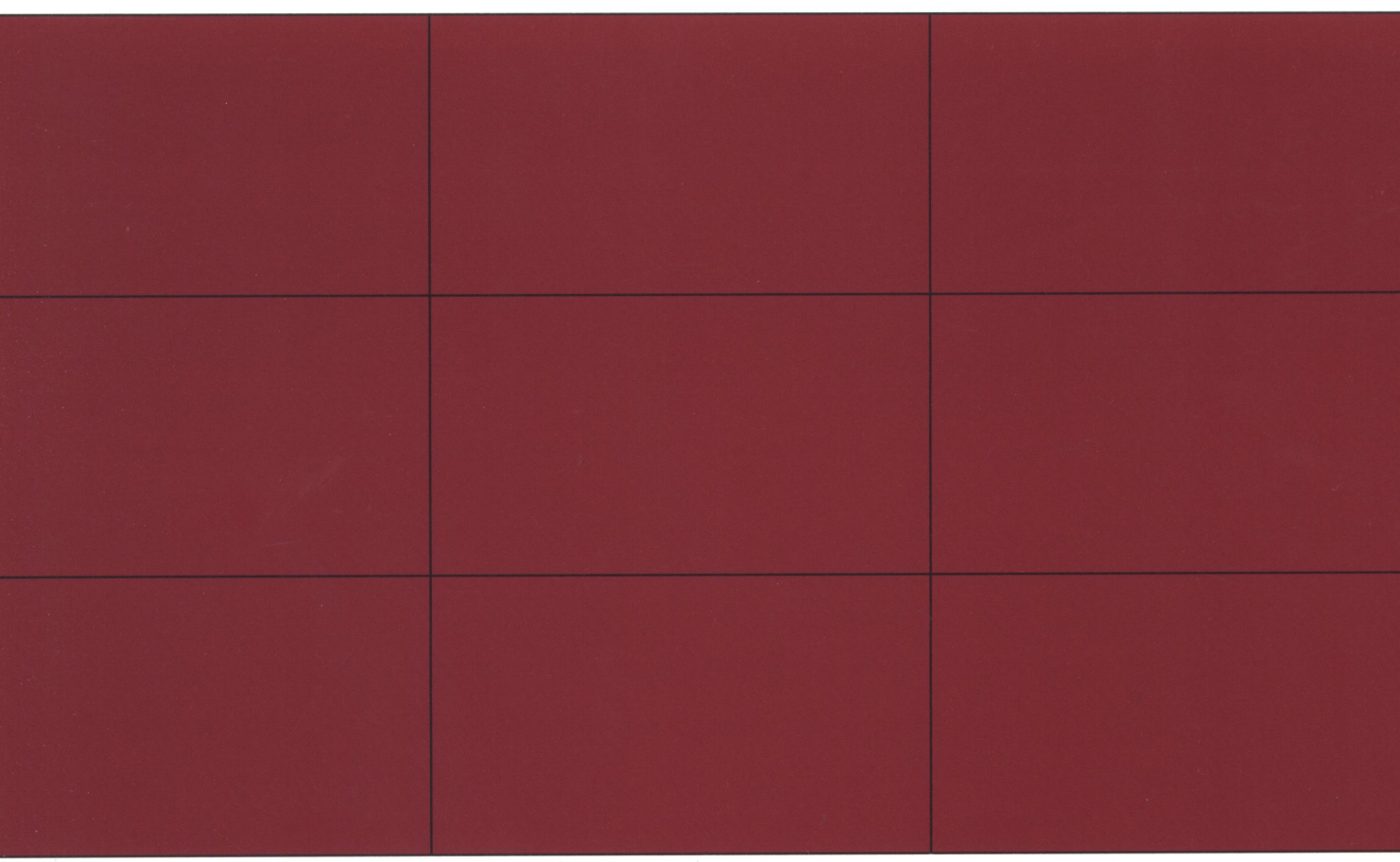
Rural Industry and Employment Study: A Synthesis Report



Rural Industry and Employment Study:

A Synthesis Report*

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TABLE OF CONTENTS

LIST OF TABLES

ACRONYMS

BAAC	Bank for Agriculture and Agricultural Cooperatives
BOI	Board of Investment
BOT	Bank of Thailand
DEP	Department of Export Promotion
DIP	Department of Industrial Promotion
EGAT	Electricity Generating Authority of Thailand
EPZ	Export Processing Zone
FPO	Fiscal Policy Office
FTI	Federation of Thai Industries
GDP	Gross Domestic Product
GRP	Gross Regional Product
HIID	Harvard Institute for International Development
IEAT	Industrial Estate Authority of Thailand
IEPD	Industrial Economics and Planning Division (MOInd)
IFCT	Industrial Finance Corporation of Thailand
IMET	Institute for Management Education for Thailand
IDC	Industrial Development Center
IPZ	Investment Promotion Zone
ISC	(Rural Industry) Information Services Center
ISD	Institute of Skill Development
JPPCC	Joint Public-Private Consultative Committee
JSCTIB	Joint Standing Committee on Trade, Industry, and Banking
LDC	Less Developed Country
MOInd	Ministry of Industry
MOInt	Ministry of Interior
MOSTE	Ministry of Science, Technology and Energy
NESDB	National Economic and Social Development Board
NPC	National Petrochemical Corporation
NSO	National Statistical Office
OPP	Office of Policy and Planning (MOInt)
PCC	Provincial Chamber of Commerce
PDA	Population and Community Development Association
PGO	Provincial Governor's Office
PJPPCC	Provincial Joint Public-Private Consultative Committee
PIO	Provincial Industrial Office
PLO	Provincial Labor Office
RIES	Rural Industry and Employment Study
SICGF	Small Industry Credit Guarantee Fund
SIFO	Small Industry Finance Office
TBIRD	Thai Business Initiative in Rural Development
TBA	Thai Banker's Association
TCC	Thai Chamber of Commerce
TDRI	Thailand Development Research Institute
TFD	Thai Factory Development
TISI	Thailand Industrial Standards Institute
TISTR	Thailand Institute of Scientific and Technological Research
TMDPC	Thailand Management Development and Productivity Center
TPA	Technological Promotion Association
TTC	Technology Transfer Center
VAT	Value Added Tax
USAID	United States Agency for International Development

RURAL INDUSTRY AND EMPLOYMENT STUDY: A SYNTHESIS REPORT

1. INTRODUCTION

This report synthesizes information collected by the Thailand Rural Industry and Employment Study (RIES). The overall purpose of the RIES was to develop proposals for promoting industrialization outside Bangkok and the five surrounding provinces. In relation to this overall objective, the synthesis report has three principal aims:

1. To review the basic facts. The report identifies and discusses the major patterns and trends in rural industry. Since in our opinion rural industry can only be understood in the context of industrialization and economic development in Thailand more generally, the report also discusses major related trends that have an important bearing on the development of rural industry.

2. To analyze these patterns and trends and try to understand their major determinants. The synthesis report goes beyond description of what is happening to an effort to explain the mechanisms that are determining the observed patterns and trends. An important part of this effort is to evaluate the impact of government policies, especially those which may be biased against either: (1) the further development of traditional rural industries (those which were in existence before, say, 1975); or (2) the location of newer industries outside the Bangkok area.

3. To consider alternative policies for achieving the government's aim of promoting rural industry, including their probable benefits, costs and administrative feasibility.

The synthesis report is organized as a critical analysis of seven basic perceptions which appear to form the basis for official thinking about rural industry. The perceptions are as follows:

PERCEPTION NO. 1. Agricultural growth has run its course, while industrial growth, although rapid, is over-concentrated in Bangkok. The results of this pattern include widening inter-regional income differentials and growing pollution, congestion and land subsidence problems in Bangkok.

PERCEPTION NO. 2. Existing policies are heavily biased in favor of industrial growth in Bangkok and its fringe and are a prime cause of the concentration of industry.

PERCEPTION NO. 3. Policy changes to offset or remove existing policy biases can easily spur industrial growth in the outlying regions.

PERCEPTION NO. 4. Stimulating industry in the outlying provinces is more beneficial for income distribution than stimulating industry in Bangkok because the former stimulates small firms while the latter stimulates larger firms.

PERCEPTION NO. 5. The best way to address inequalities in income distribution is by promoting rural industry. A sectoral approach is preferable to a broader focus on physical and social infrastructure which would leave sectoral choices up to entrepreneurs.

PERCEPTION NO. 6. Current economic growth is leading to growing interpersonal and inter-regional inequality and will continue to do so unless checked by policy interventions.

PERCEPTION NO. 7. Theoretically well-designed policies and programs will work in practice.

The term "rural industry" in the name of this project is interpreted to refer to industry located outside Bangkok and the five surrounding provinces. It thus includes industry located in secondary

cities as well as in rural areas. Categories included in rural industry more narrowly defined are traditional industry (including traditional basic wage goods and traditional counter-seasonal industries), agro-related industries, mineral processing and artisan exports. Provincial non-rural industry includes modern industry in secondary cities and non-traditional exports, along with some traditional industries.

The remainder of the report essentially analyzes the validity of the seven perceptions listed above.

2. ECONOMIC GROWTH, THE INDUSTRIAL SECTOR AND THE LOCATION OF ECONOMIC ACTIVITY

2.1 ISSUES IN THAILAND'S ECONOMIC GROWTH

The relatively rapid growth in agricultural output which Thailand has experienced over the past two decades and which has been accompanied by increases in employment in the agricultural sector, has been attributed largely to steady extension of the cultivated area. Policy makers fell that the availability of land for further area expansion is nearly exhausted and further expansion would be undesirable in any case for environmental reasons. Although agricultural output is expected to keep growing, possibly at a lower rate than in the past, additional employment opportunities in agriculture are thought to be extremely limited. Available statistics suggest that two-thirds of the labor force was still employed primarily in agriculture in 1986. Although multiple job-holding, permanent and temporary migrations of labor and seasonal variations in labor force participation are all known to be common, seasonal underemployment of labor was thought to be widespread, especially in outlying provinces and particularly in the Northeast.

Based on these facts and beliefs, some observers have concluded that future economic development, particularly increases in productive employment, will depend primarily on the growth of the industrial sector. But this inference was troubling to some because industrialization was thought: (1) to be capital intensive and not labor absorbing; (2) to have unfavorable implications such as widening income differentials among households and regions and high social costs (pollution, congestion, land subsidence, crime and social disruption) arising from further growth of the Bangkok metropolitan area; and (3) to be highly concentrated in its spatial dimensions. This in turn caused some to look to rural industry as a more attractive source of jobs and income for rural population and perhaps a socially more desirable vehicle for economic development in general. "Of the remaining options, rural industry, which has received little assistance so far and has been

heavily discriminated against by government policies, holds the greatest promise for additional rural growth and employment generation in line with the national objectives of growth with equity" (Panayotou, 1987, p. 156).

In this report we examine some of the broad and debatable notions on which this prescription is based, beginning with a few general comments.

First, although we have not studied Thai agriculture, we suspect that the view just described underestimates the potential for further growth in agricultural output. Although it is probably correct that growth along the extensive margin is slowing down, a comparison of Thailand's land yields in rice and other crops with those of other Asian countries suggests that there is still much potential for raising output per hectare. Although this may lead to little new employment creation in agriculture, that is probably not a cause for concern, as our second point suggests.

Growth in nonagricultural employment is so rapid at present that within the next few years Thailand is likely to experience a tight labor market, with rising real wages for unskilled labor and a need to transfer labor out of agriculture, even to the point of reducing agricultural employment absolutely. Exactly when this will occur is uncertain for several reasons. Although the official statistics show 67% of the labor force still employed in agriculture in 1986, the pattern of labor utilization in Thailand is complex and not adequately described by the existing statistics. The World Bank recently suggested that the proportion of the labor force actually employed in agriculture is lower than the official statistics indicate, that there is much less seasonal unemployment than previously believed and that, given a 7% average annual growth rate of manufacturing value added, the labor market turning point is likely to be reached in the early 1990s (World Bank, 1989). We now know that actual growth in manufacturing value added averaged around 12% from 1986-89 and that continued high growth rates are virtually assured over the next few years by the extraordinarily high level of investment that is taking place. It

therefore seems certain that agricultural employment will decline, probably sharply, in the 1990s.

When the turning point does arrive, it will require and induce increases in labor productivity in agriculture, which will probably be achieved mainly through mechanization (substitution of capital for labor). As agricultural employment falls, the incomes of those remaining in agriculture will rise, both absolutely and relative to the average for the entire economy.

Thus, while agriculture has probably already declined further as a source of employment than the statistics indicate and will surely fall further in the next few years, it is too early to write off the sector as source of income generation. Indeed, the changes taking place in the rest of the economy have highly favorable implications for agricultural incomes in the future. By the early years of the 21st century there will be fewer people working in the sector, but they will earn much higher incomes because they will be applying improved technologies and using larger amounts of land and capital per worker.

Another point is that industry is not the only alternative to agriculture as a source of income and employment. About one-half of the urban labor force is already employed in service activities of various types. This proportion will remain high and perhaps even rise further in the coming decade. As per capita income goes up, the composition of service-sector employment will shift gradually to types of services that yield higher incomes.

Finally, the perception that rural industry has great potential and should play a key role in economic development in the 1990s is based more on an analysis of the limits of agricultural development than on an understanding of the actual role and potentials of rural industry. In Section 3.2 below, we consider this issue in detail.

In conclusion, therefore, even though industry -- but not, as we shall see, rural industry -- should indeed be regarded as the leading sector in the next phase of Thailand's economic development, it is not

realistic to expect it to do the whole job. There are alternatives to industry as sources of both job creation (services) and income generation (both agriculture and services).

One concern which caused the government to initiate the RIES originated largely in the belief that income differentials in Thailand are substantial and widening over time. This concern is based largely on data which show that GRP per capita varies widely among regions. In this section we suggest some corrections to this common view of what is going on in Thailand.

Although large differences are a legitimate cause for concern, there are reasons to think that the concern may be somewhat exaggerated. One of these reasons is that inter-regional differentials in per capita income are probably narrower than the more commonly cited differentials in per capita product. It is much easier to measure GRP and divide by population to obtain per capita product than it is to determine per capita income in each region. Income and welfare levels in the poorer regions are boosted by transfer payments from temporary migrants working in or around Bangkok or abroad. They are also likely to be increased by benefits from government expenditures, which are probably larger as a percentage of income than the benefits received by people living in Bangkok, even though smaller in absolute terms. On the other hand, the net flow of income from capital, land and natural resources is probably from the regions to Bangkok. Furthermore, an analysis of household income data (see Table 1) shows that regional income differentials are actually narrowing over the period 1968/69 to 1986, as shown by the declining coefficient of variation.

We note also that inter-regional wage differentials are much smaller than differentials in GRP per capita (see Tables 4 and 8). The market wage for labor in the Northeast in 1986 was reported to be 43 percent of that in Bangkok (see Pradit, 1990). When we consider that this differential of just under one-half in nominal wages would be considerably smaller if measured in real terms because of the far higher cost of living in Bangkok, we see that inter-regional differences in the wages are in fact small. This finding is consistent with the belief

Table 1
Household Incomes Per Capita
(baht)

	Bangkok & Inner Ring	Other Central	North-east	North	South	Whole Kingdom	Coefficient of Variation
1968/69	3,993	2,790	1,580	1,830	2,056	2,490	2.81
1975/76	7,246	5,195	3,030	3,686	4,048	4,206	3.14
1981	17,063	10,228	5,910	8,447	8,880	9,008	2.70
1986	21,944	11,445	6,257	9,557	10,448	10,133	2.25

Source: NSO Household Socio-Economic Survey Reports
(as cited in Somluckrat, 1990)

that the labor market in Thailand works well and labor mobility in response to differential employment and earning opportunities is high. Inter-regional differences in average income are likely to be attributable much more to inequalities in the distribution of wealth and human capital than to wage differences caused by imperfections in the labor market.

A second reason for being somewhat less concerned about regional inequality is that although inter-regional differentials have widened in recent decades the experience of other countries suggests that this widening trend will not continue indefinitely. In the experience of the United States and other developed countries, the position of particular regions has fluctuated throughout economic history. New England, for example, had income and productivity levels that exceeded the national averages in some periods and lagged behind in others. As a general proposition, regional income differentials tend to widen as countries move from low to middle income levels, then narrow once more as they complete the transition to developed country status. We would expect this pattern to be repeated in Thailand as the factors discussed in Section 3.2 cause industry and other forms of economic activity to become more widely dispersed over time.

To the extent that the government's concern is really with inequalities in the interpersonal income distribution and the reduction

of poverty, rather than with inter-regional distribution of value-added as such, the experience of other countries provides further grounds for optimism. Continued rapid economic growth accompanied by tightening of the labor market should permit interpersonal income inequality to decline and poverty to be reduced substantially in the next 20 years.

We understand, however, that the government is also concerned specifically about development in the outlying regions for political and security reasons. Interpersonal income differences and poverty can be reduced in either by moving people to jobs or by moving jobs to people. Reducing inter-regional income differentials is more difficult because it can be achieved only by moving jobs to people. The only way the government can promote this process is through measures that offset the inter-regional differences in profitability that prevent firms from locating in poorer regions.

2.2 PATTERNS AND TRENDS IN INDUSTRIAL AND REGIONAL DEVELOPMENT

2.2.1 Introduction

Any effort to understand and analyze industrial development and the question of industrial location in Thailand should begin with a description of the current spatial development pattern. One of the most striking features of the Thai economy is the concentration of most types of nonagricultural economic activity in Metropolitan Bangkok. This is explained by a number of key factors which make Bangkok one of the most primate cities in the world (see Section 3.1 below). Given the importance of Bangkok as the principal center of population, the center of government, and the location of a large part of Thailand's economic activity, it is essential to view industrialization in the regions as integrally connected to economic development and industrialization in the country as a whole, particularly in Bangkok and the surrounding provinces, and not as a separable issue concerning the outlying regions alone. To study rural industry in isolation from the other types of

economic activity with which it is closely interrelated could be potentially misleading.

Accordingly, we analyze regional industrialization and employment patterns from two perspectives. The first considers the "deconcentration" of new or existing industries from Bangkok to the surrounding provinces. The second looks at the "decentralization" of existing and new industrial activities to the regions, in particular to the major secondary cities. The importance of encouraging firms to locate away from Bangkok can be seen by simply realizing that if the manufacturing sector continues to expand at 11 to 12% per year as it has in the past three years (1987-89), the scale of the manufacturing sector will double in less than seven years. This means that the location of more than half the industrial sector a few years from now will be determined by locational decisions yet to be made. Accordingly, the importance of ensuring that market forces, reinforced by selective policy interventions, influence a significant share of this new growth to locate in the fringes outside Bangkok (i.e. deconcentration) or in the regional areas proper (i.e. decentralization) is clear.

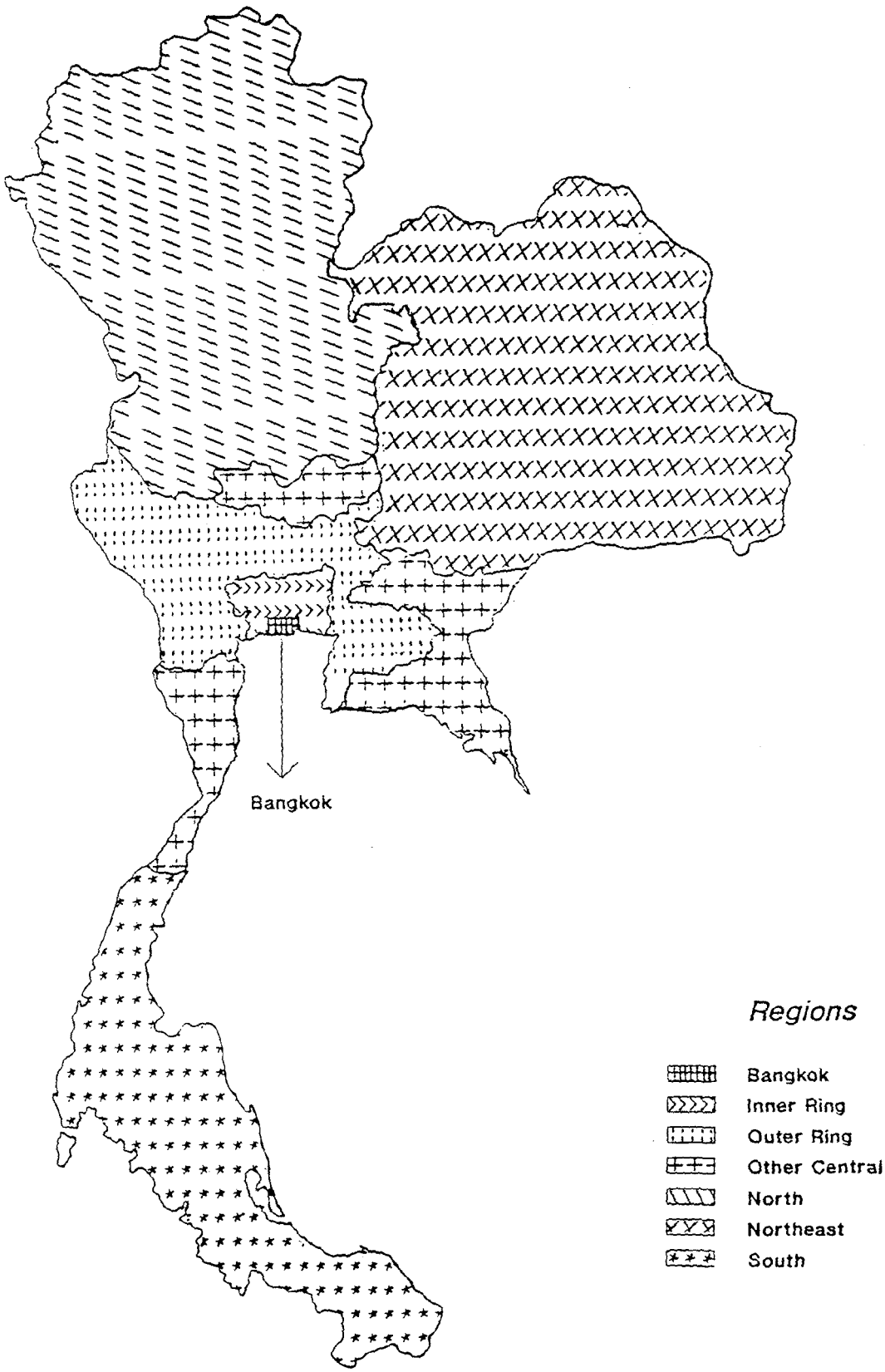
In order to examine the regional spread of industry from the two perspectives discussed above, we divide the country into the following seven regions (see map on the following page):

-- Region 1 is Bangkok Metropolis (Bangkok and Thonburi), henceforth called Bangkok.

-- Region 2 comprises the five provinces surrounding Bangkok (Samut Prakan, Pathum Thani, Nonthaburi, Nakhon Pathom and Samut Sakhon), henceforth the inner ring.

-- Region 3 consists of ten provinces surrounding the inner ring (Kanchanaburi, Suphan Buri, Ang Thong, Ayutthaya, Saraburi, Nakhon Nayok, Chachoengsao, Chon Buri, Samut Songkram and Ratchaburi), henceforth the outer ring.

Thailand: The Regions



-- Region 4 includes the remaining nine provinces in the central area of Thailand, henceforth other central.

-- Regions 5, 6 and 7 comprise all the provinces of northern, northeastern and southern Thailand respectively.

The rest of this section discusses regional industrialization and employment trends in these seven regions, based on available data. It should be noted at the outset that these data are often suspect and contradictory, and thus require careful interpretation. Existing data on industry and employment need to be improved substantially if the type of analysis undertaken in this paper is to be continued and extended.

2.2.2 Dispersion of Gross Regional Product

Table 2 shows regional shares in value added in the agricultural, industrial, manufacturing and trade and services sectors, relating these magnitudes both to the Gross Regional Product (GRP) of the region concerned and to the region's share in the corresponding national total (sectoral value added in the whole kingdom or Gross Domestic Product). Data are given for 1981 and 1987, along with average annual growth rates between these two years.

These data indicate that the geographic concentration of both manufacturing activity and overall economic activity remained very high in 1987. Furthermore, although manufacturing value added in Bangkok rose only slightly faster than the national average, the combined share of Bangkok and the inner ring in manufacturing value added increased from just under 70% of the national total in 1981 to 78% in 1987. These regions also raised their combined share of GDP, in this case from 45% to 49%.

Looking more closely at the picture in Bangkok and the inner ring, it is clear that the deconcentration of manufacturing activity is already taking place. The inner ring exhibits the highest growth both of manufacturing activity in the country (7.9%) and of overall economic

Table 2
Regional Distribution of Economic Activity, 1981-87
(Percent)

	Shares in GRP		Shares in GDP		
	1981	1987	1981	1987	Growth 1981-1987
Bangkok	**100.00**	**100.00**	**36.51**	**39.65**	**6.42**
Agriculture	2.34	1.74	3.99	4.29	2.06
Industry	41.71	42.91	48.22	49.00	5.81
(Manufacturing)	33.41	35.71	54.72	59.13	6.69
Trade & Services	55.95	55.35	43.47	44.61	6.97
Inner Ring	**100.00**	**100.00**	**8.30**	**9.39**	**7.54**
Agriculture	15.12	9.24	5.85	5.40	1.48
Industry	53.42	59.97	14.04	16.21	8.28
(Manufacturing)	45.00	48.19	16.75	18.89	7.93
Trade & Services	31.46	30.79	5.56	5.87	8.64
Outer Ring	**100.00**	**100.00**	**12.36**	**11.60**	**5.51**
Agriculture	24.90	17.06	14.36	12.32	2.91
Industry	33.72	39.53	13.20	13.21	6.97
(Manufacturing)	21.74	22.44	12.06	10.88	6.56
Trade & Services	41.37	43.41	10.89	10.24	5.73
Other Central	**100.00**	**100.00**	**6.46**	**5.64**	**5.04**
Agriculture	42.05	30.18	12.67	10.58	2.68
Industry	14.73	20.17	3.01	3.27	9.40
(Manufacturing)	9.33	9.34	2.70	2.20	7.55
Trade & Services	43.22	49.65	5.94	5.69	5.45
Northern	**100.00**	**100.00**	**12.73**	**11.21**	**4.46**
Agriculture	41.17	30.26	24.44	21.11	1.49
Industry	16.10	22.33	6.49	7.20	9.15
(Manufacturing)	8.31	6.67	4.74	3.12	6.01
Trade & Services	42.72	47.41	11.57	10.80	5.22
Northeastern	**100.00**	**100.00**	**13.38**	**12.59**	**5.05**
Agriculture	37.91	31.24	23.66	24.48	2.86
Industry	17.90	18.79	7.58	6.81	5.90
(Manufacturing)	9.02	7.27	5.41	3.82	4.74
Trade & Services	44.19	49.97	12.58	12.79	6.41
Southern	**100.00**	**100.00**	**10.66**	**9.92**	**5.25**
Agriculture	33.93	35.32	16.87	21.82	5.65
Industry	22.07	15.04	7.45	4.30	1.23
(Manufacturing)	7.55	4.73	3.61	1.96	0.22
Trade & Services	44.00	49.64	9.98	10.01	6.51
Whole Kingdom	**100.00**	**100.00**	**100.00**	**100.00**	**5.79**
Agriculture	21.44	16.07	100.00	100.00	2.88
Industry	31.58	34.73	100.00	100.00	6.38
(Manufacturing)	22.29	23.95	100.00	100.00	6.61
Trade & Services	46.98	49.20	100.00	100.00	6.54

Note: Shares are from current price series, growth 1972 price series.
Source: National Economic and Social Development Board.

activity (7.5%). It is likely that this is partly caused by the increasing pressures placed on firms in the Bangkok area to escape from the high land and congestion costs of the capital city by relocating in the fringes around Bangkok. Overall, the inner ring is presently the most industrialized region followed by Bangkok and then the outer ring.

On the other hand, it would appear that the decentralization of manufacturing activity to the outer regions has not occurred to any large extent. The other five regions saw their shares in both nominal GDP and manufacturing value added decline over the period 1981-87. However, this trend may have changed somewhat in the past few years of rapid industrial growth which have seen a number of new manufacturing enterprises locate around the regional cities. The outer three regions remain considerably less industrialized than the Kingdom as a whole and the contribution of manufacturing activities to GRP fell over the period 1981 to 1987. The declining role of manufacturing in the three outer provinces is apparently a continuation of a trend noted in several studies covering the mid to late 1970s (see Onchan, 1985 for example). This trend may well be attributable to the increasing integration of the national market resulting from improvements in infrastructure and other factors, which has exposed traditional local industries to increasing competition from higher quality, cheaper products produced in Bangkok or the inner ring or imported from abroad.

Agriculture continued to be a major sector in region 4 and the three outer regions although its share of GRP declined substantially in all except the southern region. On the other hand, the share of the service sector increase by some five percentage points in region 4 and the outer regions while remaining more or less constant in regions 1 to 3.

Within the manufacturing sector, three basic patterns can be observed (see Table 3). In regions 3 to 7, manufacturing activities are generally concentrated in a few resource-based industries. Food and beverage industries predominate in regions 3 to 6, with wood products and tobacco important in the north, paper products in other central, and non-metallic mineral products (such as cement) in the outer ring and to

Table 3
Sector Shares in Manufacturing Value Added by Region, 1981 and 1987
(Percent of Total)

TSIC	Sector	Bangkok		Inner Ring		Outer Ring		Other Central		North		Northeast		South		Whole Kingdom	
		1981	1987	1981	1987	1981	1987	1981	1987	1981	1987	1981	1987	1981	1987	1981	1987
311-312	Food	1.8	1.0	4.7	2.4	25.4	14.3	59.1	35.0	46.4	20.2	41.3	14.7	17.3	9.3	11.5	4.7
313	Beverages	3.9	1.5	8.0	13.4	5.6	9.6	6.0	12.4	10.2	22.1	13.6	28.9	5.7	12.1	5.7	6.8
321	Textiles	12.2	14.5	15.8	16.3	1.6	1.9	0.1	0.1	0.2	0.5	7.3	5.3	0.0	0.1	9.9	12.1
322	Garments	18.2	24.6	2.1	2.8	0.0	0.1	0.2	0.3	0.9	2.0	0.1	0.3	0.3	0.8	10.4	15.2
323	Leather Prod.	1.2	2.4	4.9	9.8	0.0	0.1	0.1	0.2	0.0	0.1	3.9	12.4	0.0	0.0	1.7	3.7
331	Wood Prod.	4.7	3.9	3.7	3.0	3.0	2.5	3.8	3.8	10.5	13.4	4.4	5.1	9.4	14.1	4.7	4.1
341	Paper Prod.	1.1	1.0	0.4	0.4	0.0	0.1	13.9	23.0	2.6	5.0	2.9	5.2	2.8	6.6	1.5	1.7
342	Printing	2.6	2.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.4	0.7	1.5	1.3
351-352	Chemicals	3.6	3.7	4.9	3.4	0.3	0.3	0.0	0.0	0.1	0.4	0.1	0.2	0.2	0.2	2.8	2.9
355	Rubber Prod.	0.7	0.4	4.4	2.4	0.0	0.0	1.6	2.1	0.8	0.8	0.7	0.6	6.1	13.4	1.5	1.1
361-369	Non-Metal Min.	1.8	1.4	1.5	1.8	12.3	14.8	4.7	4.8	2.8	3.8	8.4	8.7	7.2	9.0	3.7	3.5
371-372	Basic Metal	0.8	0.6	3.1	2.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.8
381	Metal Prod.	0.5	0.4	4.7	3.7	0.1	0.1	0.2	0.3	0.1	0.1	0.2	0.3	0.2	0.3	1.1	1.0
382	Machinery	0.8	0.4	1.5	0.8	0.5	0.2	1.4	0.5	0.5	0.2	0.3	0.1	0.0	0.0	0.8	0.4
383	Elect. Mach.	0.9	1.1	4.4	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.6
384	Transport Eq.	2.3	1.8	23.4	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	4.8
385-390	Others *	42.8	39.2	12.4	12.9	50.6	55.6	8.8	17.3	24.6	31.0	16.4	17.8	50.2	33.2	35.7	34.3
TOTAL		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Share of Top 3		73.2	78.2	51.5	49.4	88.3	84.8	81.8	75.3	81.5	73.3	71.3	61.5	77.0	60.8	57.6	61.6
Share of Top 5		81.8	85.9	64.5	72.1	96.9	96.9	92.4	92.5	94.5	91.7	87.1	82.6	90.3	82.2	73.3	73.2

Note: * - Scientific equipment, gem cutting and polishing, jewelry, sports goods, etc.
Source: NESDB

a lesser extent in the other three areas. In all these areas, however, there has been a trend toward a wider distribution of manufacturing value added among industries, with the three- and five-sector concentration ratios falling over the period.

In Bangkok, manufacturing activities are highly concentrated in labor-intensive export activities such as textiles, garments, cut gems, jewelry and sporting goods. Interestingly, Bangkok is the only region which exhibits an increasing concentration of manufacturing activities, with garments in particular gaining in importance. With the exception of electrical machinery, the contribution of all the more technologically sophisticated industrial sectors declined.

In the inner ring, manufacturing activities are considerably more dispersed than in other regions of the country. Several heavy industries, such as basic metals, metal products, electrical and non-electrical machinery, and transport equipment, are concentrated in this region. The region is strong in the larger, more capital-intensive textile activities but far weaker than Bangkok in the smaller-scale garment industry.

2.2.3 The Distribution and Productivity of the Labor Force

Table 4 draws together the regional value added data and labor force survey data to examine the distribution and productivity of the labor force across regions. These data suggest that employment in manufacturing grew rapidly in 1981-87 (5.6% a year), while value added per worker rose slowly (0.9% a year on average). It is not certain, however, that this is the correct picture. If, hypothetically, the NSO labor force data overstate the growth of manufacturing employment, this would automatically result in understatement of the growth of value added per worker. As we shall see, the results of the analysis suggest that something like this may have happened.

Taking the data literally, the employment estimates suggest that Bangkok accounted for a large but declining share of manufacturing

Table 4
Distribution and Productivity of the Labor Force, 1981-1987

	Whole Kingdom	Bangkok	Inner Ring	Outer Ring	Other Central	North	Northeast	South
1981								
Total Labor Force ('000)	24,609	2,442	991	2,356	1,598	5,423	9,008	2,789
Manuf. Labor Force ('000)	1,743	623	165	224	167	201	180	183
Manuf. to Total	7.08%	25.50%	16.66%	9.51%	10.44%	3.70%	2.00%	6.58%
Distrib. of Manuf.	100.00%	35.73%	9.48%	12.86%	9.57%	11.51%	10.32%	10.53%
Real Manuf. GRP per Worker (baht)	39,636	64,908	69,978	31,399	8,490	13,493	21,429	11,345
Total Real GRP per Worker (baht)	12,940	49,932	25,808	15,337	11,583	7,427	5,016	11,044
1987								
Total Labor Force ('000)	27,624	2,699	1,347	2,562	2,138	5,816	9,680	3,381
Manuf. Labor Force ('000)	2,422	685	411	336	129	353	234	273
Manuf. to Total	8.77%	25.40%	30.51%	13.10%	6.05%	6.08%	2.42%	8.08%
Distrib. of Manuf.	100.00%	28.30%	16.97%	13.85%	5.34%	14.59%	9.66%	11.28%
Real Manuf. GRP per Worker (baht)	41,871	86,965	44,435	30,714	16,957	10,865	21,738	7,717
Total Real GRP per Worker (baht)	16,159	65,643	29,369	19,463	11,631	8,997	6,274	12,380
1981-1987								
Growth of Labor Force	1.94%	1.68%	5.25%	1.40%	4.97%	1.17%	1.21%	3.26%
Growth of Manuf. Labor	5.64%	1.61%	16.42%	6.95%	-4.16%	9.90%	4.49%	6.86%
Growth of Man. Labor Productivity	0.92%	5.00%	-7.29%	-0.37%	12.22%	-3.55%	0.24%	-6.22%
Growth of Total Labor Productivity	3.77%	4.67%	2.18%	4.05%	0.07%	3.25%	3.80%	1.92%
Elasticity of Labor w.r.t. GRP	0.34	0.26	0.70	0.25	0.99	0.26	0.24	0.62
Elasticity of Labor w.r.t. Manuf. GRP	0.85	0.24	2.07	1.06	-0.55	1.65	0.95	31.60

Sources: NSO Labor Force Survey (Round 3) and NESDB National Accounts Data

employment in 1980s -- 36% of the national total in 1981 but only 28% in 1987. While Bangkok had a much higher share of its work force in manufacturing than any other region in 1981, by 1987 the inner ring had become more highly industrialized than Bangkok itself. Manufacturing employment in Bangkok grew slowly in 1981-87, at a rate far below the national average. The region with by far the highest employment growth rate was the inner ring, but the pace of employment growth in the outer ring, the north and the south also surpassed the national average. The combined share in manufacturing employment of Bangkok and the inner ring remained constant during the period at about 45% of the national total. This shift of manufacturing employment from Bangkok to the inner ring, although appearing rather exaggerated, is again consistent with the deconcentration of manufacturing activity from Bangkok to the fringes.

As expected, manufacturing value added per worker was much higher in Bangkok in 1987 than in the other regions. Although in 1981 the inner ring apparently had higher valued added per worker than Bangkok, the data indicate that value added per worker in the inner ring declined rather sharply in 1981-87. Indeed, the statistics show declines in productivity not only for the inner ring, but for three other regions as well: the outer ring, the north and the south. On the other hand, substantial productivity increases are indicated for Bangkok and the other central region. It should be noted, however, that these alleged declines in value added per worker coexist with high reported growth rates in manufacturing employment (16% in the inner ring and 7-10% in the other regions where productivity decline is indicated). Since actual manufacturing employment is unlikely to have grown this fast, especially in the outlying regions, it is probable that manufacturing employment has been overstated, leading to corresponding understatement of value added per worker.

2.2.4 Spatial Distribution and Characteristics of Firms

We next examine the regional distribution of different sizes of manufacturing enterprise (see Table 5). The data are from the Factory Registration Department, which only requires establishments employing

Table 5
Distribution of Firms by Region and Size
(Percent)

	Employment Size							
	1-9	10-19	1-19	20-49	50-199	200-499	>499	Total
Distribution - 1987								
Bangkok	63.8	19.1	83.0	11.7	4.3	0.7	0.4	100.0
Inner Ring	43.2	17.2	60.5	17.6	15.1	4.6	2.2	100.0
Outer Ring	71.2	14.6	85.8	8.3	4.2	1.0	0.6	100.0
Other Central	78.0	14.2	92.2	4.3	2.5	0.7	0.3	100.0
Northern	67.9	15.8	83.7	9.9	5.1	1.1	0.2	100.0
Northeastern	71.0	18.3	89.3	6.7	3.2	0.5	0.3	100.0
Southern	66.6	16.2	82.8	10.8	5.1	1.3	0.1	100.0
Whole Kingdom	64.3	17.7	82.0	10.9	5.4	1.2	0.5	100.0
Shares in Kingdom Total - 1987								
Bangkok	48.4	52.8	49.4	52.4	38.9	27.6	32.1	48.8
Inner Ring	7.4	10.8	8.1	17.8	30.9	41.9	45.1	11.0
Outer Ring	10.1	7.5	9.5	7.0	7.1	7.8	10.6	9.1
Other Central	6.9	4.6	6.4	2.2	2.7	3.5	3.3	5.7
Northern	9.1	7.7	8.8	7.8	8.2	8.1	2.4	8.6
Northeastern	11.2	10.5	11.0	6.2	6.0	4.1	5.3	10.1
Southern	6.8	6.1	6.7	6.5	6.3	7.0	1.2	6.6
Whole Kingdom	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Birth Rates - 1981-1987								
Bangkok	8.6	8.3	8.5	8.0	8.1	5.3	1.8	8.4
Inner Ring	14.8	11.1	13.7	9.1	6.3	5.4	2.3	10.7
Outer Ring	9.0	7.7	8.8	8.2	6.8	7.0	2.8	8.6
Other Central	12.2	8.2	11.5	11.3	9.1	13.3	2.3	11.4
Northern	18.2	8.9	16.0	9.4	5.5	5.5	0.0	14.3
Northeastern	12.3	7.3	11.1	7.5	5.1	6.6	6.3	10.6
Southern	13.9	10.2	13.1	7.4	8.8	12.2	7.0	12.1
Whole Kingdom	10.7	8.6	10.2	8.3	7.1	6.2	2.3	9.7

Note: Rice mills are excluded from the data set.
Source: Provincial Factory Directories, Ministry of Industry.

more than seven workers or machinery with two horse power to register. Therefore, smaller cottage-type activities, which are probably relatively more important in the rural areas, are not fully included. Such industries were examined in a major study carried out at Kasetsart University in the early 1980s (the Rural Off-Farm Employment Assessment Project). This study found that small manufacturing establishments were an important source of income and employment in rural areas. As rural incomes and markets grow, however, the importance of such firms tends to decline (see Section 3.2). Even within the size classes that are required to register, it is likely that the data are less complete for the outer regions than for Bangkok and the inner ring. Indications are that many small-scale rural entrepreneurs see no need to contact the government officials or are unaware of the legal registration requirements.

The inner ring stands out as the region in which larger manufacturing establishments are most prominent and as the preferred location for setting up large factories. Only 60% of the firms in the inner ring employed 1-19 workers in 1987, compared to more than 80% in Bangkok and the other regions. Furthermore, although Bangkok has almost 50% of the manufacturing establishments in Thailand, the inner ring has a much higher share of firms employing more than 200 workers. In 1987, the average firm size in the inner ring (62 workers) was about three times that of the other regions. It is noteworthy that Bangkok still has a rather small average firm size (19.5 workers). This may be explained by the need for small firms to locate near an urban center in order to realize economies of agglomeration, as well as by their superior ability to operate in an environment where space is scarce and expensive. A similar relative density of small firms is found at the core of other major cities in the developing world.

It can also be observed in Table 4 that growth in the number of firms is lower in Bangkok than in any other region. Since the figures in the last section of Table 5 represent net growth in the number of firms -- that is, new firm start-ups in Bangkok minus firm closings through bankruptcy, merger, etc., as well as moves to other regions -- the low growth rate reflects an unknown mixture of a low "birth rate" of

new firms, a high firm "death rate" and a high rate of "migration" to other regions as operating costs in Bangkok have risen.[1] Consistent with the observed deconcentration of industry, the inner ring shows higher growth rates of virtually all sizes of firms while the outer ring has a pattern similar to that of Bangkok. Deconcentration has not yet significantly affected the provinces of the outer ring which lie farther away from Bangkok.

In an analysis of the distribution of firms in the Bangkok Metropolitan Area and the five surrounding provinces, the World Bank (1989) found similar deconcentration trends. Growth rates of establishments were seen to be much higher in the five provinces surrounding Bangkok than in the Bangkok metropolis itself. Furthermore, within the Bangkok metropolis, the growth of new establishments was consistently seen to rise as one moved from the old business area through the rapidly growing suburbs to the outer areas (World Bank, 1989, Table 4.7). In addition, the concentration of small firms (with less than 20 employees) was found to be much higher in the old business area (at 81.8%) than in the other areas.

2.2.5 Summary and Evaluation

To understand the current pattern of industrial location and recent changes in that pattern, it is particularly important to distinguish among three broad regions: (1) Bangkok; (2) its fringe, which we have termed the inner ring; and (3) the rest of the country. Viewing the country in this way, we see that Bangkok, the original industrial center, is still important -- particularly with regard to smaller firms -- but is no longer the area of rapid growth. The inner ring has become the favored location for newer enterprises, which tend to be larger than the firms in Bangkok proper.

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1. However, it is not clear whether each province consistently adjusts the data regularly for the firms which close down. The birth rates should thus be interpreted with care.

Although there is no doubt that manufacturing activity in Thailand is regionally concentrated, with only a small fraction of manufacturing value added being currently produced outside Bangkok and its inner ring, indications are that market forces and perhaps government policies have been causing a deconcentration of activities from Bangkok to its fringes. The same, however, cannot be said with regard to the decentralization of economic activity to the regional areas. The manufacturing sector remains relatively weak in the outer regions and has shown a declining trend in the 1980s.

3. INDUSTRIAL LOCATION

3.1 DETERMINANTS OF INDUSTRIAL LOCATION

3.1.1 A Basic Hypothesis

What determines the location of manufacturing? An answer to this question can be derived from the standard assumption in economics that firms try to maximize profits. Firms locate where their potential profitability is greatest. Profit consists of profit per unit (the price a firm gets for a unit of production, minus the unit cost of production) times the number of units produced. Some of the major components in the profit calculation are:

(1) The ex-factory price of the product and the quantity demanded.
(2) Labor cost, including all types of managerial, technical, skilled and unskilled labor used by the plant. The important measure is the unit labor cost (i.e. the ratio of salaries, wages and other employer-paid benefits to labor productivity).
(3) Transportation cost.
(4) The cost of land.
(5) The cost of raw materials used in the manufacturing process, including inventory costs.
(6) The cost of utilities such as electricity, water, and gas.
(7) The cost of credit, including working capital, investment capital, interest, and transaction charges.
(8) The transaction cost of arranging official licenses, permits, approvals, promotions, etc. that are either necessary for doing business or attractive because they increase the firm's profitability.

The values of many of these profit determinants vary from location to location, making some locations better for production than others. Moreover, the relative importance of the profit determinants varies among firms, depending on the products manufactured and technologies used, so the optimal location differs from one firm to another. In general, a particular firm locates where the factors that are important for its own profit calculation are most favorable. This hypothesis can help to explain several features of the patterns and trends in industrial location in Thailand that were described in the previous chapter, including the concentration of older and smaller manufacturing firms in Bangkok, the location of most of the newer and larger firms in the inner ring and the limited number and types of firms to be found outside Bangkok and its fringe. Finally, this line of analysis can be used to weigh both the predictive issue -- where Thailand's fast-growing manufacturing sector is likely to locate over the next decade or two -- and the prescriptive issue -- what government policies are potentially effective and desirable to bring the pattern of industrial location into closer accord with national objectives.

3.1.2 The Primacy of Bangkok: Causes

Throughout the world, economic development has been accompanied by increasing urbanization. Urbanization, in turn, has been characterized by deconcentration within urban areas and decentralization across urban areas in the regions. In many countries the pace of deconcentration and decentralization has been too slow to satisfy government officials. Concern about pollution, congestion, regional income inequalities and political strife has spurred many governments to seek policies that can help move economic activity out from the centers of major cities, and sometimes out of the cities altogether.

At first glance, lessons drawn from other countries might seem inapplicable to Thailand. Urban development in Thailand seems to differ from urban development in other countries because it has been so heavily concentrated in one city. Bangkok has 69% of Thailand's urban population, a greater share than any other large country. By

comparison, among countries with populations greater than 15 million people, Nairobi is the second most primate city, with 57% of Kenya's urban population. Among countries with populations greater than 30 million people, Buenos Aires is the second most primate city, with 45% of Argentina's urban population.

Despite Bangkok's high level of primacy, we believe that urbanization in Thailand essentially conforms to experience elsewhere.

Empirical studies have identified several important determinants of primacy. A country's largest city will exhibit a higher level of primacy if:

(1) that city is the center of government;
(2) the government is centralized;
(3) that city is a major port;
(4) that city is a conduit for inter-regional traffic;
(5) that city is conveniently located vis-a-vis some scarce natural resource;
(6) the country does not have strong regionally-based ethnic or religious rivalries;
(7) the country has a low level of urbanization; and
(8) the country is not very populous.

The first seven of these determinants are found in Thailand and Bangkok, causing Bangkok to be a very primate city. The natural resource found near Bangkok is water; Bangkok and its surrounding provinces sit above most of Thailand's groundwater. Only the last influence does not pertain to Thailand.

Thus it is not surprising to find Bangkok among the world's most primate cities. A brief review of Thailand's economic history shows why these influences have had such force.

The Kingdom of Ayutthaya was unusual among South Asian economies because its economy depended on two sources of income: extractions from peasant farmers and profits from international trading. Most other South

Asian kingdoms of that time relied on a single major income source. Even the formaer Thai Kingdom of Sukhothai, for example, used its role as a provider of irrigation to extract surplus from peasant farmers.

The destruction of Ayutthaya severely disrupted agriculture in its territories. The subsequent years were marked by famines. The new kingdom that emerged at Thonburi was forced to seek additional means to support itself. When Taksin, the son of a Chinese trader, sought power from his base in Thonburi, he relied heavily on the export trade with China to buy food for his troops. After Taksin had defeated his numerous rivals from other regions, he continued to rely on trading for his economic base.

Because Taksin and subsequent rulers relied on trade rather than extractions from the peasantry, they had little need for strong control of the regions. The Bangkok government asserted its authority in the nearby areas that provided rice for export but had little interest in the outlying provinces. Taksin and and the early kings of Chakri Dynasty suppressed rivals in the outlying provinces but otherwise exercised little control from Bangkok. Since the Bangkok government made few demands on the farmers in the outlying regions, there was little resistance to its authority. Not until the 1860s did the central government in Bangkok begin to strengthen its administrative hold on the outlying provinces.

Bangkok, therefore, developed in an environment most conducive to primacy. While preventing regional powers from developing local centers of activity, the central government itself undertook little concentrated administrative activity in the outlying provinces that might have served as areas about which economic activity might agglomerate. Even the extensive transportation and communication routes to the capital that usually accompany centralized government were not developed.

Bangkok had little incentive to connect itself to the outlying regions. Most agricultural exports were grown on plantations and farm located near Bangkok. The trading life of Bangkok and the agricultural life of the provinces remained disconnected until recent times. The

first modern road between Chiang Mai and Bangkok was not built until the 1960s, although a railroad link was in place as early as 1930.

Moreover, the outlying regions saw little reason to connect themselves to each other. While early Bangkok grew and shifted away from traditional goods towards more heavily processed goods like tobacco, indigo, sugar and even ships, the outlying provinces continued to engage in subsistence farming with little trade among themselves and only minor trade with Burma and Cambodia.

Bangkok was without rivals in urban development. The increasing proportion of processed goods in the export trade spurred further growth in Bangkok. But without regional markets and without a role in export markets, the outlying provinces had little use for urban centers. And the nobles of Siam, whose trade monopolies might be endangered by the rise of rival ports, had no interest in the promoting the emergence of new port cities. Thus, Bangkok's primacy was built into the structure of the Thai economy.

What would have happened if Ayutthaya had not fallen? The center of government would probably have remained in that city while Bangkok/Thonburi developed as the principal commercial center. Ayutthaya could remain a trading center only as long as land transportation through the mountain passes remained superior to sea voyages through the Straits of Malacca. Nineteenth-century advances in shipping technology would have broken Ayutthaya's advantage, making the emergence of a port city inevitable. Thus, at least two major urban centers would have emerged, one an administrative and religious center and the other a trading center.

This brief examination of Bangkok's development tells much about why the capital became so primate. Further, it indicates that, far from being exempt from the usual rules for urban development, Bangkok exemplifies those rules. Comparative advantage, economies of scale, transport facilities and access to administrative powers have ruled Bangkok's development as they have the development of other cities. Indeed, if we look at Bangkok's spatial development in the most recent

period we see that it is already following the classic path of initial concentration followed by deconcentration. Bangkok, which grew much faster than anywhere else in the Kingdom, is now growing at about the same rate as the whole Kingdom, while the provinces surrounding Bangkok are growing much faster.

3.1.3 The Primacy of Bangkok: Effects

For the manufacturing firm, the factors which have made Bangkok primate give a Bangkok location some major advantages over other locations. First, transportation costs are usually lower, allowing the firm to realize higher ex-factory profits from its products and obtain inputs and capital equipment at lower prices. Second, labor productivity may be higher in Bangkok because the population is better educated and has had more experience with factory employment. Third, utilities may be available more cheaply. Fourth, the cost of credit may be lower (whether it is harder to get credit for an equally good project outside Bangkok is uncertain). Fifth, the transaction cost of dealing with the government is generally lower in Bangkok. Last, and perhaps most important, Bangkok possesses powerful economies of agglomeration, the positive externalities of which reduces costs for all firms.

Despite these advantages, firms do not always conclude that a Bangkok location is best. Bangkok also has some major disadvantages. First, wages and salaries are higher, for three reasons: (1) workers must be compensated for the higher cost of living in Bangkok (this is an extra cost to the employer, who is interested in the nominal wage rate paid, not in the real wage rate); (2) The demand for labor is growing fast in Bangkok; labor is flowing into the city in response to this demand, but a real wage differential between Bangkok and the outlying regions must be maintained as an incentive to keep the labor flowing; (3) the minimum wage is higher in Bangkok and may also be enforced more conscientiously there; however, this may not even apply to unskilled labor any more, as the market wage for unskilled labor in Bangkok seems to have risen above the minimum wage (see Section 4.1 below). Second, the cost of land is much higher in Bangkok than outside, and the

differential is probably rising. Third, certain promotional benefits are no longer available to firms located in Bangkok (see Section 4.3 below). Fourth, congestion costs are high and increasing in Bangkok. Fifth, government enforcement of taxes and other regulations are likely to be stronger in Bangkok than in the regions.

These inter-regional differences in profit determinants explain several observed patterns and trends. One of these is the previously mentioned concentration of manufacturing firms in Bangkok, especially long-established large firms (some of which may now be considering moving out because of rising land values and other factors) and small firms, which benefit most from the economies of agglomeration.

Inter-regional differences in profit determinants also explain the rapid growth of industry in the Bangkok fringe. This area is attractive because it incorporates some of the advantages of Bangkok yet escapes some of its disadvantages, especially the high cost of land. It is a particularly good location for firms which need a relatively large plant site.

These same factors also explain why relatively few manufacturing firms have located outside Bangkok and its fringe. As analyzed in more detail in Section 3.2 below, most of the firms that have been in the provinces for some time have one of two specific reasons for being there. Either they process local materials, causing them to lose weight and thus become cheaper to transport, or else they produce simple items for sale in local markets. Examples of the first case are rice mills, tapioca flour mills, mineral processing and saw mills. Examples of the second include bakeries, basket weaving and the manufacture of simple farm implements. These firms benefit from "natural protection" afforded by high transportation costs and the smallness of the local market. As incomes rise and transportation costs decline, this protection weakens and this type of rural industry tends to lose out in competition with factory-made products made in central locations and marketed over a wide area. This is one of the reasons for the declining shares of the outlying regions in manufacturing value added and employment. Although movement outside Bangkok and its fringe has been limited so far, there

is evidence that regional locations are becoming more attractive for newer firms as roads and other infrastructure improve in the regions. Some new firms have been established in the regions in recent years to make wider use of local resources (e.g., white clay in Lampang) or skills (extension of the handicraft tradition in the North to commercial ceramics, artificial flowers and even electronics) and occasionally to take advantage of lower labor costs (although there seems to be little of this last type of movement so far).

One limitation on this movement is fact that the policy framework prevents the regions from taking full advantage of their principal cost advantage, the lower cost of unskilled labor. This is particularly important for the Northeast. In 1986 the market wage for unskilled labor in the Northeast was only 68% of the market wage in Bangkok (Pradit 1990, Table 2.12). This should make a location in the Northeast attractive to firms for which wages paid to unskilled labor are a large fraction of total cost. However, much of this competitive advantage is eliminated by the government's minimum wage, which has involved extension of the minimum wage to the regions in the late 1970s, followed by progressive narrowing of differentials between Bangkok and the other regions. As discussed in Section 4.1 below, this represents a hidden subsidy for Bangkok over other potential locations. We show later that the minimum wage in the Northeast is much closer to that in Bangkok than the market wage. In 1987 the minimum wage in the Northeast was 61 baht/day, 84% of the Bangkok rate.

3.1.4 Cities are "Incubators" for Small Firms

Bangkok, like many cities in the developing world, is a breeding ground for small firms. Almost 50 percent of Thailand's manufacturing firms are located in Bangkok. Of these, 83 percent employ fewer than 20 workers and 95 percent employ fewer than 50. Accordingly, the size distribution of firms is highly skewed towards small enterprises.

Small firms throughout the world find it profitable to operate in high density areas of metropolitan cities where, in spite of high rents, they benefit from the following agglomeration externalities:

(1) diversified market niches, which provide numerous business opportunities;
(2) mobile supplies of skilled labor;
(3) easy access to input suppliers;
(4) easy access to infrastructure, business and government services;
(5) shared repair and delivery services;
(6) proximity to larger firms, which often supply their subcontractors with trade credit and technology.

Further, without much land use control, central parts of the city also enable small entrepreneurs to locate factories anywhere, sometimes at home. Collectively these benefits of a metropolitan location reduce business entry and exit barriers and provide an ideal environment for small enterprise development.

This special "incubator" function of cities is vital to economic growth and income distribution and thus should be actively supported by government policies. Policies which try to disperse urban population and jobs, using incentives and bans on business location in cities, can have negative effects on the birth rate of local manufacturing firms. Unfortunately, policy makers are often more aware of the social diseconomies of urban development - congestion, pollution and social disruption - than of the positive externalities that affect entrepreneurial growth.

The incubator function is not easily transferable to environments outside the city. Programs in other countries that have tried to establish incubator sites in industrial estates for small manufacturing firms have generally been unsatisfactory. Occupancy rates in these estates have been low. Many small enterprises that have started up in the estates (even estates located just 20 to 30 km. away from the city) suffer excess capacity and financial losses resulting from:

(1) over investment in plant and land area;
(2) increased operating costs after relocation;
(3) limited access to local markets.

In one Korean program, serious problems facing relocated and new small firms in industrial estates included reduced accessibility to product markets and input suppliers, unavailability of production workers and difficulties in obtaining day-to-day business information because of poor telephone services and insufficient person-to-person contacts. Poor access to the central business core of the city is largely responsible for these problems.

As small firms grow, they tend to move to the outer rings of the central business district where factory space is available and rents are lower. This deconcentration pattern is indicated by the high proportion of very small firms found in the city's core, 83 percent, which declines to 40 per cent or less in the outer rings (see World Bank, 1989). It is interesting to note that, for the most part, these metro-based firms do not transmit their dynamism much beyond the outer rings of the metropolitan region or to neighboring secondary cities.

If firms shun long moves, how does urban decentralization take place? The primary sources of new jobs in local industry are the influx of foreign investment and the emergence of small new firms. The next largest number of new jobs in local industry comes from the subsequent expansion of these firms. Relatively few new jobs arise from the arrival of firms moving from distant locations or branching out.

As decentralization occurs, how diversified ought we expect the outlying cities' economies to be? Research in Brazil and the United States indicates that most outlying cities specialize, often in a single manufacturing industry. Firms in small and medium-size cities benefit from locating close to other firms in the same industry, but only at relatively large city sizes do firms apparently begin to gain advantages from simply being in a big city. Apparently, the attraction of the "bright lights" that makes workers eager to work in big cities does not

set in at moderate city sizes. In medium-size cities, most firms find no advantage from the presence of firms in other industries than their own but do find the disadvantage of added congestion. Consequently, small and medium-size cities tend to specialize in a small number of industries at most.

The fact that growth in outlying regions is mostly the result of local initiative underscores the importance of supporting development of infrastructure and services in regional growth centers. In regional secondary cities, basic infrastructure and government service constraints which raise costs of existing and newly established firms should be identified and addressed. Conditions in these secondary urban centers should be upgraded to enhance their role as "incubators". One important element of this is to increase the financial and administrative autonomy of municipal governments so that they can respond to demands for local services by small entrepreneurs and collaborate with local business organizations in carrying out business promotion activities and extension services.

3.2 ECONOMIC DEVELOPMENT AND RURAL INDUSTRY

3.2.1 The Extent of Rural Labor Force Involvement

The extent of involvement in nonagricultural activities in Thailand's rural areas is largely determined by three factors: (1) the stage of development; (2) seasonality of agricultural labor demand and the intensity of population pressure on regional land resources; and (3) the attractiveness of nonagricultural employment opportunities.

3.2.1.1 Stage of Development

In remote regions of Thailand, where incomes are low and the rural economy is isolated and still traditional, the scope for market exchange tends to be relatively low. High transportation costs and the fact that

inhabitants earn very low cash incomes mean that rural households produce many basic goods for themselves and for their immediate neighbors. At this stage of development there is only limited specialization in production, both in agricultural and in nonagricultural activities.

In this environment, rural industrial activities are subordinate to agricultural activities and therefore characterized by seasonal fluctuations. The organization of production and the technologies used in rural industry are mostly traditional, so productivity is low. On average, in fact, productivity in nonagricultural activities tends to be lower than agricultural productivity (see Ho, 1986 for a review of Asian data). The isolation and small size of rural markets "protects" these traditional, low productivity producers from urban-based or foreign competition.

The opening of isolated, low-income regions to trade via investments in transport and communications has been central to Thailand's development since the 19th century when the Central Plains and the southern provinces began to prosper. It is a process which is still continuing in the north and northeast today, as a result of investments in inter-regional road networks, communications and electricity services. Reduced isolation brings increased inter-regional trade, which in turn leads to much greater rural specialization in agricultural production and in manufacturing and service activities. In particular, the number of persons primarily engaged in trading, transport and agricultural processing activities increases sharply.

Furthermore, improved infrastructural facilities in rural areas help to reduce the delivered prices of manufactures produced in urban centers or abroad. Penetration of rural markets by urban-based products leads to the disappearance of a number of traditional production activities previously performed in the household. Specialists in craft production -- blacksmiths, hand-weavers, and so on -- are also displaced by product substitutes that emerge from inter-regional trade (see the decline in textile activity in the Northeast in Table 3). In addition, reduced travel costs sharply increase the participation of rural

households in outside labor markets in nearby towns, agricultural regions and cities, either by commuting or by seasonal migration.

As development advances and specialization grows among households and among locations within rural communities and regions, specialized activities in processing, commerce, manufacturing, transport and services increasingly become concentrated in small rural towns and then cities. Specialists in small towns, because of better roads and communications, are able to service communities and villages from more centralized locations. The towns become the centers for all kinds of agricultural support activities, becoming fully integrated into the agricultural economy of the regions.

In summary, many traditional rural industries are competitive only because of high transportation costs and small market size. As infrastructure investments reduce transportation costs and widen markets, their competitive advantage is reduced, and lower cost substitutes produced in urban areas replace their products. This process is ongoing in Thailand, particularly in the North and Northeast.

3.2.1.2 Seasonality in Agricultural Production

The second determinant of rural labor force involvement in nonagricultural activities is the seasonal nature of agriculture. This is an important reason why "counter-seasonal" industries like textiles and handicrafts activities with low capital and skill intensities are prevalent in rural areas of the North and Northeast. Such activities are suitable for these areas because financial requirements for fixed and working capital are small, raw materials are often available locally, and transportation costs for inputs and outputs are a small percentage of total manufacturing cost. But seasonality of agriculture, more generally, raises a difficult dilemma between the idleness of labor in agricultural slack seasons and the idleness of capital during the agricultural peak seasons. This dilemma explains why rural areas rarely produce a broad range of manufactured goods for export to other regions or abroad.

An important policy debate in Thailand has focused on the contention that a serious problem of seasonal underemployment exists in rural areas. To address this problem rural industries have been promoted to utilize seasonally underemployed workers and, more generally, government has been concerned with developing a more labor-intensive industrial development strategy. Several studies have examined the seasonal underemployment issue in the last several years and rejected the notion of a huge reservoir of underemployed rural workers (World Bank 1989; World Bank 1986; Bertrand and Squire 1980). A detailed analysis of labor force participation and employment patterns in 1986 shows that the rate of labor force participation for rural men drops seasonally only slightly between August and February. This is similar to participation rates for urban men. The decline in participation rates for women is more significant, dropping from 82.7% to 71.6%. While this shows some underemployment among women in the agricultural slack season, the labor force participation rate for rural women in February was still much higher than for urban women (64%). Consequently, it is difficult to argue that there is a large pool of underemployed female workers in rural areas to be tapped for industrial jobs (World Bank 1989).

As we point out elsewhere in this report, the high rates of labor absorption in urban-based industry are leading the economy toward a labor market turning point. By some projections, Thailand's abundant supplies of relatively unskilled female workers may begin running out in the mid-1990s as modern industries continue to bid workers away from seasonal agriculture and counter-seasonal rural industries.

3.2.1.3 Availability of Attractive Off-Farm Employment

The third determinant of the extent of rural labor's involvement in nonagricultural activities is the availability of attractive off-farm employment. As industrialization and development proceed, traditional and counter-seasonal rural industries are inevitably displaced. But involvement of rural households in nonagricultural activities does not

decline. In the transition phase, nonagricultural activities begin to diversify away from inferior "artisan-type" goods and agriculture-related employment to more "urban-type" and urban-related jobs. Thus, in more advanced developing countries, the extent of rural nonagricultural employment is likely to be determined by the rural household's access to urban-type jobs, which in turn is closely related to their distance from urban areas (see Ho, 1986). Rural labor is "pulled" into nonagricultural activities by higher wage opportunities of urban-type jobs.

Considerable evidence in Thailand and in other Asian countries supports the finding that proximity to urban areas is an important determinant of both the share of time spent by farmers in nonagricultural employment and the average income earned in these activities (i.e., the productivity of time spent). In Thailand, farm households close to urban areas like Bangkok, Chiang Mai and Nakhon Ratchasima have broader opportunities for subcontracting activities in the home as well as commuting to salaried employment in the city. The effect on incomes is evidenced by the much lower rural/urban income differential observed in the central region and the metropolitan area of Bangkok (10-20% as against 35-50% elsewhere in the country).

In Japan, Oshima (1983) shows that the relatively non-concentrated spatial pattern of industrial development and greater access of farmers to urban-type jobs explains not only the greater involvement of Japanese rural households in nonagricultural activities, but also the relatively high average incomes. In Korea, by contrast, where industrial growth has been more concentrated, average farm household incomes have been much lower. Oshima estimates that the absolute level of income earned from nonagricultural sources by the average farm household in Japan is 30 times that in Korea and 40-50 times that of Southeast Asia.

The importance of proximity to urban areas in determining rural household participation in modern nonagricultural activity means that the pattern of urbanization/industrialization is an influential

Table 6

Non-Agricultural Household Incomes, Japan and Korea
(as a percent of total income)

Japan		Korea	
Year	Off-Farm Income	Year	Nonfarm Income (excluding transfers)
1921	12.2		
1930	21.2	1962	13.2
1940	17.4	1965	12.4
1950	32.5	1970	14.2
1960	47.8	1975	11.9
1975	67.9	1978	14.7
1980	78.9	1981	12.9

Source: Ho (1986).

determinant of rural welfare. Data in Table 6 show the differences in household participation rates that emerged in Japan and Korea due largely to differences in development patterns. Spatial concentration in Korea is a major reason rural involvement in nonagricultural activities has remained essentially unchanged since the early 1960s, even though the pace of both agricultural and industrial development has been rapid.

Participation in attractive off-farm industrial activity is not altogether limited by the proximity to urban centers. Many studies confirm that the Thai labor force is highly mobile, particularly in the dry season when agricultural demand for labor declines, and both short and long-term migration occurs. (For details of migration patterns, see World Bank (1983); and Sussangkarn (1987)). A joint World Bank-NSO-NESDB project made an attempt to estimate the magnitudes and direction of seasonal migration in the July-September round of the 1984 Labour Force Survey. The overall picture one gets from this investigation is that the rural population is quite active in migrating to other regions and to urban centers.

According to Sussangkarn (1987), almost 60% of the rural labor force, regarded as potential migrants, actively seeks jobs (about 2.4

million workers) each year. In 1984, about 35% of these workers actually migrated (800,000). The principal source areas are the North and Northeast, the primary destinations Bangkok, the central provinces and the South. As might be expected, it is the Northeast -- the most populous region, most dependent on rainfed agriculture, with the lowest income levels and the fewest alternative employment opportunities in regional urban centers -- where the seasonal outflow of labor is greatest. It is estimated that as many as 300,000 workers from the Northeast participate in this seasonal movement. A little more than 200,000 migrants come from the Northern region and a little less than 200,000 from the central region.

About 50% of seasonal migrants, according to the 1984 Labour Force Survey, moved to take up agricultural jobs. Of the other half of migrants that moved to work in nonagricultural activities, 35% went into manufacturing jobs and 15% into service jobs. Most of the migrants are male (70%), unskilled laborers between the ages of 15 and 39 (65%).

One problem that emerges from Sussangkarn's investigation of the 1984 Labour Force Survey data is the inadequacy of basic information about job opportunities in different regions, despite the many formal and informal labor market mechanisms working to allocate seasonal workers to jobs. He points to the fact that 26% of potential migrants in the North and 40% in the northeast did not have adequate information to look for a job.

Despite such problems, it does appear that labor market mechanisms function rather well in most areas. For example, even with an annual inflow of employment seekers that amounts to as much as 5% of the regular Bangkok labor force, there seem to be no significant seasonal fluctuations in aggregate measures of unemployment rates (World Bank, 1983). Most migrants have located jobs prior to moving (60-70% according to the 1984 Labour Force Survey) but, even among those who go to Bangkok or other large cities to look for a job, the period of job search is quite short (Chamratrithirong, 1980). This is particularly true today given the rapid growth in manufacturing.

3.2.2 The Character of Rural Industry

3.2.2.1 Product Characteristics

The products produced by rural industry at any point in time, as suggested above, depend partly on the stage of development (traditional wage-goods produced at home or by nearby neighbors), partly on the seasonality of agricultural production (traditional counter-seasonal industries) and partly on whether rurally produced goods are tradeable or nontradeable. In a developing country, one would expect to find a wide variety of rural nonagricultural activities. The observed mix of products and activities in any region would be determined by the relative importance of each of the factors just listed.

We have noted that, as the economy shifts from monsoon-driven agriculture to modern industrial activities, production of traditional wage-goods and counter seasonal industries like textiles and handicrafts decline. In an industrial economy, the year-round labor demand of modern industry and services dominates labor market dynamics and agriculture is forced to accommodate the labor needs of growing industry by reducing seasonality and by increasing labor productivity through mechanization. Because labor productivity is higher in modern industry, labor is bid away from agriculture and traditional rural industries, causing a relative and absolute decline in their importance.

Moreover, nonagricultural activities tend to be footloose. Unlike agricultural and natural resource commodities, which must be produced in particular locations based on climate and soil conditions, the location of nonagricultural production is governed by factors such as transportation costs, port facilities and unit labor costs. Whether a tradeable, nonagricultural good is produced in rural areas or in urban areas depends on which area has the cost advantage in production. Powerful economies of urban agglomeration and falling transportation costs generally tip the competitive balance in favor of cities and towns.

Some goods, however, may be manufactured in rural areas due to powerful cost advantages in production or special product characteristics. Examples are mining and agro-processing units which have to be located near the mine or growing region on account of (1) the weight-losing nature of the process, or (2) the perishability of the raw materials used. Rice milling and cassava chipping (weight loss), fruit canning and fish products (perishability) and cane sugar factories (weight loss and perishability) are examples. Processing activities that do not involve perishability or weight loss are frequently located in towns and cities because of unit labor cost differentials and other cost differences, such as flour milling, oil crushing, processing of many food products, and furniture making.

High transportation costs of both inputs and final products, as well as the location of raw materials, also give rural areas a comparative advantage in the production of many construction materials, such as bricks and cement. In regions and villages with specialized artisan skills, textiles and handicrafts can be important activities. Some of these activities grow out of tradition, but others (fish nets, baskets and silk) are of more recent origin. Such activities are performed in households, cottage units or small factories, and generally use female or child labor on a seasonal basis. Closer to towns and cities, the "putting-out" system in textiles, garments and handicrafts connects rural household producers and small cottage units with urban-based factories.

Often emerging from traditional blacksmith operations, metal workshops and agricultural implements and machinery enterprises produce and repair machines for both agricultural and nonagricultural businesses. In Thailand, rural agricultural machinery manufacturers have even begun to export machines for cassava, rice milling and starch factories. The impetus for the agricultural machinery industry has arisen from import substitution and from the invention of new or locally-adapted machinery designs suggested by customers dissatisfied with imports. The comparative advantage of such firms in rural areas is their ability to invent and adapt machinery for local markets. These

activities require close contact with users. It is a near-universal pattern in developing and developed countries alike that most mechanical agricultural inventions originate in small-scale local workshops in collaboration with innovative farmers. Thus, for most metal-working industries in rural areas, the element of customized production in small lots is very important. These firms rarely produce large volumes of standardized equipment and they generally have a service orientation that requires close interaction with customers.

3.2.2.2 Firm Characteristics

A general description of the average production unit involved in nonagricultural activities (with the exception of large-scale mining and agro-processing units) would focus on characteristics like small size, low intensities of both physical and (formally-acquired) human capital and, in small factories, production technology of the job-shop variety. While these characteristics might signal the need for some kind of government assistance, it should be remembered that such traits of rural manufacturing are not confined to Thailand or the developing world but are found in the developed world as well.

(1) Human Capital

More specifically, in terms of factor conditions such as availability of specialized skills, this study, as well as others in Thailand, finds that skills acquired in formal training are not considered by rural entrepreneurs as a barrier to entry or expansion (World Bank, 1983; "Small Industrial Enterprise Supportive Institutions", Rural Off-Farm Assessment Project, 1981; as well as firm interviews in 1989 in the North and Northeast). Most existing rural non-farm activities seem to require a short period of on-the-job training.

In the manufacture of farm machinery, silk weaving and furniture making investigations suggest that skills are acquired on-the-job after exposure of several weeks or months. Industries in which the use of

specialized equipment is important generally have training programs and apprenticeship periods: sugar mills, starch factories, canning factories and large machinery producers are examples. Only the very large firms such as starch factories and sugar mills hire highly-skilled engineers, technicians and accountants.

An interesting comment from rural businessmen was that semi-skilled labor, in spite of the level of formal education attained, had to be trained from scratch (firm interviews 1989). Hence, by and large, rural industries have been reasonably successful in acquiring the skills necessary for operation. It is also true, however, that limited skill levels of managers and workers have probably constrained the types of activities that are now found in rural areas.

(2) Credit

Credit has often been cited as an important factor constraining the development of rural industry. Here we shall focus primarily on general issues pertinent to the financial problems of rural industry. In subsequent sections, we shall deal with current government financial policies.

There is no doubt that the transaction costs (administrative costs and risk) of extending credit to rural economic activities are high. Among the most important reasons for this are: (1) the distance from commercial and industrial centers and the scattered spatial pattern of rural industry; (2) the variety and small size of enterprises, and (3) the fact that they rarely keep adequate accounts. In short, rural loans are "information-intensive", difficult to monitor and risky. Given such conditions, it is not surprising that there should be credit cost differences between rural and urban areas.

Recognition of such cost differences is not sufficient, however, to warrant permanent government subsidies for rural credit. Nor, by analogy, are permanent government subsidies warranted to offset transportation cost differences between regions. For one thing, other factors -- like lower land and labor costs -- naturally tend to make it

cheaper to operate in rural areas, offsetting higher credit cost. Government intervention is warranted in social overhead investments to reduce communications and transportation costs and in general promotion of the development of rural financial markets. The objectives of government rural financial intervention should be to widen the market, reduce intermediation costs and lower market-based lending rates. Temporary underwriting of some formal sector entry costs into rural financial markets might be warranted, if it can be proven that intermediaries will learn relatively quickly and be able to reduce rural lending costs in the foreseeable future. But, as a rule, the best way to encourage entry and expansion of financial intermediaries in the rural sector is to allow them to make a profit by charging market lending rates.

Higher costs of credit in rural areas affect all activities equally. With the exception of allowing some financial institutions to specialize in particular activities, there is no reason for biasing government efforts to improve financial markets towards one rural activity or another. In the first place, financial resources are fungible between uses. As a consequence, it is very difficult to make any kind of selective credit controls effective. Monitoring targeted credit uses of rural households involved in both agricultural and nonagricultural activities is extremely difficult. Also, rural informal credit markets are adept at reallocating financial resources away from government-selected investments to other, higher return uses and even other regions. For example, credit earmarked for rural areas may simply flow back to Bangkok through informal channels. On economic grounds, credit should be allocated efficiently to high return uses. Selective credit controls, which allocate credit by government directive are notoriously inefficient in this respect.

Is higher capital cost (and access to credit) really a constraint to entry and expansion for rural industry? As the financial data in Table 7 indicate, obtaining credit was not a major constraint in agri-

Table 7

Rediscounts of Promissory Notes Arising from Exports
at the Bank of Thailand Head Office by Type of Commodity, 1963-1987
(Percent)

Commodity	1963-72	1973-77	1978-82	1983-87
1. Agricultural Products	72.6	31.0	31.7	31.7
Rice	35.8	12.5	14.5	15.6
Maize	22.6	8.2	4.7	6.3
Rubber	3.6	2.8	3.8	2.3
Kenaf	4.3	1.4	0.2	0.3
Sea food	2.5	2.2	4.9	4.8
Beans	0.4	1.1	1.5	0.8
Sorghum	0.6	0.4	0.6	0.3
Wood	0.0	1.1	0.1	0.3
Coffee	0.0	0.0	0.0	0.3
Caster	1.3	0.5	0.3	0.2
Lac	0.0	0.4	0.1	0.1
Feather	0.0	0.1	0.3	0.2
Others	1.5	0.3	0.7	0.2
2. Manufacturing Products	23.1	65.5	61.8	55.7
Sugar	9.0	29.0	14.5	6.7
Tapioca Products	9.0	17.4	19.6	16.4
Jute & Kenaf Products	0.5	1.4	1.0	0.6
Tobacco Leaves	1.9	2.5	2.6	1.4
Cloth & Clothing	1.2	6.8	8.3	8.8
Molasses	0.1	2.7	1.0	0.6
Canned Food & Frozen Meat	0.5	3.2	6.9	12.0
Wood Products	0.3	0.4	1.5	1.4
Aluminum Products	0.6	0.5	0.2	0.1
Iron Products	0.0	0.1	1.3	2.0
Precious Stones	0.0	0.2	1.4	2.0
Leather & Leather Products	0.0	0.0	0.5	1.2
Others	0.0	1.3	3.0	2.5
3. Others	4.3	3.5	6.5	12.6
TOTAL	100.0	100.0	100.0	100.0

Source: Bank of Thailand

business enterprises.[1] Rice mills, sugar mills, cassava chipping and pelletizing factories, starch factories, animal-feed companies and food processing plants all grew rapidly in the last 20 years. And, particularly for the larger of these operations, access to credit has not been a problem. For household enterprises and small factories in various manufacturing, commercial and construction activities, where ratios of fixed capital to labor are low, self-financing has been the major source of capital. Most credit requirements in these firms are for working capital to purchase raw materials. In the majority of cases, these credit demands are met by informal lenders and input suppliers who extend trade credit. In some cases, households and small factories acting as subcontractors to larger, generally urban-based, firms receive credit as part of their contractual arrangements with these entities.

Previous surveys in Thailand and other countries, as well as interviews conducted by this study team, find little evidence that credit is a major problem for existing rural enterprises (for example see: "The Off-Farm Rural Employment Assessment Project," Kasetsart / Michigan State / Ohio State, 1981; and World Bank, 1983). Rather, the overriding constraint to entry and further expansion of rural enterprises in manufacturing has most often been identified as limited final demand for the product.

Nevertheless, while access to and cost of credit is not an overriding constraint to small business operation in rural areas, improvements in rural financial markets, which lead to more efficient financial intermediation, larger credit flows, and lower market-based lending rates, could well accelerate overall rural growth, and help to raise productivity in existing rural enterprises. But, in general, credit should not be employed as a "supply-leading" policy instrument. It is much more efficiently employed as a "demand-following" growth facilitator.

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1. Table 7 only includes packing credit but we believe that the picture shown is representative of credit in general.

(3) The Role of Infrastructure

Social overhead capital investments like roads, electricity, communications and water have been extremely important in facilitating regional growth, both agricultural and nonagricultural. Declining transportation costs, better information flows and improved water and electricity systems have helped markets to expand and have had positive effects on health and other human capital attributes of rural populations.

A major feature of the government's program to improve rural infrastructure has been road access. Road data show that, by 1980, in virtually all changwats of the country, fewer than 5% of all villages were more than one kilometer from a road and did not have direct access to some kind of thoroughfare (Accelerated Rural Development, Ministry of Interior, Bangkok, 1980). Since 1980, improvements have been made to the system so that road access has improved further. Such improvements in road access have had a dramatic impact, through reduced transport costs and access to markets, on agricultural growth and diversification. This has been particularly true in more remote regions where, as a consequence, shifts in comparative advantage have occurred. For example, in the Lower North and the Northeast dramatic expansions of land area under cultivation have occurred, with attendant shifts from subsistence to cash crops. In the Lower North maize and sugarcane have become more important, while in the Northeast farmers have shifted production into cassava and sugarcane. In both regions, agricultural incomes have risen because of these changes and because of increases in exports of non-glutinous rice from parts of the Northeast.

As we suggested earlier, these shifts in production patterns resulting from improvements in infrastructure and declining transportation costs can have profound affects on the location and competitiveness of rural industry. For example, better roads can shift the optimal location of weight-losing, agro-processing plants from villages to towns and cities, as in the cases of sugarcane and cassava, which are now trucked over longer distances to be processed in larger mills where costs are much lower. Moreover, lower transportation costs

can cut the competitive advantage of many rural nonagricultural activities, which increasingly must compete with larger urban-based factories. The case of a sharp decline in home-weaving activities in the early 1970s, which occurred in the North and Northeast, is an example. In general, higher-quality, lower cost goods can be shipped from more centrally-located, efficiently-sized production units. And village residents can obtain services and goods in nearby towns if travel costs are reduced.

But infrastructural investments also open up opportunities for participation in nonagricultural activities that are more specialized and productive. One study showed that households in rural Thailand had much less chance to participate in nonagricultural activities (as primary or secondary occupations), while maintaining residence in a village, the greater the distance of the household from a main road (Cochrane and Machnes, 1983). Being closer to the main road has allowed households to participate in seasonal migration, to commute to towns and cities where part or full-time factory employment is available and to work as home-based subcontractors for large factories.

TDRI's 1988 rural industries survey indicates that opportunities for firms in secondary cities, such as Chiang Mai and Nakhon Ratchasima, in export markets and in direct sales to urban-based factories in the Bangkok area have increased as a result of past infrastructure investments. As these secondary growth centers have expanded their industrial activities, opportunities for off-farm employment in the regions, in modern manufacturing, have grown too. For example, our interviews with several foreign electronics firms in Chiang Mai found that women from surrounding farming areas were being trained, from scratch, to work on factory assembly lines. In textiles, artificial flowers, ceramics and furniture in the North, as well as machinery and textiles in the Northeast, similar opportunities for employment and human capital deepening are expanding.

Lastly, it should be recognized that, while improved infrastructure may help create greater opportunities for off-farm employment in modern industry and may stimulate greater specialization and growth in

agriculture and related activities, it is not an engine of growth for resource-independent rural manufacturing activities. In fact, by increasing the spatial division of labor and specialization in production, improvements in infrastructure cause a decline in many nonagricultural activities, as we have noted. Even in rural areas located in extremely privileged positions with respect to road access, railways and river transport (for example, Ayutthaya, Suphan Buri, Sing Buri, Chainat), one finds very few industrial enterprises not directly related to agriculture, serving consumer demand for perishable commodities, or producing heavy construction materials ("Off Farm Rural Assessment" Kasetsart/Michigan State/Ohio State, 1981).

3.2.3 Linkages with Agricultural Development

The importance of agricultural development for growth of rural industry cannot be overstated. Expansion of agricultural output, input use and incomes clearly lead to powerful forward, backward and consumer demand linkages, both in agricultural and nonagricultural activities. The actual magnitude of these linkage effects for particular nonagricultural goods and services will depend on whether they are internationally or inter-regionally tradeable and whether rural areas have a comparative advantage in their production. As we have already noted, in an economy with reasonably well developed roads and communications, agricultural growth will have powerful linkage effects mostly via nontradeables. Nontradeables are goods in which the local areas have a substantial cost advantage in production, or which must be produced at the place where they are used or consumed. Increases in demand for tradeable goods, of course, will be met by changes in foreign and inter-regional trade.

Of all the linkage effects, consumer demand linkages have the greatest influence on rural nonagricultural activities (see Grandstaff, 1990, Chapter 3). Marginal budget shares and income elasticities are higher than for agricultural products (with the exception of animal products and fruit); hence, increased agricultural incomes are spent increasingly on nonagricultural goods and services.

Output or forward linkage effects as a source of demand for nonagricultural goods and services rank second in importance to consumer demand linkages. Forward linkages are generated through agricultural processing activities and transportation of commodities. Each major crop varies considerably in the extent to which it generates forward linkages in processing and transportation. Variations are determined by: (1) the weight and volume of each commodity; (2) the extent to which it can be reduced by processing; (3) the commodity's perishability; and (4) the processing steps required before the commodity can be consumed and used.

To take one example, cassava is a crop that generates a lot of nonfarm employment. Not only does it require a great deal of processing, the employment associated with transportation of cassava roots, chips, pellets, flour and starch is enormous. For example, production of 10 million tons of cassava requires that about 700,000 truck loads of cassava roots be transported to chipping or flour factories. Subsequently, assuming that all roots were converted to chips, more than four million tons of chips, requiring over 250,000 truck loads, would be transported to pelletizing factories. In turn, pellets, weighing about 4 million tons, would be shipped to final consumers or ports for export. Similar figures could be calculated for rice, sugarcane, kenaf, maize, rubber, oil seeds, animal feeds and fruits and vegetables.

Natural resource processing and transportation should also be included in this list. The choice of location for processing natural resources is governed by similar considerations to those of agricultural output. Mining, forestry, fisheries and tourism production all generate significant linkage effects.

Input, or backward, linkages generate the third source of agricultural demand for nonagricultural activities. Machinery producers and the animal feed industry are generally located in rural areas and produce the largest rural employment effects. Fertilizers and pesticides are traded goods and thus are usually produced in urban

factories or imported from abroad. Rural employment, however, is generated in transport and sales of these goods and services.

Agricultural machinery production in Thailand and elsewhere is an example of induced demand and innovation. The inducement of most mechanical technologies arises due to increasing labor scarcity or, in low-wage environments, because of the need for concentrated power or speed to replace animal-drawn implements. Rising wages and/or the lower comparative advantage of animals induce substantial local innovation and adaptation of both domestic and foreign prototypes to substitute for labor and animals. In Thailand, growing mechanization of cultivation and threshing has occurred as a response to increased labor and draft-power demand arising out of area expansion.

As noted earlier, most major machinery inventions or adaptations are made by small firms which are close to customers, often at their customer's request. These innovating small enterprises either expand to a larger size, are displaced, or merge with larger firms. Innovation and production management skills are often not found in the same individuals or organization. Large firms, even in the U.S. or Europe, tend to improve the engineering and quality of innovations made elsewhere and displace or acquire the smaller firms on account of their superior production, marketing and financing skills. A similar shakeout of firms is now clearly under way in Thailand. As for the feed industry, dramatic changes in techniques of production in the poultry business stimulated a rapid emergence of modern animal-feed plants in the 1970s and 1980s to meet rising demand for chicken and eggs in urban centers. In 1985, 90 factories made up the animal-feed industry, about half of which had been granted Board of Investment promotional privileges. (BOI privileges are now essentially limited to new factories located outside of the greater Bangkok area.) By the same year, the industry was employing about 10,000 workers, 50% of which are unskilled laborers.

The largest market for poultry and animal feed products is the Bangkok metropolitan area. But in the last ten years the modern poultry industry has spread to outer regions and so has the modern animal-feed

industry. Still, the animal-feed industry continues to be concentrated in the Bangkok and central regions where the bulk of consumer demand exists. Other factors that continue to favor plant locations around Bangkok are ready access to the main feed input markets and the proximity to ports from which soybean cakes or meal are imported, a major input in feed production.

Both the agricultural machinery and animal-feed industries show a rapid and large response of rural nonagricultural sectors to new opportunities emanating from technical change in agriculture. It is important to note that the efficient supply response was induced through market forces and depended very little on government intervention, except for the granting of BOI promotional certificates when it was already apparent that the industries were responding.

The analysis just presented concerning the paramount importance of agriculture as a source of demand for nonagricultural rural activities suggests that policies which enhance or detract from agricultural prosperity have a powerful influence on nonfarm rural employment and incomes. Evidence for this proposition is found in the high growth rates of rural nonagricultural activities in all regions of Thailand that have accompanied the rapid improvements in agricultural production and incomes in the past two decades.

3.2.4 Potential for Limited Export Activities

Rural areas are competitive in manufacturing a limited range of goods for export to other regions or abroad. Rural comparative advantage in these products emanates from specialized artisan skills (textiles and handicrafts), the high value added in relation to unit weight characteristics of the products (gem cutting) and the relatively high use of low-cost unskilled labor (fish nets, baskets, silk).

A highly successful recent example of rural industry that has developed, especially in the North, is gem cutting. This activity has grown rapidly in the last few years and now employs 400,000 people,

according to one estimate. Farmers cut the gems at home on a part-time basis using simple power tools. The supply of uncut stones as well as the collection and marketing of finished products are handled by middlemen. This urban-based industry is an example of the diversification of rural nonagricultural activities from traditional to modern that occurs in the course of development. It also illustrates how proximity to urban centers can have important implications for higher productivity off-farm income opportunities.

Despite the recent success of gem cutting, however, it is difficult to think of many other products that meet the requirements for rural competitiveness in export markets. Opportunities for greater participation of the rural labor force in off-farm industrial activity will probably have to wait for more manufacturing growth in secondary cities around the country.

3.2.5 Summary and Policy Implications

It is clear from our analysis that the limited and specific nature of rural manufacturing, and the heterogeneity and geographic dispersion of other activities which make up the bulk of rural nonfarm employment limit the potential for direct government intervention to foster growth of these activities. This general conclusion is derived from the following observations:

(1) Many traditional rural industries are competitive only because they are protected by high transportation costs and small markets. As transportation costs decline, their competitive edge will be cut and they will disappear, being replaced by lower cost substitutes from urban areas.

(2) As the economy shifts from monsoon-driven agriculture to modern industrial activities, a process occurring very rapidly in Thailand, production in "counter-seasonal" rural industries will also decline. In an industrial economy, the year-round labor demand of modern industry and services dominates labor

market dynamics and agriculture is forced to accommodate the labor needs of a growing industrial sector by reducing seasonality and by increasing labor productivity through mechanization. Because labor productivity is higher in modern industry, labor is bid away from agriculture and "counter-seasonal" industries, causing an absolute decline in their importance.

(3) Products where rural areas have a comparative cost advantage in production or because of special product characteristics are in categories such as mining and agro-processing because of (1) the weight-losing nature of the production process, or (2) the perishability of the raw materials used. High transport costs and specialized artisan skills also give rural areas advantages in production of some construction materials and textiles and handicrafts.

(4) The manufacturing of a limited range of goods for export to other regions or abroad, mainly in textiles, handicrafts, gems and metal goods is possible. But, with the exception of specialized artisan skills in handicrafts and textiles, successful export products will be limited, for the most part, to those having high value added in relation to unit weight and high labor-intensity. This explains the success of gem cutting despite the poor industrial infrastructure in rural areas. It is difficult to conceive of many other products that fit these characteristics.

(5) The main characteristics of rural nonagricultural firms (aside from the mining and agro-processing industries) are small size, low intensities of both physical and (formally-acquired) human capital, and, in small factories, production technology of the job-shop variety. While these characteristics might signal the need for some kind of government assistance, it should be remembered that such traits are not confined to Thailand or the developing world but are true of rural industry everywhere.

The findings of the RIES and other studies have the following implications for policy interventions to assist rural firms:

(1) Labor Availability. By and large rural industries have been reasonably successful in acquiring the skills necessary for operation. Future tightening of labor markets because of rapid urban-based industrial growth may change this situation. Semi-skilled labor, in spite of the level of formal education attained, needs on-the-job training. The provision of vocational training, tied closely to business needs, is an potential area for government intervention.

(2) Credit. Many studies find little evidence that credit is a major constraint inhibiting entry and expansion of rural enterprises. Rather, the overriding constraint to existing rural enterprises is generally seen to be limited final demand for the product. Rather than aiming financial policy at selective credit controls and the like, the government should try to improve rural financial markets for all activities by reducing intermediation costs and integrating markets.

(3) Infrastructure. While improved infrastructure may help create greater opportunities for off-farm employment in modern industry and may stimulate greater specialization and growth in agriculture, it should be recognized that it is not an engine of growth for resource-independent rural manufacturing activities.

(4) One cannot overstate the importance of agricultural development for growth of rural industry. Expansion of agricultural output, input use and incomes clearly lead to powerful forward, backward and consumer demand linkages, both in agriculture and rural industries. This realization implies that policies which enhance or detract from agricultural prosperity have a powerful influence on rural industry.

(5) Lastly, the most powerful influence on prosperity of rural households (aside from agriculture) is the ability to participate in modern industrial activities. Proximity to urban areas is the most important determinant of both share of time spent by rural households in these activities and the average income earned. This means that the pattern of urbanization/industrialization is an influential determinant of rural welfare.

4. THE ROLE OF POLICY

4.1 POLICY BIASES

Two common perceptions concerning the efficacy of government policy appear in much current analysis of Thai regional development. The first perception is that existing policy is heavily biased in favor of large-scale industrial development in Bangkok and its fringe. Policy biases are commonly cited as a principal cause of Thailand's current spatial concentration in industrial activity and a serious impediment to the growth of rural and provincial industry and employment. The second perception is that policy changes to offset or remove existing biases can easily spur industrial growth in outlying regions. This section will discuss these perceptions and examine whether or not existing evidence supports them.

4.1.1 What is Policy Bias?

The economist's view of a bias in government policy is generally based on whether or not the policy provides a structure of incentives that deviates from neutrality as between one economic activity or another. For example, trade policy can be biased if exchange rates, tariffs and quantitative restrictions create a structure of incentives that deviate from neutrality as between production for home markets and production for export markets. Similarly, sectoral policy bias arises when non-neutrality occurs as between sectors like agriculture and industry, and regional bias when non-neutrality exists as between Bangkok and outlying regions.

While measuring policy bias is rather straightforward, evaluating its ultimate effect is not. The existence of policy non-neutrality does not always imply a negative effect. Government may introduce a proactive policy bias to offset an existing market imperfection or market failure, to promote greater dynamic efficiency, or to achieve the state's welfare objectives.

Take, for example, the question of sectoral bias in development policy as between agriculture and industry. Virtually every country that experienced rapid growth of productivity and living standards over the last 20 years has done so by industrializing. Countries that have successfully industrialized -- turned to production of manufactures, taking advantage of scale economies not found in any substantial degree in agriculture -- are the ones that grew rich, be they 19th century Britain or 20th century Korea, Taiwan or Japan. To make the investments that are needed to propel the economy into modern industrial growth requires transferring resources from sectors producing a surplus. This necessitates taxation of agriculture. Agriculture is the only sector in early stages of development with a large enough surplus, in terms of labor and capital, to provide the required resources. In this context, neutrality between industry and agriculture is not a pro-development policy alternative.

The principal question is: How does one distinguish a proactive policy bias that promotes growth from a prosaic policy distortion? This has been a concern of development economists and policy makers for some time. The "price scissors" debate over taxation of Soviet agriculture in the 1930s, or the debates about policies to promote balanced or unbalanced growth in the 1960s are examples. Evaluating a policy bias may involve subtleties like determining the "optimal" required bias or a straightforward assessment of whether or not non-neutrality exists. Making informed judgments on these matters requires knowledge of the dynamics of efficient economic growth, as well as the government's policy objectives.

Two problems arise in evaluating policy bias in the context of regional or spatial development. First, it is exceedingly difficult for a country to formulate neutral development policies as between different locations. If economic growth is an objective, the central thrust of government policy must be to support investment activities that "build on the best." Put simply, the lion's share of resources must be directed to areas where the returns are highest. Particularly for industrial development, urban centers must be the center of attention. Most of the country's human and physical resources are concentrated in

primary and secondary cities where powerful economies of agglomeration exist which significantly reduce production costs. This does not mean, of course, that policy should concentrate all resources in advanced regions or in urban centers. Some resources must be set aside for investments in lagging areas for reasons of equity. But, without growth, very few resources will be available for such purposes.

The second problem in trying to evaluate spatial biases in government policy is that certain non-neutralities are inevitable. In the first place, there are the inherent effects of the political structure. The unitary nature of Thailand's political system results in the concentration of most political power in the capitol city. This inevitably increases the attractiveness of Bangkok as a location for industrial investors. As noted elsewhere in this report, several actions might be taken to offset the degree of this bias.

Past government policies and infrastructure investments also inevitably create spatial biases that can have long-lasting effects on costs of production of manufacturing firms. Physical facilities such as roads, power grids and telephone networks are typically built at government expense and made available to producers (and consumers) at less than their full cost. Resource scarcity and efficiency criteria require that infrastructure be built in particular locations. This inevitably favors those areas since it affects the cost of manufacturing and returns to investment. Similar problems arise with government's provision of social infrastructure - education, health services and other programs. All these investments have long-lasting effects, because the location of existing firms will indirectly influence the location of new firms. New firm profitability often depends on being located near old, established firms. Given these inevitable biases, can government ever realistically aim for policy neutrality?

More important perhaps, should government really wish to formulate policies that are neutral in their spatial effects? The answer depends on whether the aim of government is <u>people prosperity</u> or <u>place prosperity</u>. The fact that people are mobile and can go to wherever their earnings are highest diminishes the need to address the problem of

social equity by equalizing levels of development at every location. A more appropriate policy objective might be to aim at equalizing education and health services everywhere, while addressing locational development at a few growth centers. Resource constraints and the growth-equity trade off limit government's ability to achieve place prosperity. Furthermore, ill-financed and ill-targeted development efforts aimed at achieving place prosperity can have high costs in terms of locking people into low pay-off activities which may fail in the longer run. People bound by unwise or ill-financed efforts would have been better off migrating in the first place.

4.1.2 Policy Bias and Policies at Cross-Purposes

Having argued that some proactive biases in development policy may be necessary for more efficient and equitable growth, it should be added that biases can also be excessive, unwarranted and at cross-purposes. Agricultural export taxes and other agricultural price policies together with industrial policies that protect industry can, if excessive, distort the terms-of-trade between the two sectors, placing an inordinate tax on agriculture. Until 1982, export taxes on agricultural commodities like rice and rubber transferred a large share of agricultural incomes out of the rural sector. It is estimated, for example, that in 1981 rice export taxation implied a burden on farm households of 5-9% of agricultural GDP (World Bank, 1983). For rubber the tax burden on farm-gate prices was 40%, resulting in a net transfer from farms of about 3.4 billion baht per year. These transfers do not include the "efficiency cost" of price distortions caused by taxation. Nor do they include reduced direct and indirect labor demand via various linkages - processing, transport, and so on. Estimates indicate total direct agricultural taxation siphoned off more rural income than combined rural development expenditures for agriculture and nonfarm activities put back.

In addition to direct agricultural taxation, industrial policies such as tariffs and quantitative restrictions raised the price of manufactured goods to rural dwellers, exacting an additional indirect

tax. These indirect taxes are difficult to quantify, but rates of effective protection during the 1960-80 period indicate that they must have been significant. The important point is that the combined effects of direct and indirect taxation of agriculture have been a substantial multiple of the countervailing resource flows provided by policies and programs aimed at fostering agriculture and rural industry. While agricultural taxation is necessary to promote modern industrial growth, it is also important to consider the extent of discrimination against rural areas. Excessive extraction of rural resources can "push" people into urban areas faster than they can be absorbed, and/or create larger than warranted rural/urban income differentials. At the same time, attempts to stem the resulting tide of urbanization in metropolitan areas like Bangkok via relatively small, and often poorly managed rural industry development efforts can hardly compensate for excessive income transfers.

Recent elimination of export taxes on rice (1986) and reduction of export taxes on rubber (1988) has reduced direct taxation of agriculture substantially. Average effective rates of protection of industrial and consumer products, however, have remained about the same in the last few years -- consumer products, for example, currently receive six times the average protection of primary products and about the same as agro-processing. As a result, the policy bias against rural areas has been reduced but not eliminated. Indirect taxation via trade protection and artificially higher prices for manufactured goods remains. Thailand's trade protection (with effective rates of protection averaging about 40 percent, see World Bank 1989) appears broadly similar to current regimes in Indonesia and Philippines, and higher than those in Korea and Malaysia. While one might argue that average effective tariff rates are high, they do not appear high enough to cause an alarming bias against rural incomes.

4.1.3 Policy Bias and the Spatial Pattern of Industrialization

Public policies need not be explicitly spatial to have major effects on the location of industry. Where "implicit" spatial policies

go unrecognized, their impact can create barriers to decentralized industrial growth. Are there any major "implicit" or explicit policy biases inhibiting a more dispersed pattern of industrial location in Thailand? We are able to identify very few with confidence.

4.1.3.1 Government Authority and Government Services

As we noted above, there is an inevitable bias created by Thailand's unitary political structure. Bangkok will always derive some advantage from being the sole seat of government and political power. The more interventionist the policy framework, the greater this advantage will be. Bringing more government services to the regions can partially offset this tendency and therefore should be encouraged. BOI promotion and programs for exporters, like duty drawbacks, export financing and market information services, should be made widely available.

Increasing the decentralization of government authority could also help. From the point of view of many industrialists, being located near to Bangkok is crucial. As noted elsewhere, many large corporations located in the provinces maintain a " government affairs officer" in the capital to handle all the necessary government-related contacts and lobby for favorable decisions on applications for various licenses and permits that are required. While investors in regional areas can obtain most licenses or permits through provincial offices, the final decision generally rests with the head office in Bangkok. The major licenses and permits and the decision-making authority are as follows:

(1) License for Construction of Building. An application must be submitted to the District (Amphoe) Office or the Provincial Industrial Office (PIO), which forwards it to the Provincial Public Works Office for consideration. However, the technical appraisal tends to be carried out at the Public Works Department in Bangkok. Only in certain provinces does the Provincial Public Works Office have the authority to make the final decision.

(2) Factory License. Applications for establishing, expanding and operating factories can be submitted to the PIO, but most decisions are made by the Industrial Works Department in Bangkok. The PIO is authorized to approve only certain types of factories designated by the Industrial Works Department, generally small factories with machinery of less than 12 horsepower. However, the PIO does approve renewals of factory licenses, which are required every three years.

(3) Board of Investment (BOI) Promotion. Applications for promotional privileges can be submitted to the three regional offices of the BOI (in Surat Thani, Nakhon Ratchasima and Chiang Mai), but final approval is issued by the head office in Bangkok. Most applicants have to meet project analysts in Bangkok to discuss details of their projects and negotiate various benefits at each stage of the promotion process. Even after the company receives promotional privileges, privileges such as tax exemptions on imported machinery and raw materials, visas and work permits must processed by the BOI's head office in Bangkok.

(4) Work Permits. Applications for work permits for foreigners can be submitted at the Provincial Labor Office (PLO), which will send them to the Labor Department in Bangkok for approval. The PLO does have the authority to renew work permits.

(5) Other Licenses. Licenses to undertake specific business activities must be obtained from various government agencies. Examples are licenses to: produce food, drugs and cosmetics, issued by the Food and Drug Administration, Department of Agriculture or Industrial Works Department; manufacture wooden furniture (Forestry Department) produce animal feed (Department of Livestock Development); and operate a hotel (Royal Thai Police Department). Applications for all of these can be submitted to the PIO, but approvals are issued by the relevant authorities in Bangkok.

(6) Customs clearance. Centralized customs procedures and the need to make "unofficial payments" to expedite clearance of shipments create another need to be present in Bangkok or to hire someone to be there. A factory manager visited in the industrial estate at Lamphun cited the presence of a customs officer in the estate's export processing zone as a major benefit of locating in the estate.

The existence in Thailand of a highly centralized form of government base almost entirely in Bangkok doubtless contributes enormously to the primacy of the capital city. As mentioned above, nearly all important policy decisions are made in Bangkok, and the vast majority of implementing agencies have their headquarters in the Bangkok area. The provincial governments are basically extensions of the central government. Governors are officials of the Ministry of Interior appointed for terms of four years, after which they are moved to another province or back to the central office. Local governments generally have more autonomy than provincial governments, but the scope of their authority is severely constrained. They are permitted to collect only limited types of taxes (see Chesada 1990, Section 4.1 and Table 4.1) and are seldom granted the authority to set tax rates. Local governments continue to rely heavily on central government subsidies, and their expenditure levels are very low compared with those of the central government.

In sum, the centralized nature of the political system increases transaction costs for industrialists operating outside Bangkok. If more authority were to be provided to the provincial offices, even while the head office remained in Bangkok, these costs would be reduced and the attractiveness of regional locations enhanced.

4.1.3.2 The Financial System

Since biases in the financial system have frequently been cited as a major constraint to provincial industrialization, this section begins with a discussion of the nature of the banking system and the inevitable resulting bias. Some lessons about financial market interventions are

drawn from the comparative experience of other countries before dealing with the situation in Thailand.

It is a critical fact that banks do not see themselves as auctioneers, offering loans to the highest bidders, but rather as screening and monitoring institutions. This implies that when banks lack perfect information about the creditworthiness of borrowers, interest rates do not play the simple allocative role ascribed by microeconomic theory. As a result, market mechanisms may fail to exert equilibrating forces in the credit market. The resulting credit market equilibrium can then be characterized by discrimination against small and rural "information intensive" borrowers and credit rationing.

Thus, even with fully flexible interest rates, an inevitable bias of bank lending may exist between urban and rural areas. "Information-intensive" borrowers will often be rationed out of formal credit markets even though they have high return projects. Many rural borrowers, and almost all small borrowers, fall into this category. Accordingly, this information-intensive segment of the credit market is largely serviced by informal lenders. Such lenders operate much more efficiently in this segment of the credit market than do formal lenders and, unless government programs can overcome the high costs and risks of dealing with information-intensive borrowers, the situation is best left as it is. Many government-directed credit programs that did not incorporate this lesson have failed as a result.

Another lesson learned in many developing countries is that restrictions on loan contracts (such as interest rate ceilings and collateral limit) and selective credit controls (such as fixed credit targets) do not effectively channel additional financial resources to the intended recipients. Interest rate ceilings simply lead banks to increase discriminatory lending practices and credit rationing, thus further disadvantaging information-intensive borrowers. Selective credit controls that aim to force banks to deal with information-intensive segments of the market are generally ineffective. Since, as noted earlier, financial resources are fungible between uses it is very difficult to monitor the final uses of targeted credit and informal

lenders are adept at reallocating financial resources away from the activities targeted by the government to other, higher return activities. In the end, the substantial rents associated with such credit market interventions accrue to a small number of privileged groups who are able to obtain access to formal financial institutions. If the government's real concern is with income inequality, credit controls and subsidies are clearly no remedy.

In the Thai context, one credit policy which has often been cited as being biased against provincial industries is the Bank of Thailand loan interest rate ceiling, which currently stands at 16.5%, recently increased from 15% as part of an anti-inflation strategy. As mentioned above, this ceiling rate constrains the margin that banks can charge to lenders and can be expected to reduce bank lending to clients with more risky projects or who are more expensive to service. These risky and high-cost clients are more likely to be located in the provinces than in Bangkok, if only because the banks have less experience in lending to firms outside the capital. However, as shown previously, Bangkok itself contains a large number of small or high-technology companies which may also be regarded as risky by the banks. Although it would be desirable to remove the ceiling rate completely as a way of improving the efficiency of resource allocation, it is not clear that such a move would benefit firms in the provincial towns more than those in Bangkok and the inner ring.

It has also been claimed that the branch banking system tends to be less responsive to the needs of local communities than a unit system, such as exists in the United States (see Chesada, Section 5.1). All commercial bank head offices are located in Bangkok and the Bangkok area still accounts for a large percentage of branch offices (37%). The low authorization levels of the bank branches in provincial areas, combined with the fact that the local branch managers generally do not come from the same region and are, on average, of lower quality than those in the head office, probably explains part of the tendency for deposits mobilized outside Bangkok to flow into credit extension in Bangkok. But given the relative attractiveness and profitability of Bangkok, it is unlikely that a change to a unit banking system would have a significant

impact. Nor is it clear that these characteristics of the present banking system really constitute a substantial bias against the regional areas. The higher credit/deposit ratios of Bangkok vis-a-vis the regions often cited as evidence of bias may simply reflect rational decisions on the part of the banks and a socially desirable outcome in terms of an efficient allocation of credit to its most profitable uses. In other words, the evidence may only suggest that the banking system is performing its intended function of mediating between savers and investors.

4.1.3.3 Minimum Wage Rate Policy

The minimum wage was introduced in 1973 and extended to cover the entire country in 1974 (see Chesada, Table 6.1 for the historical evolution of minimum wage levels). The minimum wage levels for Bangkok and the inner ring have generally been higher than those in the main regional cities which, since 1981, have in turn exceeded those in the less developed regional areas. However, the differentials between Bangkok and other areas have been progressively narrowed in recent years. Currently, the minimum wage is 90 baht per day in Bangkok, Phuket and the inner ring; 84 baht in Ranong and Phangnga in the south; 79 baht in Chiang Mai, Nakhon Ratchasima, Saraburi and Chon Buri; and 74 baht in the remainder of the country. The minimum wage level is set by a tripartite committee composed of government officials, employee representatives and employer representatives under the ultimate authority of the Ministry of the Interior.

The effect of the minimum wage level on a firm's location decision would depend on the extent to which it is "binding." This depends on a combination of: (1) the level of the actual market wage; and (2) the ease with which the minimum wage legislation can be evaded. If the minimum wage is binding for all or even a sub-group of firms, then the effect of the policy will be to bias location choices in favor of the regions where the legislation is least binding. This will lead to a misallocation of resources and will limit the ability of the latter region to compete for manufacturing activities which, in the absence of

the minimum wage legislation, would have found it advantageous to locate in that region.

Most sources agree that the minimum wage level in Bangkok, the central region (including the inner and outer rings) and the south is not binding because it falls below the prevailing market wage. This is confirmed by the wage data presented in Table 8, which indicate that the minimum wage exceeds the market wage only in the north and northeast. Table 8 also shows that the gap between the two wage levels has risen significantly in these two regions as the minimum wage has risen faster than the market wage. The converse is true in Bangkok, the inner ring and the south, where the market wage has consistently gone up faster than the minimum wage. This implies that the minimum wage in these areas exerts no pressure on the market wage, while it may exert some pressure in the two poorer regions. Accordingly, the present minimum wage legislation artificially reduces the profitability of producing in the north and northeast.

The magnitude of this effect depends on the extent to which firms in the north and northeast can avoid paying the minimum wage. The mere fact that the average overall measured wage in the manufacturing sector in those regions is reported to be below the minimum wage indicates that many producers pay less than the minimum wage. This implies that methods of avoiding paying the minimum wage, or simply ignoring the legislation, are widespread. However, firm interviews in the north and northeast suggested that high-profile firms, such as large enterprises with BOI promotion or foreign ownership, are less able or willing to evade the minimum wage law.

One large labor-intensive electronics manufacturer in the north complained that the introduction of the minimum wage in the early years of his factory's operations compromised its profitability for several years and nearly resulted in the closure of the plant. It is this type of larger firm which is most likely to be discouraged by the minimum wage from locating in the lower-wage regions.

Table 8
Average Manufacturing Wages by Province and Sector (Baht per Month)

Sector		Municipal (1)	Non-Municipal (2)	Whole Region (3)	Minimum Wage * (4)	(2)/(1)	(3)/(4)
Bangkok	1981	1,787	n.a.	1,787	1,404	n.a	1.27
	1987	2,787	n.a.	2,787	1,898	n.a	1.47
Comp. to BKK	1981	1.00	n.a.	1.00	1.00		
	1987	1.00	n.a.	1.00	1.00		
Annual Growth		7.7%	n.a.	7.7%	5.2%		
Inner Ring	1981	1,509	1,607	1,598	1,404	1.07	1.14
	1987	1,986	2,206	2,190	1,898	1.11	1.15
Comp. to BKK	1981	0.84	0.90	0.89	1.00		
	1987	0.71	0.79	0.79	1.00		
Annual Growth		4.7%	5.4%	5.4%	5.2%		
Outer Ring	1981	1,750	1,362	1,442	1,222	0.78	1.18
	1987	1,797	1,666	1,691	1,664	0.93	1.02
Comp. to BKK	1981	0.98	0.76	0.81	0.87		
	1987	0.64	0.60	0.61	0.88		
Annual Growth		0.4%	3.4%	2.7%	5.3%		
Other Central	1981	1,425	1,248	1,281	1,222	0.88	1.05
	1987	2,108	1,480	1,647	1,586	0.70	1.04
Comp. to BKK	1981	0.80	0.70	0.72	0.87		
	1987	0.76	0.53	0.59	0.84		
Annual Growth		6.7%	2.9%	4.3%	4.4%		
North	1981	1,121	1,070	1,083	1,144	0.95	0.95
	1987	1,687	1,215	1,310	1,664	0.72	0.79
Comp. to BKK	1981	0.63	0.60	0.61	0.81		
	1987	0.61	0.44	0.47	0.88		
Annual Growth		7.1%	2.1%	3.2%	6.4%		
Northeast	1981	1,047	1,073	1,068	1,144	1.02	0.93
	1987	1,450	1,150	1,199	1,664	0.79	0.72
Comp. to BKK	1981	0.59	0.60	0.60	0.81		
	1987	0.52	0.41	0.43	0.88		
Annual Growth		5.6%	1.2%	1.9%	6.4%		
South	1981	1,371	1,382	1,378	1,222	1.01	1.13
	1987	1,802	2,016	1,975	1,664	1.12	1.19
Comp. to BKK	1981	0.77	0.77	0.77	0.87		
	1987	0.65	0.72	0.71	0.88		
Annual Growth		4.7%	6.5%	6.2%	5.3%		
Kingdom	1981	1,729	1,400	1,542	n.a.	0.81	n.a
	1987	2,558	1,790	2,127	n.a.	0.70	n.a
Comp. to BKK	1981	0.97	0.78	0.86	n.a.		
	1987	0.92	0.64	0.76	n.a.		
Annual Growth		6.7%	4.2%	5.5%	n.a.		

Note: * The minimum wage assumes 26 working days per month
Source: National Statistical Office, Labor Force Survey - Round 3

A standard conclusion in economic theory is that any successful attempt to fix a minimum real wage above what would have been established in a competitive market leads to underemployment or misallocation of resources. Because minimum wage laws are aimed at markets for the lowest paid, least skilled workers, they presumably have adverse consequences for the poorest employees. Imposing restrictions on the ability of the poor to exchange their labor on the most advantageous terms can force these workers into lower-paying activities in sectors beyond the reach of any enforceable labor laws.

Thus, to the extent that minimum wage standards are set at levels as high as in the North and Northeast and are effectively enforced, they can: (1) protect Bangkok as an industrial location by reducing the low-wage advantage of outlying regions; (2) distort the efficient workings of labor markets more generally; and (3) adversely affect the alleviation of poverty. Moreover, if minimum wage laws cannot be generally well enforces, there could be negative effects associated with arbitrary enforcement, such as promotion of illegality and the possibility of corruption.

In short, it is important that minimum wage laws be framed with more careful attention to the likely impacts on the location of industry, the workings of the Thai labor market and the earnings prospects of poor, low-skilled workers. In particular, minimum wage standards should not be mistaken for a means to raise general real wage levels or to guarantee minimum living standards for the whole economy. Rather, the primary rationale of such legislation is in providing protection for the real wages of poor workers in imperfect labor markets, where employers can coerce workers to accept lower than prevailing wages or workers lack sufficient wage information. In this context, minimum wage laws should only be considered as one limited instrument for achieving more efficient labor markets.

4.1.3.4 Property Taxation

Property taxation is another area of likely bias. There are two types of property tax: the Building and Land Tax and the Local

Development Tax. Both are collected by local municipalities to be used for local development purposes.

The Building and Land Tax is levied annually on owners of buildings and land at 12.5% of the assessed rental value of the property. Owner-occupied and vacant houses, as well as government properties, are exempt from the tax. For premises containing tools and machinery for manufacturing, tax is levied on only one-third of the rental value.

The Local Development Tax is levied annually on land owners, based on appraised land values which are updated every four years. Land which is subject to the Building and Land Tax is exempt from the Local Development Tax, as are government-owned lands. The tax rates per rai vary from 50 satang for land valued at less than 200 baht per rai (i.e., at least 0.25%) to 70 baht for land valued in the range of 25,000 to 30,000 baht (i.e., from 0.28% to 0.23%). Land valued at more than 30,000 baht is taxed at 70 baht for the first 30,000 and 25 baht for each additional 10,000 baht of land value (i.e., a marginal tax of 0.25%). The ad valorem rates increase to a maximum of 0.55% for land valued at more than 10,000 baht per rai.

Land used for biennial crop farming is taxed at half the full rate unless used by the owners himself, in which case the tax rate cannot exceed 5 baht per rai. Unused land is taxed at double the full rate. The only spatial differences in the tax (independent of land price differences) is found in the partial tax exemptions which are granted to owners who use land themselves for living, animal raising and farming: for land outside municipalities or sanitary districts, the maximum deduction is five rais; for land inside Tambon municipalities, the maximum deduction is one rai; for land in Pattaya and municipalities other than Tambon ones, the maximum deduction is 1/4 rai; and for land in Bangkok, the maximum deduction is 1/4 rai in densely populated areas, one rai in moderately populated areas and five rai in rural areas. No tax exemptions are granted for land used for industrial purposes in any area.

This property tax structure has remained essentially unchanged for many years. As shown above, the Local Development Tax is progressive in ad valorem terms for lower-valued property but regressive with respect to total value for land assessed at more than 10,000 baht per rai. This means that those possessing very valuable land, such as that in the Bangkok area, pay a lower tax rate than those whose land is less valuable. In addition, property tax rates are fixed nationally by law, providing little flexibility for municipalities to adjust the tax depending on their revenue needs. The World Bank (1980) recommended an adjustment of the rate structure and an increase in tax rates, providing for periodic adjustments and for variations among local authorities in response to need and revenue potential. This transfer of responsibility for setting rates to the municipalities was seen by the World Bank as part of a beneficial decentralization process. Significant scope was also seen for improvement in the valuation procedures, as land and property are often substantially undervalued, frequently based on the owner's own valuation. Since property taxes are a major source of revenue for local administrations, more accurate evaluations would raise local government revenues and thus contribute to the decentralization of government.

Another weakness of the present property tax system is its inability to cope with the increasing externalities associated with pollution, congestion and land subsidence in Bangkok, and to a lesser extent in some of the regional cities. Firms located in crowded parts of Bangkok contribute significantly to the social costs of congestion (for which they are not directly charged) and place heavy demands on social and economic infrastructure (for which they are often inadequately charged). If these frequently significant externalities were adequately reflected in some form of property taxation (as close to the source of the externality as possible), the contribution of these firms to the government purse would be more in line with their use of public services (including those required to address congestion and pollution) and the attractiveness of locations outside the urban areas would be enhanced.

It should be added that another feature of the present property tax system is that it does not tax land speculation to any significant degree. The imposition of a higher property tax will encourage the more efficient use of land in the Bangkok area and will discourage pure land speculation. However, to the extent that the real value of the land will continue to increase, it is not expected to reduce the overall price levels of land to any great extent.

4.1.3.5 Other Forms of Taxation

Studies in many countries suggest that one effect of the trade tax regime is to induce heavily protected industries to locate in large urban centers, where they can satisfy their exceptional need for imports, sophisticated factors of production and access to government officials. This locational pattern implies that industrial value-added of a major metropolis like Bangkok, under high effective protection, will be boosted by artificial inducements. Elsewhere, in secondary cities and towns away from ports and government officials, value-added will be underrepresented. As noted earlier, such locational biases have long-term developmental effects, which encourage additional growth over and above that induced by the original policy distortion. In short, the trade regime probably has helped to reinforce Bangkok's primary. Trade liberalization, decentralization of government authority and investment in regional infrastructure should help production to restructure itself spatially over the long-term.

Other forms of taxation that may be biased against provincial areas include income taxes and business taxes. While all these taxes are imposed equally in all areas of the country, differences in their incidence on various activities may provide the basis for a bias against rural areas.

The corporate income tax can be said to be biased against small firms, which may not be able to obtain the exemptions offered by the BOI and are unlikely to qualify for listing on the stock exchange, which reduces the tax rate by five percentage points. On the other hand, small and provincial industries are more likely to be able to evade

taxes than large, Bangkok-based firms. The net effect is unclear, the differential is probably in favor of provincial areas.

The business tax, a cascading tax applied to all transactions between economic agents, has the well-documented effect of discouraging sub-contracting (which would generally be with smaller firms) and encouraging economically inefficient vertical integration. These flaws have been addressed to some extent by the imposition of generally lower rates on intermediate products than on final goods. The shift to a value-added tax (VAT) is expected to rectify the disincentive to sub-contract, but it will probably also make it harder for small firms to evade the tax. The biases of the business tax appear to depend on the size of a firm, rather than its location; Bangkok contains many small firms. As with the income tax, it is probable that regional firms can more easily evade the tax than can Bangkok firms.

4.1.3.6 Allocation of Economic and Social Infrastructure

A detailed examination of the allocation of government resources from the central to the local governments was not possible, but Chesada (1990) did evaluate the relationship between the allocation of public investment and the level of industrialization (share of manufacturing value added in GRP) through a regression model. Public investment levels in the various regions were measured through proxies such as the average value added generated from electricity and water per head, and cumulative investment in roads and irrigation facilities. Other independent variables included average per capita income, average population density, distance from Bangkok, and average credit to deposit ratios of commercial banks. The road, irrigation, and electricity and water variables were significant in most of the equations estimated, suggesting that such public investments may be important in stimulating industrialization.

Some indicators of economic infrastructure are presented in Table 9. While it is not easy to interpret these data, it is apparent that the major differences between Bangkok and the outer areas lie in the areas of water and telecommunications. The water supply figures clearly

Table 9
Economic Infrastructure Indicators

Zone	Electrification Status (%) * (1986)		Telephone Lines per 100 People (December, 1988)		Road Investment (1985)	
	Tambon	Village	Capacity	In Use	Area (baht/rai)	Population (baht/head)
Bangkok	n.a.	n.a.	16.53	12.04	1,481	255,163
Inner Ring	100.0	99.6	2.83	2.13	575	940,737
Outer Ring	98.7	93.6	1.71	1.22	129	778,566
Other Central	97.4	88.5	1.05	0.84	108	859,631
North	93.0	75.6	1.12	0.76	89	887,906
Northeast	97.1	65.0	0.52	0.36	86	479,468
South	88.1	65.9	1.27	0.96	117	778,202
Whole Kingdom	95.5	74.0	2.66	1.93	108	651,449

Note: * No data from Bangkok, Nontaburi, and Samut Prakan.
Sources: Respective State Enterprises

demonstrate the much larger availability of water in Bangkok (discussed above) than in other areas, and especially in the northeast. Telephone capacity per capita in the Bangkok Metropolis is also an order of magnitude above that in the other areas, with the northeast again the lowest.

Electrification is complete at the district (amphoe) level in all areas of the country and is very high at the sub-district (tambon), although somewhat lower in the south than in other regions. Although the electrification rate declines slightly as one moves away from Bangkok, this does not seem to be a major bias. Field interviews confirmed that access to electricity was not generally seen as a major problem, but variability in the quality of the electricity supply does cause problems for activities requiring a regular and stable power supply. However, this problem is shared by Bangkok as well as the regions.

Investment in roads presents a mixed picture. Although the volume of road investment in Bangkok is the highest in the Kingdom when

measured in terms of baht per rai, it is the lowest when measured in terms of baht per person. It is frequently argued that the congestion in Bangkok results primarily from low investment in roads. It may be that investment in roads is biased against the capital and that more attention to improving the city's infrastructure would improve the environment for the development of small and medium enterprises in Bangkok.

Public utility pricing: electricity tariffs are now equalized across the country, while water rates remain somewhat higher in the provincial areas (see Chesada, Tables 4.10 and 4.15). However, it is far from clear that uniform pricing represents the absence of bias. If the cost of producing electricity in the rural areas is higher than in the Bangkok area, then uniform policy involves a subsidy to the rural areas.

In the case of social infrastructure, although the amounts of service offered are relatively uniform across regions the quality of schooling and health care available in the provincial areas is much lower than that in Bangkok. These services are supplied by highly centralized government bodies, which have little incentive or scope to innovate and the services more appropriate for local areas, or to raise funds to increase the quantity or quality of services offered in particular regions.

A more general observation on overall expenditures on infrastructure is that such investments as a share of GDP have been falling over the past decade or so (World Bank, 1989). This is particularly true for roads and electricity, and is worrying since demands for these services generally increase by more than the growth of the economy. Recent high growth rates of GDP and the accompanying demands for infrastructure services are likely to increase the congestion and shortages that have become evident in recent years unless overall infrastructure expenditures are significantly increased. Such shortages and congestion will affect industrial growth in all areas of the country.

4.2 DECENTRALIZATION AND DECONCENTRATION POLICIES

We now turn to a review of the main policies and measures of the Thai government that impact on the location choices of private manufacturing firms. In this review, we take account of the points made earlier about the reasons for Bangkok's primacy, location theory, the idea of policy bias and the experiences of other countries.

The section begins with a discussion of the efficacy and costs of spatial industrial policies, drawing heavily on comparative work carried out in Korea and Columbia. The general approach of the Thai government to spatial policy outlined in the recent five-year plans as well as policy-oriented initiatives related to rural industrialization are then reviewed. The section proceeds to evaluate government interventions explicitly designed to encourage industrial activities outside Bangkok and the inner ring. These interventions include both those designed to assist or promote traditional regional industries and those designed to encourage existing centrally-based firms to relocate or new firms to locate in the regions.

4.2.1 Industrial Deconcentration Policies: Efficacy and Costs

Urban deconcentration and decentralization often proceed too slowly to satisfy government officials. Most countries make some effort to alter the spatial pattern of industrial development to achieve policy goals. The Korean government, for example, implemented a wide variety of measures to influence the location of industry. The Koreans tried mandates, prohibitions, tax incentives, grants, land price reductions, public infrastructure investments and wage bill subsidies in their efforts to alter industry's spatial distribution. A survey of 141 firms that had moved within the Seoul region found eleven different government programs that had influenced the firms' location decisions.

A World Bank study of industrial location policy in Korea found that the collective impact of Korea's policies on the spatial

distribution of industrial activity was small and that the most effective policies were very expensive. These findings are not surprising, given what we know about urban dynamics from studies of Seoul and other cities.

Since firms shun long moves, it takes large subsidies to induce them to move long distances. Furthermore, many subsidy recipients would have moved without receiving large subsidies. Despite many generous programs available in Korea, only 12% of the firms surveyed said they moved in response to government programs; the chief reason for moving was the firm's operational needs. Many firms which moved for operational reasons would have moved in the absence of subsidies, but they nonetheless collected subsidies from the government. Much of the money spent by the Korean government on industrial location subsidies went to firms that would have moved anyway.

The only policies used in Korea that did not burden the government with high costs were mandates to some firms to move out of central Seoul. However, this policy proved to be a very blunt instrument. The firms affected by this so-called "industrial distribution law" were initially identified by location in specified areas and by standard industrial classification codes. The law proved too broad in its definitions and met with substantial resistance from industrialists; it soon became evident that many firms initially covered by the law could not survive in other locations. Efforts to redefine the law have only underlined the difficulty and inefficiency of using legislation to identify firms for relocation. Anecdotal evidence suggests that many Korean firms affected by the industrial distribution law suffered large economic losses and sometimes disappeared altogether. In the end, the policies incurred high economic costs, even though the direct budgetary consequences were small.

Mandates to move were a late innovation in Korea's efforts to spur urban decentralization and deconcentration. The earliest efforts were public infrastructure investments concentrated in industrial estates. These estates, started in the mid-1960s, generally failed. Despite the extensive infrastructure provided by the government in the estates, and

despite relatively low land prices for sites within the estates, 80% of the 1,200 sites offered around the country remained unused and nearly 50% remained unsold.

The poor record of local industrial estates led the government to take a more direct role in industrial estate development. In the early 1970s the government began making large investments in industrial estates for heavy industries. Like the local estates, the heavy industrial estates have had a mixed record, but on balance they have been very costly. The least successful estates were those built by firms forcibly relocated by the government. The firms in those locations generally report a marked reduction in their operational efficiency, and relatively few firms voluntarily purchased space in these developments. The most successful estates catered to new firms, rather than relocating firms. For example, the successful local and heavy industry estates at Gumi, Korea both cater primarily to new firms. Successful industrial estates in Korea were those located where firms were already demanding infrastructure; the Koreans clearly learned that they could not push on a string.

Perhaps the most successful industrial location policies used in Korea were the "green space" programs that banned all firms from locating in certain open spaces. Because the spaces were, for the most part, unoccupied when the law was promulgated, the green space program did not encounter the resistance that the relocation mandates encountered. These programs clearly furthered urban deconcentration; however, they were too limited to have much effect on urban decentralization. Exclusionary zoning so extensive that it would drive firms to locate in outlying provinces would have probably imposed large inefficiencies on industrial production.

Throughout the 1970s the Korean government offered financial incentives to relocating firms. However, most of these programs, such as corporate tax reductions and low property taxes, offered small subsidies relative to the firms' relocation costs. Indeed, in the survey of 141 Seoul firms only one subsidy mechanism was mentioned by as many as 50 firms as being important to them: loan guarantees; and only

one other subsidy mechanism was so mentioned by as many as 15 firms: land price subsidies.

How deep must a subsidy be to catch the eye of a substantial number of movers? In Korea, very deep indeed. The Korean loan guarantee program that caught the eye of many movers was, in essence, an interest rate subsidy. The average annual value of the Korean loan program to a typical firm has been estimated to be at least 17% of the sum of the firm's capital, labor and land costs, and perhaps as high as 35-40%.

How deep can a subsidy be and not catch the eyes of many firms? Quite deep. The typical Korean firm saved annually approximately 10% of total capital, land and labor costs if it received a land price subsidy, yet only 15 of 141 movers cited land price subsidies as important (another 32 called them "somewhat important").

The subsidy required to induce a firm to change location approximates the economic cost of relocating the firm. The firm will move once the subsidy balances the new site's profit disadvantage relative to profits at the firm's favored location. However, this "locational disadvantage" of the target site in comparison with the firm's favored site usually understates the economic cost of a subsidy program. Most subsidy programs alter not only a firm's location but also the factor prices that firms face. Such distortions in the prices of land, capital or labor may induce firms to pick inefficient combinations of those inputs when producing their output. For example, a World Bank study estimates that these "production distortions" increased the economic cost of the Korean loan program by 25 to 50%!

The benefits that the government foresees from moving a firm to a preferred location must be balanced against the cost of the move. The improvements in regional equity, political stability or the urban environment must be weighed against both the economic costs firms incur operating in sub-optimal locations and the economic costs of distorted production decisions.

The costs are high. The firms in the Seoul sample are not long distance movers, yet they are relatively unimpressed by the land price subsidies that cost annually perhaps 15% of a firm's total capital, land and labor costs. Long distance movers would generally demand greater subsidies than did the local movers, whose loan program subsidies were already quite costly, with costs perhaps equal to 60% of a firm's total capital, land and labor outlays! Clearly, the Korean experience tells us that inducing firms to relocate by offering them financial incentives is a very expensive undertaking.

4.2.2 Provincial Industries and Development Planning in Thailand

4.2.2.1 Spatial Goals in the Development Plans

Since 1961, the major policy goals of the Thai government have been spelled out in a series of five-year plans; the current (sixth) plan runs from 1987 to 1991. The first two plans aimed to promote industries that would substitute for imports or utilize domestic raw materials, and to develop the nation's infrastructural base to support accelerated industrialization. These plans stressed the importance of the private sector. Except for the infrastructure development program (including industrial estates), which extended to the rural areas, no special mention was made of urban or regional development strategies.

It was the third plan (1972-76) that first made explicit mention of industrial dispersion (see Annex Figure 1 for a summary of the spatial aspects of the third to the sixth national development plans). It emphasized the development of small and medium industries in non-metropolitan areas and the extension of special privileges to regional industrialization (including loans from IFCT and promotion for public utilities). It also stated that plans should be prepared for the creation of regional growth centers in the north and northeast.

The fourth plan (1977-81) made the industrial decentralization measures more explicit and identified a number of measures to encourage

industrial enterprises to locate outside Bangkok and the inner ring. These included the provision of increased privileges to firms locating outside Bangkok and the inner ring and reduced privileges to those within, the reduction of transport and electricity costs, and the provision of financial assistance via IFCT and SIFO. With regard to urban strategies, the fourth plan introduced for the first time a "definite decentralized urbanization strategy": to address the perceived low levels of regional urban centers, the concentrated nature of urbanization and the congestion associated with the primacy of the capital area, and the rising rate of rural-urban migration. The plan advocated a growth pole strategy to develop a number of regional urban growth centers and favored limiting growth in Bangkok to an "appropriate level" (a concept which was not clearly specified).

The fifth (1982-86) and sixth (1987-91) plans were less precise than the previous two plans with respect to the measures to be taken with regard to provincial industrialization. Both plans targeted provincial and small-scale industries for special promotion and emphasized that the role of the government would be to guide rather than to regulate. The fifth plan mentioned the Eastern Seaboard regional development program for the first time, involving the provision of all basic infrastructure needed to support an industrial complex in that area. Both plans hint at similar development exercises in other "specific areas" outside Bangkok. The regional city program continued with the addition of new generations of urban growth centers covering six more cities in the second generation (fifth plan) and 13 more in the third generation (sixth plan).

A significant new departure in the sixth plan concerns the role of Bangkok and the inner ring. Measures to control the growth of the capital area are replaced by measures to increase the efficiency and orderliness of growth (see Ashakul and Ashakul, 1988). This is to be achieved by improving cost-recovery systems, strengthening the management of state enterprises and better infrastructure management.

4.2.2.2 The Provincial Industry Development Committee

Increasingly concerned with the increased concentration of industrial activity in Bangkok and the inner ring and the apparent failure of the policy initiatives outlined above, the cabinet formed the Provincial Industry Development Committee in October, 1988 to serve as a high-level body with the authority to form policies and follow up on provincial industry development. The Prime Minister is the chairman of the Committee, which comprises eight other ministers, the heads of the NESDB and the BOI, and the presidents of several major private sector federations and associations.

The major objective of the Committee is to accelerate the development of provincial industries which will generate employment and utilize local agricultural raw materials in the provinces. Covering all factory industries outside Bangkok and the inner ring, the Committee aims to ensure that the share of newly registered activities in the 67 provinces outside Bangkok increases from 46% in 1987 to 59% in 1991. The stated strategies of the committee combine most of the policy measures contained in the development plans. They range from facilitating the development of needed basic infrastructure and providing specific incentives to firms locating outside Bangkok and Samut Prakan to searching for markets for provincial industries and streamlining bureaucratic regulations and procedures that inhibit regional industrialization.

Despite these comprehensive targets and strategies, the committee's actions in practice appear to have been weak. Following its only meeting on March 2, 1989, the committee and its sub-committees have undertaken very few concrete measures. Involved agencies were provided with broad guidelines and a number of resolutions calling for specific agencies to take responsibility for various tasks were passed. However, the committee's second meeting has yet to be held and little, if any, real follow-up has taken place.

4.2.2.3 Joint Public-Private Consultative Committee (JPPCC)

In the early stages of Thailand's industrial development, the private sector had little influence in policy formulation. There were no formal links between private sector institutions and the government. In 1976, a joint committee was formed between the Board of Trade (BOT) and the Federation of Thai Industries (FTI). This committee was expanded to include the Thai Bankers' Association (TBA) in 1977 and renamed the Joint Standing Committee on Trade, Industry and Banking (JSCTIB). It served as a purely private sector institution which called on the government to help overcome obstacles hindering their business activities (Chesada 1990, Section 3.5).

In 1981, a major step in public/private sector cooperation was taken with the formation of the Joint Public-Private Consultative Committee (JPPCC). The JPPCC is chaired by the Prime Minister and includes the economic ministers and representatives from the Thai Chamber of Commerce (TCC), the FTI and the TBA. The NESDB serves as the secretariat to the committee. The broad functions of the JPPCC are: to review problems and obstacles faced by the public and private sectors and to coordinate activities to speedily solve them; to coordinate the formulation of plans and cooperative projects between the public and private sectors; and to promote the involvement of private sector institutions in achieving the economic development targets of the country.

In 1983, the JPPCC initiated a policy to expand its coverage to provincial areas. The Ministry of Interior was assigned to promote and assist the establishment of Provincial JPPCCs (PJPPCC). In 1987, after a JPPCC resolution calling on the Ministry of Interior to be more active in coordinating issues with the PJPPCCs, the Ministry assigned responsibility for PJPPCC affairs to the Office of Policy and Planning (OPP).

The JPPCC has contributed to the development of a mutual understanding between the public and private sectors and has addressed a number of critical problems facing the private sector. However, it has

focused almost exclusively on solving problems, rather than on coordinating government agencies and formulating plans for cooperation. Many have seen it as a lobbying forum for big industrialists.

Similar comments have been made regarding the PJPPCCs. Although chaired by the governor of the province, with members including government officials in charge of social and economic development, and representatives of the private sector who come from the provincial chambers of commerce, the provincial branches of the FTI and representatives of provincial commercial banks, most PJPPCCs have not been very effective, either in solving problems or in coordinating the roles of the public and private sectors in provincial economic development. The rush to set up the PJPPCCs meant that most members are not clear about their functions and the Provincial Governor's Offices (PGOs) which act as secretariats of the PJPPCCs are severely understaffed, as is the OPP in the Ministry of Interior, which oversees the PJPPCCs.

4.2.2.4 Evaluation

Despite the recent initiatives to improve collaboration, both within the public sector and between the public and private sectors, regional development policy has not been implemented in a coordinated manner. Furthermore, although various government statements propose a number of concrete solutions to perceived problems, many of the problems are not well understood and the scope of government policies to solve the problems, has not been well analyzed.

4.3 AN EVALUATION OF EXISTING POLICIES AND PROGRAMS

This section evaluates the scope and effectiveness of institutions and policy instruments used by government with the express intent of encouraging regional development, either by providing services to address the perceived needs of regional industries or by providing incentives or other measures to encourage the decentralization or deconcentration of industries.

The major institutions which provide incentives and services to encourage the growth of traditional and new regional industries is presented in Annex Figure 2. The discussion of these institutions below follows the headings of the table: regional representation; information provision; technical assistance; management and marketing; and finance. Additional sections deal with the Board of Investment, Specific Area Developments, Industrial Estates, and Regional Cities.

4.3.1 Guidelines for Government Policy and Program Intervention

Based on the analysis thus far and experience in other countries, a number of basic guidelines and issues which should be kept in mind when formulating any policies or programs to encourage the growth of regional industries.

First, it is important to remember that the development of provincial industries has both political and economic aspects. In many cases, the former will dominate and the economist can only evaluate the costs to the policy maker of undertaking a politically motivated initiative and point out other possible alternatives that might achieve the same goals in a more cost effective manner.

Second, the provision of incentives should be performance based wherever possible. A good example of a performance-based incentive is export packing credit. In addition to providing finance to companies which have proved their worthiness by being able to compete in export markets, export packing credit programs offer little scope for discretion on the part of the implementing government officer.

Third, in order to provide effective support for progressive small and medium size firms, government programs should:

(1) focus on the interface between the enterprise and its external environment, and not so much on internal firm management practices;

(2) be staffed by specialized industry professionals with the business training necessary to diagnose what kind of specialized support is, or is not, required by the target firms;
(3) be incorported in program packages which offer one-stop access to the whole range of support services;
(4) have well-defined objectives and be evaluated in relation to these objectives, and not simply in terms of the number of firms serviced over a period of time;
(5) be client-centered, offering services for which users are willing and required to pay, in proportion to their size and profitability.

Last, any major infrastructure or other expenditures should be clearly demand rather than supply driven. It has been shown elsewhere that efforts to pull regional industries up by providing infrastructure facilities rarely work well (see the discussion below of a supply driven initiative with regard to the Norther Industrial Estate that failed). A corollary to this guideline is to involve private sector financing in major infrastructure as much as possible. In addition to reducing the drain on the public purse, this has the effect of ensuring that there is a real demand for the project in the productive sector.

4.3.2 Regional Representation

Except for the Provincial Industrial Offices (PIOs) and Provincial Chambers of Commerce (PCCs) which have recently been established in every province, the agencies listed in Annex Figure 2 have regional offices only in a few major cities. For example, the Board of Investment (BOI), the Industrial Economics and Planning Division (IEPD) under the Office of the Permanent Secretary of Industry and the Department of Export Promotion all have just three regional centers. The Department of Industrial Promotion (DIP) has five regional centers. The Rural Industry Information Services Center and the Small Industry Finance Office attach staff to the Regional Industrial Promotion Centers of the DIP. The Industrial Finance Corporation of Thailand (IFCT) and the Federation of Thai Industries (FTI) each have six regional branches, while the Institute of Skill Development (ISD) runs eight regional

institutes. Other institutions have no regional offices or staff and operate from Bangkok or through affiliated institutions.

The relatively small number of regional offices and the continued role of Bangkok as the main center of both public and private sector organizations reconfirms the centralized nature of the Thai government that was discussed earlier.

4.3.3 Information Provision

Several public and private agencies provide information to entrepreneurs in the regions. BOI regional offices and the Regional Industrial Economic Centers of the MOI provide information on investment opportunities and potential joint-venture partners. Various divisions under the DIP and IEPD offer information on technology, production techniques, marketing, management, finance and investment opportunities in specific industries. The DEP provides information on world markets, trade opportunities and potential exporters. The Thailand Industrial Standards Institute (TISI) provides information on national and international standardization. The PIOs provide facts on the status of provincial industries and related issues.

Among private organizations, the Thai Chamber of Commerce (TCC) supplies information on trading opportunities, names of Thai producers and market conditions in Thailand and abroad, while the Federation of Thai Industries (FTI) disseminates information on trade and industries.

There is much overlap in the information provided by these institutions. Little information is disseminated outside the capital and the main regional cities. Few efforts have been made to determine the actual information needs of provincial industries, and the information provided tends to be basic, unprocessed data of limited use to small firms in the regions. Most of the information-providing agencies do little to publicize their activities and remain virtually unknown in distant rural areas.

However, during field trips to the north and northeast, information provided by the DEP was frequently mentioned as useful in helping companies enter the export trade. It is perhaps in the area of information on markets and on the export standards of major trading partners that the government can play a substantial information dissemination role, especially for small and medium scale exporters.

4.3.4 Technical Assistance

The DIP is the major government agency providing technical services such as seminars, training, advisory services, R&D and product testing to firms in the regions. Several firms reported that while the services provided by the DIP's Regional Industrial Promotion Centers could be useful, frequently the so-called expert (either foreign or Thai) who was sent in did not have enough specific industry knowledge to be very meaningful.

TISI promotes the implementation of standards and private sector quality control through the certification system and accredits testing laboratories to meet the demand for testing services. The ISD provides a number of technical training courses designed to improve basic skill levels for workers who had no opportunity to attend traditional vocational training programs, including mobile courses in rural areas.

Private organizations include the Thai Business Initiative in Rural Development (TBIRD), which encourages corporations to train villagers in certain fields; the Institute for Management Education for Thailand Foundation (IMET), which arranges for transfer of production technology to Thai businessmen; the Small Industries Association, which promotes the product quality of members; and the FTI, which organizes seminars, training courses and factory visits for members.

In general, the technical and training services provided to regional industries are inadequate and not well tailored to specific needs. There is duplication of effort among the various DIP divisions and a lack of coordination, both between the divisions in the DIP and

among the other agencies which provide technical services in the regions. The lack of cooperation extends to the provision of formal vocational training provided by Vocational Institutes under the Ministry of Education. Decisions on the types of programs to be offered in provincial areas are generally made from Bangkok with little regard for the specific needs of the area concerned. The ISD appears to provide well-designed skill development programs that are in demand by the private sector, but their budget and geographic coverage are rather limited.

The training programs offered must be carried out with more careful cooperation between the government sector providers and the private sector users. The needs of the private sector must be explicitly incorporated into the training programs and the content of such programs must complement rather than substitute for basic primary and lower secondary school education. In particular, skill development and vocational training programs should increase the amount of practical, on-the-job training that is included as part of the program.

4.3.5 Management and Marketing

Various divisions of DIP, but mainly the TMDPC, provide management and marketing assistance to entrepreneurs. However, it is again the DEP with its marketing support to regional exporting industries that received the most favorable comment in firm interviews, especially in the north. The DEP arranges trade fairs both in the country and abroad, establishes commercial centers and provides training courses in the management of export activities. The PIOs organize training courses and seminars to develop entrepreneurial skills, although these were not reported by firms as being impressive. Lastly, several private organizations, especially TBIRD, IMET and the Foundation for Thailand Rural Reconstruction Movement, provide advisory services and training courses to improve marketing and managerial skills of provincial managers.

As with the other types of regional assistance, these efforts, with the exception of the DEP export marketing services, seem to be rather marginal and need significant reforms to be more effective.

4.3.6 Finance

The DIP provides credit to small enterprises in rural areas through the Office of the Revolving Fund for Cottage and Handicraft Industries and more importantly through the Small Industry Finance Office, which offers low-interest medium- and long-term loans to small-scale industries (manufacturing, services, handicrafts and cottage industries). SIFO has long had problems with regard to its loan activities which derive from a general lack of funds and the limiting influence of the Krung Thai Bank in its operations. The IFCT, a quasi-government institution, also provides long-term fixed-rate loans to industries and manages the Small Industry Credit Guarantee Fund, which guarantees long-term loans made to small-scale industries which have good prospects but lack the collateral to secure loans from conventional financial institutions.

The Bank of Thailand (BOT) provides a rediscount facility for loans to small-scale industries. It also implements the program which requires commercial banks to lend at least 6% of their previous year's total deposits to agro-industries and related engineering activities and a further 14% to agriculture and small-scale industries outside Bangkok and the inner ring.

As mentioned in Section 4.1.3 above, such targeted and subsidized credit programs are believed to miss their intended targets in many cases and wind up instead in the pockets of well-connected larger producers or financial middlemen. The available evidence suggests that this is the case in Thailand as well.

In order to address the financial needs of provincial towns and cities, efforts should be made to ensure that they have access to performance-based government programs such as export credit. Provincial

financial institutions should be permitted to adopt more innovative financial instruments with which to mobilize local funds for investment purposes. For small, indirect exporters, back-to-back domestic letters of credit would be beneficial as a means of providing them with working capital. Emphasis should be placed on attempting to improve the effectiveness of such instruments rather than imposing ineffective selective credit controls.

What about the idea of creating a specialized bank to provide credit to provincial businesses? Several issues need to be carefully considered before pursuing this option. First, specialized financial institutions may result in high costs of financial intermediation. When there exist many layers of financial intermediaries between savers and investors, the unit resource costs of each level contribute towards the total cost of intermediation.

Second, a specialized bank, supported by selective credit controls or preferential rediscount facilities as is often the case, may well intermediate inefficiently when dealing with "information-intensive" borrowers. It is difficult to allocate credit and subsidies efficiently and effectively, and this will be dependant on the institution's ability to operate in "information-intensive" environments. Formal credit institutions, particularly those in the government sector, do not have a comparative advantage in this area.

Last, specialized banks which reach down to the "information-intensive" segments of the credit market have been seen to work on a limited scale in some developing countries. These successful institutions, such as the Kupedes program in Indonesia, have been characterized by a number of factors. They tend to be very decentralized and to operate much like informal lenders, making only small loans at market interest rates and collateral requirements, intensively screening and monitoring borrowers, and penalizing borrowers that default on loans. They have also instituted a system of operating incentives that permits managers and loan officers to share in the bank's profits. Unless such characteristics can be ensured, any attempt

to establish a specialized credit institution for rural industry will likely fail.

4.3.7 Board of Investment

The BOI is the principal government agency responsible for promoting both foreign and domestic investment in Thailand through the provision of investment incentives and guarantees and through overseas investment promotion activities. The BOI's responsibility extends to all major economic sectors (see BOI, 1990 for a complete listing). Incentives provided include income-tax holidays, exemptions from import duties on raw materials, exemptions from or reduction of export duties and import bans or surcharges on competing imports. The spatial aspects of BOI incentive policies are summarized in Annex Figure 3.

The BOI gave no attention to industrial decentralization until the Third Plan period, when the government clearly stated its intention to encourage provincial industries. In response to this policy statement, a Revolutionary Decree issued in October 1972 provided special incentives (reductions of business tax on sales and of corporate income tax) for promoted firms located in designated Investment Promotion Zones (IPZs). In 1973 the BOI designated 72 districts in 21 provinces as IPZs. Be cause they covered such a wide area, it was difficult for the BOI to concentrate its promotion efforts on any particular region. Weaknesses in infrastructure facilities that were difficult for the government to address also made the policy hard to administer.

Special incentives for firms in IPZs were again incorporated into the Investment Promotion Act of 1977. This was followed with a revision of designated IPZs to four zones plus industrial estates in 1978. It can be seen from Annex Figure 3 that Zones 1 and 2 and industrial estates received slightly less incentives than Zones 3 and 4. However, the granting of tax exemptions on corporate income and machinery had no spatial element.

In 1983 the BOI announced new criteria for granting tax incentives. Although the definition of IPZs remained unchanged, the criteria for providing special incentives were modified. For the first time, location became a criterion in the granting of major tax incentives. The corporate income tax holiday would be extended for one year for projects located in industrial estates or outside Bangkok and five neighboring provinces. Moreover, projects located in Bangkok and Samut Prakan would receive no tax exemption on machinery unless at least 80% of their output were exported, and they would only receive a 50% reduction for expansion in the same compound. In 1985, the BOI revised the incentive structure to provide a more attractive package for projects locating in industrial estates, especially those in Chiang Mai and Lamphun.

A major change in BOI's spatial policy occurred in September, 1987, following a surge in the number of applications. The IPZs were expanded to include the 67 provinces outside Bangkok and the inner ring, and location became a major criterion in granting exemptions on corporate income tax and machinery. Projects located in Zone 1 (Bangkok and Samut Prakan, excluding industrial estates) receive the least benefits, while those located in Zone 3 (EPZs) receive the most. Now for the first time, projects located in Zone 1 receive no corporate tax holiday unless they meet export or employment targets. Tax reductions and exemptions on imported raw materials were also granted to projects located in Zone 3.

As the number of applications continued to rise and pressure from the cabinet to decentralize industry increased, the BOI further modified the criteria for granting tax incentives in early 1989. Zone 1 was expanded to include Bangkok and five neighboring provinces, while Zone 2 comprised ten provinces in the central region (the outer ring) and Zone 3 the 57 remaining provinces and the Laem Chabang Industrial Estate. Zone 1 continued to enjoy the fewest benefits and Zone 3 the most.

As Table 10 shows, Bangkok and the inner ring accounted for almost 80% of BOI-promoted projects from 1960-73. From 1974 to 1983, the share declined somewhat, with Bangkok in particular accounting for a lower share in the 1979-83 period. Following the introduction of locational

Table 10
BOI Promoted Firms by Province - Provincial Shares
(Percent of Total)

	1960-73	1974-78	1979-83	1984-86	1987	1988	1989	NoDate	Total
Number of Firms									
1. Bangkok	28.9	31.7	22.9	19.4	18.1	12.7	14.4	25.0	18.6
2. Inner Ring	48.6	36.9	39.8	36.3	54.0	32.0	31.2	37.5	37.8
3. Outer Ring	6.9	11.3	9.9	15.2	12.0	24.1	27.7	12.5	18.1
4. Other Central	3.0	2.0	4.9	7.8	5.1	9.5	7.7	0.0	6.7
5. North	5.3	7.0	5.7	5.3	2.2	3.2	6.2	0.0	4.7
6. Northeast	2.5	2.3	3.8	3.6	1.9	2.3	4.8	0.0	3.1
7. South	4.9	8.7	12.7	11.8	6.2	16.2	7.6	25.0	10.6
Unknown	0.0	0.0	0.3	0.7	0.5	0.1	0.3	0.0	0.3
BOI Zone 1 (1+2)	77.5	68.6	62.7	55.7	72.0	44.7	45.8	62.5	56.5
BOI Zone 2 (3)	6.9	11.3	9.9	15.2	12.0	24.1	27.7	12.5	18.1
BOI Zone 3 (4+5+6+7)	15.6	20.1	27.1	28.4	15.5	31.2	26.3	25.0	25.1
Whole Kingdom	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employment (Workers)									
1. Bangkok	32.7	30.1	25.6	28.8	13.2	14.1	16.2	3.1	20.8
2. Inner Ring	53.6	38.7	32.1	32.3	54.9	32.1	33.5	11.8	39.7
3. Outer Ring	7.6	11.5	11.6	15.9	15.9	31.9	26.9	0.9	20.2
4. Other Central	2.5	3.4	7.6	6.6	1.6	7.6	6.4	0.0	5.3
5. North	1.9	7.9	6.9	4.1	1.3	3.4	5.4	0.0	3.8
6. Northeast	0.3	1.3	2.8	2.4	2.5	1.9	4.3	0.0	2.3
7. South	1.4	7.3	11.8	9.6	5.7	8.9	7.1	84.1	7.1
Unknown	0.0	0.0	1.6	0.4	5.0	0.0	0.2	0.0	0.9
BOI Zone 1 (1+2)	86.3	68.7	57.7	61.1	68.1	46.2	49.8	15.0	60.4
BOI Zone 2 (3)	7.6	11.5	11.6	15.9	15.9	31.9	26.9	0.9	20.2
BOI Zone 3 (4+5+6+7)	6.1	19.8	29.1	22.6	11.0	21.9	23.2	84.1	18.5
Whole Kingdom	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Data compiled from the Board of Investment

criteria in 1983, the share of Bangkok and the inner ring declined further to just over 50%, while investment activity in the outer ring increased. Perhaps in anticipation of the change in the investment code in September, 1987, the number of projects receiving promotion in the inner ring shot up to 54%. Following the surge in inner ring investments in 1987, the share of Bangkok and the inner ring fell to 45% in 1988 and 1989, with the share of the outer ring increasing to levels much higher than previously.

BOI's attempts to promote the dispersion of industry have thus enjoyed apparent success only since the major incentive changes in 1987 and have succeeded only in shifting location choices to the areas around Bangkok (the outer ring), rather than to more distant regions. This outcome is consistent with the notion of deconcentration presented in this paper and may represent the most that one could expect the BOI to achieve. Regional investments continue to be dominated by resource-based industries such as rubber products in the south. Furthermore, the fact that BOI attempts to achieve several policy objectives at the same time compromises its effectiveness to some extent. Efforts to promote export projects through special dispensations have conflicted with locational goals.

In pursuit of its industrial deconcentration objective, the BOI set up regional offices in Nakhon Ratchasima (December, 1988), Surat Thani (June, 1989) and Chiang Mai (August, 1989). The regional offices advise local investors on BOI application procedures, conduct studies on local investment opportunities and organize seminars in which local businessmen discuss investment opportunities with outstanding businessmen from Bangkok. However, no real power is delegated to the regional offices, and all important decisions continue to be made in the head office.

4.3.8 Specific Area Developments

The most ambitious attempt of the government to promote infrastructure-led development of an area outside Bangkok has been the

initiative to take advantage of the natural gas deposits in the Gulf of Thailand and create a regional growth center southeast of Bangkok. The Eastern Seaboard Development Program involves the construction of major industrial complexes at Laem Chabang and Map Ta Phut, supported by comprehensive communications and utilities infrastructure as well as social facilities and new urban developments.

The Laem Chabang development will involve the construction of a deep sea port, along with a sizeable general industrial estate and an export processing zone. The types of activity designated for Laem Chabang are light, non-polluting, labor-intensive, export-oriented industries. The Map Ta Phut complex also involves construction of a deep sea port and industrial estate facilities, but it will serve primarily as the center for natural gas-related chemical and other heavy industries. A natural gas separation plant with a daily capacity to process 350 million cubic feet of natural gas into LPG/propane, ethane, natural gasoline and methane was completed in 1985 and an expansion project is presently underway to expand this capacity by a further 200 million cubic feet per day.

Petrochemical development is proceeding in the Eastern Seaboard area, with the so-called NPC-1 complex to produce a number of intermediates and processed products due to come on line this year. This will be followed by the NPC-2 complex, for which major investments have already been approved; they are expected to begin coming on stream in 1993. The Eastern Seaboard Development Program appears to have been quite successful, and numerous private companies are establishing facilities there. However, its success owes much to the upturn in the economy which occurred in 1987. It is unlikely that its large infrastructure investments would have been utilized so rapidly if the recovery had not taken place when it did. Furthermore, a number of serious problems are now becoming evident in the Eastern Seaboard area, notably shortages of skilled and semi-skilled labor in what is not a heavily populated area and low supplies of industrial water.

Following the perceived success of the Eastern Seaboard Development Program, the government recently began to consider the Southern Seaboard

Program, which will involve the construction of a land bridge joining the Gulf of Thailand and the Andaman Sea. Deep sea ports and industrial estate complexes will be built at Krabi and Khanom to create these "new gateways" to the Andaman Sea and the Gulf of Thailand respectively. The land bridge that will connect the two gateways will consist of a highway, a bridge and a crude oil pipeline. An industrial complex will be developed between the two ports just south of Surat Thani. The land bridge will cut 500 miles off the route for cargoes presently shipped through the crowded Strait of Malacca.

It remains to be seen whether this second infrastructure-led regional development program will achieve the success enjoyed by its predecessor, the Eastern Seaboard program. The Thai private sector has already expressed considerable support for the program and the numerous investment opportunities that will accompany it.

4.3.9 Industrial Estates

Another area in which the government has attempted to promote regional industrialization through the provision of infrastructure services is the construction of industrial estates. The responsibility for industrial estate construction and management lies with the Industrial Estate Authority of Thailand (IEAT). In the early years, all the industrial estates built by IEAT were located in the inner ring close to Bangkok.

IEAT's first (and unsuccessful) attempt to develop industry in the regions was the Northern Industrial Estate which was opened in 1983. At that time, economic growth was rather low and the inflow of foreign investment was not significant. As a result, the industrial estate was virtually unoccupied for a number of years, imposing a rather large cost burden on the IEAT and resulting in the steady deterioration of the facilities in the estate. It was not until the recent economic boom and the increasing disadvantages of locating in Bangkok that the estate began to fill up. However, the government learned the lesson that supply driven infrastructure projects cannot succeed without a clear

market demand for the services provided. Since that time, IEAT has a policy to co-invest with the private sector wherever possible rather than financing projects exclusively from the public sector.

In recent years, a number of private sector industrial estates have sprung up both around Bangkok and in the regions. More than 30 industrial estate projects have been approved by the Board of Investment, indicating that the private sector is responding well to the increased demands for estate facilities. However, the comprehensive package deals offered by existing industrial estates have largely attracted foreign investors or large Thai firms. Not surprisingly, few small Thai firms have seen it advantageous to move into an industrial estate with relatively high costs and also a relatively high profile.

One area that offers potential for encouraging regional industrialization around the industrial estates near regional urban centers involves the development of various linkages between the primarily large or foreign firms in the industrial estates and the local supplier network of smaller firms in the urban area. Indeed, it has already been pointed out that a major issue relating to the very large inflows of foreign investment is how to maximize the spill over benefits of such investment (Dahlman, Brimble, et. al. 1990). The BOI is presently carrying out an informal policy of using a combination of "moral suasion" and the provision of information about available subcontractors to encourage foreign firms to create more local linkages. Initial results indicate that this approach could be reasonably successful.

During firm interviews in the North and the Northeast, we were able to observe a number of such positive externalities. One Japanese electronics producer in the Northern Industrial Estate was providing significant training to local farm girls, while a large Thai machine tool manufacturer in the Northeast was providing advice to a number of local metalworking shops in an attempt to develop a supplier network that would enable him to subcontract certain tasks that were relatively expensive for him to carry out in his own factory.

4.3.10 Regional Cities

As mentioned in Section 4.2.2, above, the government has endorsed a growth pole approach to regional development, emphasizing the promotion of regional cities to serve as alternatives to migration to Bangkok (see Annex Figure 1 for a summary of the regional cities program). Promotion of these centers was to take several forms. Urban planning and infrastructure were to be improved, while rural development in surrounding areas was to have been stimulated to develop sources of raw materials and markets for urban products.

Responsibility for implementing the initial phase of this program was to have been shared by the Ministries of Interior and Industry. Initial concept papers by the World Bank dealt in detail with the ways in which the program would help disperse industry to the regions. However, the Ministry of Industry never became involved in the program, which has been carried out exclusively by the Ministry of Interior. While socio-economic infrastructure such as sewage, garbage disposal and water has been improved, less emphasis has been put on economic infrastructure and urban planning. So far, the effect of the program on the location decisions of companies appears to be minimal.

Regional cities remain small in Thailand although the recent economic boom has resulted in the establishment of more manufacturing investments around these areas and a number of new industrial estates. However, there remains significant scope for selectively upgrading the infrastructure facilities in and around the regional cities to allow them to play the important "incubator" role that was outlined in Section 3.1 above. In addition, the World Bank (1989) points out that "strengthening the financial and investment management capability of the municipal governments is more suitable for achieving the government's objective of reducing regional economic disparities than are explicit spatial policies intended to decentralize industries away from Bangkok." There still exists considerable scope for further decentralizing government authority and allowing regional municipal governments to have more autonomy with regard to their revenues and expenditures.

5. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

5.1 MAIN CONCLUSIONS

1. Thailand has an unusually high degree of urban primacy -- that is, Bangkok is a capital city which is unusually large relative to the total urban population of the country and thus tends to dominate economic activity. Bangkok's primacy is explained by a convergence of most of the factors which lead to dominant cities in other countries: Bangkok is the center of a government which is itself highly centralized; it is the major port for both ocean and freshwater shipping and a conduit for traffic; it is located in the region most favored for groundwater availability; Thailand lacks regionally-based ethnic or religious divisions which could have led to the establishment of rival urban centers; the country itself has a low level of urbanization, which usually contributes to primacy. It is therefore not at all surprising that the rapid industrial growth currently underway is concentrated in and around Bangkok.

2. The concerns that underlie the RIES are genuine. The development of the Bangkok metropolitan area has generated substantial social costs, including substantial and rising degrees of congestion, air and water pollution, and land subsidence. Income and wealth inequalities are substantial among both individuals and regions of the country.

3. In evaluating these problems, however, it is important to appreciate the country's current position in the process of economic development. Thailand has become a middle-income country which is growing and industrializing rapidly. It is virtually assured of continued rapid growth over the next few years by the current high level of investment. The date on which the country will become a NIC (Newly Industrialized Country) is widely discussed. Particularly important for the issues discussed in this report is the question of when the demand for labor in industry and other high-productivity uses will become great enough to produce a labor market "turning point" -- that

is, a shortage of unskilled labor leading to a sustained rise in its real wage. Although uncertainties about the future, the complexities of the Thai labor market and the inadequacy of labor statistics make it hard to date this turning point precisely, it cannot be more than a few years away. When it arrives, pressure will be exerted on all sectors to use labor more efficiently and the distribution of income will improve as those who live primarily by selling their unskilled labor become relatively better off. Interpersonal and inter-regional inequalities in income can be expected to decline from that time on.

4. Industrialists choose their plant locations primarily on profitability criteria. Historically, the Bangkok area has had strong cost advantages for most producers, especially small firms, which need to be close to other producers and ancillary services. In the past few years, rising land and other costs have driven many producers, particularly those who need large plant sites, out of the city. However, the attractions of Bangkok are still strong enough that they remain close to the city, mostly in what we have called the inner ring. During the 1980s, Bangkok's share in manufacturing activity grew more slowly than that of the inner ring.

5. Cities have been playing a critical "incubator" function for small and medium scale firms, as indicated by the fact that Bangkok's firm size distribution is highly skewed towards small enterprises. This incubator function of Bangkok and the regional cities is vital to the economic dynamism and the income distribution of Thailand and should be actively supported by government policies.

6. The relative paucity of manufacturing activity in the secondary cities, towns and rural areas is explained by the fact that it costs more to carry out most types of manufacturing activities in these areas. Those firms which have set up in rural areas have done so for special reasons, usually either to process a weight-losing natural resource which originates nearby or to serve a local market. A few firms have located in the provinces to benefit from skills available locally (e.g., craft skills in the north), but few have gone there seeking lower-cost unskilled labor, even though that appears to be available, especially in

the northeast.

7. As industrialization continues in the 1990s and the early years of the next century, changes in the locational pattern of manufacturing will occur. The cost increases which have already driven some firms out of Bangkok will continue, driving industrialization out into the outer ring. Some secondary industrial centers will emerge, such as those already visible in embryo at Nakhon Ratchasima and along the Eastern Seaboard. However, the more rural parts of the country are likely to suffer loss of industry as the integration of the national market improves and formerly isolated local markets are served increasingly efficiently from Bangkok and other major centers.

8. These patterns and trends of industrialization are explained primarily by market forces. As noted above, some of the perceived problems of today will correct themselves as development proceeds. They are not primarily the result of "policy bias." However, the government does influence the pattern of industrialization and could change its policies in ways that would shape developments more along desired lines. In the following section we recapitulate our major policy recommendations.

5.2 MAIN RECOMMENDATIONS

1. All proposed policy actions should be viewed within the economic framework laid out in this synthesis report. That is, policy makers should appreciate that private firms make location decisions based on profitability considerations and that profitability is an indicator of social efficiency, except in cases where there are significant externalities which cause private and social benefits and costs to diverge. Many of the policies which have been proposed either have too small an effect on location-specific costs to affect locational decisions or would achieve their effect at a high cost in terms of lost efficiency. This conclusion is consistent with the experience of other countries (see Section 4.2.1) where spatial policies have been shown to entail a high cost and to be rather ineffective.

2. The Limited Nature of Rural Industry. The present study has demonstrated that the limited and specific nature of rural manufacturing and the heterogeneity and geographic dispersion of other activities limits the potential for direct government intervention to promote these activities. However, for modern industry in regional locations, there is more scope for government to intervene in order to foster development. Some of these areas are large and complex areas which have not been considered in detail in the RIES. In these cases, the recommendations serve to indicate where further study would be useful to examine the policy options in more detail.

3. Decentralize Government Authority and Services. The government itself should operate its regulatory and promotional functions in a more decentralized manner. While the unified form of government that exists in Thailand must clearly be accepted as given for present purposes, many instances have been cited in which government services could be extended more evenly to the regions. Government offices concerned with industrial development should open more branch offices. Beyond that, it would facilitate industrial deconcentration if more decision-making power could be delegated from central to regional offices within the respective agencies. This applies to the BOI, which appears to be the one agency having some effect on the location of the modern firm, as well as to the DIP and DEP, which affect the development opportunities of rural and provincial enterprises of all types. Finally, if regional authorities are to be given more responsibility, the financial and administrative autonomy of municipal governments should be increased and the quality of their officers strengthened to enable them to respond more to local demands for public services.

4. Coordinate Provision of Information, Training, and Technical Services. Efforts should be made to coordinate the activities of the service providing institutions, principally those under the DIP, the DEP, the regional industrial offices and the provincial industrial offices. This could be partly achieved through the development of the PJPPCCs; private sector associations should be encouraged to play a more active role. In some cases, additional funds may be required to improve

the quality of information and technical and other services provided to regional entrepreneurs. With all these services, a basic guideline should be to try to improve the responsiveness of the service to the changing needs of private entrepreneurs. However, although such policies may play an important political function, it is unlikely that they will be able to significantly improve the attractiveness of regional locations.

5. Guidelines for Policy and Program Interventions. As a general rule, government in the areas of human capital, information, and technical services should be: (1) performance-based and non-discretionary; (2) demand and not supply driven; (3) incorporated in packages which offer firms a one-stop service; and (4) staffed by well-trained professionals.

6. Accelerate Infrastructure Development. It is generally accepted that infrastructural investment needs to be accelerated to catch up with the rapid pace in industrialization. The planning of this investment program is a complex matter, which we have not investigated. The availability of economic infrastructure is an influence on firm profitability and thus on location decisions. Infrastructure development in the regions should be planned so as to support industrial and other investment, especially in the regional cities. It should be neither too far ahead of directly productive investment (which wastes public sector resources) nor too far behind (which impedes private sector activity). Admittedly this is a counsel of perfection. A specific suggestion for achieving it, however, is that the government should cede some of the responsibility for providing infrastructure to the private sector, which is likely to be more keenly attuned to the desirability of taking advantage of market opportunities while avoiding losses. On the government side, careful attention should be paid to ensuring that social infrastructure in the provincial areas is upgraded to the same level as that of the Bangkok area. Given the limits to the government's ability to attain "place prosperity", the objective of equalizing "people prosperity" through the provision of social infrastructure is a more promising target.

7. Modify Property Tax Structure and Consider a Pollution Tax. There is a divergence of private and social decision-making criteria with respect to economic activity in and around Bangkok. Although firms operating in the capital area feel some of the increasing costs which their operations generate, and are visibly responding to these increases, there are other costs which are borne by society as a whole and thus do not enter into the private firm's decision-making calculus. The government should consider what measures it can undertake to transfer more of these social costs to the firms which chose to operate in Bangkok -- to make the polluters and congesters pay.

8. One way to address congestion costs is to raise property tax rates and improve the effectiveness of property tax administration and enforcement. Growing urban concentration raised property values and attracts investors who may be less interested in production than in holding land and buildings which they expect to appreciate further in value. A better system of property taxation is needed both to discourage this kind of land speculation and to generate additional government revenues that can be used to deal with social problems such as pollution and urban congestion.

9. To address the costs of pollution, on the other hand, direct emission taxes or targeted regulations are preferred approaches. Such direct interventions are an economically more efficient manner of abating pollution than by trying to disoerse industrial firms through subsidies and location bans.

10. Restructure Minimum Wage Regulation. The present minimum wage policy has little or no effect on wages in Bangkok, where the market wage exceeds the minimum wage, but it may inhibit investment in the regions, especially by the large and/or foreign firms which are most likely to be affected in practice by the minimum wage regulations. The result is to reduce the ability of low-wage regions (notably the northeast) to compete with high-wage regions for investment on the basis of their lower labor cost. This constitutes a subsidy to Bangkok and its environs and an incentive for workers to engage in rural-urban, presumably the opposite of what is intended. The policy should be

abandoned, or at least phased out over time if it is too difficult politically to abolish the minimum wage altogether. Allowing the level of the minimum wage to decline gradually in relation to the market wage, which will be rising over the next few years, is one way to do this.

11. Remove Restrictions on Terms of Credit Contracts and Strengthen Rural Credit Markets. We do not believe that major problems exist in the financial area, despite the common complaint that banks do not lend enough to small and/or regional industries. Subsidies and efforts to force banks to lend to preferred classes of borrowers are seldom effective. Far more promising are measures which encourage banks to extend their services outward gradually from their urban starting points into the regions. Of particular importance is the need to extend performance-based credit facilities more widely to provincial areas, including export financing and domestic letters of credit. As the banks are encouraged to make loans that are more risky, at least from their subjective viewpoint, they should be permitted to charge higher rates of interest on these loans. Although it is not very clear, as discussed earlier, that the interest rate ceiling does serious harm, it certainly serves no useful purpose and should be abolished as soon as politically feasible. The existing credit allocation requirement is widely regarded by most analysts as ineffective and should also be dropped.

12. Recognizing that a rural/urban interest rate differential will always exist due to the information-intensity of rural borrowers, any interventions in the credit area will fail if information issue is not adequately addressed. Informal lenders operate very effectively in these information-intensive credit markets and, in order to succeed, government or private commercial bank initiatives in rural financial markets must emulate the following aspects of informal lenders: (1) charge market-based interest rates; (2) operate in a highly decentralized manner; (3) extend relatively small, short-term loans with penalties for defaulters; and (4) provide adequate incentives to encourage loan officers to screen and monitor information-intensive borrowers.

ANNEX FIGURE 1

Industrial and Spatial Policies in the Development Plans

Third Plan (1972-76)

(1) Industrial Development

To support and facilitate private industrial activities
To take responsibility for providing services, investment incentives and industrial research
To promote export industries and import substitution industries which utilize indigenous raw materials and labor
To promote small and medium scale industries, with emphasis on non-metropolitan areas
To formulate a plan on the location of industrial areas and industrial estates
To extend special privileges to regional industrialization, including loans from IFCT and promotion privileges for public utilities

(2) Regional Development

To accelerate growth of agricultural production
To increase employment in rural areas via small investment programs, such as ditches, dikes, feeder roads, and village development projects
To reduce population growth rates through the expansion of the family planning program
To encourage agro-industries in rural areas
To create regional growth centers
To develop a plan for the North; Chiang Mai, Lampang, Lamphun selected as "growth centers"
To develop a plan for the Northeast; Khon Kaen and Kalasin chosen as "growth centers"

(3) Urban Development

Bangkok metropolitan area development: city planning, housing, waterworks, traffic, rain drainage and sewerage
Development outside the metropolitan area: town planning, provincial waterworks, provision of potable water in rural areas
Local development: acceleration of the growth of small communities; encouraging local governments to increase revenues by improving tax collection and increasing certain taxes, and to participate in budget planning

Fourth Plan (1977-81)

(1) Industrial Development

To promote export oriented, agro-processing, and small-scale industries
To promote import substitution industries, especially intermediate capital goods, and high domestic raw material content industries
Form joint public-private ventures in basic industries
To promote industrial decentralization by: granting no special privileges to firms in Bangkok and the inner ring; increasing privileges to firms in the regions; establishing industrial estates around Bangkok and in regional areas; assisting regional industries by reducing transport and electricity costs; providing financial assistance via IFCT and SIFO

(2) Regional Development

Target areas selected for accelerated development: the poorest and economically backward rural areas and urban areas with unemployment, particularly in the North and Northeast
Improve regional and community production structures; diversify and expand agricultural and non-agricultural production
Develop specific areas, mainly poor areas in the North, Northeast, South, and Center

(3) Urban Development

Develop regional urban growth centers outside Bangkok to upgrade potential centers into medium-sized cities
First generation of urban centers selected; Khon Kaen, Udon Thani, Nakhon Ratchasima, Ubon Ratchathani in the Northeast; Chiang Mai and Phitsanulok in the North; Songkhla-Hat Yai and Phuket in the South; and Chon Buri in the East
Strategies and measures to develop regional urban centers: formulate a land-use plan in Bangkok's outskirts, and overall city and specific area plans; develop public utility services, education, health and housing sectors; develop industry, commerce and other services in regional urban centers via fiscal and monetary incentives, industrial estates and EPZs; accelerate regional and rural development to develop supplies of raw materials and markets for urban products

ANNEX FIGURE 1 (Continued)

Industrial and Spatial Policies in the Development Plans

Fifth Plan (1982-86)

(1) Industrial Development

To restructure certain industries in order to increase efficiency and competitiveness in both foreign and domestic markets

To promote export industries, small scale industries, provincial industries, labor intensive industries, basic industries (especially gas related industries in the Eastern Seaboard area)

(2) Regional Development

Implement a new rural development policy with less emphasis on overall output and national income

Develop selected high poverty concentration areas by providing basic public services, initiating people's self-help programs, solving poverty problems with emphasis on low-cost and self-help techniques, and encouraging the maximum participation by the people in solving their problems

Five specific areas targeted for accelerated development: the Eastern Seaboard region to be developed into basic industrial complex; the Western region, the Lower Northeast region, the Upper Northern region, and the Southern border provinces

(3) Urban Development

Further development of the urban growth centers of Chiang Mai, Khon Kaen, Nakhon Ratchasima, Chon Buri, and Songkhla-Hat Yai, by strengthening the industrial base, expanding social services and basic public utilities, providing more efficient land use control, and improving local public finance and administration

An additional 6 provinces (Phitsanulok, Nakhon Sawan, Udon Thani, Surat Thani and Phuket) identified as second-generation urban growth centers

Development of selected low-order centers and rural communities to be effectively linked with the regional urban growth centers

The Sixth Plan (1987-91)

(1) Industrial Development

To promote diversification into industrial products that reduce the trade deficit, create jobs, improve income distribution, and enhance technology transfer

Three principles to achieve this: support production diversification into value added manufactured products that use domestic raw materials; reduce the disparities between privileges awarded to large and small industries; improve the role, organization and administrative machinery of the public sector by shifting the emphasis from control and promotion to support and guidance

Three target industries identified: agro-industries, small scale and provincial industries, and engineering industries

(2) Regional Development

Rural development with efforts to improve the standard of living in all areas: backward, middle level, and progressive

Development of the Eastern Seaboard and preparation of plans to develop other areas such as the Upper South and the Songkhla Lake Basin to be new economic zones, to provide alternatives for future industrial locations, and to strengthen export competitiveness

(3) Urban Development

The development of regional urban centers by coordinating provision of essential infrastructure, town planning measures and land use, and improving local financial and administrative systems

Continue to develop 5 regional urban centers of Chiang Mai, Khon Kaen, Nakhon Ratchasima, Songkhla-Hat Yai, and Chon Buri; emphasis on completing on-going programs and projects

Initiate development in the 6 urban centers of Phitsanulok, Nakhon Sawan, Udon Thani, Ratchaburi, Surat Thani and Phuket. Programs and projects to be prepared for implementation in the second half of the 6th Plan

Prepare plans to develop 13 other urban growth centers: Lampang, Chiang Rai, Ubon Ratchathani, Roi Et, Surin, Sakhon Nakhon, Rayong, Chachoengsao, Saraburi, Kanchanaburi, Phetchaburi, Pattani, and Nakhon Si Thammarat

ANNEX FIGURE 2

Summary of Institutions Dealing with Regional Issues

Regional Representation

Board of Investment
3 regional offices: Chiang Mai, Nakhon Ratchasima, Surat Thani

Regional Industrial Promotion Centers in DIP
5 regional offices: Chiang Mai, Chon Buri, Khon Kaen, Songkhla, and Suphan Buri

Rural Industry Information Services Center (ISC) in DIP
Staff attached to the 3 Regional Industrial Promotion Centers

Small Industry Finance Office in DIP
Staff attached to the Regional Industrial Promotion Centers

Regional Industrial Economic Centers in MOInd
3 regional offices: Chiang Mai, Khon Kaen, and Songkhla

Industrial Finance Corporation of Thailand (IFCT)
6 regional branches: Khon Kaen, Lampang, Nakhon Ratchasima, Phitsanulok, Songkhla, and Surat Thani

Department of Export Promotion (DEP)
3 regional offices: Chiang Mai, Khon Kaen, and Songkhla

Institute of Skill Development (ISD)
8 regional institutes: Chon Buri, Khon Kaen, Lampang, Nakhon Sawan, Pattani, Ratchaburi, Songkhla, and Ubon Ratchathani

Provincial Industrial Offices (PIO)
Offices in all provinces

Thai Business Initiative in Rural Development (TBIRD)
No regional offices as yet, will probably function through the Population and Community Development Association.

Thai Chamber of Commerce (TCC)
Local chambers in all provinces

Federation of Thai Industries (FTI)
9 regional branches: Chachoengsao, Chiang Mai, Khon Kaen, Pathum Thani, Rayong, Samut Prakan, Songkhla, Surat Thani, and Udon Thani

Information Provision

Board of Investment
Investment opportunity studies, joint-venture match-making

Industrial Service Division (ISI) in DIP
Technical information in specific fields

Metalworking and Machinery Industries Development Institute in DIP
Technology and production techniques for metal working and related industries

Regional Industrial Promotion Centers in DIP
Investment opportunity studies

Rural Industry Information Services Center (ISC) in DIP
Identify information needed by rural entrepreneurs
Provide information on technology, finance, and marketing etc.
Provide information on Thailand's priority rural industry sectors

Industrial Development Center (IDC) in DIP
Identify investment opportunities

Textile Industry Division in DIP
Provide information relating to the textile industry

Thai Handicraft Promotion Division in DIP
Provide information on markets and export procedures

Regional Industrial Economic Centers in MOInd
Provide information on investment opportunities and status of regional industries

Department of Export Promotion (DEP)
Provide information on world market situation, trade opportunities and potential exporters

Thailand Industrial Standards Institute (TISI)
Provide information on national and international standardization

Provincial Industrial Offices (PIO)
Provide facts on the status of provincial industries and related issues

Thai Chamber of Commerce (TCC)
Provide information on trading opportunities, names of Thai producers, and market conditions in Thailand and abroad

Federation of Thai Industries (FTI)
Disseminate information on trade and industries

Technical Assistance

Industrial Service Division (ISI) in DIP
- Extension and advisory services, training courses in specific fields
- R&D, product testing and certification

Metalworking and Machinery Industries Development Institute in DIP
- Focus on metal-working and machinery industry
- Training, seminars, consultancy services, R&D, product testing

Regional Industrial Promotion Centers in DIP
- Coordinate training, extension, and advisory services in each region
- Develop technology and provide services specific to the region

Thailand Management Development and Productivity Center (TMDPC) in DIP
- Consultancy services on production and quality control
- Assist new investors in identifying and developing projects

Textile Industry Division in DIP
- Training courses and advisory services on production techniques
- Testing of quality standards and grading assessment, R&D services

Thai Handicraft Promotion Division in DIP
- Develop designs and production techniques
- Advisory services to promote design and quality improvement
- Production training

Cottage Industry Division in DIP
- Develop product designs and appropriate production techniques
- Production training
- Advisory services to reduce production costs or improve product quality

Thailand Industrial Standards Institute (TISI)
- Promote the implementation of standards
- Promote private sector quality control through the certification system
- Accredit testing laboratories to meet the demand for testing services

Institute of Skill Development (ISD)
- Provide technical training courses including mobile courses in rural areas
- Prepare national skill standards
- Issue skill certifications

Thai Business Initiative in Rural Development (TBIRD)
- Identify and coordinate companies to train villagers in certain fields

Institute for Management Education for Thailand Foundation (IMET)
- Arrange for transfer of production technology to Thai businessmen

The Small Industries Association
- Promote the product quality of members

Federation of Thai Industries (FTI)
- Organize seminars, training courses, and factory visits for members

Management and Marketing

Thailand Management Development and Productivity Center (TMDPC) in DIP
- Training courses, seminars and consultancy services on modern business, production, and energy management

Industrial Development Center (IDC) in DIP
- Provide investment advisory services

Textile Industry Division in DIP
- Pricing and trading in Thai silk yarn

Thai Handicraft Promotion Division in DIP
- Operation of a showroom and a buyer-seller forum
- Conduct studies on domestic and foreign markets

Cottage Industry Division in DIP
- Assist in marketing products

Office of the Revolving Fund for Cottage and Handicraft Industries in DIP
- Assist enterprises receiving financial services in marketing products

Small Industry Finance Office in DIP
- Provision of financial management and other advisory services to clients

Department of Export Promotion (DEP)
- Arrange trade fairs both in and outside the country
- Organize trade missions abroad
- Establish commercial centers abroad and identify buyers for Thai exports
- Provide training courses concerning export activities

Provincial Industrial Offices (PIO)
- Organize training courses and seminars to develop entrepreneurial skills

Thai Business Initiative in Rural Development (TBIRD)
- Identify and coordinate companies to assist villages in developing business and marketing skills

Institute for Management Education for Thailand Foundation (IMET)
- Cooperate with regional universities to organize seminars and provide consultancy services on business management

Foundation for Thailand Rural Reconstruction Movement
- Set up a management institute to help develop management skills and provide consulting services to people in rural areas
- Set up a company to help marketing rural products and advise rural people on products and quality as required by markets

The Small Industries Association
- Provide advisory services to members regarding business problems
- Organize trade fairs to promote members' sale of goods

Federation of Thai Industries (FTI)
- Provide advisory services on marketing
- Organize domestic trade fairs

Finance

Office of the Revolving Fund for Cottage and Handicraft Industries in DIP
Credit services to village-based, micro enterprises in rural areas

Small Industry Finance Office in DIP
Provide low interest medium and long-term loans to small scale industries (including manufacturing, services, handicrafts and cottage industries)

Bank of Thailand (BOT)
Provide short-term credit in the form of a rediscount facility for small-scale rural industries
Implementation of the compulsory rural lending program requiring commercial banks to lend at least 20% of their previous year's total deposits to regional areas: 6 percent to agro-industries and related engineering activities; 14 percent to small scale industries outside Bangkok and the inner ring
Imposition of a ceiling on bank lending rates

Industrial Finance Corporation of Thailand (IFCT)
Provide long-term fixed rate loans to industries
Manage the Small Industry Credit Guarantee Fund which provide guarantees for long-term loans made to small scale industries which have good prospects but have insufficient collateral to secure loans from conventional financial institutions

Foundation for Thailand Rural Reconstruction Movement
Set up a company to undertake joint venture investment projects in rural areas

Others

Board of Investment
Provision of tax incentives to encourage industrial decentralization

Industrial Service Division (ISI) in DIP
Design and packaging promotion

Metalworking and Machinery Industries Development Institute in DIP
Promotion of subcontracting arrangements between large and small firms

Rural Industry Information Services Center (ISC) in DIP
Feedback entrepreneurs' problems to relevant agencies

Industrial Development Center (IDC) in DIP
Develop and promote small and medium scale industries
Act as a clearing-house for problems and difficulties of small industries

Department of Export Promotion (DEP)
Help solve problems and obstacles regarding export activities

Provincial Industrial Offices (PIO)
Coordinate in the provision of licenses and permits to local investors

The Small Industries Association
Facilitate meetings or negotiations with government agencies to alleviate members' problems (however, most members are Bangkok residents)

Thai Chamber of Commerce (TCC)
Carry out studies on problems faced by members before forwarding the matters to government agencies concerned or to JPPCC
Promote and develop provincial chambers of commerce through financial support, personnel training, and participation in PCC activities
Coordinate and support JPPCC work

Federation of Thai Industries (FTI)
Issue certificates on sources of origin of products
Coordinate with government agencies in solving problems and obstacles
Coordinate and support JPPCC work

ANNEX FIGURE 3
Spatial Aspects of Board of Investment Incentives & Privileges

Period	Corporate Income Tax Exemption	Tax Exemptions on Machinery and Equipment	Special Incentives	Other Incentives	Coverage of Investment Promotion Zones (IPZ)
Before 1983	No spatial element	No spatial element	From 1978 Business Tax on Sales 50% reduction for 5 yrs in Zones 1, 2, & IEs; 75% for Zones 3 & 4 Corporate Income Tax - 50% reduction for 5 yrs - double deduction of transport costs for 8 yrs in Zones 1, 2, & IEs; 10 yrs in Zones 3 & 4 - deduction of 10% of the costs of installing or building infrastructure facilities for Zones 1 & 2; 20% for Zones 3 & 4.	No spatial element	Before 1978, 72 districts in 21 provinces designated as IPZs. In 1978, 4 zones: Zone 1: Sankamphaeng District (Chiang Mai); Central District (Lamphun); Maesod District (Tak) added in 1981; Zone 2 : Central, Pakthongchai & Pakchong (Korat); Central & Kaeng Khoi Districts (Saraburi) Zone 3 : Central & Ban Phai Districts (Khon Kaen); Zone 4 : Central & Had Yai Districts (Songkhla). IEs or promoted industrial zones designated as IPZs.
1983 to 1987 (August)	3-5 yrs depending on level of investment or employment, extendable to 8 yrs for projects which: - save or earn net foreign exchange of US$ 500,000 in the first 3 yrs; - are agro-based or use domestic supplies for 50% of total production cost; - locate their factories in IEs or outside BKK & 5 provinces.	Projects located in BKK and Samut Prakan: - no tax exemption, except projects which export 80% of output; - 50% reduction for projects which expand operations in the same compound;	Business Tax on Sales - 75% reduction for the first 3 yrs & 50% reduction for the next 2 yrs for Zones 1 & 2; - 90% reduction for the first 3 yrs & 75% reduction for the next 2 yrs for Zones 3 & 4; - 50% reduction for the first 3 yrs in IEs. Corporate Income Tax - 50% reduction for 5 yrs if located in Zones 1, 2, 3&4, & in IEs outside BKK & 5 provinces which: - invest 300 mil. baht; or - employ 200 persons; or - save or earn net foreign exchange of US$1 mil. a yr in the 1st 3 yrs; or - are agro-based & export 50% of output. - double deduction of transport costs for 8 yrs for Zones 1 & 2; 10 yrs for Zones 3 and 4; - deduction of 10% of the costs of installing or building infrastructure for Zones 1 & 2; 20% for Zones 3 & 4.	No spatial element	Zone 1: Sankamphaeng District (Chiang Mai); Central District (Lamphun); Maesod District (Tak) added in 1981; Zone 2 : Central, Pakthongchai & Pakchong (Korat); Central & Kaeng Khoi Districts (Saraburi) Zone 3 : Central & Ban Phai Districts (Khon Kaen); Zone 4 : Central & Had Yai Districts (Songkhla). IEs or promoted industrial zones designated as IPZs.
1985 (for projects in IEs)	Additional exemption for 3 more yrs for projects located in IEs in Zones 1, 2, 3, & 4.	Tax exemption for projects located in IEs in BKK & Samut Prakan even though they do not export;	Business Tax on Sales - 90% reduction for the first 3 yrs & 75% reduction for the following 2 yrs for projects located in IEs in Chiang Mai & Lamphun, with conditions that proposals be submitted before 31 December, 1988. Corporate Income Tax - 50% reduction for 5 yrs for projects located in IEs in Zones 1,2,3 & 4.	No spatial element	Same as above

ANNEX FIGURE 3 (Continued)
Spatial Aspects of Board of Investment Incentives & Privileges

Period	Corporate Income Tax Exemption	Tax Exemptions on Machinery and Equipment	Special Incentives	Other Incentives	Coverage of Investment Promotion Zones (IPZ)
1987 (Sept.) to 1988 (Dec.)	Zone 1 No exemption, except projects which satisfy 2 or more of the criteria below which get exemption for 3 yrs; - export not less than 80%; - foreign exch. earner; 1/ - employ 200 persons. Zone 2 Tax exemption for 3 yrs, extendable yrly up to 5 yrs for projects which: - earn foreign exchange 1/ - are agro-based or use domestic supplies for at least 60% of inputs; - employ 200 persons; - locate in IEs. Zone 3 For Target Activities: Tax exemption for 4 yrs, extendable up 8 yrs for projects which: - earn foreign exchange 1/ - are agro-based or use domestic supplies for at least 50% of inputs; - employ 200 persons; - locate in IEs; For General Activities: Tax exemption for 4 yrs, extendable up to 7 yrs for projects which satisfy one or more of the criteria for Target Activities	Zone 1 No tax exemption, except projects which export not less than 80%; Zone 2 50% tax reduction except the following projects which will be granted full tax exemption: - export not less than 80%; - locate in IEs; Zone 3 Tax exemption for both target & general activities;	For all projects located in Zone 3; Business Tax on Sales - 90% reduction for 5 yrs; Corporate Income Tax - 50% reduction for 5 yrs; - double deduction from taxable income of water, electricity & transport costs for 10 yrs; - deduction from net profit of 25% of the costs of installing or building infrastructure;	For target activities in Zone 3. - 50% reduction of import duty & business tax on raw materials used to produce for the domestic market for 1 yr; - exemption of import duty & business tax on raw materials used for the manufacture of exports for 5 yrs.	Zone 1: BKK & Samut Prakan (excluding IEs); Zone 2: Nakhon Pathom, Nonta Buri, Pathum Thani, & Samut Sakhon (including IEs in BKK & Samut Prakan); Zone 3 : the remaining 67 provinces, designated as IPZs
1989 (Jan.) to present	Zone 1 No exemption, except projects which satisfy one of the criteria below which get exemption for 3 yrs: - export not less than 80% & locate in an IE; - produce or supply specific raw materials or parts 3/ & locate in IE; Zone 2 Tax exemption for 3 yrs, extendable up to 5 yrs for projects which: - earn foreign exchange 2/ - produce or supply specific raw materials or parts 3/; - are agro-based or use domestic supplies for at least 60% of inputs; - locate in IEs. Zone 3 Same as 1987 to 1988, except that General Activities can obtain tax exemption for up to 8 yrs.	Zone 1 No tax exemption, except projects which: - export not less than 80% or are classified under category 5.49 - produce or supply specific raw materials or parts 3/; - locate in an IE. Zone 2 50% tax reduction except the following projects which will be fully exempt: - export 80% or more or are classified under 5.49; - produce or supply specific raw materials or parts 3/; - manufacture engineering products - are agro-based or use domestic supplies for at least 60% of inputs; - locate in an IE. Zone 3 Full tax exemption for both target & general activities.	For projects located in Zone 3, both target & general activities. Business Tax on Sales - 90% reduction for 5 yrs. Corporate Income Tax - 50% reduction for 5 yrs. - double deduction from taxable income of water, electricity & transport costs for 10 yrs. - deduction from net profit of 25% of the costs of installing or building infrastructure.	For target activities in Zone 3. - 50% reduction of import duty & business tax on raw materials used to produce for the domestic market for 1 yr; - exemption of import duty & business tax on raw materials used for the manufacture of exports for 5 yrs.	Zone 1: BKK, Samut Prakan, Nakhon Pathom, Nonta Buri, Pathum Thani, & Samut Sakhon. Zone 2: Samut Songkram, Ratchaburi, Kanchanaburi, Suphan Buri, Ang Thong, Ayutthaya, Saraburi, Nakhon Nayok, Chon Buri & Chachoengsao. Zone 3 : the remaining 57 provinces including Laem Chabang & Map Ta Phut Industrial Estates which are designated as IPZs.

Notes: 1/ Save or earn net foreign exchange of more than US$ 1 million per year.
2/ Save or earn net foreign exchange of more than US$ 2 million per year.
3/ Mainly for producers of engines, machinery, & electrical & electronics products in the same zone.
Source: Compiled from Board of Investment announcements and Guides to Investing in Thailand.

MATERIALS FROM SEMINAR PRESENTATION

Presented at the Conference on

Provincial Industries and Employment

Ambassador City Hotel

Jomtien, Chon Buri

April 21, 1990

Definition of Rural Industry

- Industry located outside Bangkok: i.e. Regional
- Types of Regional Industry
  - Rural-Based
    - Traditional (basic wage goods, counter-seasonal)
    - Agro-related and mineral processing
    - Artisan products for export
  - Provincial non-rural
    - Modern industry
    - Some traditional industries

The Seven Perceptions

- Agricultural growth has run its course, while industrial growth, although rapid, is over-concentrated in Bangkok
- Policies are heavily biased in favor of industrial growth in Bangkok and its fringe and are a cause of concentration
- Policy changes to offset or remove existing policy biases can easily spur industrial growth in the outlying regions
- Stimulating industry in the outlying provinces is better for income distribution than stimulating industry in Bangkok
- The best way to address inequalities in income distribution is by promoting rural industry
- Current economic growth worsens interpersonal and inter-regional inequality and will do so unless checked by policy interventions
- Theoretically well-designed policies will work in practice

Patterns & Trends in Thai Industrialization

- Agriculture growth
  - Underestimation of potential to absorb labor
- Industrial growth
  - Rapid growth and labor market turning point
- Effects of turning point
  - Sharp decline in ag. employment in the 1990s
  - Increased mechanization and farm incomes
- Services
  - Induced demand for labor as industry grows
- Idea that rural industry can play a key role depends on misplaced analysis of limits of agriculture to absorb labor rather than potential for rural industry development

The Seven Regions

- Basic Distinction: Deconcentration vs. Decentralization
- Hence:
  - Bangkok, includes Bangkok and Thonburi
  - The Inner Ring, comprises the five provinces surrounding Bangkok (Samut Prakan, Pathum Thani, Nonthaburi, Nakhon Pathom and Samut Sakhon)
  - The Outer Ring, consists of ten provinces around the inner ring (Kanchanaburi, Suphan Buri, Ang Thong Ayutthaya, Saraburi, Nakhon Nayok, Chachoengsao, Chon Buri, Samut Songkram and Ratchaburi)
  - Other Central, includes the remaining nine provinces in the central area of Thailand
  - Regions 5, 6 and 7 comprise all the provinces of northern, northeastern and southern Thailand

Dispersion of Gross Regional Product (1981-1987)

- High and increasing concentration of economic activity in Bangkok and the Inner Ring (Man. GRP: 70%->78%; Total GRP: 45%->49%)
- Deconcentration already taking place:
  - Inner Ring manufacturing grew fastest (7.9% vs. Bangkok's 6.7%)
  - Inner Ring is now most industrialized (Man. GRP -> 48%, Ind. GRP -> 60%)
- Decentralization not occuring:
  - Shares of manufacturing in outer regions fell (Nth:8.3%->6.7%; NEast:9%->7.35; Sth:7.6%->4.7%)
- Focus of manufacturing activities:
  - Outer regions - mainly resource based
  - Bangkok - mainly labor-intensive
  - Inner Ring - more dispersed and deeper

Distribution and Productivity of the Labor Force (1981-1987)

- NSO data suspected to overstate agricultural employment - implying that labor market turning point likely to be reached in early 1990s
- Manufacturing labor force shifted from Bangkok to Inner Ring - combined share of total remained 45% (Bangkok: 36%->28%; Inner Ring: 9%->17%)
- In 1987, manufacturing GRP per capita much higher in Bangkok than other regions (87,000 baht vs. kingdom average of 42,000)

Spatial Distribution and Characteristics of Firms (1987)

- Inner Ring dominates as preferred location for large firms - only 60% of Inner Ring firms employ less than 20 workers vs. more than 80% elsewhere
- Average firm size in Inner Ring (62) much higher than all other regions (kingdom average 23.4)
- Average firm size in Bangkok remains small (19.5) and Bangkok still accounts for 50% of Thai small firms (less than 20 workers)
- Concentration of small firms in Bangkok results from the importance for small firms of economies of agglomeration and the need to be near large firms
- This importance of Bangkok as an incubator consistent with experience of primate cities in other countries

What Determines Industrial Location ?

- Manufacturing firms are footloose hence site selection based on profitability
- Some major components in profitability calculation
  - Ex-factory price of the product
  - Unit labor cost
  - Cost of land
  - Transportation cost
  - Infrastructure cost (utilities)
  - Cost of raw materials (including inventory costs)
  - Transaction costs (dealing with govt. - licenses, permits, approvals, etc.)

Causes of Bangkok's Primacy

- The city is the center of government
- The government is centralized
- The city has a major port
- The city is a conduit for inter-regional traffic
- The city is conveniently located vis-a-vis some scarce natural resource, namely water
- Thailand has no strong regionally-based ethnic or religious rivalries
- Thailand has a low level of urbanization

Primacy of Bangkok: Effects

- Locational advantages
  - Transportation costs lower, particularly to air and sea ports; Thus inventory costs lower
  - Labor productivity higher (better education; more factory experience)
  - Utilities available more cheaply and reliably
  - Transactions costs lower
  - Powerful economies of agglomeration
- Locational disadvantages
  - Wage costs higher (although ULC may be lower due to higher productivity)
  - Legal enforcement greater
  - Land costs higher
  - Congestion costs higher
  - Fewer BOI incentives for new firms

The City as "Incubator" for Small Enterprises

- Bangkok: size distribution skewed to small firms
- Small firms like to operate in high density areas because they benefit from available externalities:
  - Supply of skilled labor
  - Easy access to markets for output and inputs
  - Easy access to infrastructure, business and govt. services
  - Shared repair and delivery services
  - Access to large firms - trade credit, technology information etc.

Rural Industry and Economic Development 1

- Limited and Specific Nature of Rural Manufacturing and Heterogeneity and Geographic Dispersion of Other Activities Limits Potential for Direct Govt. Intervention
  Conclusion derived from following observations:
  - Traditional rural industry declines as market widens and incomes increase
  - In advanced economies, products where rural areas have comparative cost advantage
    - Mining and Agro-processing
    - Construction Materials
    - Handicrafts and some Textiles
    - Limited Range of Goods for Export
  - Characteristics of Rural Non-Ag. Firms (excluding mining and agro-processing)
    - Small size
    - Low intensities of physical and (formerly acquired) human capital
    - Production technology of the job-shop variety

Rural Industry and Economic Development 2

- Limitations of Government Assistance Programs
  - Availability of skilled labor
  - Credit availability and cost
  - Infrastructure
- Overriding Importance of Agriculture
  - Forward linkages
  - Backward linkages
  - Income linkages
- Proximity to urban areas is important determinant of participation in high productivity non-agricultural activities

What is a Policy Bias ?

- Economist's view:
  "A structure of incentives that deviate from neutrality"
- Measuring a bias is relatively straightforward, evaluating its ultimate effect is not
- Govt. may wish to introduce "proactive" bias
  - To address market imperfections or failure
  - To promote greater dynamic efficiency
  - To achieve state's welfare objectives
- Evaluation requires knowledge of:
  - Growth dynamics
  - Policy objectives

Evaluation of Existing Major Public Policy Biases

- Centralization of Government Authority & Services
- Allocation of Infrastructure Resources
  - Physical infrastructure
  - Social infrastructure
- Labor Policies and Legislation
  - The minimum wage
- Finance
  - An inevitable bias due to information needs
- Taxation
  - Property taxes
  - Business taxes
- Investment Incentives

Basic Guidelines and Issues Regarding Policies

- Initiate programs which are performance based where possible (eg. export finance)
- Allow Bangkok and the regional cities to continue to play an "incubator" role and do not take initiatives which discriminate against small firms
- Programs to support progressive SMEs should:
  - Focus on interface between firm and environment
  - Be staffed by specialized industry professionals
  - Be incorporated in comprehensive packages
  - Have well-defined objectives and be evaluated in relation to these objectives
  - Be client-centered, providing services demanded by users
- Ensure that major infrastructure expenditures are demand driven, with private sector participation

An Evaluation of Present Government Interventions

- Information Provision
  - Services provided are not coordinated
  - Market information of most use
- Technical Assistance
  - Inadequate and not tailored to needs
  - Duplication of effort
- Management and Marketing
  - Generally rather marginal
  - Marketing assistance of the DEP most useful
- Finance
  - Most programs under-utilized
  - Fail to reach target groups
  - Transfer rent to larger firms or middlemen
- Regional Cities and Industrial Estates

Major Recommendations 1

- Severe limits to the govt's ability to affect place prosperity imply that, apart from carefully chosen specific areas, people prosperity through provision of social infrastructure is a more promising general govt. objective
- Limited and specific nature of rural manufacturing limits potential for direct govt. intervention to promote these activities
- There is more scope for government to foster development of modern industries in regional cities and towns

Major Recommendations 2

- Decentralize government authority and services:
  - Increase financial and administrative autonomy of municipal government to respond more to local demands for public services
  - Broaden spatial availability of government assistance programs
- Guidelines for policy interventions in areas of human capital, information, and technical services
  - should be performance-based and non-discretionary
  - should be demand not supply driven
  - should be incorporated in packages which offer a one-stop service
  - should have well defined objectives and be evaluated in relation to these objectives
  - should be staffed by well-trained industry specialists

Major Recommendations 3

- Accelerate infrastructure development:
  - Increase overall investment on infrastructure to GDP ratios
  - Place emphasis on the potential "incubator role of Bangkok and the regional cities
- Removal of clear-cut policy biases by:
  - Modifying property tax structure
  - Restructuring minimum wage regulation
  - Removing restrictions on terms of credit contracts (interest rate ceilings and credit allocation requirements)

Major Recommendations 4
Credit for Rural-Based Industries

- Rural/urban interest rate differentials due to information intensity of rural borrowers
- Interventions will fail if information requirements are not addressed
- Informal lenders operate effectively in these information-intensive credit markets
- To succeed, government or private bank initiatives must emulate some aspects of informal lenders, such as:
  - charging market based lending rates
  - operating in a highly decentralized manner
  - extending relatively small, short term loans with penalties for defaulters
  - providing incentives to encourage loan officers to screen and monitor information-intensive borrowers

Major Recommendations 5

- Credit for provincial industries in towns and cities
  - Improve access to performance-based credit programs such as export financing
  - Recognize importance of providing credit to indirect exporters (i.e. introduce back-to-back domestic letters of credit

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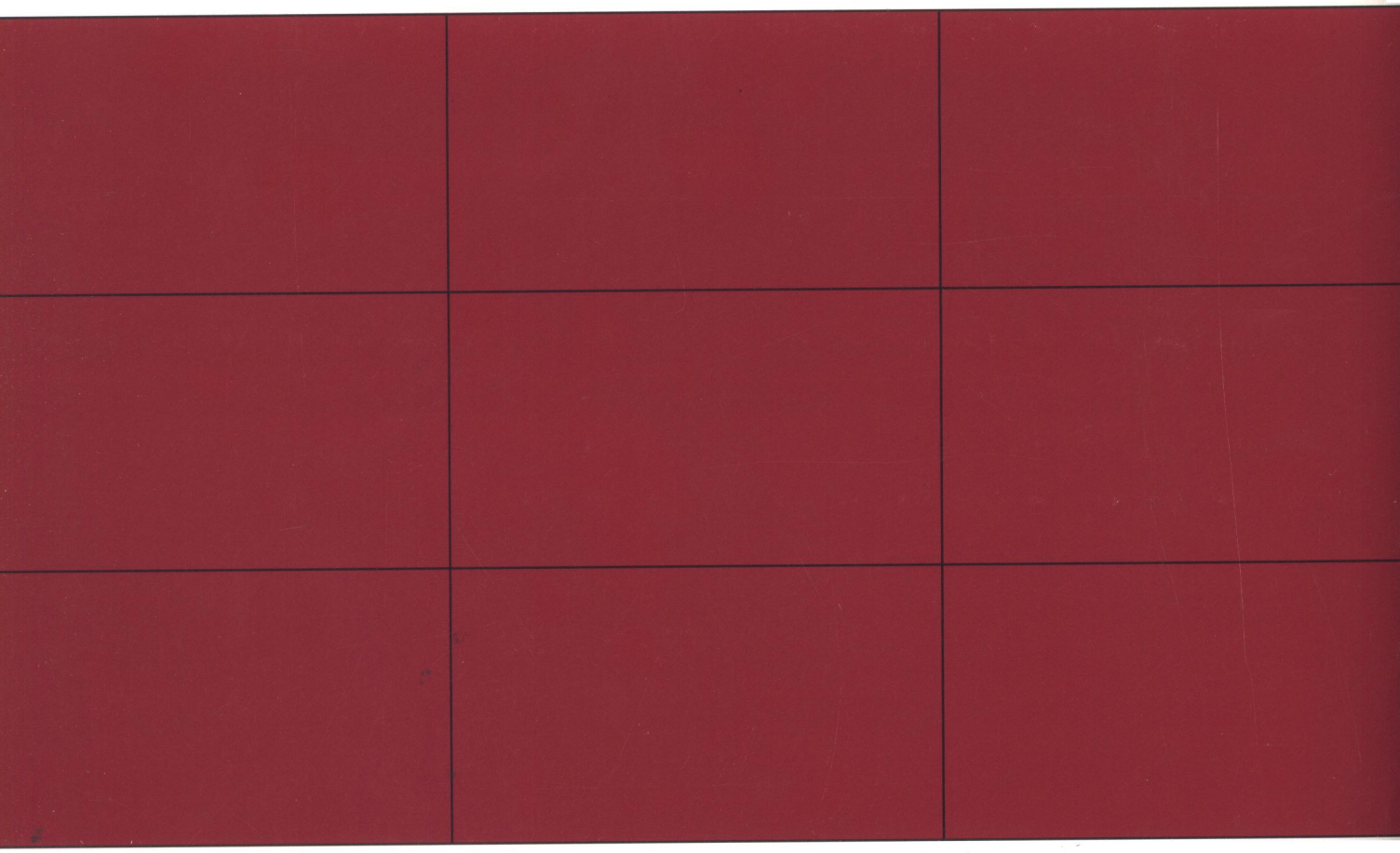

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