. The ratio of promoted and non-promoted plants in Zone 3 (pre-policy) was 0.07 compared to 0.47 (post-policy) implying that policy implementation was responsible for the increase in the number of Zone 3 BOI-promoted plants.

2. The ratio of promoted plants in Zone 3 and Zone 1 (pre-policy) was 0.54 compared to 1.28 (post-policy) indicating that after

policy implementation the number of promoted plant in Zone 3 increased to a level surpassing that of the number of promoted plants in Zone 1.

3. The ratio of promoted plants in Zone 3 and Zone 2 (pre-policy) was 1.86 compared to 1.98 (post-policy) indicating that after policy implementation, the number of promoted plants in Zone 3 increased to a level surpassing that of the number of promoted plants in Zone 2.

Thus the increase in the ratio of 1, 2 and 3 above indicate that the policy was successful in promoting the expansion of industries from Zone 1 and Zone 2 to Zone 3

4. Comparing of the number of promoted plants to the number of non-promoted plants in all Zone 3 provinces as a whole between pre-policy and post-policy periods revealed that after 3 years of policy implementation the proportion of promoted plants to non-promoted plants had increased greatly from 7.18 to 46.58 thus confirming a much higher level of entrepreneur investment in Zone 3 under BOI Zone 3 IPP.

5. Regression analysis determined that when 'year' was the only independent variable it explained about 70 percent of the increase in number of promoted plants, which increased to about 85 percent when 'policy' (a second independent variable) was added.

The above finding confirmed that BOI ZONE 3 IPP was one of the major determinants of promoted plant numbers.

Policy output at the micro level was proven to produce the following results :

1. Investment privileges and incentives available under the BOI-ZONE 3 IPP were proven to be the most important factor in the

investment decision-making process of entrepreneurs because they played a major role in determining the relationship between the individual rating scores given by entrepreneurs and key provincial persons in relation to BOI measures and existing investment conditions in the eastern region of Zone 3.

2. Descriptive statistics for change in BOI-promoted investment showed that the 2 main factors affecting change in investment were BOI policy measures and infrastructure, followed by resource endowment and economic conditions.

3. The cost-benefit ratio for BOI-promoted plant was found to be higher than for non-BOI promoted plants. Unfortunately, these results did not produce enough evidence to be able to accept the first hypothesis (i.e. policy output depended on the adequacy of tax and non-tax incentives available under BOI ZONE 3 IPP and favourable existing investment conditions). However, comparison of these two factors did show that BOI-measures were more important than favourable existing investment conditions.

Policy impact at the aggregate level revealed the following :

1. Comparing trend in the number and rate of change of BOI-promoted plants, the value and rate of change of GPP, employment at BOI-promoted plants, and net migration for all the provinces in Zone 3 as a whole revealed that after implementation of BOI Zone 3 IPP in 1993, GPP and employment in Zone 3 increased significantly while net migration of Zone 3 decreased.

2. Regression analysis revealed that BOI ZONE 3 IPP impacted significantly only on Zone 3 GPP and employment.

3. Path analysis was conducted to test the 2nd hypothesis (i.e. change in net migration, number of promoted plants and employment

number were mainly responsible for change in the income of Zone 3 as a whole) with the result that while change in the number of promoted plants was shown to have no direct effect on change in income, it did have an indirect effect on change in income through change in employment (0.41 units), and change in employment had a direct effect on change in income (0.65 units). These results led to the 2nd hypothesis being revised so that change in the number of BOI-promoted plants and change in employment number became the main determinants of change in Zone 3 income.

4. The conclusion of post-policy analysis assessments by key provincial persons, entrepreneurs of BOI-promoted plants and employees of BOI-promoted plants in the eastern region of BOI ZONE 3 IPP was that the level of income and the direction of income change for people was higher since policy implementation.

5. Analysis of the assessments by individual respondents from the three groups of people mentioned in 4) above confirmed that in general, these groups had all achieved a higher standard of living after the policy implementation and that the trends for all three groups were still rising.

6. Analysis of the assessments by the above three groups of people with regard to in-migration revealed that although there was general agreement that level of in-migration had increased, no such general agreement could be concluded in relation to out-migration.

7. Analysis of assessments by provincial key persons or experts and BOI-promoted plants entrepreneurs confirmed that the level of local employment was much higher than before policy implementation.

8. Analysis of the percentage of Zone 3 BOI-promoted plants using local materials and labor in the construction process and the

percentages of sources of input, materials and machinery, and market destinations provided by BOI-promoted plants entrepreneurs revealed showed that while many (37.5 percent) entrepreneurs surveyed (regardless of industry type) did not use non-local materials, more than half (54.8 percent) did use local labor.

However, because type of industry was found to be not a significant factor in determining where construction materials and labor were sourced, the 'backward effect' during the construction period was diluted significantly. Nevertheless, BOI-promoted plants were found to employ more local labor than non-local labor and to use more local materials in the production process (i.e. 48 percent compared to an average local input of 25 percent among all entrepreneurs surveyed).

As expected, the average percentage of local materials used was quite low (18.8 percent) with the figure for local machinery being 31.3 percent. Thus type of industry did not have a significant bearing on sources of production input and raw materials. As for the distribution process, the percentages for non-local and foreign market destinations (48.7 percent and 47.5 percent respectively) dwarfed local market destination (3.8 percent). Type of industry was found to have no significant correlation to market destination, with the distribution process having a low 'forward linkage' to local areas.

Finally, the assessments provided by key provincial persons confirmed that output from BOI-promoted plants which was used as production input in other local plants increased after policy implementation.

9. As for the direct policy impact on employee productivity due to training provided by BOI-promoted plants, analysis of survey

responses revealed that about 59 percent of such plants provided employee training, and that this figure increased following policy implementation from 12 percent in 1993 to 48 percent in 1996.

10. With regard to the question of negative environmental impact following policy implementation, assessments by key provincial persons and employees clearly favoured the conclusion that it (especially air pollution) had gone from bad to worse. As for the assessment by employees that the pollution problem had remained unchanged, key provincial persons and employees clearly had different opinions on this matter.

Policy impacts at the micro level obtained from employee interviews led to the following conclusions :

1. Change in income.

Slightly more than half of all employees (52.5 percent) earned higher incomes, with an average increase per employee of 1,252.5 baht/month. Most employees were found to be unskilled with only a high school education. Type of industry was found to have no significant effect on how much income increased nor on the average wage received of 9,150 baht per month.

However nearly half of all employees (45.4 percent) received bonuses. The average bonus was 858 baht per month and type of industry did affect the size of such bonuses. Similarly, those working in the agricultural and services industries clearly received lower bonus payments than those in other industries, and indeed the higher bonuses cited by employees (averaging 1,376 baht per month) provide a clear example of one of the rewards which attracted large numbers of workers to jobs with industrial entrepreneurs.

Type of industry was not found to have any significant influence on the level of welfare provided to employees, although on average, service-industry employees received the highest welfare benefits (over 2,500 baht/month).

Approximately 26 percent of all employees surveyed reported having other sources of income (the average was 1,415 baht/month). Type of industry evidently did not effect this income, as most employees (53 percent) earned total income of more than 8,000 baht/month. Thus, despite receiving the least in bonus payments, on average agricultural employees earned the highest total income (10,701 baht/month). Not withstanding the above, it is clear that the majority of BOI-promoted plant employees received higher total incomes than before.

2. Change in education opportunities for employee's children.

This analysis provided strong proof of the third hypothesis : that at the micro level, employee income, number of family dependents, family consumption expenditure, and employee savings would determine change in intention to provide better education to their children.

Not unexpectedly, all employees (100 percent) reported their intention to provide their children with a better education, with most (77 percent) indicating an intention to provide them with education to the bachelor degree or higher. Consistent with this, the average number of schooling years which they reported intending to provide to their children was 15.2 years - with type of industry evidently not affecting either of the above intentions.

As for their actual ability to provide such education, this was determined by operating on the reasonable assumptions that employees

had an average of 2.5 dependents and that average educational expenditure was 15 percent of their total consumption expenditure. The following results were obtained : an employee on minimum income (2,900 baht/month) would have educational expenditure of 435 baht per month, whereas an employee on average income (10,701 baht/month) would have far higher educational expenditure of 1,605 baht per month. Factoring in 424.4 baht per month for tuition fees (for the education of 2.5 dependents to bachelor level education at a government institution and 1,839.4 baht per month at a private institution) revealed that employees on minimum income only had the ability to pay for a bachelor-level education at a government institution, whereas employees on an average income had the choice of providing a much more expensive bachelor-level education at a private institution. Looking at it in another way, only employees earning 12,263 baht per month or more could actually afford private education of this type of institution, but they accounted for only 27.7 percent of all employees.

Path analysis was conducted in order to determine the direct and indirect effects of various factors on change of intention with regard to the education of their children. The direct effect of income was 0.21, of number of dependents was -0.37, and of consumption expenditure was 0.25. The indirect effect of income due to savings was 0.18, of income due to consumption expenditure was 0.39, of consumption expenditure due to savings was 0.37, of number of dependents due to family consumption expenditure was 0.29, and of consumption expenditure due to savings was 0.365.

Accordingly, the third hypothesis was rejected, as this analysis proved that only the first three of the 4 factors above were responsible

for employees' change in intention to provide better education : employee income level, number of dependents, and family consumption expenditure. In otherwords, the level of employee savings was proven not to be one of the factors responsible.

2 RECOMMENDATIONS

2.1 Policy Alternatives

The primary objective of this industrial dispersion as manifested in BOI ZONE 3 IPP was to increase the amount of industrial investment in regional and rural areas, the main tools for achieving this being the lure of tax and non-tax privileges to potential investors. However, such privileges are unfair in that they are only available to certain types of industries, and moreover they distort the efficient allocation of investment by the market. They also have an adverse affect on the efficiency of the industries which they foster. For example, following the steep reductions in the prohibitively high import duties on imported automobiles and auto parts at the start of the 1990's, foreign sourcing of raw materials, components, machinery and other production inputs as well as on CKD and CBU vehicles became far more common. Eventually this was responsible for a large part of the dangerously high current-account deficits of subsequent years and perhaps more significantly, led to the local industry being highly import-dependent and dominated by foreign companies. In this study more than 60 percent of entrepreneurs surveyed used non-local and imported inputs, materials and machinery, and more than 80 percent of them depended on foreign market - meaning that the local

automotive industry is not the only sector to be adversely affected in this way.

According to the UNIDO report on industrialization in Thailand, over this period the Thai government has acted as a 'facilitator' or 'promoter' rather than a 'regulator' - operating more through incentives than through controls (UNIDO 1992). The government should integrate all the privileges it wants to offer into a single 'macro policy' package of tax and non-tax privileges which complement rather than conflict with trade policy and current account stability as has been the case with the overall package of privileges it has offered so far. This requires a fundamental restructuring of current import duties, excise taxes, corporate income taxes, grants, subsidies and other investment incentives as well as a review and revision of tax and tariff agreements under AFTA, Trade-Related Investment Measures (TRIMs) under the WTO agreement, the Non-Binding Investment Principles (ANBIPs) under APEC and any future Multilateral Agreement on Investment (MAI) under the OECD in order to at least guard against the role of locally owned/controlled companies and industries being further eroded.

It is recommended that the best way to deal with the overlapping responsibilities of government organizations and the most appropriate policy tools for achieving the dispersion of industrial investment to regional and rural areas are as illustrated by the diagram in Figure 7.1 below.

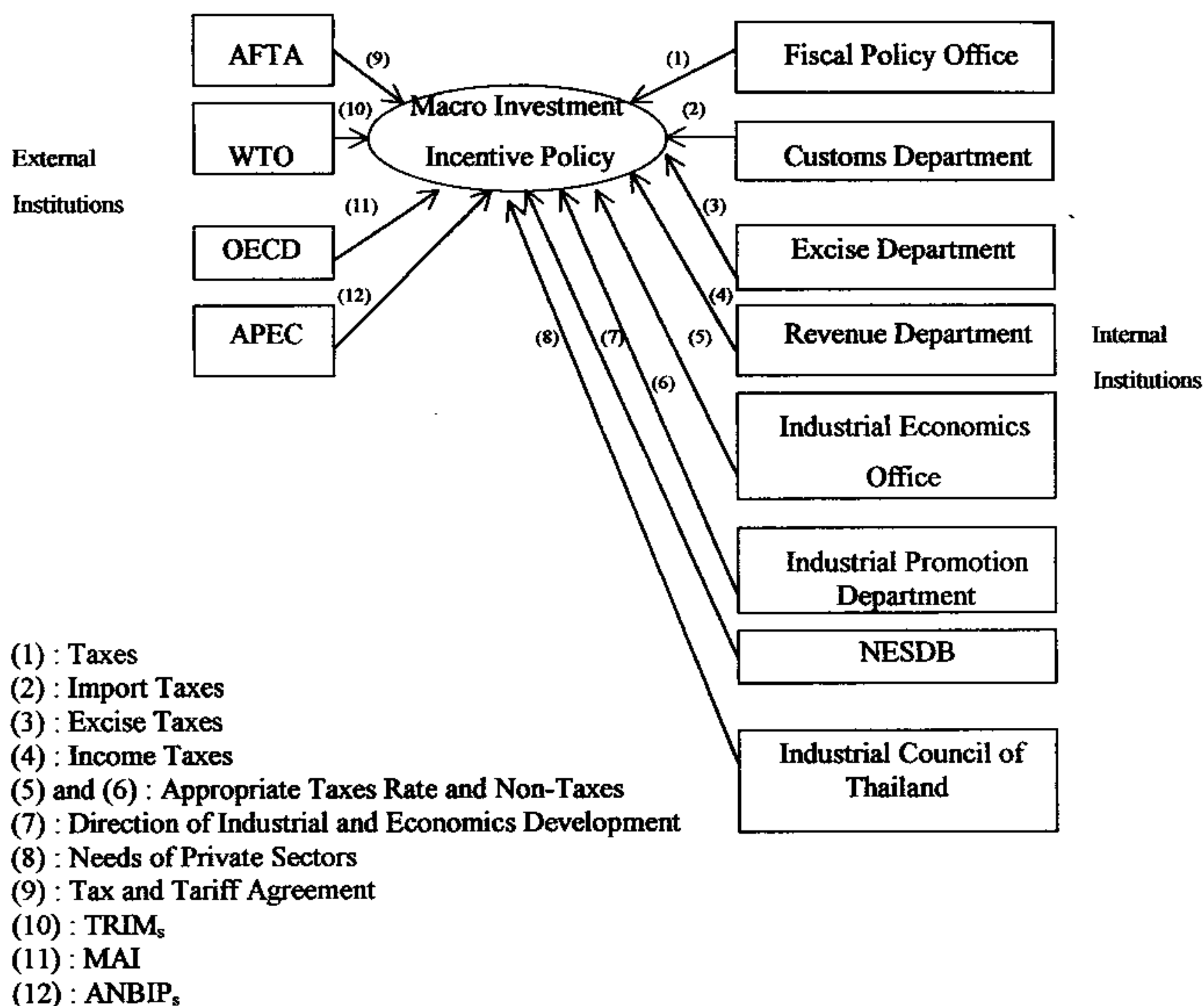


Figure 7.1 Macro Investment Incentive Industrial Policy of Thailand

As can be seen, it is recommended that this new macro policy should still include both tax and non-tax privileges, however they should apply equally and fairly to all industries. Import taxes should be reduced to the level required under WTO agreements (i.e. import taxes should be 0-5 percent by 2003) or possibly less in order to reduce local production costs and boost competitiveness. As for excise taxes and

corporate income tax, they should be made fair and equitable. For example, all corporate income tax exemptions should be eliminated because under existing BOI ZONE 3 IPP measures they are counter productive. This is because while some BOI-promoted companies do not have to pay any income tax in their first years of operation because they do not make a profit, there are many others which are highly profitable during these years but are exempt from taxes - resulting in huge annual revenue losses to the government through foregone taxes in various forms.

2.2 Management Options

Dispersion of industrial investment to regional and rural areas policy falls under the responsibility of 3 large government organizations and 1 private organization : the Office of the Board of Investment (under the Office of the Prime Minister), the (IEAT) Industrial Estate Authority of Thailand and the (ICT) Industrial Economics Office (both under the Ministry of Industry), and the Industrial Council of Thailand (an industry body). The three public organizations manage this policy area by various means : monetary policy, fiscal policy and other incentive measures. By contrast, as a private industry body the ICT basically provides potential investors with information and technical assistance. ↓

The BOI and the Industrial Estate Authority of Thailand were established under the Investment Promotion Act (1977) and Industrial Estate Authority of Thailand Act (1979) respectively. While companies with a BOI-promotion certificate have received BOI investment privileges, and companies which invested in industrial estates have received IEAT privileges, it is important to note that BOI-promoted

companies located in industrial estates normally received both privileges from these two government organizations.

While the three government organizations had overlapping responsibilities in relation to investment dispersion, their management and in many ways their policies, remained distinctly independent. Moreover, the government had to spend a far large amount of money to adequately fund the efficient and effective implementation of such policies because its budget was spread over so many organizations and their departments.

For the dispersion of industrial development to become a genuine policy success, the government needs to integrate all the useful functions performed in this regard by the public organizations which are currently involved so that there is a single national organization in charge of this policy area as illustrated by the diagram in Figure 7.2 below. This organization should be part of the Ministry of Industry as this ministry has the most direct responsibility of all ministries in relation to industrial investment activity in Thailand.

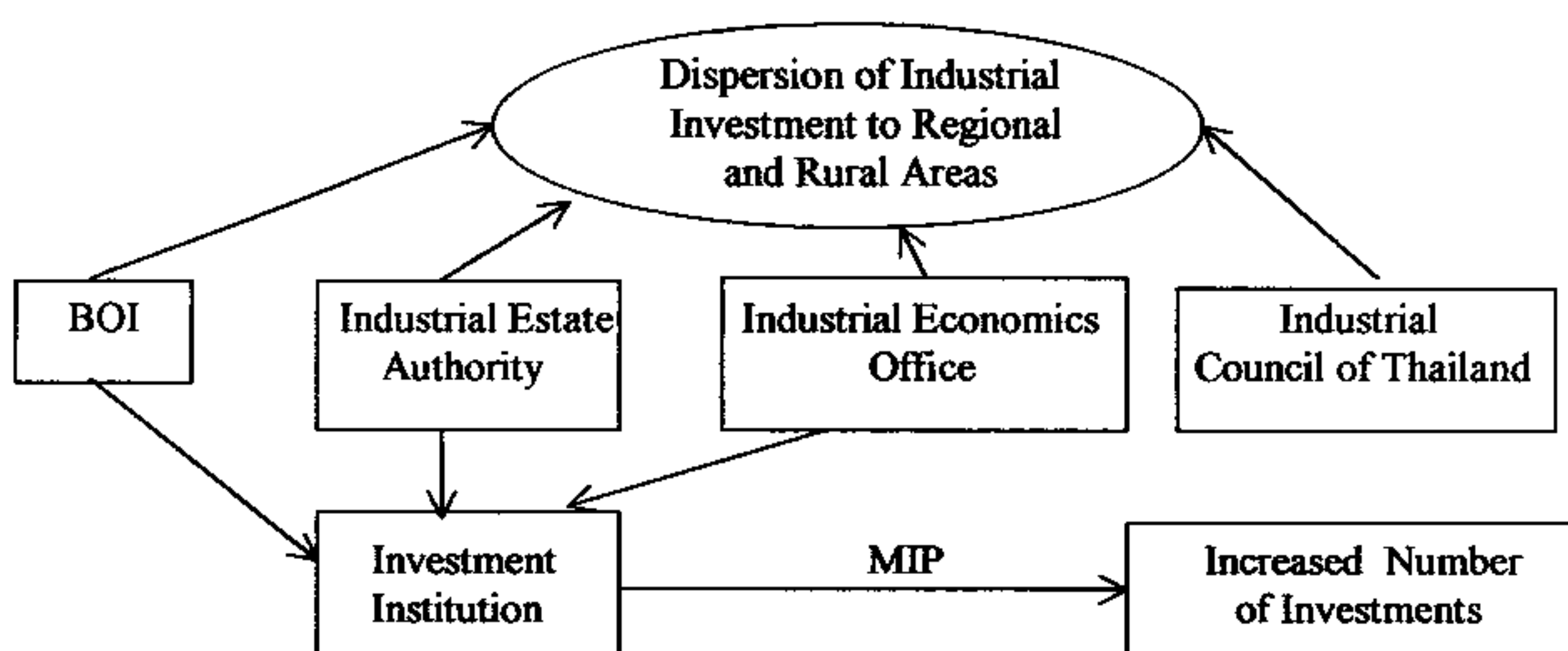


Figure 7.2 Suggested Restructuring of Roles for Industrial Investment Organizations

Analysis undertaken for this study revealed that, of the 4 factors in investment decision-making, 'BOI measures' was the most important factor, second was infrastructure, third was resource endowment, and the last was economic conditions. The study also found that BOI ZONE 3 IPP had a significant and positive impact on local income (GPP) and employment, and that there were small, roughly proportional increases in backward and forward 'effects' at the aggregate level. These impacts not only helped to increase employee income, they also helped to improve educational opportunities for employees' children at the micro level.

However, these two positive short-term impacts have been achieved largely by making nearly all of Thailand's industrial sector either highly import dependent (typically importing raw materials and intermediate inputs for local assembling operations) or natural-resource based (processing domestically-sourced primary commodities for export or domestic consumption under BOI incentives) (Jansen 1997). Unfortunately, neither of these 2 types of industry has been able to compete very successfully against foreign competitors because of higher production costs in Thailand (particularly labor) than in other 'newly developing' countries or regions such as India and Indochina. In addition, high dependence on imported machinery, raw materials and particularly, high value-added components, has meant that few if any Thai industries have been able to become self-sufficient (i.e. highly dependent on domestic materials/machinery, and highly exposed to the domestic market).

As well as the policy failures cited above, investment incentives to upgrade technology, achieve better quality control, improve workers' skills, and strengthen backward linkages to domestic

suppliers have remained weak and unsophisticated, with Thai industry in general exhibiting few indications of quality in training, or the provision of foreign technological and marketing assistance (Moran 1998). In this study the figure of training was 12 percent in 1993, and 48 percent in 1996. In short, these local incentive measures have failed to establish either sustainable industrial investment, sustainable industry development, or the country's industrial competitiveness.

One way for Thailand to successfully nurture these attributes is suggested by the diagram in Figure 7.3 below.

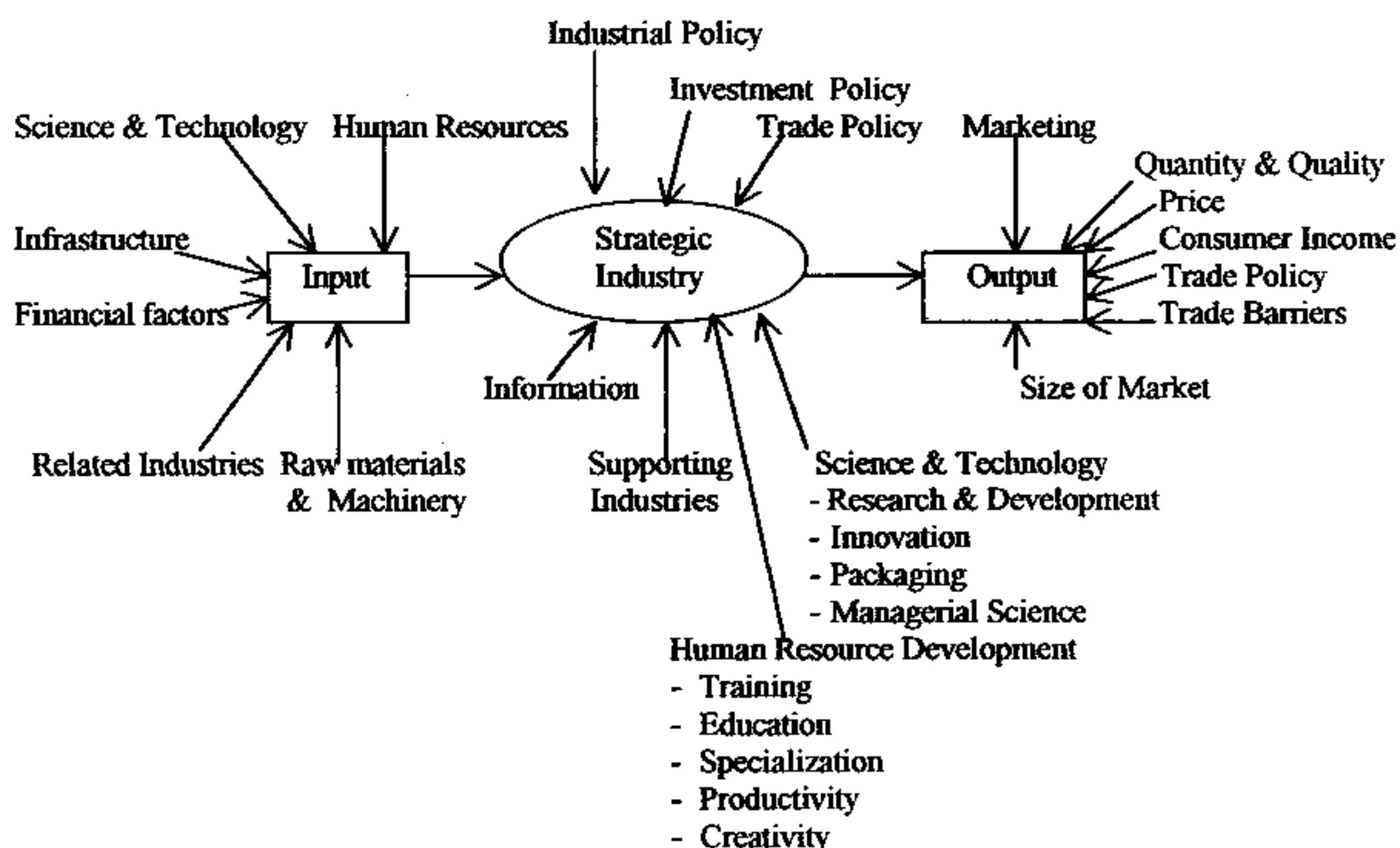


Figure 7.3 Forward, Backward and Supporting Factors of the Full Investment Cycle

Up to the present time (mid-1999) BOI investment promotion measures have addressed only some of the various factors of the investment cycle.

As a consequence, over-dependence on tax and non-tax incentives as policy tools has greatly distorted Thailand's pre-existing industrial structure and its growth, leaving it with many problems both chronic and severe : heavy over-dependence on imported materials and machinery, far too much reliance on labor-intensive industry, high over-exposure to export markets, dangerously high dependence on imported technology, generally poor product quality, relatively low health and safety standards, and the development of very few globally competitive local brands.

In order to achieve sustained and sustainable industrial investment and development, a comprehensive re-examination of the whole investment cycle is needed. The pre-requisite factors in the investment decision-making process are not limited to BOI incentives and existing infrastructure, resource endowment and economic conditions. The process requires the following additional factors : 1) the application of scientific and technical knowledge to the industrial process ; 2) the creation of new, technology-intensive products (and services) ; 3) the existence of representative industry organizations, such as the FTI's 'Auto Industry Club' and the 'Textile Institute' ; 4) the provision of skills upgrading and training to employees in order to increase productivity and advance industry development ; 5) the availability of adequate credit at attractive interest rates ; and 6) adequate local supplies of both materials and machinery. All the above factors need to be at least well established or preferably institutionalized.

Public policy strategy with regard to private investment in industrial development should focus on industries which are largely

‘self-sufficient’ because such industries have the strongest tendency to be internationally competitive over the longer term.

Such a strategy should be based on an optimal policy mix with regard to industrial policy, investment policy and trade policy.

In addition, not just existing levels of local scientific knowledge and technology need to be carefully considered, but the vast pool of practical knowledge possessed by local people also needs to be effectively tapped, which is something that ‘top down’ development is evidently incapable of.

Similarly, specialized training and broader education need to focus on producing international standard graduates, rather than vast numbers of under-trained graduates as has been overwhelmingly the case in Thailand over recent decades.

Strategic industries associated with industrial development must also be supported by an equally effective trade policy in relation to issues such as trade barriers to export markets, marketing strategies, and market intelligence (both domestic and foreign).

To summarize, the full investment cycle must not only link ‘forward’ and ‘backward’ activities, but also integrate supporting activities such as education and training and, regardless of zoning or government incentives, it must also be oriented to promoting ‘self-sufficient’ industry for sustainable development.

The introduction of various measures such as those recommended in this section would not only allow local industries to achieve high productivity and output of both good quality and good value they would also put them in a sound position to explore their export potential by first establishing their competitiveness on an open market far less distorted than has been the case so far.

Currently, the BOI is conducting a thorough review of its investment promotion measures (i.e. tax and non-tax incentives, zoning and percentage of production required to be exported) under its WTO commitments towards eliminating export subsidies. This review which is being assisted by the Financial Investment Agency Service (FIAS), is expected to be completed by October 1999.

2.3 Directions for Future Research

Future research should take the following directions :

- 1) As this study focused exclusively on the eastern region of BOI Zone 3 mainly due to time and budget constraints, future studies should expand to cover other Zone 3 areas so that all areas of Zone 3 have an equal chance to be chosen as the representative area(s) of study ;
- 2) In order to make studies more complete, particularly with regard to policy impact evaluation, the target population should also be expanded to include policy stakeholders such as nearby residents of promoted plants ;
- 3) As there were only 17 entrepreneur respondents forming the final sample (from an initial sample of 28) future researchers should try to ensure they obtain a final sample of at least 30 respondents in order to ascertain that the level of significance of the statistical analysis results is more satisfactory ;
- 4) Interviews with entrepreneurs of BOI-promoted plants should explore the subjective and objective factors affecting the investment decision-making process in greater depth ;
- 5) Further investigation into the efficiency and effectiveness of having so many government organizations with overlapping

responsibilities in this policy area is needed in order to determine the net costs and benefits of consolidating these functions into a single government organization, or at least into far fewer than has been the case ; and

6) There is an urgent need for far more extensive cost-benefit analysis to be conducted on the net impact which continuation of current BOI ZONE 3 IPP or any similar business investment promotion measures may have, particularly in terms of foregone government revenue and the size of the burden placed on current and future taxpayers.

APPENDIX A.

English questionnaire A : for BOI-Promoted Plant Entrepreneur Interviews

(BOI-PROMOTED PLANT : ENTREPRENEURS QUESTIONNAIRE)

Part I

Input Production Employment and Training

Please check (/) in ☐ in front of the answer which is correct or most appropriate, and also write your answer in the space provided .

Section 1. Company Data

1. Company (or Plant) Name _____
2. Address of the head office _____
3. Address of plant _____
4. Years of operation _____
5. Type of plant
☐ Relocated plant (from Zone 1 and 2). Please specify the province ____
☐ New plant

Section 2. Production and Distribution Data

6. Input material machinery in production (specify in percentage)

Items	Year				
	1993	1994	1995	1996	1997
1) Inputs(specify type 1 of input) 2 3					
1.1 Percentage of local input (%)					
1.2 Percentage of non-local input (%)					
1.3 Percentage of imported input (%)					

Items		Year				
		1993	1994	1995	1996	1997
Total (1.1-1.3)		100	100	100	100	100
2) Materials (specify	1					
material type)	2					
	3					
2.1 Percentage of local materials (%)						
2.2 Percentage of non-local material (%)						
2.3 Percentage of imported material (%)						
Total (2.1-2.3)		100	100	100	100	100
3) Machinery (specify	1					
machinery type)	2					
	3					
2.1 Percentage of local machinery (%)						
2.2 Percentage of non-local machinery (%)						
2.3 Percentage of imported material (%)						
Total (3.1-3.3)		100	100	100	100	100

7. Materials used in construction

7.1 Percentage of local material _____ %

7.2 Percentage of non-local material _____ %

7.3 Percentage of imported material _____ %

8. Labor in construction

8.1 Percentage of local labor _____ %

8.2 Percentage of non-local labor _____ % (please specify the first, second and third biggest source of your non-local labor)

Province 1 _____ Province 2 _____ Province 3 _____

9. Products items

Items		Year				
		1993	1994	1995	1996	1997
1) products items	1					
	2					
	3					
1.1 Percentage of local sale (%)						
1.2 Percentage of non-local sale (%)						
1.3 Percentage of export (%)						

Section 3. Data of Unskilled Thai Employee

10. Number of unskilled employees

Year	Number of local unskill labor (Persons)	Number of non-local unskill labor (Persons)	Specify the province of non-local unskill labor
1993			1 _____ 2 _____ 3 _____
1994			1 _____ 2 _____ 3 _____

Year	Number of local unskilled labor (Persons)	Number of non-local unskilled labor (Persons)	Specify the province of non-local unskilled labor
1995			1 _____ 2 _____ 3 _____
1996			1 _____ 2 _____ 3 _____
1997			1 _____ 2 _____ 3 _____

11. Significance of unskilled labor

(A score 10 indicates highest importance and a score of 0 indicates lowest importance)

Highest Significance	Level of significance									Lowest significance
10	9	8	7	6	5	4	3	2	1	0

12. Training provided to your employees

Year	Training/Year			Period of Training (days)	Number of employees in training (persons)
	On the Job training (1)	Off the job training (2)	Pre-service training (3)		
1993				(1) (2) (3)	

Year	Training/Year			Period of Training (days)	Number of employees in training (persons)
	On the Job training (1)	Off the job training (2)	Pre-service training (3)		
1994				(1) (2) (3)	
1995				(1) (2) (3)	
1996				(1) (2) (3)	
1997				(1) (2) (3)	

13. Wages and other benefits provided by the entrepreneur

Year	Wage	Bonus	Welfare	Other 1.	Other 2.
	(baht/head/day)	(baht/head/year)	(baht/head/year)	(baht/head/year)	(Please specify)
1993					
1994					
1995					
1996					
1997					

14. Type of welfare provided to unskilled labor (check all types of welfare)

(Pre 1998)

- ☐ Housing
 ☐ Child care
☐ Lunch
 ☐ Education for employee's children
☐ Health care for employee only
 ☐ Other(s) (please specify) _____
☐ Health care for employee's family

15. Type of welfare currently provided to unskilled labor (1998-1999) (check all types of welfare)

- ☐ Housing
 ☐ Child care
- ☐ Lunch
 ☐ Education for employee's children
- ☐ Health care for employee only
 ☐ Others (please specify) _____
- ☐ Health care for employee's family

Part II

Your opinion about the significance of investment decision-making factors.

Section 4 : Investment decision-making factors for your specific location

Please check (✓) in the space for the correct or most appropriate significance of factors in investment decision.

[illegible]

Item	Highest Significance 10	Level of Significance									Lowest Significance 0
		9	8	7	6	5	4	3	2	1	
20.Quantity and quality of existing infrastructure											
20.1 Water supply											
20.2 Electricity											
20.3 Telephone											
20.4 Roads											
20.5 Railways											
20.6 Air Transportation											
20.7 Sea Ports											
21.Quantity and quality of existing resource endowments											
21.1 Land											
21.2 Natural resources											
21.3 Labor											
22.Economic conditions											
22.1 Value of GPP											
22.2 Number of local bank branches											
22.3 Number of primary industries											

Section 5. Significance of factors in change in investment (1993-1996)

23. If the quantity and quality of existing infrastructure is appropriate, you will :

☐ Increase your investment

☐ more than 100 mil.baht/Employ labor

☐ 21-100 mil.baht

☐ 20 mil.baht

☐ more than 200 persons

☐ 50-199 persons

☐ less than 50 persons

☐ other _____ ☐ other _____

☐ No change. (please specify your reasons) _____

24. At the certain area which has appropriate quantity and quality of existing resource endowments and labor, you will :

☐ Increase your investment

☐ more than 100 mil.baht/Employ labor ☐ more than 200 persons

☐ 21-100 mil.baht ☐ 50-199 persons

☐ 20 mil.baht ☐ less than 50 persons

☐ other _____ ☐ other _____

☐ No change. (please specify the reasons) _____

25. At the certain area which has good economic conditions, you will :

☐ Increase your investment

☐ more than 100 mil.baht/Employ labor ☐ more than 200 persons

☐ 21-100 mil.baht ☐ 50-199 persons

☐ 20 mil.baht ☐ less than 50 persons

☐ other _____ ☐ other _____

☐ No change. (please specify the reasons) _____

26. If you get promotion privileges under BOI ZONE 3 IPP you will :

☐ Increase your investment

☐ more than 100 mil.baht/Employ labor ☐ more than 200 persons

☐ 21-100 mil.baht ☐ 50-199 persons

☐ 20 mil.baht ☐ less than 50 persons

☐ other _____ ☐ other _____

☐ No change. (please specify the reasons) _____

27. If you get non-tax privileges under BOI ZONE 3 IPP, you will :

☐ Increase your investment

☐ more than 100 mil.baht/Employ labor ☐ more than 200 persons

☐ 21-100 mil.baht ☐ 50-199 persons

☐ 20 mil.baht ☐ less than 50 persons

☐ other _____ ☐ other _____

☐ No change. (please specify the reasons) _____

28. Please compare all the items below between pre-policy period (1989-1992) and post-policy period (1993-1996)

Item	Level of Change												Others (specify)
	1989-1992						1993-1996						
	Higher	High	Constant	Low	Lower	No Comment	Higher	High	Constant	Low	Lower	No Comment	
1. Number of plants													
2. Total incomes													
3. Standard of living													
4. Growth and mordernization													
5. In-migration													
6. Out-migration													

Section 6. Opinion relevant to BOI ZONE 3 IPP

29. BOI ZONE 3 IPP significance and benefits relevant to your investment decision.

1. Selection of location

☐ Not Significant. (please specify your reasons) _____

☐ Significant. (please specify your reasons) _____

2. Type of products

- ☐ Not Significant. (please specify the reasons) _____

- ☐ Significant. (please specify the reasons) _____

3. Plant size

- ☐ Not Significant. (please specify the reasons) _____

- ☐ Significant. (please specify the reasons) _____

4. Method of production

- ☐ Not Significant. (please specify the reasons) _____

- ☐ Significant. (please specify the reasons) _____

30. Problems or obstracles in being a BOI-promoted plant

- ☐ Contract with the BOI Office (please specify) _____

- ☐ Issuance of promotion certificate (please specify) _____

- ☐ Contract with other government agencies (such as the Customs Department, Excise Tax Department.) (please specify) _____

- ☐ Others (please specify) _____

31. Other suggestions

1. _____
2. _____
3. _____

**** Thank you for giving your valuable time to answering this questionnaire. ****

APPENDIX B.

English Questionnaire B : for Key Provincial Persons Interviews

PROVINCIAL KEY PERSONS OR EXPERTS QUESTIONNAIRE

Please check (/) in ☐ in front of the answer which is correct or most appropriate and also write your answer in the space provided .

Please compare all the items below between the pre-policy period (1989-1992) and the post-policy period (1993-1996)

Item	Level of Change				Other opinion (please specify)
	1993-1996		1997-present		
	Increased (%)	Decreased (%)	Increased (%)	Decreased (%)	
Economic 1. Number of promoted plants 2. GPP 3. Income from taxation 4. Income 4.1 Employees' income 4.2 Farmer 4.3 Income in service sector 4.4 Others _____ _____ 5. Use of natural resources 6. Local employment 7. In-migration 8. Out-migration 9. The output of promoted-plants that will be the input of another local industries or activities 10. Forward activities Social 11. Transfer of technology and knowledge to local 12. Childrens' education					

Item	Level of Change				Other opinion (please specify)
	1993-1996		1997-present		
	Increased (%)	Decreased (%)	Increased (%)	Decreased (%)	
13.Number of education institutes					
14.Standard of living					
14.1 Household facilities					
14.2 Household consumption					
14.3 Health care					
14.4 Accommodation					
14.5 Others (please specify)					

15.Environmental Problem					
15.1 Air pollution					
15.2 Harzadous waste					
15.3 Water pollution					
15.4 Noise pollution					
15.5 Others (please specify)					

16.Further comment					

Please provide suggestions or comment about tax-measures under
BOI ZONE 3 IPP for achieving its goals. (New promoted plant)

1. _____
2. _____
3. _____

Please suggest or comment about non-tax measure under BOI
ZONE 3 IPP for achieving its goals. (New promoted plant)

1. _____
2. _____
3. _____

**Please suggest or comment about tax-measures under BOI ZONE 3
IPP for achieving its goals (Relocated promoted plant)**

1. _____
2. _____
3. _____

Please check (/) for factor of highest significance in your investment decision.

[illegible]

APPENDIX C.

English Questionnaire C : for BOI-Promoted Plant Employee Interviews

(BOI-PROMOTED PLANT EMPLOYEE QUESTIONNAIRE)

Please check (/) in ☐ in front of the answer that is correct or most appropriate and also write your answer in the provided space.

Section 1. Socio-demographic Characteristic

1. Age _____ years
2. Gender ☐ Male ☐ Female
3. Marital status ☐ Single ☐ Divorced and separated
 ☐ Married ☐ Other.
4. Domicile : District _____ Province _____
5. If you are not local, you have lived here for _____ years and your main reason for living in this province is
☐ Working for BOI-promoted plant
☐ Married with someone who lives in this province
☐ Your family lives in this province
☐ Working in the agricultural sector
☐ Other (please specify) _____
6. Number of children
Boys _____ ages _____ years
Girls _____ ages _____ years
7. Number of dependents
Boys _____ ages _____ years
Girls _____ ages _____ years
8. Number of dependents _____ persons

9. You provide _____ to your dependents

- ☐ Food
 ☐ Health care
☐ Housing
 ☐ Other (please specify) _____
☐ Education

10. Highest Educational attainment

- ☐ Primary school
 ☐ Diploma
☐ Secondary school
 ☐ Bachelor degree
☐ High School/Certificate
 ☐ Other (please specify) _____

11. Level of education of your children and dependents

Items	Level of Education						Other
	Non	Kinder garten	Primary school	Secondary School/Certificate	Diploma	Bachelor degree	
Sons	1						
	2						
	3						
	4						
Daughters	1						
	2						
	3						
	4						
Dependents							
Male	1						
	2						
	3						
	4						
Female	1						
	2						
	3						
	4						

12. Your Occupation before and after working for BOI-promoted plant

Occupation	Before	After
Main occupation	☐ General employees	☐ General employees
	☐ Self-employed agricultural	☐ Self-employed agricultural
	☐ Other _____	☐ Other _____
Minor occupation	☐ General employees	☐ General employees
	☐ Self-employed agricultural	☐ Self-employed agricultural
	☐ Others _____	☐ Others _____

13. Total consumption expenditure _____ baht/day or _____
baht/month

14. Education expenditure on your children and dependents _____
baht/year

15. Other expenditure on your family _____ baht/month

16. Is your income more than your expenditure?

- ☐ Yes, the average surplus per month is _____ baht
- ☐ No, the average deficit per month is _____ baht

17. Do you have another sources of income?

- ☐ Yes, the average income per month is _____ baht
- ☐ No,

Section 2. Employment Conditions

18. Your wage is _____ baht/day or _____ baht/month

19. Average bonus 1993-1996 was _____ baht/year

20. Which types of welfare do you receive?

☐ Housing	☐ Child care
☐ Lunch	☐ Education for your children
☐ Health care for yourself	☐ Bus service
☐ Health care for your family	☐ Other _____

25. In your opinion, the advantages and disadvantages of having BOI-promoted plants in your province are :

☐ Employment (please specify) _____

☐ Incomes (please specify) _____

☐ Standard of living (please specify) _____

☐ Growth and modernization (please specify) _____

☐ Pollution (please specify) _____

☐ Employment (please specify) _____

☐ Expenditure by Locals (please specify) _____

☐ Other (please specify) _____

Other suggestions :

1. _____

2. _____

3. _____

*** Thank you for your contribution ***

APPENDIX D.

Thai Questionnaire A : for BOI-Promoted Plant Entrepreneur Interviews

แบบสอบถามผู้ประกอบการของโรงงานที่ได้รับการส่งเสริมการลงทุน

ภาควิชาเศรษฐศาสตร์ คณะเศรษฐศาสตร์
มหาวิทยาลัยเกษตรศาสตร์ บางเขน กทม.10900
โทร. 5613474, 5790739, 9428048 ต่อ 206

31 ตุลาคม 2541

เรียน ท่านผู้ประกอบการ

แบบสอบถามชุดนี้เป็นส่วนหนึ่งของโครงการวิจัยเพื่อวิเคราะห์ผลได้และผลกระทบของมาตรการส่งเสริมการลงทุนโซน 3 ผลที่ได้จะนำมาจัดทำเป็นวิทยานิพนธ์ระดับปริญญาเอก ด้านบริหารการพัฒนา (นโยบายของรัฐ) ในโครงการปริญญาเอกนานาชาติ ของคณะรัฐประศาสนศาสตร์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ แบบสอบถามนี้จะเป็นการรวบรวมข้อมูลเกี่ยวกับการประกอบการ ผลได้และผลกระทบจากการได้รับการส่งเสริมการลงทุน และความคิดเห็นของท่านที่มีต่อนโยบายดังกล่าว ผู้วิจัยจะนำมาวิเคราะห์เพื่อเสนอเป็นภาพรวมในเชิงสถิติ นอกจากนั้นข้อมูลที่ได้รับจากท่านจะถือเป็นความลับอย่างเคร่งครัด โดยจะไม่เปิดเผยชื่อผู้ให้หรือชื่อสถานประกอบการของท่านนอกจากจะได้รับอนุญาตจากท่านก่อน

โครงการวิจัยนี้นอกจากจะเป็นส่วนหนึ่งของวิทยานิพนธ์ระดับปริญญาเอกดังกล่าวแล้ว ผู้วิจัยจะนำเสนอผลการวิจัยแก่หน่วยงานที่เกี่ยวข้อง ประกอบการพิจารณาปรับเปลี่ยนนโยบายส่งเสริมการลงทุนเพื่อให้เกิดผลดีทั้งแก่ผู้ลงทุนและประเทศอีกด้วย

ฉะนั้น จึงเรียนมาเพื่อขอความกรุณาจากท่านในฐานะเป็นผู้ประกอบการซึ่งอยู่ใกล้กับปัญหาและข้อเท็จจริง ที่สามารถให้ข้อมูลที่เป็นประโยชน์ในการวิจัยครั้งนี้มากที่สุด

ขอขอบพระคุณที่กรุณาสละเวลาอันมีค่าและให้ความร่วมมือในการตอบแบบสอบถามที่แนบมาทุกข้อ

ด้วยความนับถือ

อ.มานวิภา อินทหัตถ์

(ผศ.มานวิภา อินทหัตถ์)

หมายเหตุ แบบสอบถามแบ่งเป็น 2 ชุด ชุดที่ 1 เป็นคำถามผู้จัดการด้านการผลิตและการจ้างงาน
ชุดที่ 2 เป็นความคิดเห็นของผู้มีอำนาจตัดสินใจในการลงทุน

ชุดที่ 1

ข้อมูลด้านปัจจัยการผลิต การผลิต การจ้างงาน และการฝึกอบรม

(โดยข้อมูลได้จากผู้จัดการด้านขบวนการผลิตและด้านบุคลากรหรือการจ้างงาน)

กรุณาภาเครื่องหมาย ✓ ในช่องว่างที่ท่านเห็นว่าถูกต้องและเหมาะสมที่สุด พร้อมทั้งระบุจำนวน ข้อความและความคิดเห็น
ในช่องว่างที่กำหนดไว้ ()

ส่วนที่ 1 ข้อมูลเกี่ยวกับบริษัท

1. ชื่อบริษัท _____
2. ที่ตั้งสำนักงาน _____
โทร. _____
3. ที่ตั้งโรงงาน _____
โทร. _____
4. เปิดดำเนินการเมื่อ ปี พ.ศ. _____ ()
5. บริษัทหรือโรงงานของท่านที่ดำเนินการนี้มีลักษณะเป็น ()
 - ☐ บริษัทหรือโรงงานที่ย้ายฐานการผลิตมาจากจังหวัดอื่น ๆ ในโซน 1 และ 2
(โปรดระบุจังหวัด) _____
 - ☐ บริษัทหรือโรงงานที่จัดตั้งขึ้นใหม่และเปิดดำเนินการในจังหวัดนี้

ส่วนที่ 2 ข้อมูลด้านการผลิตและการจำหน่าย

6. วัตถุดิบ วัสดุจำเป็น เครื่องจักรที่ใช้ในขบวนการผลิต (ระบุมูลค่าร้อยละตามปีที่ซื้อจริง)

รายการ		ปี				
		2536	2537	2538	2539	2540
1) วัตถุดิบ (โปรดระบุชนิด	1					
ของวัตถุดิบที่ซื้อเรียง	2					
ลำดับ 1-5)	3					
	4					
	5					
1.1 ร้อยละของการซื้อวัตถุดิบ						
จากภายในท้องถิ่น (%)						
1.2 ร้อยละของการซื้อวัตถุดิบ						
จากภายนอกท้องถิ่น (%)						
1.3 ร้อยละของการนำเข้า						
วัตถุดิบจากต่างประเทศ (%)						
รวมข้อ 1.1 ถึงข้อ 1.3		100	100	100	100	100

รายการ		ปี				
		2536	2537	2538	2539	2540
2) วัสดุจำเป็น เช่น อุปกรณ์	1					
หรือส่วนประกอบของผลผลิต	2					
สำเร็จรูปและอุปกรณ์ที่ใช้รวม	3					
กับวัตถุดิบและเครื่องจักร	4					
เป็นต้น (โปรดระบุชนิด	5					
เรียงลำดับ 1-5)						
2.1 ร้อยละของการซื้อวัสดุ						
จำเป็นภายในท้องถิ่น (%)						
2.2 ร้อยละของการซื้อวัสดุจาก						
ภายนอกท้องถิ่น (%)						
2.3 ร้อยละของการนำเข้าวัสดุ						
จากต่างประเทศ (%)						
รวมข้อ 2.1 ถึงข้อ 2.3		100	100	100	100	100
3) เครื่องจักร(โปรดระบุชนิด	1					
ของเครื่องจักรที่ซื้อ	2					
เรียงลำดับ 1-5)	3					
	4					
	5					
3.1 ร้อยละของการซื้อเครื่องจักร						
จากภายในท้องถิ่น (%)						
3.2 ร้อยละของการซื้อเครื่องจักร						
จากภายนอกท้องถิ่น (%)						
3.3 ร้อยละของการนำเข้าเครื่อง-						
จักรจากต่างประเทศ (%)						
รวมข้อ 3.1 ถึงข้อ 3.3		100	100	100	100	100

7. ในการก่อสร้างโรงงานของท่าน ท่านให้อุปกรณ์ในการก่อสร้างอย่างไร

7.1 ซื้อจากภายในท้องถิ่น หรือจังหวัดที่ท่านลงทุน ร้อยละ _____ ()

7.2 ซื้อจากนอกท้องถิ่น (รวมกรุงเทพมหานคร) ร้อยละ _____ ()

7.3 ซื้อจากต่างประเทศ ร้อยละ _____ ()

8. ในการก่อสร้างโรงงานของท่าน แรงงานที่ใช้ในการก่อสร้างมาจากที่ไหน

8.1 มาจากภายในท้องถิ่น ร้อยละ _____ ()

8.2 มาจากนอกท้องถิ่น ร้อยละ _____ โปรดระบุจังหวัดที่มาของ แรงงานไว้ฝีมือเหล่านั้น ()

จากมากไปหาน้อย

1. _____ 2. _____ 3. _____ ()

4. _____ 5. _____

9. รายการสินค้าที่ทำการผลิต

รายการ		ปี				
		2536	2537	2538	2539	2540
1) รายการสินค้าที่ทำการผลิต	1					
(ระบุแยกตามชนิดของ	2					
สินค้าตามลำดับ 1-5)	3					
	4					
	5					
1.1 ร้อยละของสินค้าที่ขาย						
ภายในท้องถิ่น						
1.2 ร้อยละของสินค้าที่ขาย						
ภายนอกท้องถิ่น						
1.3 ร้อยละของการส่งออก						
สินค้าไปขายต่างประเทศ						
รวมข้อ 1.1 ถึงข้อ 1.3		100	100	100	100	100

ส่วนที่ 3 ข้อมูลเกี่ยวกับการจ้างงานประเภทไร้ฝีมือ เฉพาะแรงงานไทย

10. จำนวนการจ้างงานของแรงงานไร้ฝีมือ

ปี	จำนวนแรงงานภายในท้องถิ่น (คน)	จำนวนแรงงานภายนอกท้องถิ่น (คน)	แรงงานภายนอกท้องถิ่น ส่วนใหญ่มาจากจังหวัด
2536			1.
			2.
			3.
2537			1.
			2.
			3.
2538			1.
			2.
			3.
2539			1.
			2.
			3.
2540			1.
			2.
			3.

11. ท่านเห็นว่าแรงงานไร้ฝีมือ มีความสำคัญต่อกิจกรรมด้านการผลิตให้กับโรงงานของท่านเพียงใด

โดย 10 คือ มีความสำคัญมากที่สุด 0 คือ มีความสำคัญน้อยที่สุด

()

มากที่สุด	ระดับของความสำคัญ									น้อยที่สุด
10	9	8	7	6	5	4	3	2	1	0

12. การฝึกอบรมแรงงาน จำนวนครั้ง ระยะเวลา และจำนวนแรงงานที่ได้รับการฝึกอบรมแยกตามประเภท และครั้งที่ของการฝึกอบรมประเภทที่ 1-3)

ปี	จำนวนครั้ง/ปีของประเภทของการฝึกอบรม			ระยะเวลาแยกตามประเภทและครั้งที่ของการฝึกอบรม (วัน)				จำนวนแรงงานที่ได้รับการอบรมแยกตามประเภทและครั้งที่ของการฝึกอบรม/ปี (คน)			
	1) อบรมในขณะทำงาน	2) อบรมที่ไม่เกี่ยวข้องกับงาน	3) อบรมก่อนการทำงาน	ประเภท	ครั้งที่			ประเภท	ครั้งที่		
	(ครั้ง)	(ครั้ง)	(ครั้ง)		I	II	III		I	II	III
2536				1)				1)			
				2)				2)			
				3)				3)			
2537				1)				1)			
				2)				2)			
				3)				3)			
2538				1)				1)			
				2)				2)			
				3)				3)			
2539				1)				1)			
				2)				2)			
				3)				3)			
2540				1)				1)			
				2)				2)			
				3)				3)			

หมายเหตุ 1/ อบรมในขณะทำงาน (on-the-job training) คือ การจัดการฝึกอบรมให้กับแรงงาน เพื่อเป็นการปรับปรุงคุณภาพของผลผลิตขณะทำงาน

2/ อบรมที่ไม่เกี่ยวข้องกับการทำงาน (off-the-job training) คือ การจัดการฝึกอบรมให้กับแรงงานเพื่อเพิ่มทักษะ นอกเหนือจากงานที่ทำประจำของคนงาน

3/ อบรมก่อนการทำงาน (pre-service training) คือ การจัดการฝึกอบรมให้กับแรงงานเพื่อปรับปรุงคุณภาพของแรงงานก่อนการทำงานในวันแรก

13. ค่าจ้างและผลประโยชน์ต่าง ๆ ที่ให้กับคนงาน (ระบุจำนวนเงินที่จ่ายจริงในปีนั้น ๆ)

()

ปี	ค่าจ้าง (บาท/คน/วัน)	โบนัส (บาท/คน/ปี)	สวัสดิการต่าง ๆ (บาท/คน/ปี)	อื่น ๆ (บาท/คน/ปี)	กรุณาระบุว่าอื่น ๆ คืออะไร
2536					
2537					
2538					
2539					
2540					

14. ประเภทของสวัสดิการที่ท่านให้กับคนงานไว้มีชื่อ ในช่วงปี 2536-2539 ซึ่งเป็นช่วงสภาวะเศรษฐกิจปกติ ()

(ตอบได้มากกว่า 1 คำตอบ)

- ☐ ที่พักอาศัย
 ☐ จัดสถานที่รับเลี้ยงเด็กให้กับลูก หลาน ของคนงาน
☐ อาหารกลางวัน
 ☐ จัดการเรียนการสอนให้แก่ลูก หลาน ของคนงาน
☐ ค่ารักษาพยาบาลเฉพาะคนงานเท่านั้น
 ☐ อื่น ๆ โปรดระบุ _____
☐ ค่ารักษาพยาบาลแก่คนงาน และครอบครัว

15. ประเภทของสวัสดิการที่ท่านให้กับคนงานไว้มีชื่อในช่วงเกิดวิกฤตการณ์ทางเศรษฐกิจ ตั้งแต่ ปี พ.ศ.2540-ปัจจุบัน

(ตอบได้มากกว่า 1 คำตอบ)

- ☐ ที่พักอาศัย
 ☐ จัดสถานที่รับเลี้ยงเด็กให้กับลูก หลาน ของคนงาน
☐ อาหารกลางวัน
 ☐ จัดการเรียนการสอนให้แก่ลูก หลาน ของคนงาน
☐ ค่ารักษาพยาบาลเฉพาะคนงานเท่านั้น
 ☐ อื่น ๆ โปรดระบุ _____
☐ ค่ารักษาพยาบาลแก่คนงาน และครอบครัว

ขอขอบพระคุณที่ท่านกรุณาสละเวลาอันมีค่าตอบแบบสอบถาม

X*X*X*X

ชุดที่ 2

ด้านความคิดเห็นเกี่ยวกับปัจจัยที่สำคัญในการลงทุน การเปลี่ยนแปลงการลงทุน การเปรียบเทียบผลของมาตรการ BOI และความคิดเห็นเกี่ยวกับมาตรการ BOI (โดยเป็นความคิดเห็นของผู้มีอำนาจในการตัดสินใจลงทุน) ()

ส่วนที่ 4 ปัจจัยในการตัดสินใจในการลงทุน ณ ท่าเลโต ฯ

(คำถามส่วนนี้เพื่อทราบปัจจัยด้านมาตรการของ BOI หรือสิ่งอำนวยความสะดวกต่าง ๆ ในพื้นที่ปัจจัยใดมีความสำคัญต่อการลงทุนในความคิดเห็นของผู้ประกอบการ)

กรุณาทำเครื่องหมาย ✓ ลงในช่องของตัวเลขที่เหมาะสมที่สุดหรือถูกต้องที่สุด โดย 10 คือ ปัจจัยที่มีความสำคัญมากที่สุด 0 คือ ปัจจัยที่มีความสำคัญน้อยที่สุด

รายการ	มาก ที่สุด	ระดับของความสำคัญ									น้อย ที่สุด	ความคิดเห็นอื่นๆ เพิ่มเติม โปรดระบุ
	10	9	8	7	6	5	4	3	2	1	0	
ผู้ประกอบการทุกรายที่ได้รับการส่งเสริมการลงทุนกรุณา ให้ระดับคะแนนในข้อ 16 16. มาตรการโดยรวมของ BOI โซน 3												
เฉพาะกรณีที่ท่านเป็นผู้ประกอบการที่ตั้งโรงงานขึ้นใหม่ ในจังหวัดนี้ กรุณาให้ระดับคะแนนในข้อ 17-17.4 17.สิทธิประโยชน์ด้านภาษีของมาตรการ BOI โซน 3												
17.1 การยกเว้นภาษีการนำเข้าเครื่องจักร												
17.2 การยกเว้นภาษีรายได้ของบริษัทเป็นเวลา 8 ปี												
17.3 การยกเว้นภาษีการนำเข้าวัตถุดิบและวัสดุที่จำเป็น เพื่อให้ผลิตสินค้าส่งออกเป็นระยะเวลา 5 ปี สำหรับโครงการที่ส่งออกอย่างน้อย 30 % ของ มูลค่าการขาย												

รายการ	มาก ที่สุด	ระดับของความสำคัญ									น้อย ที่สุด	ความคิดเห็นอื่นๆ เพิ่มเติม โปรดระบุ
	10	9	8	7	6	5	4	3	2	1	0	
17.4 การลดอัตราภาษี 75 % เป็นเวลา 5 ปีในการ นำเข้าวัตถุดิบและวัสดุนี้จะเน้นในการผลิตผล ผลิตเพื่อขายภายในประเทศ โดยวัตถุดิบและ วัสดุดังกล่าวต้องไม่สามารถผลิตได้ภายใน ประเทศ (มาตรการนี้จะไม่ให้กับอุตสาหกรรม ที่ตั้งในนิคมอุตสาหกรรมแหลมฉบัง)												
17.5 การลดภาษีรายได้ของบริษัท 50 %) เป็น เวลา 5 ปี ภายหลังจากการได้รับยกเว้น 8 ปี ใน ช่วงแรกของการดำเนินการ												
17.6 ค่าใช้จ่ายด้านน้ำประปา ไฟฟ้า และค่าขนส่ง สามารถนำไปลดภาษีรายได้ได้จำนวน 2 เท่าของค่าใช้จ่ายจริงเป็นเวลา 10 ปี จากการ ขายสินค้าในวันแรก												
17.7 ค่าใช้จ่ายในการจัดหาและก่อสร้างโครงสร้าง พื้นฐานและสิ่งอำนวยความสะดวกต่าง ๆ สามารถนำไปลดผลกำไรสุทธิได้ร้อยละ 25 ของค่าใช้จ่ายดังกล่าว												

รายการ	มากที่สุด	ระดับของความสำคัญ									น้อยที่สุด	ความคิดเห็นอื่นๆ เพิ่มเติม โปรดระบุ
	10	9	8	7	6	5	4	3	2	1	0	
18. สิทธิประโยชน์ที่มีไม่ภาษีของมาตรการ BOI โซน 3												
18.1 ลดจำนวนเงินทุนขั้นต่ำที่กำหนด												
18.2 การช่วยเหลือด้านเงินทุนผ่านธนาคารพาณิชย์												
18.3 จัดเตรียมการอบรมแรงงาน, การพัฒนาผลิตภัณฑ์และการพัฒนาด้านการตลาดทั้งภายในประเทศและระหว่างประเทศโดยผ่านหน่วย BUILD (BOI Unit for Industrial Linkage Development program)												
18.4 รัฐบาลประกันที่จะลงทุนในโครงสร้างพื้นฐานและสาธารณูปโภคในโซน 3												
เฉพาะกรณีที่ท่านเป็นโรงงานอุตสาหกรรมที่ย้ายทำจากโซน 1 และโซน 2 มาตั้งในโซน 3 กรุณาให้ระดับคะแนนในส่วนข้อ 19-19.3 (ท่านที่ตั้งโรงงานอุตสาหกรรมใหม่ในโซน 3 ไม่ต้องให้ระดับคะแนนในส่วนนี้)												
19. สิทธิประโยชน์โดยรวมในกรณีการย้ายทำเลมายังโซน 3												
19.1 การยกเว้นภาษีเงินได้ของบริษัทจำนวน 8 ปี												

รายการ	มากที่สุด	ระดับของความสำคัญ									น้อยที่สุด	ความคิดเห็นอื่นๆ เพิ่มเติม โปรดระบุ
	10	9	8	7	6	5	4	3	2	1	0	
19.2 ลดภาษีเงินได้ของบริษัทร้อยละ 50เป็นเวลา 5 ปีหลังจากการยกเว้นในกรณี 19.1 หมวดลง												
19.3 สามารถนำต้นทุนด้านไฟฟ้า ประปา และค่าขนส่งมาหักเพื่อลดภาษีรายได้ในจำนวน 2 เท่าของค่าใช้จ่ายจริง เป็นระยะเวลา 10 ปี												
ในกรณีพิจารณาส่วนที่มีมาตรการของ BOI คือ สิ่งอำนวยความสะดวกด้านการลงทุนในพื้นที่ผู้ประกอบการทุกรายที่ได้รับการส่งเสริมการลงทุน กรุณาให้ระดับคะแนน ข้อ 20-22.3												
20. ปริมาณและคุณภาพของโครงสร้างพื้นฐานโดยรวม												
20.1 ด้านน้ำประปาหรือน้ำที่ใช้ในอุตสาหกรรม												
20.2 ด้านพลังงานไฟฟ้า												
20.3 บริการด้านโทรศัพท์												
20.4 โครงข่ายและคุณภาพของถนน												
20.5 การบริการด้านรถไฟ												
20.6 การบริการด้านการขนส่งทางอากาศ												
20.7 การบริการด้านสิ่งอำนวยความสะดวกของท่าเรือ												

รายการ	มากที่สุด	ระดับของความสำคัญ									น้อยที่สุด	ความคิดเห็นอื่นๆ เพิ่มเติม โปรดระบุ
	10	9	8	7	6	5	4	3	2	1	0	
21. <u>ทรัพยากรที่มีอยู่ในพื้นที่โดยรวม</u>												
21.1 ปริมาณของที่ดินที่ยังสามารถใช้ได้												
21.2 ปริมาณของทรัพยากรธรรมชาติที่มีอยู่												
21.3 ปริมาณของแรงงานที่สามารถจัดจ้างได้												
22. <u>สภาพการณ์ด้านเศรษฐกิจโดยรวม</u>												
22.1 ระดับมูลค่าผลิตภัณฑ์ของจังหวัด												
22.2 จำนวนของสถาบันการเงินในท้องถิ่นมีเพียงพอ												
22.3 จำนวนโรงงานของอุตสาหกรรมขั้นปฐมที่ ป้อนวัตถุดิบให้กับโรงงานที่ได้รับการส่งเสริม												

ส่วนที่ 5 ความคิดเห็นของท่านในฐานะนักลงทุน หรือผู้ประกอบการในการเปลี่ยนแปลงการลงทุนของท่าน
(คำถามส่วนนี้เพื่อชี้ว่าในสถานการณ์ต่าง ๆ การที่ท่านจะเปลี่ยนแปลงการลงทุนนั้นปัจจัยด้านใดมีความสำคัญ)

ถ้าสถานะเศรษฐกิจของประเทศโดยรวมอยู่ในสภาวะปกติ (ช่วงปี 2536-2539)

23. ท่านจะลงทุนเพิ่มขึ้นหรือไม่ ในกรณีพื้นที่นั้นมีปริมาณและคุณภาพ**โครงสร้างพื้นฐาน** (ประปา ไฟฟ้า โทรศัพท์ การคมนาคมทางถนน ทางรถไฟ ท่าเรือ และการขนส่งทางอากาศ) ที่ดีและเหมาะสม ()

☐ ลงทุนเพิ่มขึ้น มูลค่าเงินลงทุน	☐ มากกว่า 100 ล้านบาท ปริมาณการจ้างงาน	☐ มากกว่า 200 คน
	☐ 21 - 100 ล้านบาท	☐ 50 - 199 คน
	☐ 20 ล้านบาท	☐ ไม่เกิน 49 คน
	☐ อื่น ๆ ระบุ _____ ล้านบาท	☐ อื่น ๆ ระบุ _____ คน

☐ ไม่ลงทุน (โปรดระบุสาเหตุ) _____

24. ท่านจะลงทุนเพิ่มขึ้นหรือไม่ ในกรณีพื้นที่นั้นมี**ทรัพยากรธรรมชาติและแรงงาน**ในปริมาณและคุณภาพที่ดีและเหมาะสม (ทรัพยากรเหล่านั้นสามารถเป็นวัตถุดิบในการผลิตของท่าน และแรงงานไร้ฝีมือที่มี สามารถนำมาใช้ในขบวนการผลิตของท่านได้ ()

☐ ลงทุนเพิ่มขึ้น มูลค่าเงินลงทุน	☐ มากกว่า 100 ล้านบาท ปริมาณการจ้างงาน	☐ มากกว่า 200 คน
	☐ 21 - 100 ล้านบาท	☐ 50 - 199 คน
	☐ 20 ล้านบาท	☐ ไม่เกิน 49 คน
	☐ อื่น ๆ ระบุ _____ ล้านบาท	☐ อื่น ๆ ระบุ _____ คน

☐ ไม่ลงทุน (โปรดระบุสาเหตุ) _____

25. ท่านจะลงทุนเพิ่มขึ้นหรือไม่ ในกรณีพื้นที่นั้นมี**สภาวะเศรษฐกิจ** (ระดับมูลค่าผลิตภัณฑ์ของจังหวัด จำนวนสถาบันการเงิน และจำนวนโรงงานอุตสาหกรรมขั้นปฐมที่จะป้อนปัจจัยการผลิตให้กับโรงงานของท่าน) ดีและเหมาะสม ()

☐ ลงทุนเพิ่มขึ้น มูลค่าเงินลงทุน	☐ มากกว่า 100 ล้านบาท ปริมาณการจ้างงาน	☐ มากกว่า 200 คน
	☐ 21 - 100 ล้านบาท	☐ 50 - 199 คน
	☐ 20 ล้านบาท	☐ ไม่เกิน 49 คน
	☐ อื่น ๆ ระบุ _____ ล้านบาท	☐ อื่น ๆ ระบุ _____ คน

☐ ไม่ลงทุน (โปรดระบุสาเหตุ) _____

26. ท่านจะลงทุนเพิ่มขึ้นหรือไม่ ถ้าท่านได้รับ**สิทธิประโยชน์ด้านภาษี**ภายใต้มาตรการ BOI โซน 3

☐ ลงทุนเพิ่มขึ้น มูลค่าเงินลงทุน	☐ มากกว่า 100 ล้านบาท ปริมาณการจ้างงาน	☐ มากกว่า 200 คน
	☐ 21 - 100 ล้านบาท	☐ 50 - 199 คน
	☐ 20 ล้านบาท	☐ ไม่เกิน 49 คน
	☐ อื่น ๆ ระบุ _____ ล้านบาท	☐ อื่น ๆ ระบุ _____ คน

☐ ไม่ลงทุน (โปรดระบุสาเหตุ) _____

27. ท่านจะลงทุนเพิ่มขึ้นหรือไม่ ถ้าท่านได้รับสิทธิประโยชน์ที่มีใช้ภาษี (เช่น การลดจำนวนเงินลงทุนขั้นต่ำ การช่วยเหลือด้านการเงินผ่านธนาคารพาณิชย์ การจัดฝึกอบรมต่าง ๆ และรัฐบาลมีการลงทุนในโครงสร้างพื้นฐานในเขตการลงทุนนั้น) ()

- ☐ ลงทุนเพิ่มขึ้น มูลค่าเงินลงทุน ☐ มากกว่า 100 ล้านบาท ปริมาณการจ้างงาน ☐ มากกว่า 200 คน
- ☐ 21 - 100 ล้านบาท ☐ 50 - 199 คน
- ☐ 20 ล้านบาท ☐ ไม่เกิน 49 คน
- ☐ อื่น ๆ ระบุ _____ ล้านบาท ☐ อื่น ๆ ระบุ _____ คน

☐ ไม่ลงทุน (โปรดระบุสาเหตุ) _____

(คำถามส่วนนี้เพื่อเป็นการเปรียบเทียบผลของมาตรการโซน 3 ก่อนและหลังมีการประกาศใช้)

28. จากการสังเกตของท่านก่อนที่ท้องถิ่นที่ท่านลงทุนมีการประกาศใช้มาตรการ BOI โซน 3

(ช่วงก่อนปีพ.ศ. 2535) กับภายหลังมีการใช้มาตรการ BOI โซน 3 ในท้องถิ่นที่ท่านลงทุนในช่วงสภาวะเศรษฐกิจ

ปกติ (พ.ศ.2536-2539) และในช่วงวิกฤตการณ์ทางเศรษฐกิจ (พ.ศ.2540 เป็นต้นมา)

รายการ	การเปลี่ยนแปลง											ความคิดเห็นเพิ่มเติม โปรดระบุ	
	พ.ศ. 2535-2539						พ.ศ. 2540-ปัจจุบัน						
	เพิ่มขึ้น มาก	เพิ่มขึ้น	ไม่ เปลี่ยน แปลง	ลดลง	มาก	ไม่มี ความ เห็น	เพิ่มขึ้น มาก	เพิ่มขึ้น	ไม่ เปลี่ยน แปลง	ลดลง	มาก		ไม่ เปลี่ยน แปลง
1. จำนวนโรงงานอุตสาหกรรม ในท้องถิ่น													
2. รายได้รวมของประชาชน													
3. ความเป็นอยู่ของประชาชน													
4. ความเจริญและความทันสมัย (พิจารณาจากจำนวนห้าง สรรพสินค้า ธนาคารสินค้า อุปกรณ์ เครื่องมือ เทคนิคการ ผลิตด้านเกษตรและอื่น ๆ การ ใช้คอมพิวเตอร์และอุปกรณ์ โทรคมนาคม)													
5. การอพยพแรงงานเข้าสู่ท้องถิ่น													
6. การอพยพแรงงานออกจากท้องถิ่น													

ส่วนที่ 6 ความคิดเห็นเกี่ยวกับมาตรการของ BOI โซน 3

(คำถามส่วนนี้จะเป็นข้อมูลเพื่อเสนอแนะ BOI และหน่วยงานที่เกี่ยวข้องในการปรับปรุง เพื่อทำให้เกิดการขยายตัวของการลงทุน อันจะเป็นผลประโยชน์ต่อนักลงทุน)

29. มาตรการของ BOI โซน 3 มีความสำคัญและมีประโยชน์ในการตัดสินใจในการลงทุนของท่านอย่างไร ()

1. ด้านการเลือกทำเล

☐ ไม่มี (โปรดระบุสาเหตุ) _____

☐ มี (โปรดระบุว่าอย่างไร) _____

2. ด้านประเภทของสินค้าที่จะทำการผลิต

()

☐ ไม่มี (โปรดระบุสาเหตุ) _____

- ☐ มี (โปรดระบุว่ามีอย่างไร) _____
3. ด้านขนาดของโรงงาน ()
- ☐ ไม่มี (โปรดระบุสาเหตุ) _____
- ☐ มี (โปรดระบุว่ามีอย่างไร) _____
4. ด้านเทคนิคในการผลิต ()
- ☐ ไม่มี (โปรดระบุสาเหตุ) _____
- ☐ มี (โปรดระบุว่ามีอย่างไร) _____
30. ท่านประสบปัญหาและอุปสรรคประการใดหรือไม่ เมื่อได้รับสิทธิประโยชน์ตามมาตรการ BOI โฉน 3 (ตอบได้มากกว่า 1 ข้อ) ()
- ☐ ด้านการติดต่อกับสำนักงาน BOI (โปรดระบุ) _____
- _____
- ☐ ด้านขั้นตอนการได้รับสิทธิประโยชน์ (โปรดระบุ) _____
- _____
- ☐ ด้านการติดต่อกับหน่วยงานที่เกี่ยวข้อง (เช่น กรมสรรพากร และกรมศุลกากร เป็นต้น) (โปรดระบุ) _____
- _____
- ☐ ด้านอื่น ๆ (โปรดระบุ) _____
- _____
31. ข้อเสนอแนะอื่น ๆ ()
1. _____
2. _____
3. _____

ขอขอบพระคุณที่กรุณาใช้เวลาอันมีค่าในการตอบแบบสอบถาม

APPENDIX E.

Thai Questionnaire B : for Key Provincial Persons Interviews

แบบสัมภาษณ์ผู้เชี่ยวชาญ ข้าราชการในจังหวัดที่เกี่ยวข้องกับมาตรการ BOI โชน 3

ภาควิชาเศรษฐศาสตร์ คณะเศรษฐศาสตร์
มหาวิทยาลัยเกษตรศาสตร์ บางเขน กทม. 10900
โทร.5613474, 5790739, 9428048 ต่อ 206

31 ตุลาคม 2541.

เรียน

แบบสัมภาษณ์ชุดนี้เป็นส่วนหนึ่งของโครงการวิจัยเพื่อวิเคราะห์ผลได้และผลกระทบของมาตรการส่งเสริมการลงทุน โชน 3 ผลที่ได้จะนำมาจัดทำเป็นวิทยานิพนธ์ระดับปริญญาเอก ด้านบริหารการพัฒนา (นโยบายของรัฐ) ในโครงการปริญญาเอกนานาชาติ คณะรัฐประศาสนศาสตร์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ แบบสัมภาษณ์นี้จะเป็นการรวบรวมข้อมูล ความคิดเห็นและข้อเสนอแนะต่าง ๆ ของท่านที่มีต่อมาตรการดังกล่าว ผู้วิจัยจะนำมาวิเคราะห์ เพื่อนำเสนอเป็นภาพรวมและในเชิงสถิติ นอกจากนั้นข้อมูลที่ได้รับจากท่านจะถือเป็นความลับอย่างเคร่งครัด โดยจะไม่เปิดเผยชื่อและตำแหน่งของท่าน นอกจากจะได้รับอนุญาตจากท่านก่อน

โครงการวิจัยนั้นนอกจากจะเป็นส่วนหนึ่งของวิทยานิพนธ์ระดับปริญญาเอกดังกล่าว ผู้วิจัยจะนำเสนอผลจากการวิจัยแก่หน่วยงานที่เกี่ยวข้อง ประกอบการพิจารณาปรับเปลี่ยนนโยบาย ส่งเสริมการลงทุนเพื่อให้เกิดผลดี ทั้งแก่ผู้ลงทุนและประเทศอีกด้วย

ฉะนั้น จึงเรียนมาเพื่อขอความกรุณาจากท่านในฐานะที่ท่านเป็นผู้เชี่ยวชาญ และ/หรือเจ้าหน้าที่รับผิดชอบในเรื่องเหล่านี้โดยตรง ย่อมทราบข้อเท็จจริง อยู่ในฐานะที่ให้ข้อมูลที่เป็นประโยชน์ในการวิจัยครั้งนี้มากที่สุด

ขอขอบพระคุณที่กรุณาสละเวลาอันมีค่าและให้ความร่วมมือในการตอบแบบสอบถามที่แนบมาทุกข้อ

ด้วยความนับถือ

ดร.มานวิภา อินทรทัต

(ผศ.มานวิภา อินทรทัต)

รายการ	การเปลี่ยนแปลง												ความคิดเห็น เพิ่มเติม โปรดระบุ
	พ.ศ. 2535-2539						พ.ศ. 2540-ปัจจุบัน						
	เพิ่มขึ้น มาก	เพิ่มขึ้น	ไม่ เปลี่ยน แปลง	ลดลง	ลดลง มาก	ไม่มี ความ เห็น	เพิ่มขึ้น มาก	เพิ่มขึ้น	ไม่ เปลี่ยน แปลง	ลดลง	ลดลง มาก	ไม่ เปลี่ยน แปลง	
9. ระดับการศึกษาของชาวชน ในจังหวัด													
10. สภาพความเป็นอยู่ของ ประชาชนโดยรวม													
10.1 สิ่งอำนวยความสะดวก (เช่น รถยนต์ รถจักรยาน- ยนต์ โทรศัพท์ ตู้เย็น หม้อหุงข้าวไฟฟ้า เป็นต้น)													
10.2 การอุปโภคและการบริ- โภค (เช่น สินค้า หรือ อาหารมีความหลากหลาย เพิ่มขึ้นมีคุณค่าทางอาหาร มีคุณค่าทางอาหารเพิ่มขึ้น เป็นต้น)													
10.3 สุขภาพอนามัย (เช่น การ มีจำนวนโรงพยาบาล สถานอนามัย คลินิก จำนวนผู้ป่วย การเข้ารับ การตรวจจากแพทย์โดยตรง แทนการซื้อยาจากร้านขาย ยา เป็นต้น)													
10.4 สภาพที่อยู่อาศัย													
10.5 อื่น ๆ (ระบุ) _____													
11. สภาพสิ่งแวดล้อม													
11.1 สภาพทางอากาศ													
11.2 สภาพของเสีย													
11.3 สภาพน้ำเน่าเสีย													
11.4 การกำจัดขยะจากโรงงาน													
11.5 การกำจัดของเสียจาก โรงงาน													
12. อื่น ๆ (ระบุ) _____													

ท่านมีข้อเสนอแนะหรือความคิดเห็นอย่างไรเกี่ยวกับการใช้มาตรการ BOI โชน 3 ด้านภาษี และมีใช้ภาษีเพื่อทำ
 ให้ง่ายนโยบายส่งเสริมการลงทุนเพื่อกระจายอุตสาหกรรมสู่ภูมิภาคเกิดประสิทธิผล สำหรับกรณีการจัดตั้งโรงงานขึ้นใหม่
 มาตรการด้านภาษี

1. _____
2. _____
3. _____

มาตรการที่มีใช้ภาษี

1. _____
2. _____
3. _____

หมายเหตุ มาตรการด้านภาษี ประกอบด้วย การยกเว้นภาษีนำเข้าเครื่องจักร การยกเว้นภาษีรายได้ของบริษัทเป็นเวลา 8 ปี การยกเว้นภาษีการนำเข้าวัตถุดิบและวัสดุที่จำเป็นเพื่อใช้ในการส่งออกเป็นเวลา 5 ปี การลดอัตราภาษีร้อยละ 75 เป็นเวลา 5 ปี ในการนำเข้าวัตถุดิบและวัสดุจำเป็นกรณีผลิตเพื่อขายในประเทศ การลดภาษีรายได้ของบริษัท ร้อยละ 50 เป็นเวลา 5 ปีภายหลังจากการได้รับยกเว้นในช่วง 8 ปีแรกของการดำเนินการ สามารถนำค่าใช้จ่ายด้านประปา ไฟฟ้า และค่าขนส่ง ไปลดภาษีรายได้จำนวน 2 เท่าของค่าใช้จ่ายจริงเป็นเวลา 10 ปี นับจากการขายสินค้าในวันแรก และค่าใช้จ่ายในการจัดหาและก่อสร้างโครงการพื้นฐานและสิ่งอำนวยความสะดวกต่าง ๆ สามารถนำไปลดผลกำไรสุทธิได้ร้อยละ 25 ของค่าใช้จ่ายดังกล่าว

มาตรการที่มีใช้ภาษี ประกอบด้วย การลดจำนวนเงินลงทุนขั้นต่ำที่กำหนด การช่วยเหลือด้านเงินทุนผ่านธนาคารพาณิชย์ การจัดเตรียมการอบรมแรงงาน การพัฒนาผลิตภัณฑ์ การพัฒนาทางด้านการตลาดทั้งภายในประเทศ และระหว่างประเทศ โดยผ่านหน่วย BUILD (BOI UNIT FOR INDUSTRIAL LINKAGE DEVELOPMENT PROGRAM) และรัฐประกันที่จะลงทุนในโครงสร้างพื้นฐานและสาธารณูปโภคในโซน 3

ท่านมีข้อเสนอแนะหรือความคิดเห็นอย่างไรเกี่ยวกับมาตรการด้านภาษี สำหรับอุตสาหกรรมที่ย้ายทำเล จากโซน 1 และ 2 มายังโซน 3 เพื่อทำให้ง่ายนโยบายส่งเสริมการลงทุนเพื่อกระจายอุตสาหกรรมสู่ภูมิภาคเกิดประสิทธิผล

1. _____
2. _____
3. _____

หมายเหตุ มาตรการด้านภาษี สำหรับกรณีของอุตสาหกรรมที่ย้ายทำเล ประกอบด้วย การยกเว้นภาษีเงินได้ของบริษัทเป็นเวลา 8 ปี ลดภาษีเงินได้ของบริษัทร้อยละ 50 เป็นเวลา 5 ปี หลังจากการยกเว้น 8 ปีในกรณีแรกหมดลง สามารถนำต้นทุนด้านไฟฟ้า ประปา และค่าขนส่งมาหักเพื่อลดภาษีรายได้ในจำนวน 2 เท่าของค่าใช้จ่ายจริง เป็นระยะเวลา 10 ปี

จากประสบการณ์และข้อมูลที่ท่านได้รับทราบการที่อุตสาหกรรมหรือบริษัทต่าง ๆ จะเลือกตั้งโรงงานในจังหวัดของท่าน เนื่องจากปัจจัยใด โดยเรียงระดับตามความสำคัญ (โปรดกรุณาทำเครื่องหมาย ✓ ลงในช่องของตัวเลขที่ท่านต้องการ โดย 10 คือ ระดับของคะแนนเมื่อปัจจัยนั้นมีความสำคัญที่สุด 0 คือ ระดับของคะแนน เมื่อปัจจัยนั้นไม่มีความสำคัญเลย)

รายการ	มากที่สุด	ระดับของความสำคัญ									น้อยที่สุด	หมายเหตุ
		10	9	8	7	6	5	4	3	2		
1. <u>มาตรการของ BOI โซน 3 โดยรวม</u>												
2. <u>มาตรการด้านภาษีของ BOI โซน 3</u>												
3. <u>มาตรการที่มีไม่ภาษีของ BOI โซน 3</u>												
4. <u>สิ่งอำนวยความสะดวกด้านการลงทุนที่มีอยู่ในจังหวัด</u>												
4.1 <u>ปริมาณและคุณภาพของโครงสร้างพื้นฐานโดยรวม</u>												
4.1.1 <u>ประปาหรือน้ำที่ใช้ในอุตสาหกรรม</u>												
4.1.2 <u>พลังงานไฟฟ้า</u>												
4.1.3 <u>บริการด้านโทรศัพท์</u>												
4.1.4 <u>โครงข่ายและคุณภาพของถนน</u>												
4.1.5 <u>การบริการด้านรถไฟ</u>												
4.1.6 <u>การบริการด้านการขนส่งทางอากาศ</u>												
4.1.7 <u>การบริการด้านสิ่งอำนวยความสะดวกของท่าเรือ</u>												

รายการ	มาก ที่สุด	ระดับของความสำคัญ									น้อย ที่สุด	หมายเหตุ
	10	9	8	7	6	5	4	3	2	1	0	
4.2 ทรัพยากรที่มีอยู่ในพื้นที่โดยรวม												
4.2.1 ปริมาณของที่ดินที่ยังสามารถ ใช้ได้												
4.2.2 ปริมาณของทรัพยากรธรรมชาติ ที่มีอยู่												
4.2.3 ปริมาณของแรงงานที่สามารถ จ้างได้												
4.3 สภาพการณ์ด้านเศรษฐกิจโดยรวม												
4.3.1 มูลค่าผลิตภัณฑ์ของจังหวัด												
4.3.2 จำนวนของสถาบันการเงิน ในท้องถิ่นที่เพียงพอ												
4.3.3 จำนวนโรงงานอุตสาหกรรมชั้น ปฐมที่ป้อนวัตถุดิบหรือปัจจัยการ ผลิตให้กับ ร.ง.ที่ได้รับการส่งเสริม												

ขอขอบพระคุณที่กรุณาใช้เวลาอันมีค่าตอบแบบสัมภาษณ์

APPENDIX F.

Thai Questionnaire C : for BOI-Promoted Plant Employee Interviews

แบบสอบถามคนงานของโรงงานที่ได้รับการส่งเสริมการลงทุน

ภาควิชาเศรษฐศาสตร์ คณะเศรษฐศาสตร์
มหาวิทยาลัยเกษตรศาสตร์ บางเขน กทม.10900
โทร.5613474, 5790739 และ 9428048 ต่อ 206

ตุลาคม 2541

เรียน ท่านผู้ตอบแบบสอบถาม

แบบสอบถามชุดนี้เป็นส่วนหนึ่งของโครงการวิจัยเพื่อวิเคราะห์ผลได้และผลกระทบของมาตรการส่งเสริมการลงทุน โชน 3 ผลที่ได้จะนำมาจัดทำวิทยานิพนธ์ระดับปริญญาเอกด้านการบริหารการพัฒนา (นโยบายของรัฐ) ในโครงการปริญญาเอกนานาชาติ คณะรัฐประศาสนศาสตร์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ ความคิดเห็นและคำตอบต่าง ๆ ของท่านที่มีต่อมาตรการดังกล่าว ผู้วิจัยจะนำมาวิเคราะห์เพื่อนำเสนอในภาพรวม และในเชิงสถิติ นอกจากนั้นข้อมูลที่ได้รับจากท่านจะถือเป็นความลับอย่างเคร่งครัด โดยจะไม่เปิดเผยชื่อของท่านนอกจากจะได้รับอนุญาตจากท่านก่อน

โครงการวิจัยนี้นอกจากจะเป็นส่วนหนึ่งของวิทยานิพนธ์ระดับปริญญาเอกดังกล่าว ผู้วิจัยจะนำเสนอผลจากการวิจัยแก่หน่วยงานที่เกี่ยวข้องในการประกอบการพิจารณาปรับเปลี่ยนนโยบายการส่งเสริมการลงทุน เพื่อให้ผลดีทั้งแก่ท่านผู้ใช้แรงงาน ผู้ลงทุน และประเทศอีกด้วย

จึงเรียนมาเพื่อขอความกรุณาจากท่าน ในฐานะที่ท่านเป็นผู้ปฏิบัติงานในโรงงานซึ่งพบและเป็นผู้แก้ปัญหาต่าง ๆ ในโรงงานโดยตรงจึงอยู่ในฐานะที่จะตอบปัญหาหรือให้ข้อมูลที่เป็นประโยชน์ต่อการวิจัยครั้งนี้เป็นอย่างมาก

ขอขอบพระคุณที่กรุณาสละเวลาอันมีค่าและให้ความร่วมมือในการตอบแบบสอบถามที่แนบมาทุกข้อ

ด้วยความนับถือ

(ผศ.มานวิภา อินทรทัต)

กรุณากาเครื่องหมาย ✓ ในช่องที่ท่านเห็นว่าถูกต้องและเหมาะสมที่สุด พร้อมทั้งระบุจำนวน หรือข้อความ หรือความคิดเห็นในช่องว่างที่กำหนดไว้ ()

ส่วนที่ 1 ข้อมูลพื้นฐาน

1. อายุ _____ ปี ()
2. เพศ ☐ ชาย ☐ หญิง ()
3. สถานภาพ ☐ โสด ☐ สมรส แต่แยกกันอยู่
☐ สมรส ☐ อื่น ๆ ระบุ _____
☐ หย่าร้าง
4. ภูมิลำเนาที่แท้จริงของท่าน คือ อำเภอ _____ จังหวัด _____ ()
5. กรณีที่ท่านไม่ใช่คนในจังหวัดนี้ ท่านเข้ามาอยู่อาศัยเป็นระยะเวลา _____ ปี และวัตถุประสงค์หลัก ()
 ของท่านที่เข้ามาอาศัยอยู่ในจังหวัดนี้ คือ ()
☐ เพื่อทำงานในโรงงานที่ได้รับการส่งเสริมการลงทุน ☐ เพื่อเข้ามารับจ้างทำการเกษตร
☐ เพื่อแต่งงานกับคนในจังหวัดนี้ ☐ อื่น ๆ ระบุ _____
☐ ครอบครัว (พ่อ, แม่) และญาติพี่น้องอยู่ในจังหวัดนี้
6. จำนวนบุตร ชาย จำนวน _____ คน อายุ _____ ปี (เรียงตามลำดับก่อนและหลัง) ()
 หญิง จำนวน _____ คน อายุ _____ ปี (เรียงตามลำดับก่อนและหลัง) ()
7. จำนวนเด็กในอุปการะของท่าน (ที่มีไขลูกที่แท้จริง)
 ชาย _____ คน อายุ _____ ปี (เรียงตามลำดับก่อนและหลัง) ()
 หญิง _____ คน อายุ _____ ปี (เรียงตามลำดับก่อนและหลัง) ()
8. จำนวนบุคคลที่อยู่ในการอุปการะของท่านทั้งหมด _____ คน
9. ท่านให้การอุปการะบุคคลเหล่านี้ในด้านใด (ตอบได้มากกว่าหนึ่งข้อ) ()
☐ ด้านอาหาร ☐ ด้านการรักษาพยาบาลเมื่อเจ็บป่วย
☐ ด้านที่พักอาศัย ☐ อื่น ๆ (ระบุ) _____
☐ ด้านการศึกษา
10. ระดับการศึกษาของท่าน
☐ ไม่ได้รับการศึกษา ☐ ปวช.
☐ ประถมศึกษา โปรดระบุระดับปีที่ _____ ☐ อนุปริญญา (ปวท.หรือ ปวส.)
☐ มัธยมศึกษา โปรดระบุระดับปีที่ _____ ☐ อื่น ๆ (ระบุ) _____

21. ถ้าท่านต้องจ่ายสวัสดิการต่าง ๆ เองท่านต้องจ่ายเท่าใด

- ☐ ค่าอาหารกลางวัน _____ บาท/วัน ()
- ☐ ที่พักอาศัยถ้าท่านต้องเช่า _____ บาท/เดือน ()
- ☐ ค่ารักษาพยาบาลเฉพาะตัวท่านเองถ้าต้องจ่ายให้โรงพยาบาลหรือสถานอนามัย _____ บาท/เดือน ()
- ☐ ค่าจ้างรับเลี้ยงเด็ก _____ บาท/เดือน (ประมาณการจากค่าจ้างเฉลี่ยในการรับเลี้ยงเด็กส่วนใหญ่ในท้องถิ่นของท่าน) ()
- ☐ ค่าใช้จ่ายด้านการศึกษาของลูก หรือเด็กในอุปการะของท่านในระดับเดียวกับที่โรงงานจัดหาให้ _____ บาท/เดือน ()
- ☐ ค่ารถจากที่พักถึงโรงงาน _____ บาท/เที่ยว/วัน ()
- ☐ อื่น ๆ (ระบุ) _____ ()

ส่วนที่ 3 การเปรียบเทียบด้านต่าง ๆ ก่อนเข้ามาทำงานและภายหลังที่ได้ทำงานกับโรงงานนี้
(โดยให้ท่านพิจารณาในกรณีสถานะเศรษฐกิจปกติ ก่อนปี พ.ศ.2540)

22. ขอให้ท่านเปรียบเทียบระดับรายได้ทั้งหมดที่ได้รับก่อนทำงานในโรงงานนี้ และขณะที่ท่านได้ทำงานในโรงงานนี้ ()

- ☐ เพิ่มขึ้นจำนวน _____ บาท/เดือน
- ☐ ลดลงจำนวน _____ บาท/เดือน
- ☐ ไม่เปลี่ยนแปลง

23. ท่านต้องการส่งเสียให้บุตรและเด็กในอุปการะของท่านได้รับการศึกษาสูงขึ้นหรือไม่ เมื่อเปรียบเทียบระหว่างก่อนทำงานในโรงงานนี้และขณะที่ท่านได้ทำงานในโรงงานนี้

- ☐ ต้องการและศึกษาในระดับ ()
- | | |
|--|--|
| ☐ ปริญญาตรี | ☐ มัธยมศึกษาตอนต้น |
| ☐ อนุปริญญาตรี | ☐ ประถมศึกษา |
| ☐ ปวช. | ☐ อื่น ๆ ระบุ _____ |
| ☐ มัธยมศึกษาตอนปลาย | |
- ☐ ไม่ต้องการ

ส่วนที่ 4 ความคิดเห็นเกี่ยวกับมาตรการของ BOI โซน 3

(มาตรการดังกล่าวต้องการให้มีจำนวนโรงงานอุตสาหกรรมในต่างจังหวัดมากขึ้น โดยใช้วิธีลดภาษีให้กับโรงงาน และช่วยเหลือด้านต่าง ๆ เช่น การฝึกอบรมแรงงาน การสร้างสิ่งอำนวยความสะดวก การให้กู้ยืมผ่านธนาคารพาณิชย์เป็นกรณีพิเศษ เป็นต้น)

24. จากการที่ท่านสังเกตท้องถิ่นของท่านก่อน และภายหลังมีการตั้งโรงงานที่ได้รับการส่งเสริมการลงทุนและประกาศใช้มาตรการต่าง ๆ ของ BOI โซน 3 ในช่วง 5 ปีที่ผ่านมา จึงเป็นช่วงสภาวะเศรษฐกิจปกติสภาพวิกฤตทางเศรษฐกิจตั้งแต่ปี พ.ศ.2540 นั้นปรากฏว่า

รายการ	การเปลี่ยนแปลง												ความคิดเห็นเพิ่มเติม โปรดระบุ
	พ.ศ. 2535-2539						พ.ศ. 2540-ปัจจุบัน						
	เพิ่มขึ้น มาก	เพิ่มขึ้น	ไม่ เปลี่ยน แปลง	ลดลง	ลดลง มาก	ไม่มี ความเห็น	เพิ่มขึ้น มาก	เพิ่มขึ้น	ไม่ เปลี่ยน แปลง	ลดลง	ลดลง มาก	ไม่ เปลี่ยน แปลง	
1. ความเจริญและความทันสมัย ของท้องถิ่นท่าน (เช่น จำนวน ห้างสรรพสินค้า ประเภทของ สินค้าที่จำหน่าย ความหลากหลาย ของการบริการ เทคนิค และอุปกรณ์ที่ใช้ในการผลิต ฯลฯ)													
2. สภาพความเป็นอยู่ของคน ภายในท้องถิ่น (เช่น อุปกรณ์ เครื่องใช้ในบ้าน สภาพที่พัก อาศัย ประเภทของอาหารที่ บริโภค ฯลฯ)													
3. ระดับรายได้ของประชาชน ในท้องถิ่นโดยทั่วไป													
4. การจ้างแรงงาน													
5. การอพยพแรงงานเข้าสู่ท้องถิ่น													
6. การอพยพแรงงานไปยัง ท้องถิ่นอื่น													
7. อื่น ๆ (ระบุ) _____													

25. ท่านคิดว่า การมีจำนวนโรงงานอุตสาหกรรมในท้องถิ่นเพิ่มขึ้น มีข้อดีและข้อเสียอย่างไร

ข้อดี

()

☐ ด้านการจ้างงาน (โปรดระบุว่าดีอย่างไร) _____

☐ ด้านรายได้ของประชาชน (โปรดระบุว่าดีอย่างไร) _____

- ☐ ด้านการกินดีอยู่ดีของประชาชน (โปรดระบุว่าดีอย่างไร) _____
- _____
- ☐ ด้านความเจริญของท้องถิ่น (โปรดระบุว่าดีอย่างไร) _____
- _____
- ☐ ด้านอื่น ๆ ระบุ _____
- และดีขึ้นโดย _____
- _____

ข้อเสีย

()

- ☐ ปัญหาเฉพาะด้านใดและอย่างไร (โปรดระบุ) _____
- _____
- ☐ การไม่ใช้แรงงานในท้องถิ่น เนื่องจาก _____
- _____
- ☐ การใช้จ่ายที่ฟุ่มเฟือยของพนักงานระดับสูง และผู้บริหารซึ่งเป็นตัวอย่างที่ไม่ดีกับคนท้องถิ่น
- ☐ อื่น ๆ ระบุ _____
- _____

ข้อเสนอแนะเพื่อให้ท้องถิ่น และผู้ใช้งานให้ได้รับประโยชน์มากที่สุด (โปรดระบุ)

()

1. _____
2. _____
3. _____

ขอขอบพระคุณที่ท่านกรุณาสละเวลาอันมีค่าตอบแบบสอบถาม

APPENDIX G.

THE LOGIT REGRESSION OF CHANGED IN INVESTMENT

The Logit Regression

The dependent variable is the change in investment

Increased = 1

Constant = 0

The independent variables are BOI measures, Infrastructure, Resource endowment, and Economic conditions. These variables are interval scale.

The logit regression analysis of change in investment of entrepreneurs of BOI-promoted plants is as follows :

Variable	B	SE	Wald	df	Sig	R	Exp (B)
BOI	0.0618	0.051	1.492	1	0.222	0.00	1.064
TINFRA	-0.474	0.590	0.645	1	0.422	0.00	0.954
TRESOM	0.015	0.127	0.014	1	0.905	0.00	1.015
TECON	-0.241	0.125	0.053	1	0.818	0.00	0.976
Constant	-2.039	4.415	0.213	1	0.644		

$$\alpha = -2.0385$$

Likelihood ratio chi-square (Model Chi-Square) 1.957 Sig = 0.7437

Percentage correction predicted 82.35 %

Number of cases included in the analysis : 17

$$\text{logit CHAININ} = -2.039 + 0.618 \text{ BOI} - 0.474 \text{ TINFRA} \\ + 0.015 \text{ TRESOM} - 0.241 \text{ TECON}$$

Bibliography

Anderson, James E.

1994. ***Public Policy-Making : An Introduction***. Boston :
Houghton Mifflin Company

Boadway, Robin w. and Shah Anwar.

1995. "Perspectives on the Role of Investment Incentive in
Developing Countries" in Shah, Anwar. 1995. ***Fiscal Incentives
for Investment and Innovation***. New York : Oxford University
Press, Ltd.

Cameron, R.

1993. ***A Concise Economic History of the World : From
Paleolithic Times to Present***. 2nd ed. Oxford : Oxford University
Press, Ltd.

Chapman, Keith and Walker David F.

1992. ***Industrial Location*** 2nd ed. Oxford : Blackwell Publishers.

Daniere, Amrita.

1996. "Growth Inequality and Poverty in South-east Asia : The
Case of Thailand." in ***TWRP***, Vol. 18 No.4. Liverpool UK. :
Liverpool University Press. November 1996.

Dunn, William N.

1981. ***Public Policy Analysis : An Introduction***. New Jersey :
Prentice-Hall Inc.

Dye, Thomas R.

1981. "Policy Evaluation". *Understanding Public Policy*.

Englewood Cliffs. New Jersey : Prentice-Hall.

Edward III, George C.

1980. *Implementing Public Policy*. Washington, DC :

Congressional Quarterly Press.

ESCAP

1993. *Urbanization and Socio-Economic Development in Asia and the Pacific*. Asian Population Series No. 122 (ST/ESCAP/1277)

Halvorsen, Robert.

1995. "Fiscal Incentives for Investment in Thailand." in Shah,

Anwar. 1995. *Fiscal Incentives for Investment and Innovation*.

New York : Oxford University Press. Ltd.

Hayter, R. and Watts H.D.

1983. "The geography of enterprise : a reappraisal. *Progress in*

Human Geography, 7, pp. 157-181.

Henry, Nicholas.

1989. *Public Administration and Public Affairs*. New Jersey :

Prentice-Hall

Herman, Joan L. et al.

1987. *Evaluator's Handbook* Beverly Hills, CA : Sage Publication

Hongladarom, Chira

1990. "The Rise of Trade Union and Industrial Relation System in Thailand" in Suchart Prasith-rathsint (ed.) 1990. *Thailand on The Move : Stumbling Blocks and Break through*. Bangkok : Parbpim Ltd. Part.

Industrial Estate Authority of Thailand

1998. *Mapthaput Industrial Estate*. Rayong : Office of Mapthaput Industrial Estate.

Jansen, Karel

1997. *External Finance in Thailand's Development*. London : Macmillan Press Ltd.

Kerr, Donna H.

1976. "The Logic of 'Policy' and Successful Policies," *Policy Science*, 7(1976) pp,351-363

Kulthakeang, Ungkana

1994. *Factors Affecting the Location Choices of Plastic Product Manufacturing Industry*. Bangkok : Thesis for Master of Science (Economics) Faculty of Economics. Kasetsart University.

Morash, Merry

1984. "The Application of Social Impact Assessment to The Study of Criminal and Juvenile Justice Program : A Case Study" in Ross F. Conner, David G. Altman and Christine Jackson (eds.) *Evaluation Studies Review Annual* (Vol. 9)

Myrdal, Gunnar.

1956. *Economic Theory and Underdeveloped Regions*. London :
Methuen.

Nagel, Stuart S.

1984. *Contemporary Public Policy Analysis*. New York :
The University of Alabama Press.

NESDB

1992. *The Seventh National Economic and social Development
Plan*. Bangkok : NESDB.

NESDB

1994. *The Eighth National Economic and Social Development
Plan*. Bangkok : Med Sai Printing Ltd. Part.

Office of the Board of Investment.

1994. "Thailand's Industries on the Move." In PM to Meet
Investors, Launch B.O.I Fair 95. A Supplement of the *Bangkok
Post/Siam Post*. Tuesday July 21, 1994

Office of the Board of Investment

1996. *Studies on Investment Promotion Measures in
Decentralization of Investment*. Bangkok : B.O.I.

Office of the Board of Investment

1996. *Evaluation of New Investment Promotion Policy 1995* by
Team Consulting Co., Ltd. and TIS Consultants Co., Ltd. Bangkok :
B.O.I.

Quitrakul, Bunsirm.

1990. ***The Impact of Investment Promotion on Employment and Concentration of Investment***. Bangkok : Thesis for Master of Science (Economics). Faculty of Economics. Kasetsart University.

Phongpaichit, Pasuk and Baker Chris.

1996. ***Thailand's Boom !***. Bangkok : O.S. Printing House.

Prasith-rathsint, Suchart.

1993. ***Social Science Research Methodology***. Bangkok. National Institute of Development Administration.

Posavac, Emil J. and Raymond G, Carey.

1992. ***Program Evaluation : Methods and Case Studies***. New Jersey : Prentice-Hall.

Pubbawesa, Wisarn.

1989. "Review of Economic Development in Thailand" in Suchart Prasith-rathsint (ed.), 1989 ***Thailand's National Development Social and Economic Background***. Thai University Research Association. Parbpim Ltd. Part.

Quade, Edward S.

1982. ***Analysis for Public Decision***. 2nd ed. New York : Elsevier Science Publishing Co. Inc.

Sampan, Prairada.

1996. ***Problems and Impact of Promoted Firm : A Case Study of Ubonratchatane***. Bangkok : Thesis for Master of Science (Economic) Faculty of Economic. Kasetsart University.

Shah, Anwar.

1995. ***Fiscal Incentives for Investment and Innovation.***

New York : Oxford University Press Ltd.

Shapiro, Jonathan

1986. "Social Justice and Educational Evaluation : Normative Implications of Alternative Criteria for Program Assessment," pp.362-374 in David S. Cordney and Mark W. Lipse (eds.) ***Evaluation Studies Review Annual*** (Vol.11)

Siraprapasiri, Nuntana

1996. ***The Quality of Life of Industrial Workers in Bangkok and Vicinity.*** Bangkok : Dissertation for Doctor of Philosophy in Development Administration (Population and Development). The National Institute of Development Administration

Sripoka, Aung Sana.

1996. ***The Possibility of Incentive to Decentralize Industry to Regional Area.*** Bangkok : Faculty of Economic Development. NIDA.

Tambunlertchai, Somsak

1989. "Thailand's Industrial Strategy in the Sixth Economic and Social Development Plan" in Suchart Prasith-rathsint (ed.) 1989. ***Thailand's National Development : Social and Economic Background.*** Bangkok : Thai University Research Association.

Todaro, M.P.

1977. ***Economic for a Developing World : An Introduction to Principles, Problems, and Policies for Development.*** Hong Kong : Sheck Wah Tong Printing Press, Longman Group.

UNDP.

1995. ***Human Development Report 1995.*** Oxford : Oxford University Press.

UNIDO.

1992. ***Thailand, Coping with the Strains of Success.*** Oxford : Blackwell Publishers.

Van Horn, Carl E and, Van Meter Donald S.

1976. "The Implementation of Intergovernmental Policy". In Charles O Jones and Robert D. Thomas (eds.) ***Public Policy Making*** in a Federal System (Sage Publication, 1976) pp. 39-64
Copy right 1976 by Sage Publication.

Vorathepputhipongse, T.

1997. ***Public Policy Formulation and Analysis : Theory and Application.*** Bangkok : The Graduate School of Public Administration, National Institute of Development Administration.

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