

Thailand: Country Economic Memorandum Building on the Recent Success—A Policy Framework

(In Two Volumes) Volume I: The Main Report

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CURRENCY EQUIVALENTS

Average 1988

Baht = US\$0.0395
Baht 25.294 = US\$1.00

Fiscal Year

October 1 to September 3

Weights and Measures

1 hectare (ha) = 2.47 acres = 6.25 rai

List of Acronyms

ASEAN	Association of South East Asian Nations
BAAC	Bank for Agriculture and Agricultural Cooperatives
BMA	Bangkok Metropolitan Administration (or Area)
BMR	Bangkok Metropolitan Region
BMTA	Bangkok Mass Transit Authority
BOB	Bureau of the Budget
BOI	Board of Investment
BOT	Bank of Thailand
BTN	Brussels Trade Nomenclature
CPI	Consumer price index
DLC	Domestic letter of credit
EEC	European Economic Community
EGAT	Electricity Generating Authority of Thailand
ERP	Effective rate of protection
ETA	Expressway and Rapid Transit Authority
FDI	Foreign direct investment
FIDF	Financial Institution Development Fund
FPO	Fiscal Policy Office
GATT	General Agreement on Tariffs and Trade
GSP	Generalized System of Preference
IBRD	International Bank for Reconstruction and Development
ICOR	Incremental capital output ratio
IC	Integrated circuit
IDE	Institute of Developing Economies (Japan)
IFCT	Industrial Finance Corporation of Thailand
ILO	International Labor Organization
IMF	International Monetary Fund
IPZ	Investment promotion zone
KTB	Krung Thai Bank
LDC	Less developed country
MEA	Metropolitan Electricity Authority
METR	Marginal effective tax rate
MFA	Mult-Fiber Agreement
MITI	Ministry of International Trade and Industry (Japan)
MOF	Ministry of Finance
NESDB	National Economic and Social Development Board
NIC	Newly industrialized country
NSO	National Statistical office
NTB	Non-tariff barrier
OECD	Organization for Economic Cooperation and Development
OECF	Overseas Economic Cooperation Fund (Japan)
OJT	On-the-job training
PPI	Producer price index
RCA	Revealed comparative advantage
REER	Real effective exchange rate
SDR	Special Drawing Rights (of IMF)
SET	Stock Exchange of Thailand
SME	Small and medium enterprises
SICGF	Small Industry Credit Guarantee Fund
SIFO	Small Industries Finance Office
SITC	Standard international trade classification
UNCTAD	United Nations Council on Trade and Development
VAT	Value added tax

Preface

This report was prepared by a team which visited Thailand in April, 1988. The members included Kenichi Ohashi (leader), Sudhir Shetty (industrial policy and monetary policy), Fernando Clavijo (trade), Kyu-Sik Lee (infrastructure), Suchart Thada-Thamrongvech (projections), and a consultant, Carmella Chiswick (human resources). Su-Yong Song contributed a section on Thailand's revealed comparative advantage.

The team would like to express its appreciation for the cooperation received from various ministries, departments, and agencies of the Royal Thai Government, including in particular the National Economic and Social Development Board, Bank of Thailand, Fiscal Policy Office, Bureau of the Budget, Ministries of Industry, Commerce, and Interior, Board of Investment, Bangkok Metropolitan Authority, National Statistical Office, Industrial Estate Authority of Thailand, and the Provincial Government of Chiang Mai. The team also benefited greatly from discussions with researchers at Thailand Development Research Institute and several universities in Thailand as well as with representatives of private sector organizations.

A draft version of this report was discussed with the Government in November/December of 1988. Since then, the NESDB has released the preliminary estimates of the national account statistics for 1988, which showed considerably stronger growth than previously expected. This report reflects some changes in the economic outlook for the near term that were brought about by the latest information.

COUNTRY DATA SHEET

Area: 514.0 (thousand)
(km²)

Population: 53.54
(millions, 1987)
Rate of growth 1.7%

Density: 104
(Per km²)

Population characteristics

Crude birth rate (per 1,000): 26
Crude death rate (per 1,000): 7

Health

Infant mortality (per 1,000 live births): 51
Population per physician: ('000) 6.9
Population per hospital bed: ('000) 0.7

Income distribution:

% of national Income,
highest quintile:
lowest quintile:

Access to safe water:

% of population - urban: 65
- rural: 63
- total:

Nutrition

Per capita calorie intake (cal/day)
Per capita protein intake (g/day) 43

Education

Primary school enrollment (% of
relevant age group): 97

GNP per capita (US\$, 1987): /a 840

GROSS NATIONAL PRODUCT

	US\$ Min	ANNUAL RATE OF GROWTH (%), constant prices)			1987
		1980-81	1981-82	1982	
GNP at Market Prices	47,095	100.0	7.1	5.2	8.5
Gross Domestic Investment	12,880	26.3	9.7	0.9	19.7
Gross National Saving	11,832	25.1	4.7	9.2	18.1
Current Account Balance	-549	-1.2	-	-	-
Export of Goods, NFS	14,448	30.7	10.0	9.4	20.6
Import of Goods, NFS	14,817	30.4	8.5	2.9	26.8

OUTPUT, EMPLOYMENT AND PRODUCTIVITY

	Value Added US\$ Min	%	Labor Force ('000)		V.A. per Worker US\$	%
			Min	%		
Agriculture	6,876.0	18.5	18.1	87.0	380.0	
Industry /b	14,247.0	34.2	2.8	10.4	5,088.0	
Services	20,501.0	49.3	6.1	22.6	8,861.0	
Total/Average	41,624.0	100.0	27.0	100.0	1,542.0

GOVERNMENT FINANCE

	National Government			Central Government		
	(CR\$ Bln)	% of GDP		(CR\$ Bln)	% of GDP	
	1988	1988	1988	1988	1988	1982
Current Receipts	260.2	17.8	14.9	247.2	18.9	14.0
Current Expenditure	205.5	14.0	15.0	197.4	13.5	14.4
Current Surplus	54.7	8.7	-0.1	49.8	3.4	-0.4
Capital Expenditures	42.3	2.9	4.0	37.7	2.6	3.7

/a Calculated in accordance with Atlas Methodology.

/b Where significant and available, separate manufacturing mining construction.

<u>MONEY, CREDIT & PRICES</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>July 1988</u>
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(billions of Crs outstanding end of period)

Money Supply	83,015	88,789	95,964	103,427	132,398	131,908
Bank Credit to Public Sector	165,760	189,812	198,260	219,285	222,981	199,830
Bank Credit to Private Sector	402,431	476,467	527,858	552,878	680,839	778,472

(Percentage or Index Numbers)

Money as % of GDP	9.1	9.1	8.5	9.5	10.7	9.0
General Price Index (CPI) (1980 = 100)	123.0	124.1	127.1	129.4	132.6	137.5
Annual percentage changes in:						
General Price Index	3.7	0.9	2.4	1.8	2.5	8.7
Bank Credit to Public Sector	7.2	14.4	4.6	10.6	1.7	-10.4
Bank Credit to Private Sector	34.1	18.4	10.7	4.8	23.2	13.6

BALANCE OF PAYMENTSMERCHANDISE EXPORTS (AVERAGE 1984-87)

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>US\$ Min</u>	<u>%</u>
		(million of US\$)				
Exports of Goods, NFS	9,803	9,107	11,075	14,041	Rice	884 10.1
Imports of Goods, NFS (of which Petroleum) /a	11,093	10,181	10,185	13,211	Tapioca	696 7.9
Resource Gap (deficit=-)	-1,790	-1,074	889	830	Rubber	806 6.9
					Textiles	1,192 13.6
Interest Payments (net)	289	350	515	929	Manufactured Goods	8,345 38.1
Other Factor Payments (net)	202	298	349	691	All other commodities	2,053 28.4
Net Transfers	59	47	63	67	Total	8,775 100.0
Balance on Current Account	-2,222	-1,678	88	-723		
Direct Private Foreign Investment	408	160	262	270	<u>EXTERNAL DEBT, SEPTEMBER 1988</u>	
Net MLT Borrowing	1,491	1,497	-167	-2	US\$ Min	
Disbursements	2,883	3,176	1,889	1,889	Public Debt, incl. Guaranteed	14,028.0
Amortization	1,892	1,679	2,056	1,891	Non-Guaranteed Private Debt	3,108.0
Subtotal	1,886	1,694	183	319	Total Outstanding & Disbursed	17,131.0
Other Capital (net) and Capital n.e.i.	902	61	413	1,805	<u>NET DEBT SERVICE RATIO FOR 1987 /b</u>	
Increase in Reserves (+)	-516	-82	-684	-1,401	%	
Gross Reserves (end year)	2,687	3,003	3,777	5,208	Public Debt incl. Guaranteed	13.5
					Non-Guaranteed Private Debt	6.9
					Total Outstanding & Disbursed	20.4

RATE OF EXCHANGE (SELLING)IBRD/IDA LENDING (12/31/88) (millions of US\$):

	<u>Annual Averages</u>			<u>IBRD</u>	<u>IDA</u>
	<u>1986</u>	<u>1987</u>	<u>1988</u>		
US\$1.00 = Crs	28.299	25.723	25.294	Outstanding & Disbursed	2,616.1
Crs1.00 = US\$	0.038	0.0389	0.395	Undisbursed	453.1
				Outstanding incl. Undisbursed	3.2
					8,069.2
					113.8

/a Crude and derivatives.

/b Debt Service, net of interest earned on foreign exchange reserves, as a percentage of Exports of Goods and NFS.

THAILAND
COUNTRY ECONOMIC MEMORANDUM

Table of Contents

	<u>Page No.</u>
SUMMARY AND CONCLUSIONS	i
A. Introduction	i
B. Recent Economic Developments	i
C. Causes and Implications of the Recent Success	iii
D. Framework for Sustained Growth	v
E. Priority Areas of Policy Action	vii
F. Medium-Term Outlook	xi
PART I: PAST TRENDS AND RECENT ECONOMIC DEVELOPMENTS	
Introduction	1
CHAPTER 1. MACROECONOMIC ADJUSTMENT SINCE 1980	3
A. The Process of Adjustment	3
B. Fiscal Policy	9
Fiscal Adjustments since 1980	9
Public Debt Management	12
Consolidated Public Sector Picture	16
C. Monetary Policy	19
Financial Regulation	24
CHAPTER 2. ECONOMIC GROWTH SINCE 1986	27
A. The Recent Pattern of Growth	27
Contribution of Exports to Growth	27
B. External Sector	30
Recent Trends in Trade	30
Trends in Merchandise Trade - A Regional Perspective	33
Real Effective Exchange Rate and Terms of Trade	40
C. Savings and Investment	42
D. Foreign Direct Investment	45
E. Inflation	49
F. The Causes of the Recent Economic Success	50
PART II: ISSUES AFFECTING ACCELERATED INDUSTRIALIZATION	
CHAPTER 3. TRADE AND INDUSTRIAL POLICY	56
A. Policy Changes since 1980	56
Import Protection	56
Export Promotion	62
Investment Promotion	64
Financial Sector Policies	68

	<u>Page No.</u>
B. The Recent Emphasis in Industrial Policy	69
Industrial Strategy	70
Rural Industrialization	72
Foreign Direct Investment	73
C. Supporting Industries, Subcontracting and Small and Medium Enterprises	77
Small and Medium Enterprises	77
State of Subcontracting	81
Government Assistance to SMEs	82
The Policy Bias Against SMEs	86
Strategy for the Promotion of SMEs and Rural Industries ..	91
D. Policy Conclusions	92
 CHAPTER 4. INFRASTRUCTURE POLICY FOR INDUSTRIAL GROWTH	95
A. The Primacy of Bangkok and Government Policies	95
Decentralization Trends of Manufacturing Activity	96
B. Infrastructure Constraints on Growth of Industries	99
Infrastructure Needs of Small Firms	99
Site Constraints for Medium Size Firms	101
Upgrading Existing Industrial Areas	102
C. Managing the Growth of Bangkok	105
D. Infrastructure Investment Needs	109
E. Constraints on Industrial Growth in Regional Cities	111
F. Policy Conclusions	112
 CHAPTER 5. HUMAN RESOURCES FOR INDUSTRIAL GROWTH	116
A. Supply of Labor	116
B. Employment and Economic Development in the Medium Term	118
C. Labor Quality and Employment	123
 PART III: MEDIUM-TERM PROSPECTS	
 CHAPTER 6. DEVELOPMENT STRATEGY AND EMERGING POLICY ISSUES	132
A. The Government's Development Strategy	132
The Sixth Plan	132
The Government's Medium Term Strategy	135
B. Building on the Recent Success	139
Constraints to Growth and Emerging Policy Issues	139
 CHAPTER 7. MEDIUM-TERM ECONOMIC OUTLOOK	146
A. The Prospects for Export Growth	146
B. Supply Factors	150
C. Macroeconomic Balances	151
D. Projections	153
Base Case	154
Alternative Scenarios	156
Structural Changes in the Long Run	160

ANNEXES

	<u>Page No.</u>
1. Estimation of Value Added in Exports	163
2. Manufactured Exports: Simulations Model	165
3. Changes in the Tariff Structure of Thailand, April 1985 - January 1988	167
4. Board of Investment Policy Changes, 1983-1987	170
5. Thailand's Labor Statistics	174
6. The Patterns of Labor Force Participation and Employment	182
7. Employment Share of Agriculture	191
8. Revealed Comparative Advantage of Thailand	195
9. Tariff and Non-Tariff Barriers to Thailand's Exports	198
10. Projection Model	203
11. Detailed Assumptions for Projections	210

TABLES IN TEXT

1.1 Recent Economic Developments	2
1.2 Savings-Investment Balance	6
1.3 Expenditure Breakdown of GDP	7
1.4 Central Government Fiscal Plan	10
1.5 Consolidated Public Sector Deficit	14
1.6 Public Sector Debt	15
1.7 Consolidated Public Sector Account	17
1.8 Consolidated Public Sector's Share in GDP	18
1.9 Money and Credit	21
2.1 Contribution of Exports to GDP Growth	27
2.2 Export Reliance of Growth	29
2.3 Supply Structure of GDP Growth	30
2.4 Nominal and Real Resource Balances	31
2.5 Export Commodity Diversification Indicators	32
2.6 ASEAN Countries, Manufactured Exports within ASEAN	34
2.7 Trade with Main Partner Countries	35
2.8 Share of East Asian Manufacturers: Exports to Selected Markets, 1987	34
2.9 Exports of Total Manufacturers and Industrial Countries Imports	36
2.10 Export Growth Rates of Manufacturers to Main Industrial Markets	37
2.11 Trade Commodity Composition of ASEAN Countries' Imports	39
2.12 Real Effective Exchange Rate and Terms of Trade	40
2.13 Real Effective Exchange Rate Indices	41
2.14 Trade Indices and Terms of Trade	41
2.15 The Effect of National Accounts Revisions on Savings and Investment	43
2.16 Comparison of Savings Rates and Income Levels	44
2.17 Foreign Direct Investment	46
2.18 Net FDI Flows to ASEAN Countries	48
2.19 Shares of Japanese Direct Investment Abroad	49

	<u>Page No.</u>
2.20 Inflation Trends	50
2.21 Growth of Manufactured Exports - Regional Comparison	52
3.1 Average Effective Rates of Protection	59
3.2 Import Duty Drawbacks and Exemptions	63
3.3 Export Credit Refinancing of BOI Promoted Trading Firms	66
3.4 Corporate Tax Structures in Thailand and Neighboring Countries ..	74
3.5 Comparative Structure of Manufacturing Sector by Firm Size	79
3.6 Size Distribution of Firms by Industry (1984)	80
3.7 Annual Growth Rates of Manufacturing Firms by Size	81
3.8 Financing to Small and Medium-Scale Enterprises by Sources	84
3.9 Distribution of BOI Promotion by Investment Size	88
3.10 Shares of Total Export Refinancing by Commodity	90
3.11 Projects Approved for BOI Promotion with Export Conditions	94
4.1 Changes in Regional Distribution of Manufacturing Establishments, 1985-1987	97
4.2 Changes in Distribution of Manufacturing Establishments by Province in Bangkok Metropolitan Region (BMR)	97
4.3 Regional Distribution of BOI Approved Projects	98
4.4 Distribution of Newly Registered Manufacturing Establishments by Province and Employment Size in BMR, 1987 ...	100
4.5 Distribution of Newly Registered Manufacturing Establishments by Concentric Ring and Employment Size in BMA, 1987	101
4.6 Decentralization of Manufacturing Establishments by Province in Bangkok Metropolitan Region (BMR)	103
4.7 Decentralization of Manufacturing Establishments by Concentric Ring in Bangkok (BMA), 1984-1987	104
4.8 Changes in Distribution of Population by Province in Bangkok Metropolitan Regions (BMR), 1970-1985	108
4.9 Changes in Distribution of Population by Concentric Ring in Bangkok (BMA), 1970-1985	108
4.10 Public Investment on Road and Electricity Infrastructure	109
5.1 Mean Wages for Private Employees, Men Aged 15-59, 1986	119
5.2 Rural Employment by Region and Industry	120
5.3 Structure of Employment, 1986-2001	123a
5.4 Educational Attainment by Age and Area	124
6.1 Main Economic Targets in the Sixth Plan	133
6.2 Agricultural Transition in Korea, Taiwan, and Thailand	136
6.3 Arable Land to Population Ratios	139
7.1 Structure of Commodities Exported under GSP	148
7.2 Tariff-Free Exports to the US under GSP	148
7.3 Comparison of the ICOR	152
7.4 Base Case - Medium-Term Outlook	155
7.5 High Case - Medium-Term Outlook	158
7.6 Low Cases - Medium-Term Outlook	159

	<u>Page No.</u>
7.7 Real Growth of Manufactured Exports	160
7.8 Incremental Capital Output Ratios (ICOR)	160
7.9 Long-Term Outlook	161

TABLE IN ANNEX 1

A1.1 Domestic Value Added in Korean Exports	163
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TABLES IN ANNEX 5

A5.1 Labor Force Participation and Employment (persons aged 11 and over)	176
A5.2 Labor Force Participation and Employment	178
A5.3 Types of Participation by Age: 1986	179
A5.4 Labor Force Participation and Employment (persons aged 15-59) ...	180

TABLES IN ANNEX 6

A6.1 Labor Force Participation by Area and Sex, 1986 (percent)	182
A6.2 Labor Force Participation by Area and Sex, 1986 (millions)	184
A6.3 Employment by Industry, 1986	185
A6.4 Employment by Industry, Area and Sex, 1986	186
A6.5 Type of Employment by Area and Sex, 1986	187
A6.6 February-August Difference in Employment Level by Type	188
A6.7 February-August Difference in Employment by Industry and Type ...	189

TABLES IN ANNEX 7

A7.1 GDP and Employment Shares by Sector	192
A7.2 GDP and Employment Share by Sector - Regional Comparison	194

TABLES IN ANNEX 8

A8.1 Rank Correlation Coefficients between Thailand's 1986 RCA and Comparators' RCA	196
A8.2 Revealed Comparative Advantage Indexes	197

TABLES IN ANNEX 9

A9.1 Post Tokyo Round Tariff Rates on Textiles and Manufactures	198
A9.2 Average Tariff Escalation Rates on Textile Industry	198
A9.3 Percentage of Developed Country Imports Subject to NTBs, 1983 ...	199
A9.4 Main Exports and NTB Coverage Ratio by Market	202

<u>MAPS</u>	213
.....	214

THAILAND

COUNTRY ECONOMIC MEMORANDUM

SUMMARY AND CONCLUSIONS

A. Introduction

1. Following a period of policy adjustment and unsteady economic performance during the first half of the 1980s, the Thai economy has achieved an impressive record of economic expansion since 1986, characterized by surging exports, narrowing fiscal and external deficits, price stability, and an investment boom. This economic boom is taking place against the backdrop of rapid structural shifts in Thailand that have made the economy distinctly export oriented and established manufacturing as the main export sector. Rice which had been the leading export commodity of Thailand for many years was surpassed by textile products in 1985, and in two years textile exports rose to more than twice the level of rice exports. Helped by a large influx of foreign direct investment in advanced manufacturing industries, Thai manufacturers are poised to move into higher technology areas.

2. Many observers have begun to speculate that Thailand may be the next country to join the ranks of the four Asian NICs, i.e., Korea, Taiwan,^{1/} Hong Kong, and Singapore. Clearly, the tremendous dynamism that the Thai manufacturing sector has shown in the last two years and the general maturity it has achieved form the basis for such speculation. However, important shifts in comparative advantage that are taking place within East Asia also add credence to this speculation. As Japan and the Asian NICs lose competitiveness in certain manufacturing industries, a rare opportunity is created for Thailand and other countries to accelerate their industrialization. Obviously a coincidence of the right domestic and external conditions is vital for Thailand to experience an industrial take-off of the kind that Korea and Taiwan experienced ten to fifteen years ago. Therefore, the most important economic policy question at present is how the current expansion can be sustained and converted into such an industrial take-off. This report aims to answer this question, in addition to serving the basic function of analyzing the recent economic developments.

B. Recent Economic Developments

3. The basic economic structure of Thailand has changed significantly in the last ten years. In 1978 agriculture was still the leading sector, producing 24.5% of GDP, while manufacturing produced 20.0%. Manufacturing replaced agriculture as the largest sector in 1981, and by 1988, the share of manufac-

^{1/} Whenever this report makes a reference to "Taiwan," it refers to the economy of Taiwan, China.

turing had increased to 24.4%, while that of agriculture had declined to 16.9%.^{2/}

4. The most visible changes in the Thai economy in the last few years have occurred in trade and investment. Led by manufactures, merchandise exports have surged by an average of 25% p.a. since 1986. While this boom was most directly triggered by a 30% depreciation of the real effective exchange rate ^{3/} since 1985, it also reflects a longer-term shift in the Thai economy toward a greater export orientation, particularly in manufacturing. In the last ten years, the share of manufactured exports in total merchandise exports has risen from about 30% to 60%, with much of the increase having taken place within the last five years. Exports of goods and non-factor services in turn have increased in relation to GDP from 17% to 35% over the same decade. Moreover, the increase in manufactured exports was accompanied by significant diversification of products, suggesting a greater maturity of the Thai manufacturing sector.

5. This export expansion has led to an investment boom since 1987, with private investment rising 26% in 1987 and 23% in 1988. This investment boom, however, must be seen in the context of longer-term trends, both international and domestic. As the Asian NICs and Japan lose price competitiveness, an important shift in comparative advantage has been taking place within East Asia, which is reflected in a sharp rise in the flow of foreign direct investment into Thailand, particularly from Japan and Taiwan. The strong investor confidence is also based on the Government's record of sound macroeconomic management and political stability during the 1980s. In this sense, while macroeconomic adjustment since 1980 has been less visible than the export and investment booms, it is an important structural change that deserves attention.

6. Much of the adjustment effort since 1980 has focused on reducing the fiscal deficit, curbing external borrowing, and making the baht more competitive. The Government slowed the growth of expenditures mostly by scaling back investment programs and raised revenues by stronger revenue collection efforts. A tight ceiling on the public sector's external borrowing was also used to contain capital expenditures by state enterprises. As a result, the share of public fixed capital formation in GDP fell by about 3% since the early 1980s to 5.8% in FY1988, while the Central Government's tax revenue rose by about 1.5% of GDP to 14.7% during the same period. Over the same period, the overall deficit of the public sector improved by about 9% of GDP to a surplus of 1.3% by FY1988.

2/ In both Korea and Taiwan, manufacturing accounted for about a quarter of GDP at the outset of their industrial take-offs.

3/ The real effective exchange rate (REER) measures the relative prices between tradable and nontradable goods in an economy. A depreciation of the REER means that the relative price of tradables has risen, thus favoring exports.

7. Although the appreciation of the yen and some European currencies since 1985 has caused a large revaluation of the existing external debt, the external debt to GDP ratio peaked in 1986 and the debt service ratio had fallen well below 20% by 1987. Further, the total public sector debt as a share of GDP has been stabilized at a sustainable level. Reflecting a much healthier state of public finance, the real interest rate has fallen by about 8 percentage points since 1984. Through this experience of economic adjustment, the fiscal authorities have come to place much greater importance on staying within available fiscal resources. However, these favorable changes have not been without costs. As discussed in greater length below, a drastic slowdown in public investment has left the Thai economy struggling with serious bottlenecks in industrial infrastructure.

8. The baht was devalued twice since 1980, by 8.7% in 1981 and by 14% in 1984. Because it was fixed to the US dollar, the effect of the first devaluation on the real effective exchange rate was quickly offset by the appreciation of the US dollar. The second devaluation in November 1984, on the other hand, was followed by a sharp depreciation of the US dollar, resulting in a 30% depreciation of the real effective exchange rate since 1984. In this process, the Government has won an important victory by overcoming the widespread aversion to devaluation and forging a political consensus on the importance of competitive exchange rates.

C. Causes and Implications of the Recent Success

9. How should the Government respond to these favorable trends so as to lead the economy toward an industrial take-off? In order to answer this question, it is first necessary to assess the extent to which the recent economic success is due, on the one hand, to favorable external, yet possibly transitory, factors and, on the other, to internal changes that may have structurally strengthened the Thai economy. Many observers have ascribed the economic success since 1986 to the export boom, which in turn is attributed to several external factors. The most important of these are the depreciation of the US dollar and the rising cost pressures on manufacturers in Japan and the Asian NICs. While quantitative analyses support the view that the US dollar depreciation has had a significant impact on Thai export growth in the last three years, they show that the devaluation of the baht in 1984 has also made a considerable contribution. However, the export boom alone cannot explain the vigorous and well-balanced growth of the Thai economy since late 1986.

10. This becomes evident when Thailand's economic performance is contrasted with those of the neighboring countries that have also enjoyed strong external demand but have registered much less impressive economic growth. In Thailand, the effect of the external stimulus was magnified because of domestic factors. First, by avoiding large national projects and relying on the private sector to make investment decisions, Thailand had developed a wide range of manufacturing industries that were consistent with its comparative advantage. Hence, Thai manufacturers were able to respond more vigorously than their regional competitors to the favorable external factors. Second, as noted in the previous section, the sound macroeconomic management and politi-

cal stability in the 1980s have built up investor confidence in Thailand. It also allowed the Government to lower the real interest rate significantly since 1985. As a result, the export boom has led to the current expansion in investment.

11. Hence, both external and internal factors have been indispensable in promoting the recent economic expansion. Through broadly sound economic policies and political stability, the Government has prepared the Thai economy to seize fortuitous opportunities created by external events. However, Thai export competitiveness in manufacturing still derives primarily from their low prices. Thus, rapid industrial growth can be sustained only under favorable external conditions, which obviously cannot always be counted on. In order for Thailand to become a major competitor in international markets, the Government may have to reduce some important constraints that continue to hamper the further strengthening of the industrial sector. It will also need to create an industrial environment in which exporters can begin to strengthen qualitative factors, drawing upon innovation, product differentiation, and reliability.

12. The timing of these reforms is essential since Thai industries are in a position to begin the process of industrial maturation needed for success in the 1990s. In terms of both its structure of international competitiveness within manufacturing and its ability to generate growth based on exports, the Thai economy today closely resembles the Korean economy in the early 1970s. Further, the rising cost pressures in the more advanced Asian economies present Thailand with the favorable external conditions that seem to have played an important role in the successes of the Asian NICs and Japan. Therefore, if appropriate policy actions are taken to create a more supportive environment for industrial growth, Thailand can realistically expect to turn the recent boom into a sustained drive toward greater industrial maturity. It is also important to recognize that the coincidence of propitious external events that Thailand enjoys today may not last indefinitely.

13. At this critical juncture, however, the Government seems somewhat ambivalent about pursuing the strategy that relies on accelerated industrialization, for two reasons. First, since the non-agricultural sector employs only one-third of the labor force, many believe that such growth will not create sufficient jobs to absorb the projected increase in the labor force. Therefore, this pattern of growth is thought to be inappropriate for Thailand. One finding of this report is that the official statistics seem to seriously underestimate the non-agricultural sector's share in employment, and its actual share may not be much lower than that prevailing in Korea and Taiwan in the late 1960s. Thus, while there will be transition costs of some magnitude, labor force transformation may be more easily accommodated than often believed.

14. A second concern is that this type of industrial expansion may exclude the less developed Northeast region from the benefits of industrialization. The evidence suggests that there is great potential for closely integrating the Northeast with the rest of the economy (in fact this process has

already begun), and hence the high cost of such dualistic growth may well be prevented. While the Government's concern for maintaining a proper balance between overall growth and distributional equity is understandable, the trade-offs facing Thailand may be potentially more favorable than was heretofore believed.

15. The Government's ambivalence toward accelerated industrialization is reflected in its industrial strategy. While the Government is beginning to promote industrial deepening and sophistication through the development of the "supporting industries" (i.e., those that supply parts and components to assembly operations such as automobile and electronics industries) and subcontracting, it is also placing a renewed emphasis on the development of rural industries and small and medium enterprises (SMEs). This promotion of rural industries and SMEs arises from a concern with income disparities and is seen as counterbalancing and tempering the recent focus on industrial growth. However, SME development is in fact potentially complementary to a strategy that sustains industrial growth through subcontracting and backward linkages. In order for Thailand to eventually succeed in more advanced industries, such as automobiles, electronics, and machinery, in which the efficiency of parts and component suppliers has become a critical determinant of competitiveness, it must develop a wide range of supporting industries and efficient subcontracting systems. This in turn requires a healthy environment for small and medium sized enterprises, which also contributes to growth of industries in rural areas. Therefore, the Government should recognize that this industrial strategy can serve both growth and equity goals, and move more forcefully to implement it.

D. Framework for Sustained Growth

16. In order for Thailand to turn the current expansion into an industrial take-off, it must overcome constraints in several areas. Predominant among these at the moment is the state of infrastructure in Thailand. After several years of cutbacks in public investment programs, the sudden surge in exports and inflow of direct investment has caught the country unexpectedly. Thus bottlenecks are emerging in transportation, ports, and telecommunication, and energy and water development now appears inadequate to sustain rapid economic growth. In light of the long lead time required for major infrastructure projects, there will be pressure to move ahead quickly. Therefore, to avoid ill-conceived projects and still to provide sufficient infrastructure to facilitate continuation of the dynamic industrial expansion currently underway, the Government needs to urgently develop a program of well planned infrastructure investments.

17. At the same time, Thailand's experience in the last few years amply demonstrates the importance of maintaining sound macroeconomic balances as a prerequisite for strong economic growth. Rapid industrial expansion will pose two challenges to the Government in keeping fiscal and external balances in order. First, whereas the share of fixed investment in GDP will rise sharply in the industrial take-off phase, savings are unlikely to respond quickly, thereby widening the current account deficit. This would imply continued

reliance on foreign capital and vulnerability of the external balance to adverse external shocks. Second, acceleration in industrial growth will increase the need for public sector investment on infrastructure and may, as a consequence, strain fiscal balances if revenues are not raised commensurately.

18. The likelihood of larger savings-investment gaps is already becoming evident and gaining prominence as an important policy issue. In 1988, with the surge in investment, the current account deficit is estimated to have increased to about 3.3% of GDP, and is expected to rise to about 5% in 1989-90. Such large current account deficits when exports are expanding at a brisk pace means a risk of much larger deficits should the external demand slacken even modestly. There is an argument that since a large part of this deficit is financed by direct foreign investment, Thailand would be at least shielded from a debt crisis. However, foreign investment may be repatriated at any time (and especially when the economic performance deteriorates). Since Thailand is committed to an open capital account for foreign investors, foreign equity financing poses a potential liquidity problem similar to the one posed by external debt financing. Therefore, the Thai economy's ability to maintain accelerated industrialization critically depends on its capacity to increase domestic savings.

19. The Government has so far shown strong indications that it will continue its cautious fiscal stance, but there is also a clear need to increase infrastructure investment to keep pace with rapid economic growth. Therefore, in order to safeguard a sound public sector balance, efforts should be made in the Government sector to restrain other expenditures and plan for revenue enhancement. In the state enterprise sector, continued efforts are needed to increase its operating efficiency. Furthermore, given the extremely buoyant domestic demand today, the Government should carefully phase the increase in public investment so as to avoid inflationary consequences. While the Government has much less control over private savings, there are important measures it can take. The Government should pursue policy reforms to increase competition and improve efficiency in the financial sector. It can also consider some form of contractual savings scheme or special savings instrument to stimulate private savings.

20. The success of its export-led growth strategy will by definition require strong export performance. At the macroeconomic level, two factors are critically important: the exchange rate policy and the external demand conditions. In regard to the exchange rate policy, since there is now a broad consensus on the importance of keeping the exchange rate competitive, the Government can be expected to pursue a competitive exchange rates policy. There is a risk that external political pressures on the Asian NICs to revalue their exchange rates may spill over to Thailand, especially if its export success continues and becomes more visible. However, the Thai economy's tendency to increase its imports in line with export growth should moderate such political tensions.

21. While the outlook for the external trade environment is not particularly favorable in general, the demand outlook for the Thai exporters is more

promising. The relatively small shares of Thai manufactured exports, the shift in comparative advantage within East Asia, the market composition of Thai exports (with a bias toward fast growing markets), and the strong linkages that are developing between Thai firms and the firms in Japan and the NICs all contribute to such an outlook. Nonetheless, since demand conditions are the most important source of uncertainty, the Government should adopt measures that add to the flexibility and competitiveness of Thai manufacturers. Flexibility and competitiveness can be improved by removing impediments to resource shifts, strengthening applied research and development activities, and encouraging greater investment in human capital. The following section identifies the key constraints and shortcomings in the existing economic environment and recommends appropriate Government actions in the areas of: (a) trade and industrial policy; (b) policies to upgrade the industrial structure; (c) policies to improve the environment for SMEs; (d) financial sector reform; (e) infrastructure investment and planning; and (f) human resources.

E. Priority Areas of Policy Action

Trade and Industrial Policy

22. With general agreement on the need for export promotion, Thailand's trade regime has become significantly more outward looking in the recent years. However, in order for Thailand to sustain rapid export growth, the Government must improve some aspects of trade and industrial policy. In the area of trade, while the duty drawback and exemption systems and export credit facilities have largely removed anti-export biases for those firms that have access to these schemes, they are not easily available to many indirect and smaller exporters. If uncorrected, this will hamper the implementation of the industrialization strategy that emphasizes the role of small and medium sized enterprises. It is therefore recommended that these schemes be made uniformly available to all exporters.

23. A second problem is the tariff structure that protects consumer and light intermediate goods much more than heavy intermediate and capital goods. While this problem was not serious in the past because Thailand's comparative advantage was more in labor-intensive industries, it will become a hindrance to the development of the more advanced industries that the Government wants to promote and are necessary for Thailand's industrial deepening. It is recommended that the dispersion of nominal tariff rates be reduced to a target range of 10-40%. This would generally entail lowering rates on consumer goods and light intermediates. These changes would not only reduce the bias against heavy industries but also raise the competitiveness of other industries that have been hitherto sheltered from international competition, by exposing them to a greater market discipline. This approach of creating a "level playing field" is likely to be more efficient than targeting specific sectors for promotion, which poses high potential costs. It has been estimated that such rate changes would not have a large impact on tariff revenues.

Upgrading Industrial Structure

24. Over the medium term, Thailand's comparative advantage in labor-intensive light manufactures will erode as Indonesia and China, with huge reservoirs of cheap labor, are rapidly moving into those products. Thus, Thai manufacturers must enhance their qualitative competitiveness. This can be done only through general deepening and upgrading of the industrial structure. In this regard, two constraints must be removed, in addition to the bias in the structure of tariff protection. First, the ability of Thai manufacturers to increase their technological capabilities is an important constraint. Although a detailed analysis of this issue is beyond the scope of this report, three broad issues can be pointed out. One is the relatively small spending on research and development (R&D) that is undertaken in Thailand. The Government may need to strengthen its role in this area. Another issue is the widely reported shortage of science and engineering graduates. This may be an area where public sector institutions are better suited to supply the training because of the externalities involved. Finally, the degree to which Thai firms can benefit from the inflow of foreign direct investment in the forms of technology transfer and backward linkages deserves consideration. In this regard, the Board of Investment (BOI) can use its promotion privileges to encourage foreign direct investment that would facilitate technology transfer or create backward linkages. The BOI, however, has not adequately monitored the activities of promoted firms in the past. It is recommended that the monitoring by the BOI be improved so that promoted firms in general bring the promised benefits to the economy.

25. Second, there are biases against subcontracting, which is a critical ingredient in industrial deepening and sophistication. As Thailand moves increasingly into advanced assembly industries, which are typically supported by extensive networks of subcontracting, the biases against subcontracting could impede the growth of these industries. This problem, however, should be viewed in the broader context of the need to improve the environment for small and medium enterprises.

The Environment for Small and Medium Enterprises

26. In the Government's strategy for industrial upgrading that emphasized supporting industries and subcontracting, small and medium enterprises (SMEs) are expected to play a pivotal role. This strategy is timely, given that many manufacturing firms from Japan and Taiwan, which already rely on extensive subcontracting, are now moving to Thailand. It would also recognize that efficient manufacturing growth can be based on strengthening SMEs which currently account for the bulk of manufacturing firms. Promoting SMEs is also consistent with the Government's objective of greater equity and rural industrialization. However, SMEs in Thailand at present face severe policy biases.

27. First, investment incentives and export promotion and financing facilities all favor large firms. Unless the benefits of these schemes are available to SMEs, they will not be able to compete with larger firms. It is recommended therefore that these schemes be made neutral with respect to firm

size. This approach is likely to be more effective than adding further to special programs to assist SMEs with technology, marketing, and credit. Second, the current business tax, with its well-known "cascading effect," discourages subcontracting. The planned introduction of the value added tax (VAT) will remove this bias. Any delay in its implementation will be costly. Third, there is a shortage of appropriate sites for medium size firms particularly in Bangkok. These firms are too large to stay in the central city, but not large enough to move far from it. Traditional industrial areas that have attracted these firms have been often neglected by infrastructure planners. The planners should recognize that market forces are signalling the attractiveness of these areas for further development. It is likely that additional infrastructure investment in these areas will bring high rates of return. It is recommended therefore that basic infrastructure in these traditional industrial areas be upgraded. It is also recommended that the private sector be encouraged to develop new industrial sites for SMEs with the Government playing a facilitating role.

Financial Sector Reform

28. Efficiency lapses in the financial sector are a potential constraint to speeding up industrial growth. While the Thai financial system has shown flexibility and adaptability, there are institutional problems that hinder greater efficiency. First, Government regulation restricts development financial institutions to particular activities, thereby weakening their financial positions. Second, directed lending schemes distort credit flows by taxing commercial banks. Third, the export refinancing scheme provides unnecessary subsidies, which are concentrated among a few large firms and commodities. Finally, entry and exit of financial institutions are still controlled, thereby reducing competition in the financial sector. Given that the financial system will have to respond to the rapidly changing needs of the Thai economy, it is important that the system be freed from as many of these constraints as possible. The Government should consider (a) relaxing the restrictions on development financial institutions; (b) switching from the directed lending schemes to a more market-based system; (c) eliminating the subsidy in export refinancing and tie the access to the facility to value added in what is financed; and (d) liberalizing entry into and exit from commercial banking. A generally more efficient and competitive financial system will also increase the flow of credit to SMEs and contribute to higher savings.

29. With both private and public investment rising rapidly, the efficiency of capital market will become a particularly important issue. There will be an increasing number of projects that are much larger than before and require longer-term financing. In addition, many Thai firm are moving into industries that face severe international competition, which demand stronger equity bases to weather adverse market conditions. All these trends make it specially important to strengthen the capital market.

Infrastructure

30. Only three years into an economic boom that started in 1986, Thailand's industrial infrastructure is showing signs of severe strain, for example in road transport infrastructure in and around Bangkok, port facilities, and telephone services. The sharp cutbacks in public sector spending on infrastructure in the last few years have created large gaps between the necessary levels of investment to support rapid growth and the actual investment plans. While it is beyond the scope of this report to suggest specific investment programs, rough estimates indicate that, in order to support rapid growth for the medium term, the public sector's investment may have to increase from 5.8% of GDP in 1988 to around 7.5% in the near term. If the Government fails to improve the infrastructure, the cost of production will escalate, thereby stifling the growth of manufacturing industries. It is recommended that the Government urgently review the public sector's investment plans to ensure longer term adequacy of industrial infrastructure.

31. While there are some areas that suffer from deficiencies in the absolute amount of infrastructure investment, there are also problems that result from ineffective planning and management of infrastructure. Infrastructure planning in Thailand has been always influenced by the notion that there is an excessive concentration of industries in Bangkok. This has led on the one hand to a policy to decentralize industries and on the other to a degree of neglect of infrastructure in Bangkok. However, it must be recognized that Bangkok will continue to grow and remain the leading center of Thai industries. Moreover, Bangkok still has sufficient undeveloped land to accommodate considerable expansion. Therefore, it is critically important to manage its growth. At the same time, with the improvement in basic infrastructure outside Bangkok, a clear trend of decentralization has emerged. Thus, it is important for the Government to pursue a decentralization policy that is consistent with this trend. Experiences elsewhere show that attempts to force industrial decentralization are seldom effective and often costly.

32. Many planning problems associated with industrial infrastructure are best understood in the context of the infrastructure needs of manufacturing firms. In Bangkok, as in other large cities, small firms are located in the central city where they can benefit from economic externalities of concentration (such as shared repair and delivery services, and market access). As they grow to medium size and need more space, they begin to move outward in the city, although they typically try to minimize the distance of their move so as to maintain the ties to their old environment. Only when they become large enough to internalize many of these externalities do they move out of the city to areas where land is cheaper. These preferences are basically the results of market forces, and have been witnessed worldwide. For the planning of industrial and urban infrastructure to be efficient, it must be consistent with such market determined behavior of manufacturing firms and the resultant urban development pattern.

33. In order to maximize the impact of the limited public resources available for infrastructure, it is recommended that the Government (a) encourage

private sector involvement in the development of industrial sites for both large firms (i.e., traditional industrial estates) and medium size firms; (b) designate an operational body (possibly the Bangkok Metropolitan Administration or the Ministry of Interior) to be responsible for continuous monitoring of urban development in Bangkok, infrastructure planning, and the associated inter-agency coordination; (c) identify basic infrastructure and service constraints to industrial growth in regional cities, and focus on reducing these constraints; and (d) give local governments more autonomy to meet the demand for local services. All these measures are designed to make infrastructure investment more responsive to market signals. Given that the objective of fiscal austerity demands relatively slow growth in public sector investment on infrastructure, these measures to increase the effectiveness of infrastructure investment are particularly important.

Human Resources

34. Even with well designed industrial, financial, and infrastructure policies, industrial growth will still not occur without the right human resources. Industrialization must clearly take place within the general constraint of overall labor supply, but the Government can also influence the nature of that labor supply through education. The overall labor supply situation in Thailand appears to be quickly heading toward a shortage, perhaps within several years if the current pattern of economic growth continues. This suggests a need for Government planners to alter their conventional strategy of promoting labor intensive industries based on the notion that there is a large pool of seasonally underemployed workers in rural areas.

35. For the Thai economy to compete successfully in the future, industries need to gain competitiveness in the products that have higher skill content. The proven quality of Thai workers, in particular their "trainability," bodes well for such a development. This direction of industrial development presages a work force with a large number of workers with secondary education (rather than primary education or less today) combined with an increasing number of professionals with higher education especially in science and engineering. The problem, however, is that secondary education is arguably the weakest link in the current education system. Therefore, it is recommended that the Government strengthen secondary school programs. In this regard, it is important for the Government to direct the program toward the general training that enhances the student's ability to learn necessary and often changing skills on the job and away from the specific skill oriented training.

F. Medium-Term Outlook

36. Whether Thailand can turn the current economic boom into a successful industrial take-off will depend to some degree on relatively favorable external conditions, over which the Government has little control. However, the policy actions recommended above should remove the main domestic constraints and significantly increase the chance of success. The favorable fiscal posi-

tion that the Government currently enjoys provides a good opportunity for making even those policy changes provided that overall balances are maintained. With implementation of most of the measures recommended in this report and a somewhat more favorable world economy, growth may well be raised by an additional 1% p.a. in the medium term. More importantly, however, the proportion of investment financed by domestic savings increases and thus the vulnerability of the economy is concomitantly reduced.

37. The medium-term outlook will depend critically on the growth path chosen by policymakers. A major issue at this juncture is the speed with which investment is raised and how it is to be financed. This report takes as its "Base Case" the scenario which looks most plausible in light of currently pursued Government policy. In the "High Case," the current investment spike is moderated, but a combination of policy reforms and a slightly more favorable external environment serve to raise the long-term growth rate and produce a higher per capita result in outer years. By being more cautious in the near term, when a situation of overheating cannot be ruled out, it allows policymakers more flexibility in the future to pursue consistently expansionist policies, with positive longer-run effects on savings and a smaller reliance on foreign capital.

38. If the external environment stays largely unchanged and domestic constraints to industrial growth are reduced moderately, the Thai economy can expect real GDP growth of about 6% p.a. in the medium term, after considerably faster growth in 1989-90. In this "Base Case," it is assumed that the Government will increase public sector investment from 5.8% of GDP in 1988 to about 7.2% in 1989 and maintain that level thereafter. Another important assumption is that the real effective exchange rate will be kept unchanged. The overall public sector deficit will stabilize at around 1.5% of GDP in the medium term, but the current account deficit will widen to about 5% of GDP during 1989-91 and decline only slowly thereafter. While this does not pose any immediate threat to the economic stability, running current account deficits of 5% when external conditions are fairly favorable clearly implies that Thailand's external balance is vulnerable to adverse shocks. Under a realistic set of unfavorable assumptions, simulations show that the current account deficit could rise to about 8% of GDP very quickly and the growth rate could fall under 5%.

39. In the alternative "High Case" scenario, the incentive regime is improved markedly and public sector investment is increased more than in the Base case. However, given that the Thai economy is already operating near its full capacity level, the increases in public sector investment are phased carefully in this scenario. Public investment will be slightly lower than the Base case in 1989 to temper the strong domestic private demand, but will rise to about 7.5% of GDP in 1991-92, falling slightly thereafter. The increase in investment does not jeopardize the fiscal balance as long as public sector revenues rise in line with GDP. The real effective exchange rate is again assumed to remain constant. The higher levels of public investment in this scenario are predicated on the assumptions that the external demand conditions will be somewhat better than in the Base Case and that other domestic policies

will be taken to improve the incentive regime.

40. Regardless of which scenario is pursued, sound macroeconomic management will be critically important. Only after the successful macroeconomic adjustment during the early 1980s did today's economic success become possible. Since the Thai economy is already pushing the limits of its existing production capacity today, vigilance toward inflationary pressures as well as the external deficit (which is often the result of inflationary pressures in Thailand) is particularly important. In order to ward off inflation and a larger external deficit, the Government must manage the public sector deficit through careful phasing of investment and adequate revenue measures. In the context of an economic expansion that borders on overheating, a steady increase in public investment and some revenue enhancement would prove effective in maintaining stability. It would also give the Government an added degree of freedom in pursuing an expansionary fiscal policy should it later become desirable. Ultimately, a policy stance which fosters consistent expansion will enable the country to raise its per capita income levels most expeditiously and provide the largest material improvements in the well-being of the Thai people.

Part I. Past Trends and Recent Economic Developments

Introduction

1.1 Following a period of economic policy adjustment and unsteady economic performance during the first half of the 1980s, the Thai economy has achieved an impressive record of economic growth since 1986 characterized by surging exports, narrowing fiscal and external deficits, price stability, and an investment boom. The growth rate of real GDP recovered from a low of 3.5% in 1985 to 4.5% in 1986, and accelerated to 8.4% in 1987. According to the preliminary estimate, the growth rate rose to a record 11.0% in 1988. Particularly remarkable has been the growth in manufactured exports, which rose 19.8% in 1986 and 34.2% in 1987 (in real terms). Since 1987, private investment has also risen sharply, helped by increases in foreign direct investment, especially from Japan and Taiwan. Meanwhile, the public sector balance as a share of GDP has turned from deficits averaging 6.1% of GDP during FY1982-85 to a surplus of 1.3% by FY1988. The current account deficit also narrowed from an average of 5.3% of GDP during 1981-85 to a surplus of 0.6% in 1986 but has since widened to 3.3% in 1988.

1.2 This strong economic rebound which took most Thais by surprise is widely attributed to the spectacular success of exports, in particular those of manufactures. The export success, in turn, is attributed to several external factors. The first and most important factor is the depreciation of the US dollar. This allowed the Government to devalue the baht by keeping it closely tied to the dollar, without producing strong political opposition as in the case of November 1984 devaluation. The second external shock came from the decline in oil prices in 1986. The third factor is the general decline in international interest rates. The fourth is the rising cost pressures in the Asian NICs 1/ (stemming from both wage hikes and currency appreciation) and the tighter quota limits these countries face in several major markets. These developments have increased the competitiveness of Thailand in some labor-intensive light manufacturing sectors, including textiles, garments, footwear, and processed foods. The fifth is the effort on the part of manufacturers in Japan and Taiwan to relocate their export base from home to countries with lower wage costs, which has brought a tremendous influx of direct investment in export-oriented projects, especially since 1986. The foreign investment boom has also had the more immediate impact of increasing private investment activities.

1.3 Viewed in this light, the economic success of Thailand since 1986 appears to depend primarily on external factors over which Thailand has only marginal control, except perhaps for the competitive exchange rate policy. By implication, Thailand cannot count on the favorable performance of the last three years continuing in the medium term. This, however, is too simplistic a

1/ By the Asian NICs, this report refers to the economies of Korea, Hong Kong, Singapore, and Taiwan.

Table 1.1: RECENT ECONOMIC DEVELOPMENTS

	1981-85 <u>/a</u>	1986	1987
Real Growth			
GDP	5.6%	4.7%	7.1%
Agriculture	4.9%	1.4%	-2.5%
Industry	5.0%	6.5%	9.9%
Services	6.3%	4.9%	9.1%
Economic Structure (% of GDP in current prices)			
Agriculture	21.4% (1981)	16.8%	15.9%
Industry	31.6% (1981)	33.8%	34.8%
Services	47.0% (1981)	49.4%	49.3%
Exports of goods and nonfactor services	24.0% (1981)	26.6%	29.4%
Public Finance (fiscal year)			
Public sector deficit/GDP	6.0% (FY82-85)	4.7%	2.6%
Public sector debt/GDP (end of year)	36.0% (1981)	58.0%	56.5%
Money and Credit			
M1 growth rate (December to December)	3.7%	20.0%	28.0%
Domestic credit growth rate (as above)	17.8%	6.4%	17.1%
Minimum overdraft rate <u>/b</u>	16.5%	12.3%	11.5%
1-year time deposit rate <u>/b</u>	12.6%	7.0%	7.0%
Trade			
Manufactured exports (real growth)	2.4%	19.8%	34.3%
Manufactured exports/merchandise exports	34.7%	44.9%	52.2%
Current account balance/GDP	-5.3%	0.6%	-1.2%
Terms of trade index (1985=100)	105.3	110.7	110.8
Exchange rate (baht/US\$, average)	23.7	26.3	25.7
Real effective exchange rate (1980=100)	96.4	117.6	125.1
Savings and Investment (at current prices)			
Gross savings/GDP	19.6%	23.0%	22.5%
Gross investment/GDP	24.9%	22.4%	23.8%
Public capital expenditures/GDP (FY)	7.8% (FY82-85)	7.2%	6.6%
Private fixed investment, real growth	3.0%	-1.2%	18.6%
Prices			
CPI inflation (December to December)	4.3%	1.7%	3.7%
External Debt			
Total external debt (\$US billion)	10.8 (1981)	18.0	20.3
Total external debt/GDP	32.9% (1981)	43.2%	42.9%
Long-term debt service/exports <u>/c</u>	14.4% (1981)	25.4%	18.9%

/a Average for the period unless otherwise indicated in parentheses.

/b Year end levels or their averages.

/c Excludes debt service on IMF credit and short-term debt.

Sources: Statistical Annex and World Bank staff estimates.

view. Many other countries also faced many of the same external factors. Yet only a handful were able to take full advantage of these circumstances. This difference must be explained by domestic factors. Most observers of the Thai economy would agree that both internal and external factors contributed to the recent economic boom. There is no consensus, however, on the relative importance of the external, and probably transitory, factors and the internal, and potentially more permanent, changes that may have structurally strengthened the Thai economy.

1.4 It is important to understand where this balance rests. If the recent economic success mainly reflects the favorable external conditions, then there may be a need for further policy reform to strengthen the export industries. Furthermore, unless there are reasons to believe that the favorable external conditions will prevail for a long time, the Government should plan its fiscal affairs and development programs conservatively. On the other hand, if the recent economic success resulted mainly from changes in economic policy and industrial structure, then the Government has a golden opportunity on hand to reinforce the recent trends and push for major advances in industrial development. While the balance certainly lies between these two extremes, the relative importance of the external and internal factors still has important implications on the general stance of the Government's economic policy.

1.5 In order to determine the causes of the economic rebound since 1986 and understand the policy developments in the last few years, it is necessary to go back to the adjustment efforts that started in 1980. These adjustments, in turn, need to be seen against the problems that were caused by the two oil shocks in the 1970s.

I. MACROECONOMIC ADJUSTMENT SINCE 1980

A. The Process of Adjustment

The Roots of Economic Difficulties in the Early 1980s

1.6 Thailand's economic difficulties in the early 1980s have their roots in the first oil shock and its incomplete adjustments to it. After the real petroleum price more than doubled in the 1973-75 period, the Thai Government did adopt deflationary fiscal and monetary policies. In hindsight, however, the extent of macroeconomic adjustments were not commensurate with the size of the external shock. There were four major factors, most of them temporary, that cushioned the impact of oil price increases in the mid to late 1970s and made it difficult for the Government to see the underlying deterioration in macroeconomic balances. These factors are:

- (a) the commodity price boom in 1972-73;
- (b) the inflow of Vietnam War related US military assistance, which averaged 1.6% of GDP during 1970-76 (but fell to zero in 1977);

- (c) increasing remittances from Thai workers overseas, primarily in the Middle East, which rose to 1.2% of GDP by 1980; and
- (d) the small external debt in the early 1970s, which made external financing of the widening resource gap less alarming to both the Thai Government and lenders.

1.7 Due to prudent monetary policy, inflation did subside quickly along with the drop in world inflation to 4-5% by 1976. After slowing to 4.4% and 4.8% respectively in 1974 and 1975, the real GDP growth rate rebounded to 9.4% in 1976. This gave both the Government and the private sector a false sense in the second half of the 1970s that the economy was back on a healthy growth track.^{2/} Both private and public consumption rose rapidly as did gross fixed investment. Virtually all of the almost 8% average annual growth of real GDP during the 1975-80 period was generated by the expansion in domestic demand. This was supported by current account deficits averaging 5.3% of GDP for 1976-80. The policy response after the first oil shock left five major problems: persistent fiscal deficits, rising external deficits, rapid accumulation of external debt, some overvaluation of the baht, and artificially low domestic energy prices.

1.8 By the late 1970s, the fiscal and external imbalances were already becoming acute, and inflation was rising again. When the external shocks of the 1979-82 period hit the Thai economy, these imbalances were made simply more glaring. These shocks included the second oil shock of 1979-80, the worldwide increase in real interest rates in 1980-82, and the severe recession in most industrial countries in this period. For 1979-81, the overall deficit of the Central Government averaged 4.1% of GDP and that for state enterprises averaged 1.4% of GDP. For the same period, the current account deficit averaged 7% of GDP.

The Nature of Macroeconomic Adjustment since 1980

1.9 When the Prem administration came into office in March 1980, it was clear that both fiscal and external imbalances were beyond sustainable proportions. The new administration immediately embarked on macroeconomic adjustments to address these problems. The changes in the investment-savings balance and the composition of final demand between the 1979-81 and 1986-87 periods reveal the nature of these adjustments (see Tables 1.2 and 1.3).

1.10 The investment-savings gap that averaged 7% of GDP during 1979-81 had almost been closed by 1986-87. Between the two periods, gross fixed capital formation undertaken by the private and public sectors both declined. However, private fixed capital formation has rebounded sharply since 1987, while public fixed capital formation continued to decline until 1988. This indicates that the decline in private fixed capital formation until 1986 was

^{2/} See World Bank, Thailand: Managing Public Resources for Structural Adjustment, Report No. 4366-TH, 1983, pp. 13-14.

largely due to its cyclical response to the slowdown in the Thai economy, which in turn was the result of macroeconomic policies and external circumstances. On the other hand, the decline in public fixed capital formation reflects a longer-term Government policy aimed at curbing the growth of public expenditures. Thus even as the Government is increasing its spending on infrastructure to keep pace with rapid economic growth, the public sector's investment as a share of GDP is unlikely to return in the near future to its levels in the early 1980s.

1.11 Between the 1979-81 and 1986-87 periods, gross savings rose by 4.0% of GDP, mostly due to increases in public sector savings and depreciation allowances. Net private savings fell, but since the distinction between depreciation allowances and net savings is somewhat arbitrary, the decline should not be viewed with undue alarm. Gross savings in the private sector have probably remained more or less unchanged since the beginning of the 1980s. The state enterprise sector was responsible for much of the increase in public sector savings that resulted largely from adjustments in the prices of key services, including electricity, water, and bus and train services. While the average savings of the Government sector during 1986-87 was lower than during 1979-81, they rose to 5.4% of GDP in 1988.

1.12 In 1988, gross investment (as a share of GDP) rose sharply to a level similar to those during the 1979-81 period. This investment boom, however, is very different from the earlier one and shows how the Government has succeeded in restructuring the Thai economy. Between the two periods of high investment, the share of investment shifted in favor of the private sector by about 3% of GDP, and gross savings rose by 4.6% mostly due to greater public sector savings. As a result, the latest investment surge is strongly market oriented and the current account deficit has remained in at a more manageable level.

**Table 1.2: SAVINGS-INVESTMENT BALANCE
(as % of GDP at current prices)**

	1979-81	1986-87	1988
Gross investment	26.6	23.9	27.5
Private	16.7	15.7	20.0
Public	8.5	7.0	5.8
Change in stocks	1.5	1.3	1.7
Gross savings	19.6	23.6	24.2
Net saving	14.6	13.1	18.6
Private	12.8	10.3	11.7
Public	1.8	2.8	6.9
Government	1.6	1.4	5.4
State enterprises	0.3	1.4	1.6
Depreciation allowances	6.6	8.4	8.0
Statistical discrepancy	-1.6	2.1	-2.4
Current account balance	-7.0	-0.3	-3.3

Source: NESDB.

1.13 Table 1.3 reviews the same adjustment effort from the expenditure side. Domestic final demand exceeded GDP by 4.8% in the 1979-81 period, but was nearly in line with GDP by the 1986-87 period. The burden of final demand compression fell mostly on fixed capital formation and private consumption, which fell by 2.6% and 1.1%, respectively. Although total public consumption increased slightly, public consumption excluding interest payments made by the Central Government actually declined by about 1% of GDP.

**Table 1.3: EXPENDITURE BREAKDOWN OF GDP
(as % of GDP at current prices)**

	1979-81	1986-87	1988
Domestic final demand			
Consumption	104.8	101.1	99.6
Private	78.2	77.1	72.1
Public	65.8	64.6	61.3
Fixed capital formation	12.4	12.6	10.8
Private	25.2	22.6	25.8
Public	16.7	15.7	20.0
Change in stocks	8.5	7.0	5.8
	1.5	1.3	1.7
Net external demand	-6.4	1.2	-1.7
Exports	23.7	28.3	34.5
Imports	30.2	27.1	36.2
Statistical discrepancy	1.6	-2.3	2.1
GDP	100.0	100.0	100.0

Source: NESDB.

The Mechanism of the Adjustment

1.14 The analysis in the previous section shows that the Government used a two-pronged approach to the macroeconomic adjustments. On the one hand, it slowed the economy and reduced public sector investment in order to reduce domestic absorption. This was done through fiscal and monetary restraint and price adjustments. On the other hand, the Government increased public sector savings in order to raise overall savings. This was done through expenditure cuts, revenue raising measures, and strengthening the financial conditions of state enterprises. Some measures have obviously served both objectives.

1.15 The same adjustment process can be viewed from yet another angle, that of the balance between exports and imports of goods and nonfactor services. In order to lessen the external deficit, the Government used relative price adjustment as well as reduction of domestic absorption (as discussed in the previous section). The baht was devalued against the US dollar twice, by 8.7% in 1981 and by 14% in 1984. Although the effect of the first devaluation was largely offset by the appreciation of the US dollar (to which the baht was fixed) against other major currencies, the second devaluation did contribute to a depreciation of the real effective exchange rate by 12% between 1984 and 1985 (see Chapter 2).

1.16 The commodity composition of Thailand's exports and its relatively low demand price elasticity, as well as the strong domestic demand toward the end of the 1970s, made it important to use a well-balanced combination of switching and absorption policies rather than an exclusive emphasis on either measure.^{3/} In 1980, Thailand's exports were still mainly composed of agricultural and mineral products. Manufactured goods accounted for about 30% of total merchandise exports. While Thailand's exports of minerals and most manufactured goods are relatively small and hence have little impact on their world prices, the same is not the case for Thailand's main agricultural exports. Thus, a larger change in relative prices (through further devaluation) in favor of exportables may well have depressed the prices of these commodities and improved the current account only marginally (or even worsened it). At the same time, given that rising energy costs were already imposing the economy a considerable burden of adjusting real wages downward, a much larger devaluation would have strained the Thai economy's ability to adjust to exogenous shocks. On the demand side, had the expenditure reduction been greater, the adverse effect on growth and employment may have caused unacceptable social and political strains. A gradual but sustained reduction in domestic consumption and investment was probably the realistic course to follow.

1.17 In the meantime, industrial and trade policies were left largely untouched (see Chapter 3). Although there was a major attempt at reducing the dispersion of tariff rates in 1982, most of the changes were immediately reversed due to concerns over the public reaction to higher tariffs on many items. Therefore, the macroeconomic adjustment since 1980 has been mainly a fiscal and monetary policy exercise. The only major exceptions have been the adjustments to the domestic prices of energy and some public services.

1.18 At the micro level, the most serious price distortion in the Thai economy in the late 1970s was in oil prices. By using the Oil Fund, the domestic oil prices were kept at artificially low levels after the first oil shock. When the second oil shock came, domestic oil prices were progressively raised from 1978 to 1981 by 250% to bring them more or less in line with the international prices.^{4/} Over the same period, the CPI rose only 48%. Since then domestic oil prices have generally moved with international prices until 1986 when the latter began to fall sharply. The Government decided not to pass the full benefit of oil price declines to the consumer. While the price of imported oil fell by 38% between 1985 and 1987, the price of diesel, for instance, was reduced by only 6%. This was designed to encourage further

^{3/} Switching policy tries to switch productive resources between tradable and nontradable goods sectors by changing their relative prices (typically through exchange rate adjustments), while absorption policy tries to affect the aggregate level of domestic absorption (i.e., consumption and investment) through fiscal and monetary policies.

^{4/} The change in oil prices is measured in terms of the wholesale price index for petroleum products.

energy conservation and to strengthen the public sector's financial position. Other important price adjustments include, the elimination in 1986 of the rice premium, the last of the special rice taxes;^{5/} electricity price hikes of 17% in October 1980 and 16% in January 1981; and bus and train fare increases in January 1981.

1.19 The following sections will discuss how fiscal and monetary policies were used to correct the macroeconomic imbalances of the early 1980s. While the economic rebound since late 1986 has allayed much of the earlier concerns about economic instability, the basic direction of fiscal and monetary policies continues to be dictated by the mandate to maintain robust fiscal and external balances. In this sense, recent developments in these policies can be best understood in the context of the adjustment process that began in 1980.

B. Fiscal Policy

Fiscal Adjustments since 1980

1.20 Although fiscal adjustments since 1980 must be seen in the context of broader macroeconomic adjustments, the Central Government was prompted into fiscal restraint most directly by the revenue shortfalls that developed from FY1981 to FY1986. A rough breakdown of the shortfalls into the component that resulted from slower-than-expected GDP growth and the one that resulted from lower-than-expected revenue to GDP ratio indicates that the shortfalls were more because of the former, i.e., persistently overoptimistic growth projections [see lines (8) to (10) of Table 1.4]. For FY1981-86, nominal GDP growth projections were on average 6.1% higher than the actual.^{6/} The revenue to GDP ratio, which had chronically underperformed until 1982, improved considerably thereafter, indicating that the Government was strengthening its tax collection efforts in response to the underperformance of revenue. The degree of success that the Government may have had in this area is hinted at by the revenue collection in FY1987-88. For the first time since FY1980, actual GDP for FY1987 turned out to be higher than projected in the budget, by 3.2%, and tax revenues exceeded the budget projection by 6.5%. This implies a tax revenue buoyancy of 2.03. For FY1988, the tax revenue buoyancy rose to 5.06. These buoyancy levels are much higher than 1.13 estimated by the IMF for FY1977-85.^{7/}

^{5/} The export tax on rice had been reduced gradually from about 30% in 1980 to 5% in 1981 before being eliminated in 1986.

^{6/} The 6.1% figure includes later revisions to the actual series, but not the most recent revision of the national accounts by the NESDB in 1988.

^{7/} The estimate is from the IMF's technical assistance report, Thailand: Tax Reform for Export Promotion, Investment Expansion, and Growth, May 1987, (cited with the permission of the Fiscal Policy Office).

Table 1.4: CENTRAL GOVERNMENT FISCAL PLAN
(millions of baht)

	Fiscal years	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987/a	1988
Revenue												
Revenue estimate	(1)	62,000	72,000	88,000	120,000	140,000	151,000	160,000	178,000	185,000	185,500	199,500
Actual revenue	(2)	62,143	75,090	92,690	110,486	113,654	137,651	148,821	162,210	165,628	193,283	
Difference	(3)=(2)-(1)	143	3,090	4,690	-9,514	-26,366	-13,549	-11,179	-15,790	-19,372	7,783	
Revenue estimate/projected GDP	(4)=(1)/(26)	14.5%	14.6%	14.5%	14.5%	14.6%	14.0%	15.5%	15.2%	14.8%	14.6%	15.1%
Actual revenue/actual GDP	(5)=(2)/(28)	13.2%	13.5%	13.5%	14.1%	13.4%	14.9%	15.0%	15.6%	15.0%	16.0%	
Revenue under projected Rev/GDP /b	(6)=(28)x(4)	68,253	81,302	99,050	114,172	123,916	129,806	153,508	157,902	163,265	176,354	
Revenue difference due to error in GDP projection /b	(7)=(6)-(8)	6,253	9,302	11,050	-5,828	-16,084	-21,194	-6,492	-20,098	-21,735	-9,146	
Revenue/GDP projection /b	(8)=(3)-(7)	-6,110	-6,212	-6,360	-3,686	-10,262	7,645	-4,687	4,308	2,363	16,929	
Revenue gap (actual-projected)/GDP	(9)=(3)/(28)	0.0%	0.6%	0.7%	-1.2%	-3.1%	-1.5%	-1.1%	-1.5%	-1.8%	0.6%	
Due to GDP projection error	(10)=(7)/(28)	1.3%	1.7%	1.6%	-0.7%	-1.9%	-2.3%	-0.7%	-1.9%	-2.0%	-0.8%	
Due to Rev./GDP projection error	(11)=(8)/(28)	-1.3%	-1.1%	-0.9%	-0.5%	-1.2%	0.8%	-0.5%	0.4%	0.2%	1.4%	
Budget												
Overall budget	(12)	81,000	92,000	114,556	140,000	161,000	177,000	192,000	223,000	218,000	227,500	243,500
Current expenditures	(13)	58,117	68,502	85,135	101,681	119,802	135,688	148,465	164,144	169,400	175,689	185,831
Capital expenditures	(14)	18,680	21,374	27,555	34,916	36,620	35,115	35,122	35,639	34,767	36,311	40,311
Principal repayment	(15)	4,203	2,124	1,866	3,403	4,578	6,197	8,413	13,217	13,833	15,500	17,358
Expenditure budget (current+cap tal)	(16)=(13)+(14)	76,797	89,876	112,690	136,597	156,422	170,803	183,587	199,783	204,167	212,000	226,142
Exp. budget/projected GDP	(17)=(16)/(26)	18.0%	18.2%	18.5%	16.5%	16.4%	15.9%	17.8%	17.0%	16.3%	16.6%	17.1%
Current exp./projected GDP	(18)=(13)/(26)	13.6%	13.9%	14.0%	12.3%	12.5%	12.6%	14.4%	14.0%	13.5%	13.8%	14.1%
Capital exp./projected GDP	(19)=(14)/(26)	4.4%	4.3%	4.5%	4.2%	3.8%	3.3%	3.4%	3.0%	2.8%	2.9%	3.1%
Previous exp. budget/then-actua GDP/c	(20)=(16)/(27)			18.0%	17.2%	16.1%	16.8%	16.8%	18.5%	17.7%	17.8%	17.0%
Current exp./actual GDP	(21)=(13)/(27)			13.6%	13.1%	12.1%	12.5%	12.8%	14.7%	14.3%	14.7%	14.1%
Capital exp./actual GDP	(22)=(14)/(27)			4.6%	4.1%	3.9%	4.3%	3.9%	3.8%	3.4%	3.2%	3.0%
"Fiscal intention measures"												
Expenditure budget	(23)=(17)-(20)			0.3%	1.4%	0.5%	-0.4%	-0.9%	-0.7%	-0.6%	-1.5%	-0.4%
Current expenditures	(24)=(18)-(21)			0.3%	0.9%	0.2%	0.1%	-0.2%	-0.3%	-0.3%	-1.1%	-0.3%
Capital expenditures	(25)=(19)-(22)			-0.0%	0.4%	0.3%	-0.5%	-0.7%	-0.4%	-0.3%	-0.6%	-0.1%
GDP												
Projected GDP	(26)	426,900	492,601	608,517	826,300	955,954	1,075,931	1,030,686	1,173,900	1,253,125	1,273,801	1,320,315
GDP for the preceding year /d	(27)	376,125	426,900	523,608	701,300	815,377	932,860	922,026	1,039,300	1,120,130	1,197,934	1,211,000
Actual GDP /e	(28)	469,952	556,240	684,930	786,166	846,126	924,913	988,863	1,041,354	1,105,900	1,211,000	
Projected GDP growth	(29)	13.5%	15.4%	16.2%	17.8%	17.2%	15.3%	11.8%	13.0%	11.9%	6.3%	9.0%
Actual GDP growth	(30)	19.6%	18.4%	23.1%	14.8%	7.6%	9.3%	6.9%	5.3%	6.2%	9.5%	

/a 1987 Revenues from Bank of Thailand. Excludes capital grants and oil fund revenues.

/b "Revenue under projected Rev/GDP" is the hypothetical level of revenue that the government would have collected, had the revenue/GDP ratio turned out to be identical to the projected level. The difference between this revenue and the projected revenue is attributed to the error in projecting GDP, and the balance of the difference between the projected and actual revenues is attributed to the error in projecting the revenue/GDP ratio.

/c Previous fiscal year's expenditure budget divided by what was considered to be the actual GDP for that fiscal year at the time of the new budget.

/d The latest estimate for the previous fiscal year's GDP used in the new budget projections.

/e The latest series contained in Thailand's Budget in Brief, Fiscal Year 1988 was used.

Notes: (1) All revenue and expenditure figures used in this table are based on the accounting method used in the Central Government budget and may therefore differ from the figures elsewhere in this report.

(2) The GDP figures relevant to this table are those that were actually available at the time. Therefore, the recent revisions in national income accounts are not reflected here.

Source: Thailand's Budget in Brief, Fiscal Years 1978-88.

1.21 On the expenditure side, the share of the Central Government's expenditures in GDP does not show any consistent pattern of decline since 1980, either on the budget to projected GDP basis or the actual expenditures to actual GDP basis. This, however, masks the Government's consistent effort to reduce the share of its expenditures in GDP beginning in the FY1982 budget. This is captured by what may be called the "fiscal intention measure," which is defined as the difference between the share of the budget in the projected GDP for the new fiscal year and the share of the previous fiscal year's budget in the latest estimate (at the time of the new budget) of GDP for that (the previous) fiscal year. It measures how the Government designed the new fiscal year's budget in relation to where it believed the previous budget turned out at the time [see lines (20) to (23) in Table 1.4]. It is the intended change in the share of Government budget in GDP.

1.22 In response to the revenue shortfall of 1.2% of GDP in FY1981, the fiscal intention measure for total expenditures turned negative, to -0.4%, in FY1982, and remained negative through the FY1988 budget. Thus, the Government designed each budget during this period so as to reduce its share in GDP. In addition, the Government cut back the budget during some fiscal years. Though there were no official revisions in FY1982 and FY1983, the budget was cut back by B 4 billion to B 5 billion in each fiscal year. In FY1985 and FY1986, the overall budgets (including principal repayments) were officially revised during the fiscal years, by B 4 billion and B 6.35 billion, respectively. Administratively, the control over public expenditures were tightened in the 1980-82 period through a comprehensive review of the public expenditure program and the formulation of a list of priority projects by the NESDB. A complementary procedural move was the sharp tightening of the external borrowing ceiling. Although this step was concerned most immediately with the mounting external debt itself, it was also used to delay public investment programs of both the Central Government and state enterprises. That the share of actual expenditures in GDP did not begin to decline steadily until FY1986 does not mean a loss of control over Central Government expenditures.^{8/} Persistent Government efforts to contain the growth of expenditures were more or less overtaken by the much sharper and longer slowdown in nominal GDP growth.

1.23 In terms of actual expenditure cuts, public investment programs were most severely hit. From FY1982 to FY1987, capital expenditures of the government sector fell from 4.7% to 2.6% of GDP and those by the state enterprises sector fell from 3.8% to 3.3% of GDP. The total capital expenditures of the public sector fell by about 8% in real terms over this five-year period. The slowing of the Eastern Seaboard Project and the petrochemical complex are the most prominent effects of these cuts, but investment on more basic infrastructure such as roads and power generation capacity was also affected (see Chapter 4). In FY1988, the public sector's capital expenditures were increased by about 10% in real terms, but their share in GDP rose only marginally to 6.0%.

^{8/} In Thailand, expenditures are legally and effectively limited within the budget appropriation. Expenditure overruns are not a problem.

1.24 The wages and salaries for Government employees were also targeted for budget cutting. The FY1980 budget proposed an adjustment to the civil service pay scale, but it was postponed until FY1989. Although civil service pay scale has a built-in annual merit increase of about 4.5%, this barely kept up with consumer price increases between 1980 and 1988 and had fallen far short of the more rapid pay increases in the private sector.^{9/}

1.25 One dubious expenditure "saving" measure that the Government has used is to delay the payments of bills to state enterprises supplying electricity and water. The accumulated arrears to them have increased from about B 1 billion to B 3.5 billion in the last few years. This is clearly an accounting gimmick that does not save real expenditures. Moreover, it hinders the sound financial management of state enterprises that the Government is trying to encourage.

Government Revenues

1.26 Central Government revenues have been raised through ad hoc tax changes (hikes in import duties in particular), the bracket creep in income taxes, and increased tax collection efforts. Actual tax revenue of the Central Government as a share of GDP rose from 13.2% in FY1982 to an estimated 16.2% in FY1988. An important innovation in tax collection was the introduction of a new tax assessment method for corporate income taxes, designed especially for small firms in the service sector. Since many of these firms do not keep accurate books on their business activities, the Revenue Department adopted a policy of taxing the assessed level of profits rather than the actual level. Typically profits are estimated as some fraction of the gross turnover. This has made the tax assessment considerably easier, though perhaps somewhat arbitrary, and has significantly improved tax collection.

1.27 An important prospective change is the introduction of the value added tax (VAT), scheduled for January 1990. It will be basically a consumption tax, collected at every stage of production in the fashion of the European VAT system. At each level of transaction, the producer will pay VAT on the full amount of sales and claim refund from the Revenue Department for the VAT that is paid to the supplier of intermediate goods or services.^{10/} The details of the system have not been finalized yet. The current proposal, however, calls for a base rate of 9% (plus 10% of it as a surcharge for local governments). In principle, all goods and services will be subject to VAT, with exceptions proposed for financial services and health care.

^{9/} Even in 1985, one study found that the differential between public and private wages was approximately 2.5 to 1 for the lower and middle skill levels and 5 to 1 for higher-level professionals. See World Bank, Thailand, Growth With Stability, Report No. 6036-TH, 1986, p. 224.

^{10/} In theory, collecting VAT at the point of final sale is no different from collecting it at every stage of production. In practice, however, the latter method has proven to be more effective.

1.28 At the time of the VAT introduction, the existing business tax will be abolished. This will bring two major benefits to the economy. First, it will remove the so-called "cascading effect" of the business tax which results because, in principle, it is levied on the whole transaction amount at each stage of production and thereby encourages inefficient vertical integration of production. Second, it will increase the efficiency of tax collection and reduce the administrative cost for businesses. The business tax has become too complex over time, with many exemptions, special rates, and even multiple rates for the same goods in some instances and has imposed an unnecessary administrative burden on businesses and reduced tax collection efficiency.

External Borrowing

1.29 Against the original annual external borrowing target of US\$2.6 billion for the Fifth Plan period (1981-86), the actual borrowing level was trimmed to US\$1.2 billion or less after FY1982. For FY1986 through FY1988, the public sector's external borrowing ceiling has remained at US\$1 billion. Since all the new external borrowing undertaken by the public sector must fall within this ceiling, this limit was a powerful device to counter the political pressures from the line ministries and state enterprises to spend on investment projects. Although the private sector's external debt remained unconstrained and did rise, and despite the appreciation of the yen, the total external debt appears to have peaked in 1986 at US\$18.2 billion and declined slightly in 1987. The debt service ratio for all external debt peaked a year earlier at 26.8% and has declined to about 19.5%.

Public Debt Management

1.30 Table 1.5 shows the consolidated public sector's deficit and its financing since FY1982. Despite some fluctuations, the use of external funding sources has declined markedly since the early 1980s.

**Table 1.5: CONSOLIDATED PUBLIC SECTOR DEFICIT AND FINANCING
(in billions of baht)**

Fiscal years	1982	1983	1984	1985	1986	1987	1988
Public sector deficit /a	63.6	51.0	43.9	63.2	51.3	16.7	-17.6
Financing	64.7	51.3	43.5	64.1	50.9	16.5	-17.6
Net external borrowing	26.1	22.0	14.4	27.9	15.5	1.4	5.2
Net domestic borrowing	38.6	29.3	29.1	36.2	35.4	15.1	-22.8
From banking system	29.4	12.6	20.4	8.2	12.1	3.1	-37.8
From nonbanks	9.2	16.7	8.7	28.0	23.3	11.9	15.0

/a The negative figure for FY1988 indicates a surplus.

Source: The Bank of Thailand, based on IMF method of consolidation.

1.31 Table 1.6 shows that from the end of 1982 to the end of 1987, total debt of the public sector more than doubled. As a share of GDP, however, it appears to have peaked in 1986. Table 1.6 also shows that external debt grew more rapidly than domestic debt over the five-year period. This, however, is largely the result of depreciation of the US dollar, to which the baht is closely tied, in relation to the yen, DM, Swiss franc, and SDR. The capital losses from holding liabilities in these currencies alone during 1985-87 are conservatively estimated at about US\$2.8 billion.11/ Had the dollar not depreciated since 1985, the external debt to GDP ratio would have increased to about 22% at the end of 1987. This means that the ratio of external to total debt would have declined from 47% at the end of 1982 to 44% at the end of 1987. In reality, however, the ratio increased to about 50%. Nevertheless, it is clear that the Government has relied much more heavily on the domestic capital market in filling the financial gap in the last few years.

11/ The estimate is conservative because the BOT estimates classify IBRD and other multicurrency liabilities as US dollar liabilities.

Table 1.6: PUBLIC SECTOR DEBT

	1982	1983	1984	1985	1986	1987
<u>In billions of baht</u>						
Total public debt	331.4	386.4	463.5	562.4	637.8	691.2
Domestic debt /a	174.0	204.4	237.1	276.1	326.2	347.6
External debt /b	157.4	182.0	226.4	286.3	311.6	343.6
<u>As % of GDP</u>						
Total public debt/GDP	40.4	42.5	47.6	55.4	58.3	56.0
Domestic debt/GDP	21.2	22.5	24.4	27.2	29.8	28.2
External debt/GDP	19.2	20.0	23.3	28.2	28.5	27.8

- /a Includes debt of the Central Government and Government-guaranteed debt. The information in budget documents indicate that state enterprises have little, if any, nonguaranteed domestic debt.
- /b Includes Central Government debt, Government-guaranteed debt, and Bank of Thailand debt (from IMF). It is assumed that all external debt of state enterprises is guaranteed by the Government.

Sources: Bank of Thailand and Statistical Annex, Table 4.1.

1.32 For 1987, the overall public sector deficit fell to about 1.4% of GDP. It is estimated that excluding debt service payments the consolidated public sector was generating a surplus of about 2.8% of GDP. This places the Thai public sector in a sound position to contain its total debt, at least in relation to GDP. The total debt to GDP ratio stood at 56.0% at the end of 1987. If the public sector maintains a primary surplus (i.e., surplus excluding debt service payments) of 1.4% of GDP (half the 1987 level), the debt to GDP ratio will decline to 46.1% by the end of 1995 under a very conservative set of assumptions, including nominal GDP growth of 10% in 1989 and 8% p.a. thereafter.^{12/} Under a somewhat faster growth scenario of 9% p.a. after 1989, the ratio will decline to 43.5%.^{13/}

^{12/} Other assumptions include domestic interest rates of 10% for 1988, 9.5% for 1989, 9% for 1990, 8.5% for 1991, and 8% thereafter; external interest rates of 9% for 1988, 8.75% for 1989, and 8.5% thereafter; the currency composition of external debt that can be approximated by 70% yen and 30% dollars; 3% dollar depreciation against the yen per year; external borrowing of US\$1 billion a year; no change in the baht exchange rate vis-a-vis the dollar; and no seigniorage.

^{13/} If nominal GDP growth remains at 10% p.a. after 1989, the ratio will decline to 41.0% by 1995.

State Enterprises

1.33 The Government's effort to improve the efficiency of state enterprises has been wide-ranging, and has encompassed strengthening of financial control, improvement of planning and management, and overall development of the strategy for the state enterprise sector. The most important change in the context of macroeconomic adjustments has been the increase in user charges for electricity and bus and train transport services. These measures, combined with the overall effort to trim operating costs, have resulted in an increase of operating surpluses from B 10.4 billion in FY1982 (1.3% of GDP) to B 38.8 billion in FY1988 (2.8% of GDP). As a proportion of the total capital expenditures undertaken by the state enterprise sector, the operating surpluses have risen from 34% to 90% in the six-year period.

Consolidated Public Sector Picture

1.34 Since the consolidated public sector accounts, including the Central Government, local governments, and nonfinancial state enterprises, are available only from FY1982 (see Tables 1.7 and 1.8), it is not possible to examine the fiscal position of the overall public sector starting in FY1980. However, since the Central Government deficit rose rapidly from FY1980 to FY1982, the overall public sector deficit must also have risen sharply until FY1982. This places FY1982 as the peak year for the consolidated public sector deficit, at 7.9% of GDP. The general trends of the consolidated public sector's revenues and expenditures since FY1982 closely parallel those in the consolidated Central Government accounts. The overall expenditure share in GDP started to show a declining trend only after FY1985, as did the share of overall deficit in GDP. By FY1988, the consolidated public sector had a surplus equivalent to 1.3% of GDP and expected to show only a marginal deficit in FY1989.

New Direction of Fiscal Policy

1.35 The initial impetus for fiscal retrenchment in the first half of the 1980s came from the pressing need to restore stability to the economy that suffered from the fiscal as well as external imbalances. By 1986, however, fiscal austerity seemed to have become almost second nature to the fiscal authorities. There was a shift in the basic thinking on fiscal policy. The Government decided to reduce its role in the economy and encourage the private sector to expand its role, even into areas that had been traditionally the preserves of the public sector, such as the provision of infrastructure and other social services.^{14/} Accordingly, despite the marked improvement in its financial position in FY1987 and FY1988, the Government was very slow in easing its grip on expenditures, in particular the capital expenditures, and the share of public fixed capital formation in GDP continues to be modest.^{15/}

^{14/} See the discussion of the Sixth Plan in Chapter 6.

^{15/} See the section on fiscal adjustments for the secular declining trend in public investment.

Table 1.7: CONSOLIDATED PUBLIC SECTOR ACCOUNT
(billions of baht)

Fiscal Years	1983	1984	1985	1986	1987	1988	1989
Revenue and Grants							
Central government							
Total revenue and grants	139.4	152.3	164.4	172.0	200.1	255.0	279.0
Revenue	136.4	148.3	160.6	166.6	193.3	247.2	271.2
External grants	3.0	3.9	3.8	5.4	7.8	7.8	7.8
Local government							
Total revenue and grants	15.2	16.2	17.0	17.8	18.5	19.9	21.3
Less: Central government grants	6.9	6.7	7.1	7.0	6.6	6.9	7.0
(=) Revenue of local governments	8.3	9.5	9.9	10.8	11.9	13.0	13.8
Nonfinancial state enterprises							
Retained income	16.1	26.7	22.0	31.1	34.3	39.8	45.5
Less: Capital transfer from central government	1.1	1.8	0.7	0.4	0.5	0.9	1.7
(=) Own resources of SEs	15.0	24.9	21.3	30.7	33.8	38.8	43.8
Consolidated public sector							
Total revenue and grants	162.6	187.0	195.2	214.2	245.8	306.8	337.1
Expenditures							
Central government							
Current expenditures	140.6	155.8	171.4	178.5	185.3	197.4	230.7
Less: Transfer to local government	3.9	4.4	4.5	4.5	4.3	4.4	4.5
(=) Net current expenditures	136.7	151.5	166.9	174.0	181.0	193.0	226.2
Capital expenditures	36.0	34.4	41.6	40.1	37.2	37.7	46.6
Less: Transfer to local government	3.0	2.4	2.6	2.5	2.3	2.5	2.5
Less: Transfer to SEs	1.1	1.8	0.7	0.4	0.5	0.9	1.7
(=) Net capital expenditures	31.9	30.2	38.3	37.2	34.4	34.3	42.4
Lending minus repayments, including net acquisition of equity	0.8	-1.0	5.3	4.7	4.7	8.4	5.2
Less: Net lending to local governments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Less: Net lending to SEs	1.1	-1.0	4.1	3.7	4.8	6.9	4.1
Less: Net acquisition of SE equity	0.0	0.2	0.0	0.0	0.0	0.0	0.0
(=) Net lending to private sector	-0.2	-0.1	1.2	1.0	-0.1	-0.5	1.1
Local government							
Current expenditures	8.9	10.5	10.7	10.9	10.5	12.5	13.4
Capital expenditures	5.7	5.5	6.0	6.3	5.6	7.1	7.5
Nonfinancial state enterprises							
Capital expenditures	30.6	33.0	35.7	35.4	31.0	42.9	47.7
Consolidated public sector							
Current expenditures	145.6	161.9	177.6	184.9	191.5	205.5	239.6
Capital expenditures	68.2	68.6	80.0	79.0	71.0	84.3	97.5
Lending minus repayments	-0.2	-0.1	1.2	1.0	-0.1	-0.5	1.1
Total expenditures and net lending	213.6	230.5	258.8	264.8	262.4	289.2	338.2
Balances							
Central government							
-38.0	-36.9	-53.9	-51.3	-27.1	13.5	-3.5	
Local government							
0.6	0.2	0.3	0.6	2.4	0.3	0.4	
Nonfinancial state enterprises							
-14.5	-6.3	-13.7	-4.3	3.3	-3.1	-2.2	
Consolidated public sector							
-51.0	-43.5	-63.6	-50.6	-16.6	17.6	-1.1	

Source: Bank of Thailand.

Table 1.8: CONSOLIDATED PUBLIC SECTOR'S SHARE IN GDP (%)

Public sector's share in GDP	1983	1984	1985	1986	1987	1988	1989
GDP /a	888	958	1,004	1,075	1,199	1,408	1,636/b
Revenue and grants/GDP	18.3	19.5	19.4	19.9	20.5	21.8	20.6
Central government revenue/GDP	15.7	15.9	16.4	16.0	16.7	18.1	17.1
Expenditures and net lending/GDP	24.1	24.1	25.8	24.6	21.9	20.5	20.7
Current expenditures/GDP	16.4	16.9	17.7	17.2	16.0	14.6	14.6
Capital expenditures/GDP	7.7	7.2	8.0	7.4	5.9	6.0	6.0
Net lending/GDP	-0.0	-0.0	0.1	0.1	-0.0	-0.0	0.1
Net expenditures and net lending/GDP	24.1	24.1	25.8	24.6	21.9	20.5	20.7
Central government share/GDP	19.0	19.0	20.6	19.7	18.0	16.1	16.5
Local government share/GDP	1.6	1.7	1.7	1.6	1.3	1.4	1.3
State enterprises share/GDP	3.4	3.4	3.6	3.3	2.6	3.0	2.9
Overall balance/GDP	-5.7	-4.5	-6.3	-4.7	-1.4	1.3	-0.1
Central government balance/GDP	-4.3	-3.9	-5.4	-4.8	-2.3	1.0	-0.2
Local government/GDP	0.1	0.1	0.1	0.1	0.0	0.0	0.0
State enterprises balance/GDP	-1.6	-0.7	-1.4	-0.4	-0.3	-0.2	-0.1

/a Based on the 1988 revision of national accounts. GDP for each fiscal year is the sum of 1/4 of the GDP for the year in which the fiscal years started and 3/4 of GDP for the year in which the fiscal year ended.

/b Staff estimate.

Sources: Bank of Thailand and NESDB.

The new approach reflects both a change in the philosophy about the role of the Government and the pragmatic recognition that the Government should limit its role so as to remain within its financial capacity.

1.36 Since it became apparent that the Thai economy was facing an export and investment boom in 1987, there has been an increasing demand in both the private sector and some Government offices that the meager public investment programs be revised upward to meet the rising need for better industrial infrastructure. The fiscal authorities resisted that demand until FY1988. They argued that the adjustment effort was not yet completed, that the recent boom might not last long, and that the private sector should take a more active role. Another reason for caution may be that having seen how difficult it was to achieve fiscal austerity, they were not willing to give up the hard-won ground against the entrenched tendency for overspending. Only in FY1989, the Government finally decided to increase its capital expenditures significantly. However, even with a 24% increase, the Government's capital expenditures as a share of GDP are expected to rise only 0.1%. Thus it is premature to conclude that the Government has reversed its conservative fiscal stance of the recent years.

C. Monetary Policy

1.37 In implementing monetary policy, the Bank of Thailand (BOT) has focused traditionally on economic stabilization. In this sense, its role until the 1980s has been complementary to fiscal policy which was used mainly to stimulate economic growth. Given the relative openness of the Thai economy, both in terms of trade and capital flows, monetary policy has only a limited influence on the domestic inflation rate. Therefore, its main stabilization function has been to maintain external balance, particularly by keeping adequate foreign exchange reserves to allow for free convertibility of the baht.

1.38 However, the role of monetary policy has expanded in the last decade in response to the fiscal restraint that has characterized the Government's structural adjustment efforts. As fiscal objectives have shifted since 1980 to controlling public expenditures and limiting external borrowing, fiscal policy has been unable to play its usual expansionary role. Monetary policy has therefore been used to induce economic expansion in addition to its traditional objective of maintaining external balance. This pursuit of multiple objectives has complicated the BOT's conduct of monetary policy. For instance, the need to stimulate economic activity has at times been inconsistent with the aims of maintaining exchange rate stability and adequate foreign reserves.

1.39 The BOT uses multiple growth targets for monetary and credit aggregates based on its objectives with regard to inflation and economic growth. With regard to money supply, the intermediate targets are the growth rates for narrow money (M_1) and broad money (M_2) while the operational target is the growth rate of reserve money (the monetary base) which is most easily control-

lable by the BOT. A second operational target is that for domestic credit growth, disaggregated for private and public sector credit. The BOT attempts to reach these targets primarily by controlling the access of commercial banks to BOT credit and setting interest rate ceilings on deposits and loans.16/

Monetary Policy in the Adjustment Period

1.40 Four distinct phases can be discerned in the BOT's conduct of monetary policy for the period 1980-87. First, monetary policy was tightened in concert with fiscal policy to restrain domestic absorption in 1981 and 1982. As a result, the real level of the BOT's Bank rate, that ranged from 2.9% to -1.4% at the end of 1980, rose to 9.9% and 11.4% two years later. Over the same period, real interest rates on short-term deposits rose from the range of -6% to -11% to the range of 6% to 8% (see Table 1.9). While economic stability had been restored by the end of 1982 with low inflation and a reduction in the current account deficit, real GDP growth had fallen to an annual rate of 4.1%.

1.41 In response, the BOT began to relax its monetary policy in the last quarter of 1982 and by mid-1983, its Bank rate and ceiling rates on loans had been reduced and open-market bond purchases were undertaken. Consequently, the growth rates of reserve money, M1 and M2 all rose in 1982 and 1983.17/ This money supply growth was matched by more rapid expansion of domestic credit, particularly to the Government in 1982 and to the private sector in both years. However, by the end of 1983, domestic credit and demand had expanded rapidly, being fuelled also by the anticipated devaluation of the baht, which finally occurred in late 1984. The resultant deterioration in the current account is shown in Table 1.9 by the decrease in the foreign reserve cover (defined as the percentage of reserve money covering by the BOT's foreign assets).

1.42 As a result, the BOT reverted to a less expansionary policy with increases in its Bank rate in end-1983 and in ceiling loan rates in early 1984. Moreover, it used direct credit controls for the first time by requiring commercial banks to restrict the growth of private credit in 1984 to 18%.

16/ Commercial bank borrowing from the BOT is influenced by changes in its Bank rate, at which these loans are made, as well as ceilings on the availability of these funds. In addition, their access to the BOT's refinancing facilities is controlled by setting the ceilings and spreads associated with these schemes. The BOT also engages in traditional open-market operations by participating in the repurchase market for Government bonds. The BOT's attempt to control the growth of private sector credit involves some uncertainty because large borrowers have access to foreign funds. Such borrowing is particularly attractive when exchange rate stability reduces exchange risk.

17/ These growth rates are shown in Table 1.9. More detailed monetary and credit data are provided in the Statistical Annex.

These controls were in effect during the first eight months of 1984 and were supplemented later in 1984 by bond sales to absorb commercial bank liquidity and reduce the growth in reserve money. As a result, growth of both M2 and reserve money slowed in 1984 and correspondingly so did growth in domestic credit, particularly to the private sector.

Table 1.9: MONEY AND CREDIT
(percent)

	1980	1981	1982	1983	1984	1985	1986	1987
<u>Growth Rates</u>								
Money supply (M2)	22.5	16.3	24.2	23.8	19.4	10.3	13.3	20.2
Narrow money (M1)	12.8	3.2	6.8	5.2	7.0	-3.2	20.4	28.0
Reserve money	13.9	6.6	11.9	10.5	5.6	8.4	11.3	21.2
Domestic credit	18.8	16.8	22.5	25.6	17.1	8.4	6.1	17.6
to Government	36.3	24.4	34.0	8.7	14.1	1.6	10.5	1.2
to private sector	9.9	18.2	18.3	36.0	16.6	11.0	4.2	22.6
Credit to deposit ratio	100.8	97.8	92.4	98.5	95.7	93.8	86.7	89.4
<u>Real Interest Rates /a</u>								
(end of year)								
Bank rate /b	-2.9	2.2	9.9	9.2	12.4	7.7	6.3	4.3
	-1.4	3.7	11.4	10.7	13.9	8.7		
Minimum overdraft rate /c	0.1	4.7	13.4	12.5	16.9	13.2	10.6	7.8
Deposit rate (savings)	-8.4	-3.3	6.4	5.2	9.4	5.2	3.8	1.8
Foreign reserve cover	96.3	70.4	60.7	46.2	60.7	57.9	73.4	90.0

/a Based on CPI growth rates during the preceding 12 months.

/b The Bank of Thailand charged differential rates to different borrowers until 1985.

/c Charged to prime customers.

Source: Bank of Thailand.

1.43 By the end of 1984, the BOT's policy shifted again in response to the reduction in the current account deficit. Its Bank rate was reduced and in reaction to this and higher liquidity, commercial banks lowered their deposit and loan rates. These reductions in nominal rates were even greater in real terms given the slight increase in the inflation rate in 1985. Despite this, the sluggish economic growth in 1985 (the lowest since 1970) resulted in slower growth of M1 and M2 than in 1984 and only slightly higher reserve money

growth. Hence, domestic credit grew only at half the rate in 1984 with the slowdown being particularly marked for the public sector. The slowdown in the growth of credit to the private sector in 1985 and 1986 was also in part due to the BOT's tighter supervision of commercial bank lending, in terms of the quality of their loans. This strengthening of the BOT's regulatory role was a response to the financial problems of commercial banks and finance companies.

1.44 The BOT's expansionary policy has continued since then but had little effect on the growth of domestic credit until the last quarter of 1986. During 1986, the BOT's Bank rate was reduced by 3%, the ceiling lending rate by 4% and the ceiling savings deposit rate by 1.25%. In response, the minimum lending (prime) rate fell by 3.5% during the year while deposit rates fell by 3% and 4% for savings and one-year time deposits respectively and were far below their ceiling levels. In real terms, these rates fell to their lowest levels since 1982 and their decline continued in 1987.^{18/}

1.45 Reserve money and money supply growth picked up in 1986, particularly for M1. However, the growth of quasi-money slowed due to the decline in real deposit rates and despite the fall in lending rates, domestic credit growth fell in the first three quarters reflecting commercial banks' cautious lending policies and more stringent monitoring of their loan portfolios by the BOT. Hence domestic credit grew at a slower pace in 1986, particularly to the private sector which grew only at about 4%.

1.46 Reserve money and money supply growth accelerated in 1987 with annual rates of 21.2% for reserve money, 28% for M1, and 20.2% for M2. While quasi-money grew slower than M1, its growth increased from 1986 and reflected particularly rapid growth in savings deposits relative to time deposits. Hence, the share of time deposits in quasi-money continued to fall and was 62% in December 1987, compared to 68% and 75% at the end of 1986 and 1985 respectively. This trend has occurred because the after-tax interest rate differential in favor of time deposits has narrowed since 1985 due to the increase in the withholding tax on interest from time deposits as well as the fall in the pretax interest differential. For example, the after-tax differential between one-year time deposits and savings deposits fell from about 1.1% in December 1985 to 0.45% in December 1987.

1.47 Reflecting the higher growth in M1 and quasi-money, M2 rose at an annual rate of over 20% in 1987 and is mirrored in the increase in domestic credit growth in 1987 to almost 18% from about 6% the previous year. Most of this growth came from private sector credit demand which rose at over 22% in 1987, against only 4% the previous year. Meanwhile the smaller budget deficit slowed the growth of credit to the Government from 1986 to only about 1% in 1987.

^{18/} Although the prime rate is used synonymously with the minimum lending rate, large firms with access to foreign funds (so-called super-prime borrowers) receive loans at rates below the prime.

1.48 Commercial bank liquidity rose throughout 1986 with the credit to deposit ratio falling to its lowest level in the 1980s (Table 1.9). In 1987 deposit and lending rates fell further as did liquidity although even at the end of 1987, the credit to deposit ratio was below its pre-1986 levels. Fearing further reductions in deposit rates to the detriment of savings mobilization, the BOT therefore undertook policies in 1986 and 1987 to absorb commercial banks' excess liquidity.^{19/} The main instrument used was the sale of bonds to commercial banks in the repurchase market. Net bond sales totaled about B 2 billion in 1986 and B 11 billion in the first half of 1987. In addition, in May 1987 the BOT made its first issue of bonds worth B 2 billion with a maturity of six months and at an interest rate of 6%. A second issue of the same value was made with a maturity of one year shortly after the first issue matured. Both bond issues were oversubscribed. Excess liquidity was also absorbed in 1987 with the prepayment of about B 2 billion in external debt by the Central Government and state enterprises. This measure absorbed liquidity to the extent that it reduced the public sector's deposits with commercial banks and was not offset by increased commercial bank borrowing from the BOT.

1.49 Apart from using these instruments, the BOT also attempted to manage liquidity in 1986 by encouraging commercial bank lending. In September 1986, it exempted four additional categories of commercial bank assets from being classified as risk assets in meeting the BOT's capital to risk asset requirements. It was estimated that this change increased potential credit extensions in these forms by over B 9 billion. In October 1986, the requirement on banks' net positions on foreign currencies was raised for a period of six months. Finally, the BOT began to provide incentives to commercial banks in April 1987 to use their own funds along with those of the BOT in refinancing exports. The BOT's refinancing rate on exports now varies in proportion to the share of the total credit provided from the commercial bank's resources rather than those of the BOT.

1.50 In 1988, strong economic growth and in particular investment boom accelerated the expansion of domestic credit to the private sector. The 12-month growth rate of such credit rose to about 26% by mid-year. The BOT has been cautiously balancing the need to support the private sector and the need to avoid overheating of the economy. While the BOT has not taken any overt action to signal a monetary policy change (such as increasing its Bank rate or raising ceiling loan and deposit rates), it has allowed the interbank rate to rise by about 2% by August, thereby putting some pressure on the

^{19/} It is often argued in Thailand that competition between commercial banks makes deposit rates downwardly rigid and prevents reductions in lending rates even in periods of high liquidity. This reasoning is used to justify ceiling lending rates as an effective means of reducing the rates that banks charge borrowers in situations of high liquidity. However, the behavior of real deposit rates in 1986 and 1987 casts some doubt on their downward rigidity and the related argument for ceiling lending rates.

general credit availability. This seems to be tempering the credit demand slightly on the one hand, and inducing additional capital inflow on the other.

Refinancing Facilities

1.51 The BOT's refinancing schemes are designed to provide credit at a low interest rate to commercial banks against their promissory notes for approved purposes so as to promote lending for these activities. Currently, such refinancing is provided only for export bills, small-scale industries' notes and certain industrial and agricultural bills. The BOT controls the total amount available for refinancing, the criteria according to which these funds are available to particular banks, the interest rates it charges commercial banks and the spreads that can be earned by banks. The interest rates applicable to these schemes since 1981 are shown in the Statistical Annex. These rates remained fairly constant until October 1984 when changes were made so as to offer commercial banks a larger spread on small exporters' bills as an incentive to provide them with more credit. By raising the maximum rate chargeable to both groups it was also intended to reduce the subsidy component, particularly to large exporters. This latter objective was abandoned in March 1986 when both sets of rates were reduced. However, the BOT's refinancing rate continues to be lower for small exporters' notes, thus providing commercial banks a larger spread on these.

1.52 Another change in policy regarding the refinancing of export bills was the introduction in April 1985 of the initial phase of the domestic letter of credit scheme (DLC) for manufacturing firms that supply BOI-promoted international trading firms. The rediscount rate charged by the BOT on these notes was the same as for other rediscounted export bills.^{20/} However, as Chapter 3 shows, the usage of the DLC during this pilot phase has been disappointing thus far.

Financial Regulation

1.53 The Bank of Thailand performs the normal regulatory functions of a central bank. It is authorized by the Ministry of Finance to supervise commercial banks, finance and securities companies and credit foncier companies. Among its restrictions on commercial banks are: the maintenance of adequate cash reserves (at least 7% of total deposits) and capital funds (at least 8% of risk assets and 20% of contingent liabilities); a limit on lending to any entity (25% of capital funds); and, maximum deposit and lending rates. Finance and securities companies and credit foncier companies are licensed by the Ministry of Finance and are subject to similar restrictions imposed by the BOT.

1.54 Since 1983, the BOT has played an active role in providing financial and managerial support to weak financial institutions. In 1987, it was sup-

^{20/} For details of the DLC scheme proposed for Thailand, see World Bank, Thailand's Manufactured Exports, Report No. 5670-TH, 1985.

porting five banks and about 20 finance and securities companies. The problems of commercial banks began during the early 1980s due to recession, mismanagement, questionable lending policies and the limited regulatory power of the BOT. Average commercial bank capital as a proportion of total assets fell from 6.4% in 1980 to 5.2% in 1983 while their profits fell on average from 25% of invested capital in 1980 to 7% in 1986. The financial weakness among finance and securities companies can be traced to their largely unregulated growth during the late 1970s. Consequently, their positions deteriorated in the first half of the 1980s and were worsened by the loss of public confidence. Their capital to total asset ratios fell from 12% in 1980 to about 7% in 1985 and their borrowings from the banking system rose from about 10% of total liabilities to over 22% between 1980 and 1987.

1.55 The amendments, in 1983 and 1985, of the Acts that govern the BOT's regulation of commercial banks and finance and securities companies have strengthened its powers to supervise and, if need be, intervene in their operations. Following these amendments, the BOT has made three major changes by: (a) requiring commercial banks to increase their capital and bad debt provisions and forcing three of them to reduce capital values so as to write off their bad debts; (b) imposing more stringent regulations on finance and securities companies regarding their classification of substandard loans and the required margins on securities transactions, and (c) reorganizing the management and ownership of problem financial institutions by arranging the mergers of one bank, the Sayam Bank, with the state-owned Krung Thai Bank, and of several finance companies.

1.56 Financial support to banks and finance companies has been provided in several ways, including special credit lines to prevent liquidity crises, soft loans from the BOT to be invested in Government securities and capital increases through participation by the Financial Institution Development Fund (FIDF). This fund was set up in 1985 following an amendment of the Bank of Thailand Act and is financed through annual remittances from financial institutions, currently at the rate of 0.1% of total deposits or borrowings, and from contributions and advances from the BOT. At present, over 90% of the Fund's financing is from the BOT although it is envisaged that the Fund will eventually repay the portion that has been received in the form of advances. Despite having made it possible for the BOT to support ailing financial institutions, the FIDF has not dealt with a major problem facing the Thai financial system. Unlike a deposit insurance scheme, the FIDF commits the BOT to the costly strategy of having to support institutions indefinitely even when their orderly exit would better serve the system. By continuing to rule out exit the FIDF can be only a partial solution to the problems of restructuring the Thai financial sector.21/

1.57 Other significant changes in the BOT's regulatory policies between 1985 and 1987 include: the restriction placed, since February 1985, on the

21/ However, as Chapter 3 notes, there is a proposal within the BOT to convert the FIDF into a deposit insurance scheme.

value of overdrafts at B 50 million per customer; the abolition in 1987 of the requirement on commercial banks seeking to open new branches that at least 60% of the branch's deposits be loaned in the same locality with particular emphasis on agricultural lending; and, the revision, also in 1987, of the target group for directed credit from commercial banks so as to include agrobusiness. This latter change pertains to the only directed lending scheme operated by the BOT. It was initiated in 1975 when it was required that at least 5% of each commercial bank's total deposits be loaned to the agricultural sector, either directly or through deposits with the BAAC or purchases of Government securities. By the end of 1986, this target had been raised to 14%, of which up to 2% of deposits could be loaned to agro-industries. In keeping with the Government's recent focus on rural industry, the recent change replaces this target with a minimum rural credit target of 20%, with at least 14% of deposits to be directed towards agriculture and small rural industries (those with existing credit lines no greater than B 3 million). During 1986 and 1987, the BOT also made available some of its own resources for lending to the agricultural sector. Apart from temporarily instituting a crop refinancing scheme in 1986, an additional credit line of B 5 billion was granted to the BAAC for use in lending to paddy farmers between January and June 1987. Also, to encourage lending to priority sectors, including agriculture, the BOT in 1986 exempted 20% of commercial bank lending to these sectors from inclusion among risk assets in meeting the required capital to risk asset ratio.

II. ECONOMIC GROWTH SINCE 1986

A. The Recent Pattern of Growth

Contribution of Exports to Growth

2.1 It is commonly argued that the economic rebound in Thailand that began in the second half of 1986 resulted most importantly from the strong growth of exports, especially manufactures which rose 19.8% in 1986 and 34.2% in 1987 (in real terms). Since merchandise exports have been about 19-24% of GDP and manufactured exports have accounted for roughly 41-52% of merchandise exports during 1985-87, this impression seems correct. A closer examination of the statistics shows, however, that while exports played a significant role, other demand components also contributed to growth.

2.2 The most direct measure of exports' contribution to GDP growth is the domestic value added in the incremental exports. Although the precise estimates are not available, general orders of magnitude can be estimated by utilizing statistics from other countries.^{1/} For manufactured exports, a conservative estimate for the ratio of domestic value added to gross exports would be about 50%, while for agricultural and other nonmanufacturing exports, this ratio would be about 80%. Using these ratios, the contribution of incremental manufactured and total exports to GDP growth in each year can be estimated (see Table 2.1).

Table 2.1: CONTRIBUTION OF EXPORTS TO GDP GROWTH
(period averages, as % of GDP)

	1971-75	1976-80	1981-85	1986-88
GDP growth rate	5.6	7.9	5.6	7.9
Contribution of				
Total exports	0.7	1.6	1.1	2.7
Manufactured exports ^{1/a}	0.2	0.6	0.2	1.7
Export reliance ratio ^{1/b}	13	20	20	35

^{1/a} SITC 5-8 items are included.

^{1/b} The percentage of the GDP growth that is attributable to the value added in incremental total exports.

Sources: NESDB, Bank of Thailand, and World Bank staff estimates.

1/ See Annex 1.

2.3 The percentage of overall GDP growth estimated to have been generated directly by export growth (i.e., not including the secondary impact through the multiplier effect) is called the "export reliance ratio" here. During the 1986-88 period, both this ratio (35%) and the level of GDP growth directly generated by export expansion (2.7% of GDP) reached levels that are exceptionally high by historical standards. Estimates for the size of the contemporaneous export multiplier are not available, but when the external demand raises the domestic value added by 2.7% of GDP, it is not difficult to imagine that the total impact must be significantly larger. In this sense, the common notion that the economic growth since 1986 has been most importantly based on exports seems well justified. However, it is difficult to believe that the contemporaneous multiplier effect was large enough in 1986-88 to generate average annual growth of 7.9%. The overall success of the economy would probably not have resulted without other demand factors responding strongly to the generally improved economic prospects.

2.4 Another external factor that can be quantified is the terms of trade effect. In 1986, the terms of trade improved by 9.4% and added about 0.8% of GDP to the domestic income. In 1987, the terms of trade remained virtually unchanged and did not affect the domestic income. When the positive terms of trade impact of 0.8% (of GDP) in 1986 is contrasted with the negative terms of trade impact the previous year of 0.4%, it is understandable why the Thais felt a turnaround in the economy between 1985 and 1986 that exceeded the impact of the moderate increase in the GDP growth rate from 3.5% to 4.5%.

An International Perspective on Export Reliance

2.5 Table 2.2 compares the pattern of export reliance of the Thai economy with that of the Taiwanese and Korean economies. Both the export reliance ratio and the absolute contribution that exports made directly to GDP growth have been generally much lower in Thailand than in Taiwan and Korea. However, this has changed significantly in the last three years. The absolute measure of export contribution, which is more important from the growth perspective, rose to 2.7% of GDP for Thailand in the last three years. This is still far behind the level of Taiwan, but is no longer very different from what Korea managed in the 1970s.^{2/} This seems to indicate that the Thai Government's attempt to make the economy more outward-looking may be working.

2.6 Even as Thailand's export reliance ratio rose during 1986-87 to the levels of Taiwan and Korea, its net exports have not risen significantly. In other words, in the Thai economy, the stimulus of export growth has created a compensating increase in imports, thereby keeping the trade balance from showing large surpluses. This may help Thailand avoid the kind of political tensions that Taiwan and Korea have faced over trade imbalances. It is unclear, however, whether this tendency reflects a fundamental difference in the import propensities of Thailand from those of Taiwan and Korea. It may simply reflect a difference in industrial maturity. In the 1970s, imports

^{2/} The strength of Thai exports during 1986-88 need to be discounted somewhat because higher commodity prices increased Thai exports sharply in 1988.

into Taiwan and Korea also increased more in line with export growth, probably due to the increased demand for capital goods that resulted from export expansion. As Taiwan and Korea developed their own capital goods industries, export growth began to translate more into trade surpluses. It is possible that the Thai economy will follow a similar path in the future.

Table 2.2: EXPORT RELIANCE OF GROWTH
(period averages, percent)

	1971-75	1976-80	1981-85	1986-88
<u>Thailand</u>				
GDP growth	5.6	7.9	5.6	7.9
Contribution of export value added /a	0.7	1.6	1.1	2.7
Export reliance ratio /b	13	20	20	35
<u>Taiwan, China</u>				
GDP growth	8.8	10.5	6.7	
Contribution of export value added /a	3.4	4.4	4.4	
Export reliance ratio /b	38	42	66	
<u>Korea</u>				
GNP growth	8.7	7.3	8.3	
Contribution of export value added /a	2.5	2.7	3.0	
Export reliance ratio /b	29	38	36	

/a The domestic value added in the incremental exports as percentage of GDP or GNP.

/b The ratio of "Export value added growth" and "GDP (or GNP) growth."

Sources: NESDB, Thailand; Economic Planning Board, Korea; Directorate-General of Budget, Taiwan, China.

Sector Performances

2.7 The broad industrial breakdown of GDP growth confirms the preceding section's conclusion that, while manufacturing exports were the major driving force behind the GDP growth since 1986, other factors also contributed significantly to growth by amplifying the initial external stimulus. In order to see the sources of growth from the supply side, Table 2.3 decomposes the overall GDP growth into the contribution of major industrial sectors.^{3/}

3/ For each component, its contribution to GDP growth is defined as its actual change divided by previous year's GDP. Put another way, it is the product of the GDP growth rate and the change in each component relative to the change in GDP.

2.8 The largest impetus for growth during the 1986-88 period clearly came from the manufacturing sector. Since it made a negative contribution of 0.1% in 1985, the turnaround has been particularly stimulative. The contributions of the construction, utilities and transportation, wholesale and retail trade, finance and real estate, and services sectors all rose over the same period. This pattern indicates that the initial growth stimulus in the manufacturing sector had a broad ripple effect into most other sectors. The only sectors that did not participate in this growth were agriculture and government services. In agriculture, adverse weather conditions affected the main crops in both 1986 and 1987, though a good crop in 1988 boosted production in 1988. The growth of government services was contained by the tight fiscal policy.

Table 2.3: SUPPLY STRUCTURE OF GDP GROWTH
(period averages, as % of GDP)

	1971-75	1976-80	1981-85	1986-88
Agriculture	1.0	0.9	1.0	0.4
Crops	0.7	0.6	0.7	0.1
Other	0.3	0.3	0.3	0.3
Mining	0.0	0.3	0.1	0.1
Manufacturing	1.8	2.0	1.0	2.5
Construction	-0.1	0.5	0.2	0.3
Utilities and transport /a	0.5	0.9	0.7	0.9
Wholesale and retail trade	0.9	1.3	0.8	1.6
Finance and real estate /b	0.5	0.5	0.4	0.7
Public administration /c	0.3	0.5	0.4	0.2
Services	0.7	1.0	1.1	1.1
GDP	5.6	7.9	5.6	7.9

/a Includes electricity, water supply, transportation, and communication.

/b Includes home ownership.

/c Includes defense.

Source: NESDB.

B. External Sector

Recent Trends in Trade

2.9 Between 1980 and 1988, real imports of goods and nonfactor services grew, on average, at 9.0% per year while real exports of goods and nonfactor services expanded at a pace of 11.9% per year. The nominal resource deficit

Table 2.4: NOMINAL AND REAL RESOURCE BALANCES
 (as % of GDP)

	1975-79	1980	1981	1982	1983	1984	1985	1986	1987	1988	1980-81	1986-88
Balance of current account	-5.3	-6.4	-7.2	-2.7	-7.3	-5.0	-4.0	0.6	-1.1	-3.3	-6.8	-1.2
Nominal resource balance (Net exports/GDP)	-4.7	-6.3	-6.3	-1.8	-7.2	-4.3	-2.8	2.1	0.3	-1.7	-6.3	0.2
Real resource balance (Net exports/GDP)	-2.4	-2.0	0.2	4.4	-0.9	1.8	4.1	6.3	6.0	2.9	-0.9	5.1
Trade balance (nominal)	-7.5	-8.8	-8.7	-4.4	-9.8	-7.1	-6.1	-1.3	-3.6	-6.7	-8.7	-5.9
Memo items (in percent):												
Implicit deflator of MGNFS	9.1	23.0	17.0	2.5	-4.0	1.1	8.0	-5.7	6.7	3.2	20.0	1.9
Implicit deflator of XGNFS	7.3	17.5	4.7	-4.5	1.6	-0.7	2.5	3.3	6.2	13.7	10.8	7.6
Implicit deflator of domestic absorption	6.7	14.3	8.9	6.1	2.7	-1.2	2.9	3.0	4.6	5.2	11.6	4.3

MGNFS = imports of goods and nonfactor services.

XGNFS = exports of goods and nonfactor services.

Source: NESDB, Thailand.

at current prices was reduced by more than 6% of GDP between 1980-81 and 1986-88 and nearly 6% for the overall current account. In part this adjustment has been due to the recovery of export prices and the deceleration of import prices since 1986. In real terms, the adjustment of the resource balance has also been 6% of GDP and by 1981 there was a surplus for the first time since 1970. Although a small deficit recurred in 1983, the average surplus for the last five years has been 4.2% of GDP (see Table 2.4). Such an adjustment in Thailand's resource balance has reduced the need for net external savings to 1.2% of GDP in the last three years.

2.10 With respect to merchandise trade, exports grew on average at 11.7% per year at constant prices from 1980 to 1988, while real imports increased at 9.2% for the same period. Hence, although prices of imports grew more rapidly than for exports, the trade account deficit had been reduced by about 5% of GDP by 1986-88 since the beginning of the decade (see Table 2.4). Of course, this correction has not been evenly distributed among the main trading partners. The trade account deficit with the US has become an increasing surplus since 1985. Conversely, with the rest of ASEAN countries, the surplus of 1980-82 has become a growing deficit since 1983 due to the rising share of oil imports from neighboring countries. With Japan, the trade deficit has widened while with the EEC, the surplus has increased during the 1980s.

Sectoral Trends in Exports

2.11 While merchandise exports have grown since 1984 at an average annual rate of 16.0% at constant prices, their growth in 1985 was only half that rate mainly due to lower exports of agricultural products to the EEC and the "rest of the world." Manufactured goods exports to Japan and ASEAN countries decreased also as a consequence of the slowdown in the economic activity of the whole region. Since 1986, the increase of agricultural products mainly to the EEC, Japan, and the US has been impressive, although it has been lower than manufactured exports growth to each of these markets. The accelerated growth of manufactured exports to the EEC, Japan, and the US is, albeit not exclusively, due to the relative price effect, whereas the exports to other ASEAN countries is probably more due to the buoyant economic conditions in the region.

Table 2.5: EXPORT COMMODITY DIVERSIFICATION INDICATORS
(percent)

	1975	1980	1985	1986	1987
<u>Share in Total Merchandise Exports</u>					
Ten principal exports	67.1	67.1	58.1	56.0	53.3
Three main manufactures exports	6.9	14.3	19.7	22.4	25.1
<u>Share in Total Manufactures Exports</u>					
Textile products	10.5	23.0	28.4	28.2	31.4
Integrated circuits	2.0	14.7	9.9	11.6	9.8

Source: Bank of Thailand.

2.12 During the 1970s ten products, of which seven were primary commodities, accounted for nearly 70% of merchandise exports. By 1987 the share of the seven main primary exports had fallen to less than 30% and the commodity diversification has increased throughout the 1980s (Table 2.5). Within manufactured exports moreover, the share of textiles, integrated circuits, and jewelry has increased considerably in the last ten years (from about 10% to 25%). The sectors that have exhibited higher growth rates since 1985 are textiles, footwear, furniture, canned goods, toys, and jewelry.

Trends in Merchandise Trade - A Regional Perspective

2.13 Analyzing the trends in Thailand's merchandise exports in isolation misses many regional trends that are important in understanding the Thai economic performance. Merchandise export growth of East Asian countries has been the strongest among developing countries in the last 20 years. They have substantially increased their shares in world markets and have weathered the external shocks due to higher oil prices and interest rates as well as the fall in commodity prices better than most developing countries. This impressive export performance of the East Asian countries reflects the rapid growth of their manufactured exports, which grew at an annual rate of 14% at constant prices between 1980 and 1986.

2.14 As is the case for most developing countries, the ASEAN countries' main trade partners are the developed countries; namely the US, Japan, and the EEC. The average intra-regional trade share, although increasing, is not very high for these countries. Among them, Thailand has one of the lowest intra-regional shares, particularly for manufactured exports (see Table 2.6). Thai imports from the ASEAN region are now rising because of the substitution of oil imports from within the region for those from outside it. As Table 2.7 illustrates, during the 1980s Thailand has been increasingly exporting manufactured goods to the US and the EEC, while selling more agricultural products to Japan. Moreover, like other ASEAN countries, it has been purchasing more intermediate and capital goods from Japan and neighboring NICs.^{4/}

2.15 Despite the greater variability of its real effective exchange rate with respect to the EEC and Japan, Thailand's share of these markets relative to other East Asian countries is higher than in the US (see Table 2.8). However, about half its export value to industrial countries in 1986-87 was still accounted for by the US. Hence, Thailand would be seriously hit if the industrial countries and in particular the US were to experience a deep recession.

^{4/} See S. Urata, "Economic Growth and Changing Patterns of Interdependence in the Pacific Region," Foundation for Advanced Information and Research, Tokyo, 1988, for details.

**Table 2.6: ASEAN COUNTRIES' MANUFACTURED EXPORT WITHIN ASEAN
(percent of each country's manufactured exports)**

	<u>ASEAN</u>	<u>Thailand</u>	<u>Indonesia</u>	<u>Malaysia</u>	<u>Philippines</u>	<u>Singapore</u>
1970	12.3	14.9	33.6	47.7	6.4	3.1
1980	20.4	19.3	40.6	22.1	9.0	21.5
1983	21.7	17.3	38.4	20.9	12.3	22.4

Source: Adapted from Urata, op. cit.

**Table 2.8: THAILAND'S SHARE OF EAST ASIAN MANUFACTURES
EXPORTS TO SELECTED MARKETS, 1987**

	<u>EEC</u>	<u>USA</u>	<u>Japan</u>
<u>Total Manufactures</u>	4.2	1.8	8.1
Rubber manufactures	7.6	3.7	27.9
Textiles	10.3	9.3	14.2
Electrical machinery	2.1	0.9	10.8
Furniture	18.4	2.6	10.7
Clothing	5.5	2.8	10.8
Footwear	4.6	1.2	5.4

Source: TARS, United Nations Trade Statistics, Geneva.

2.16 The growth rate of exports of the US has been less variable and relatively high, as Table 2.9 illustrates, even when the dollar and the baht were both appreciating against the yen and European currencies as in 1980-84. Exports to the EEC and Japan have accelerated since 1985, with the depreciation of the baht (with the dollar) against these currencies. Hence, the dominant factor in its exports to the US seems to be the income effect whereas the price effect seems stronger for exports to the EEC and Japan.

Table 2.7: THAILAND'S TRADE WITH MAIN PARTNER COUNTRIES
(percent)

<u>Partner countries</u>	Shares of total merchandise imports		Shares of total merchandise exports	
	<u>1982</u>	<u>1987</u>	<u>1982</u>	<u>1987</u>
USA	13.3	12.3	12.7	18.7
Japan	23.4	25.9	13.8	14.9
EEC	11.5	15.5	23.5	22.2
ASEAN	12.0	15.6	15.7	13.9
Rest of the world	39.7	30.7	34.6	30.7

<u>Partner countries</u>	Shares of capital goods imports		Shares of intermediate goods imports		Shares of manufactured goods exports	
	<u>1982</u>	<u>1987</u>	<u>1982</u>	<u>1987</u>	<u>1982</u>	<u>1987</u>
USA	24.1	21.1	15.7	9.1	21.6	28.3
Japan	-	35.8	35.1	30.0	24.6	9.6
EEC	20.7	17.3	11.8	14.5	17.3	22.7
ASEAN	2.7	9.0	5.6	7.8	13.1	10.7
Rest of the world	16.3	17.3	36.4	44.0	38.2	31.2

<u>Partner countries</u>	Shares of fuel imports		Shares of agri- cultural exports	
	<u>1982</u>	<u>1987</u>	<u>1982</u>	<u>1987</u>
USA	0.9	0.7	3.1	6.2
Japan	1.0	1.0	17.0	25.9
EEC	0.1	0.3	26.6	25.2
ASEAN	30.0	67.2	17.7	11.0
Rest of the world	68.0	30.8	35.6	37.1

Note: "Imports" and "exports" by Thailand.

Source: Trade Statistics Center, Department of Business Economics, Thailand.

**Table 2.9: THAILAND'S EXPORTS OF TOTAL MANUFACTURES
AND INDUSTRIAL COUNTRIES' IMPORTS
(average annual growth rates at current prices)**

	Thailand's Exports of Manufactures		Industrial Countries Imports of Manufactures	
	1980-84	1980-87	1980-84	1980-87
EEC	4.1	18.7	-3.5	7.5
USA	26.3	26.3	16.3	14.6
Japan	6.1	12.6	5.9	8.1

Source: TARS, United Nations Trade Statistics, Geneva.

2.17 As noted before, the composition of exports for almost all ASEAN countries has shifted from primary products to manufactured goods since the early 1970s. Apart from some predominant sectors in which some countries have a natural comparative advantage, like wood and cork based manufacturing in Indonesia and the Philippines, and nonferrous metals in the case of Indonesia, Malaysia, and Thailand, all countries of the region exhibit a similar pattern. Manufactured exports have been concentrated in textiles, but are also shifting to clothing, footwear, furniture, and miscellaneous manufactures. One striking feature is the relatively high share of Thailand's electrical machinery exports (SITC 72) in comparison with Korea in the early 1970s or late 1960s. For Korea, Singapore, and Philippines, the share of textiles in total exports is falling, while the share of clothing for those countries is either still growing or has remained generally stable since the 1970s (Korea's clothing exports started to decline in the 1980s). There are no big differences for the exports of ASEAN countries by economic classification once the level of industrial development is considered.

2.18 Exports of world manufactures during the 1980s to the main industrial markets (the US, EEC and Japan) grew at higher rates than total world trade in these goods. Also as in the previous decade East Asian countries outperformed others in most light manufactures in these markets (Table 2.10). The only significant exceptions have been clothing exports to the US and electrical machinery exports to the EEC and Japan.

2.19 In all these sectors except textiles exports to Japan, Thailand's exports performed even better than the East Asian average. Thus, Thailand's share in East Asian manufactured exports as well as in total exports to the main industrial countries has risen during the 1980s. This performance can be explained in part by the small initial share of Thailand's exports, the import restrictions that have been imposed against the Asian NICs, and the demand increases in developed countries, particularly the US. The change in relative prices has also played a significant role. The main instrument in improving Thailand's export competitiveness since 1985 has been its exchange rate policy although its relatively low wage costs and rising productivity have also contributed.

**Table 2.10: EXPORT GROWTH RATES OF MANUFACTURES TO MAIN INDUSTRIAL MARKETS
(1980-1987 average growth rates at current prices)**

	Thailand	East Asia <u>/a</u>	South Asia <u>/b</u>	World
EEC				
Total Manufactures	18.7	13.3	8.2	7.5
Rubber manufactures	19.2	13.5	11.6	7.4
Textiles, yarn, fabric	7.2	6.9	6.1	5.2
Electrical machinery	58.0	16.3	8.9	9.4
Furniture	26.4	15.4	-4.5	8.0
Clothing	24.9	10.3	14.8	9.2
Footwear	80.0	14.3	13.6	7.5
USA				
Total Manufactures	26.3	19.4	15.8	14.6
Rubber manufactures	23.4	14.3	41.3	11.3
Textiles, yarn, fabric	33.0	20.6	5.5	15.1
Electrical machinery	28.9	15.7	11.1	17.2
Furniture	43.0	26.6	-1.3	23.0
Clothing	27.3	17.1	28.4	18.4
Footwear	41.0	17.9	21.4	14.5
Japan				
Total Manufactures	12.6	11.5	14.2	8.1
Rubber manufactures	81.8	3.6	53.8	11.6
Textiles, yarn, fabric	-4.0	4.2	21.9	5.4
Electrical machinery	60.2	8.7	-3.1	9.2
Furniture	5.5	11.4	-13.6	12.3
Clothing	26.0	16.2	7.6	12.8
Footwear	26.0	10.9	94.9	10.6

/a East Asia includes: China, Kampuchea, Laos, Vanuatu, Viet Nam, Fiji, Hong Kong, Indonesia, Korea, Kiribati, Macau, Malaysia, Papua New Guinea, Philippines, Singapore, Solomon Islands, Thailand, Tonga, Samoa, and Taiwan, China.

/b South Asia includes: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

Source: TARS, United Nations Trade Statistics, Geneva.

2.20 There have been relatively few changes in the import composition for ASEAN economies in the last 15 years (see Table 2.11). As industrialization

has taken place, the shares of imports of durable consumer goods and labor-intensive intermediates have been substantially reduced for Thailand as well as for Indonesia and the Philippines.

2.21 Thailand's rate of import growth has been more variable in the 1980s than in the past. For a country at Thailand's level of development, a very high variance for the short-term income elasticity of imports is to be expected. This is confirmed since 1980, although the composite elasticity is lower (1.07) than the econometric estimate of the long-term income elasticity (1.25).^{5/} After falling for three years, imports at constant prices rebounded in 1983 (Table 2.14) probably due to the appreciation of the baht, as well as the income effect of terms of trade improvement. Movements of the same variables in the opposite directions, as seen in Table 2.12, presumably explain the fall in imports in 1985. The large increases in imports in 1987 and 1988 are more due to the income effect and the current growth in capital formation than because of relative price changes. The structure of imports by economic classification has changed only marginally in favor of consumer goods since 1984. Finally, the halving of oil prices since 1986, along with the 5% reduction in import volume has left the share of oil in total imports close to that before the oil price shocks of the 1970s.

Trends in Service Balances

2.22 In the service account, the overall balance of factor and nonfactor services has remained at about 1.5% of GDP during the 1980s with the growing surplus of nonfactor services (about 2% to 3% of GDP, see Statistical Annex, Tables 2.1 and 3.6) being compensated by the deficit in factor services. The surplus in nonfactor services has been mainly due to tourism receipts, whereas the increasing deficit of factor services income has been because of the deficit of investment income. While remittances from workers have been rising and were still of the order of 2% of GDP in 1986-87, they are expected to decline in the future. Within factor service payments, the share of the public sector has been growing rapidly since the late 1970s, owing to the fourfold increase in interest payments abroad by both the Central Government

5/ In order to compare a composite elasticity with a partial income elasticity, the change in relative prices has to be negligible. This has been the case in Thailand since 1980 as merchandise import prices had risen by 26% until 1987 while the implicit GDP deflator grew 25%. Among other countries of the region, Malaysia and Korea show higher income elasticities (around 1.6) whereas Indonesia and the Philippines have long-run income elasticities closer to one. According to these results, the merchandise imports of these countries seem to be relatively price inelastic--lower than one for the Philippines, Korea, and Thailand, but higher than one, although insignificantly so, for Indonesia and Malaysia. See L. Pritchett, "Import Demand Elasticities: Estimates and Determinants," EPDCO Working Paper 1987-4, World Bank, 1987.

Table 2.11: TRADE COMMODITY COMPOSITION OF ASEAN COUNTRIES IMPORTS

	Primary goods			Manufactured goods					
	Total	Agricul-	Fuels &	Non-	Durable	Labor	Capital	Capital	Others
		tural	other			intensive	intensive	goods	
<u>Singapore</u>									
1970	41.8	26.7	15.1	58.2	4.1	9.5	12.5	11.5	18.6
1985	43.1	12.3	30.8	56.9	3.3	8.8	5.8	9.4	28.2
									2.0
									1.4
<u>Indonesia</u>									
1970	19.7	16.0	3.8	80.3	2.2	13.3	14.1	27.2	23.4
1984	32.5	10.4	22.0	67.5	0.5	8.4	3.6	23.7	30.8
									0.1
									0.5
<u>Malaysia</u>									
1970	41.6	23.7	17.9	58.4	3.3	13.7	8.0	14.6	17.3
1983	30.0	12.6	17.5	70.0	1.8	11.4	5.3	15.9	35.1
									1.5
									0.5
<u>Philippines</u>									
1970	31.6	16.2	15.4	68.4	1.1	10.3	4.2	25.3	27.1
1983	40.2	11.0	29.2	59.8	0.9	4.6	4.4	17.4	18.3
									0.4
									14.2
<u>Thailand</u>									
1970	21.2	8.8	12.4	78.8	2.7	14.0	10.1	22.7	25.3
1983	36.1	8.2	27.9	63.9	0.9	9.2	5.6	21.2	4.0
									4.1
									22.9

Source: Adapted from Urata, 1988, op. cit.

and state enterprises. Although the growth of total private sector payments has been smaller (rising about 2.5 times), the remittances of branch profits from foreign investment had risen tenfold between 1980 and 1987. With the surge of foreign investment of the last two years, the growth of this item can be expected to continue during the 1990s.

Real Effective Exchange Rate and Terms of Trade

2.23 In a medium-term perspective, Thailand's real effective exchange rate has evolved very well in relation to the movement of its terms of trade. From 1970 to 1987 the terms of trade fell about 35%, whereas the real effective exchange rate depreciated by about 50%. As expected, the two have not always moved in the same direction in shorter time periods. During the 1980s, the terms of trade fell in the first three years, while the real effective exchange rate was appreciating.^{6/} Between 1984 and 1987, however, the terms of trade has improved and the real effective exchange rate has depreciated by about 34% (see Table 2.12). This coincidence has contributed significantly to the improvement in the trade and current account balance over the 1986-87 period.

Table 2.12: REAL EFFECTIVE EXCHANGE RATE AND TERMS OF TRADE
(1980 = 100)

	Real Effective Exchange Rate /a	Terms of Trade
1970	63.0	132.4
1975	86.2	115.8
1980	100.0	100.0
1981	97.3	87.2
1982	94.5	79.0
1983	92.1	85.0
1984	93.3	83.5
1985	104.9	78.3
1986	117.6	86.7
1987	125.1	85.2

/a For 1980-87 the estimates are IMF figures. For earlier years, REER was estimated by using the trade weights of the ten major trade partners. An increase in the index represents a real depreciation. REER is defined as the weighted average of $e(WPI^*/CPI)$ where e is the exchange rate (baht per unit of partner currency), WPI^* is the wholesale price index of the partner, and CPI is the consumer price index in Thailand.

Sources: Bank of Thailand, IMF, and World Bank staff estimates.

6/ In 1983-84, Thailand was not the only country in the region whose currency was appreciating. Malaysia, Singapore, and Korea were all following a similar pattern, although the appreciation was smaller in the case of Korea. However, by 1986 all except Singapore had depreciated their currencies in relation to its value three years earlier (see Table 2.13).

Table 2.13: REAL EFFECTIVE EXCHANGE RATE INDICES
(1980 = 100)

	1980	1981	1982	1983	1984	1985	1986	1987
Thailand	100.0	97.3	94.5	92.1	93.3	104.9	117.6	125.1
Indonesia	100.0	92.1	85.1	104.9	108.2	111.5	144.7	196.9
Korea	100.0	95.8	93.5	97.4	98.7	104.7	124.1	125.2
Malaysia	100.0	99.6	93.7	89.4	86.1	90.7	108.0	113.6
Philippines	100.0	96.9	93.4	111.0	112.1	102.5	131.2	142.6
Singapore	100.9	94.6	90.3	89.3	87.8	90.0	105.6	112.5
Pakistan	100.0	88.4	96.5	100.2	97.8	104.5	126.3	142.5
<u>Average</u>	<u>100.0</u>	<u>95.0</u>	<u>92.4</u>	<u>97.8</u>	<u>97.7</u>	<u>101.3</u>	<u>122.5</u>	<u>136.9</u>

Note: An increase in the index represents real depreciation.

Source: IMF.

Table 2.14: TRADE INDICES AND TERMS OF TRADE
(1985 = 100)

Period	Exports			Imports			Terms of Trade
	Volume	Unit value	Value	Volume	Unit value	Value	
1980	68.06	101.20	68.88	94.83	79.23	75.13	127.73
1981	75.90	104.24	79.12	92.20	93.61	86.30	111.35
1982	85.28	96.86	82.60	81.58	95.97	78.29	100.93
1983	77.09	98.26	75.75	103.99	90.60	94.21	108.45
1984	93.08	97.36	90.62	106.97	91.25	97.61	106.69
1985	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1986	117.41	102.79	120.69	103.51	92.83	96.09	110.73
1987	142.65	109.29	155.90	132.53	100.44	133.11	108.81

Source: Bank of Thailand.

C. Savings and Investment

Savings-Investment Balance

2.24 While the savings-investment gap had been wide since 1977, there was concern during the mid-1980s that the situation had become more worrisome since 1980.^{7/} In the late 1970s, the resource gap widened because of the rise in fixed investment. By contrast, the continuing resource gap since 1980 was due to a declining private savings rate. According to the statistics available at the time, net private savings as a share of GDP had fallen from 14.8% in 1980 to 8.7% in 1985 (which was later revised down to 8.4%). It was conjectured that "consumption growth had not adjusted down to match the slower growth of income."^{8/} It was also noted that the deterioration of terms of trade affected rural incomes more adversely than urban incomes. "Since rural dwellers in general (and farmers in particular) tend to have higher propensities to save than urban dwellers, declining incomes tend to have a particularly severe effect on total savings."^{9/} Since Chapter 1 describes how the resource gap was almost closed between 1979-81 and 1986-88, this section focuses more on the savings side of the equation.

2.25 According to the revised national account statistics, the pattern of savings and investment has been very different from what the old statistics showed (see Table 2.15 for comparison). Although the rate of net private savings (relative to GDP) has fallen slightly since 1980, the precipitous drop of over 6% in five years that alarmed the observers of the Thai economy a few years ago now appears much more moderate. The old statistics also showed that the rate of gross savings (relative to GDP) fell by almost 5% of GDP between 1980 and 1983. The revised series shows a more moderate decline of only 1.3% over the same period. Since the current account deficit remains essentially the same before and after the revision, the higher savings rates also mean higher investment rates.^{10/}

2.26 According to the National Accounts Department of the NESDB, the main thrust of the revision is a broader as well as finer coverage of all sectors. The only logical conclusion regarding the disappearance of the sharp drop in savings rates is that a more careful compilation of statistics by the NESDB showed that a significant portion of expenditures that had been formerly classified as consumption was really investment. For 1983, the revision

^{7/} See, for instance, World Bank, Thailand: Growth with Stability, Report No. 6036-TH, 1986, pp. 5-9.

^{8/} Ibid, p. 6.

^{9/} Ibid, p. 6.

^{10/} The difference between gross national savings and gross investment is by definition identical to the current account balance. Therefore, if the current account is unchanged, any change in savings must be matched by the change in investment.

**Table 2.15: THE EFFECT OF NATIONAL ACCOUNTS REVISIONS
ON SAVINGS AND INVESTMENT
(as % of GDP)**

	1980	1981	1982	1983	1984	1985	1986	1987	1988
New Series									
Gross Investment	26.4	26.3	23.1	25.9	24.9	24.0	22.0	25.8	27.5
Private fixed investment	16.3	15.8	15.3	15.9	16.1	14.6	14.1	17.3	20.0
Public fixed investment	8.9	8.9	8.1	8.1	8.4	9.1	7.6	8.3	5.8
Change in stocks	1.3	1.5	-0.3	1.9	0.4	0.4	0.4	2.3	1.7
Gross savings	20.0	18.9	20.3	18.7	19.8	19.9	22.6	24.7	24.2
Net savings	14.3	14.0	12.8	14.1	13.1	11.4	11.6	14.5	18.6
Private	12.6	12.6	12.8	12.2	11.4	10.3	9.8	10.8	11.7
Public	1.7	1.4	-0.1	1.9	1.8	1.1	1.8	3.7	6.9
Depreciation allowances	6.6	6.6	7.0	7.1	7.5	8.0	8.5	8.3	8.0
Statistical discrepancy	5.5	5.7	3.4	4.8	4.3	4.6	1.9	2.9	0.9
Current account deficit	-6.4	-7.4	-2.8	-7.3	-5.1	-4.1	0.6	-1.1	-3.3
Old Series									
Gross Investment	27.2	24.7	21.0	23.0	23.9	23.6	21.5		
Private fixed investment	16.8	15.3	13.4	14.4	14.9	13.6	13.1		
Public fixed investment	9.1	8.7	7.9	7.9	8.2	8.7	8.1		
Change in stocks	1.3	0.7	-0.3	0.7	0.8	1.2	0.2		
Gross savings	21.0	17.6	18.3	15.8	18.9	19.4	22.1		
Net savings	15.6	13.1	11.1	10.1	10.1	8.5	9.8		
Private	14.8	12.2	11.5	8.8	9.1	8.4	9.4		
Public	0.8	0.9	-0.4	1.3	1.1	0.1	0.4		
Depreciation allowances	7.4	7.5	7.8	7.9	8.3	8.6	8.8		
Statistical discrepancy	-1.9	-3.0	-0.6	-2.3	0.5	2.8	3.5		
Current account deficit	-6.2	-7.1	-2.7	-7.2	-5.0	-4.0	0.6		
Difference (New-Old)									
Gross investment	-0.8	1.5	2.1	3.0	1.0	0.6	0.6		
Private fixed investment	-0.5	0.5	1.9	1.5	1.2	1.1	0.9		
Public fixed investment	-0.2	0.2	0.2	0.2	0.2	0.3	-0.5		
Change in stocks	-0.1	0.8	-0.1	1.3	-0.4	-0.8	0.1		
Gross savings	-1.0	1.8	2.0	2.9	0.9	0.5	0.6		
Net savings	-1.2	0.9	1.7	4.0	3.0	2.9	1.8		
Private	-2.2	0.4	1.3	3.4	2.3	1.9	0.4		
Public	0.9	0.5	0.4	0.6	0.7	1.0	1.4		
Depreciation allowances	-0.8	-1.0	-0.8	-0.8	-0.8	-0.6	-0.2		
Statistical discrepancy	7.5	8.7	4.0	7.0	3.8	2.3	-1.6		
Current account deficit	0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0		

Source: NESDB.

increased gross investment by 3% of GDP. How a revision of this magnitude was possible, however, is unclear.

**Table 2.16: COMPARISON OF SAVINGS RATES AND INCOME LEVELS
(average for the period)**

	1956-60	1961-65	1966-70	1971-75	1976-80	1981-85	1986
Thailand							
Per capita GDP (\$)	-	-	-	468	597	718	786
Gross savings rate (%)	-	-	-	23.6	21.1	19.5	22.6
Korea							
Per capita GNP (\$)	-	348	537	848	1,340	1,812	2,296
Gross savings rate (%)	-	6.2	14.9	17.5	24.4	24.6	32.8
Taiwan, China							
Per capita GNP (\$)	673	849	1,181	1,719	2,440	3,140	3,748
Gross savings rate (%)	10.6	16.3	23.1	30.8	33.6	32.3	37.9

Notes: (1) Per capita GDP (or GNP) is the real per capita GDP (GNP) in 1986 national currency, translated into US dollars at the 1986 exchange rates. It is really a local currency based series. In order to give some sense of relative levels, it was translated into US dollars.

(2) Gross savings rate is expressed as the share of GDP (or GNP).

Sources: NESDB, Thailand; Economic Planning Board, Korea; Directorate-General of Budget, Taiwan, China; and World Bank staff estimates.

2.27 Although the troubling trend of sharply falling private savings since 1980 has largely vanished after the revision of the national accounts statistics, the longer-term trend is not exactly encouraging. Since 1970, per capita GDP has almost doubled, but the gross savings rate has not shown any sign of increasing on a long-term basis. Rather, it shows more cyclical movements. This presents a sharp contrast to the experiences of Korea and Taiwan (see Table 2.16), where the gross savings rate rose steadily with the level of income.^{11/} The conceptual and technical difficulties of cross-

^{11/} For Korea, for instance, the level of income has been found to be the most important determinant of the gross savings rate. See, Sang-Woo Nam, "The Determinants of National Saving: Korea and the Philippines--A Sectoral Accounting Approach," draft working paper, World Bank, November 1987. Incidentally, for the Philippines, the same study found that the income level has little effect on national savings.

country comparisons notwithstanding, the figures in Table 2.16 do call for some observations. First, even allowing for fairly large margins of error in making historical comparisons of income levels and for possible differences in statistical biases, Thailand's savings rate compares favorably to what the other two countries managed at similar levels of income. Second, both Korea and Taiwan raised their gross savings rates sharply as their income levels passed those of Thailand in the last two decades, while Thailand has not raised its savings rate at all. Since its savings rate was very high to begin with, however, this lack of a secular upward trend in the savings rate may not be a cause of concern. On the other hand, if the Thai economy is entering the kind of industrial take-off that the other two countries experienced a decade or so ago, then it will be important for the Thai economy to raise its savings rate further to keep pace with the increasing need for fixed investment.

Private Investment:

2.28 Private investment stagnated during 1986 but has rebounded vigorously since the beginning of 1987. The BOT's Investment Index, which fluctuated around 80 during 1986 and ended the year at 80.9, rose continuously in 1987 to 129.1 by December, and rose to 163.3 by August, 1988.^{12/} Since national accounts statistics do not disaggregate fixed capital formation by sector, it is impossible to examine the sectoral pattern of investment. However, some indexes suggest a certain pattern. Imports of capital goods rose 38% from 1986 to 1987, but domestic sales of cement rose only 22.1%. Although the total investment of projects applying for BOI promotion rose 250% in 1987, the total approved for promotion rose only 93% and total investment of BOI-promoted firms starting operation fell by 11%. Construction areas permitted in municipal zones during 1987 were 31% higher than in 1986. These indexes indicate that while actual investment in existing factories has taken place at a brisk pace in 1987, there is a large backlog of investment projects still in their preparation stages. This pattern persisted into 1988, all but assuring a continuation of the investment boom during 1989.

D. Foreign Direct Investment

Magnitude and Composition

2.29 Foreign direct investment (FDI), in the form of foreign equity investment and direct loans to their subsidiaries, has accounted for between 1.5% and 4% of gross domestic investments and between about 2% and 6% of private sector gross investment. However, these shares shown in Table 2.17

^{12/} The index is a composite index based on the average growth rate during the past 12 months of the following: construction areas permitted, real value of machinery imports, domestic cement sales, domestic galvanized iron sheet sales, real investment of industrial plants starting operation, commercial banks' credit for nonagricultural production, and real private equity inflows. Index values below 95 are considered indicative of low investment activities and those above 105 indicative of high investment activities.

may underestimate the true impact of foreign investment on investment in the manufacturing sector for two reasons. First, most FDI, unlike its domestic counterpart, would go into investment in manufacturing rather than into housing investment. Second, at least part of the domestic private investment in joint ventures may not have been forthcoming in the absence of the foreign component with which it is associated.

Table 2.17: FOREIGN DIRECT INVESTMENT
(percent)

	1981	1982	1983	1984	1985	1981-85 (average)	1986	1987
Net FDI/gross domestic investment	3.2	2.3	3.5	4.0	1.8	3.0	2.8	1.6
Net FDI/gross domestic investment (private)	5.3	3.4	5.6	6.1	3.0	4.7	4.5	2.4
Growth rate of net FDI	40.0	-31.8	88.3	17.8	-54.5	4.6	57.1	-31.5

Source: Bank of Thailand.

2.30 Foreign investment flows into Thailand have traditionally been in the form of FDI rather than portfolio investment and the early part of the 1980s reflects this composition (see Statistical Annex, Table 10.3). However the share of portfolio investment rose sharply in 1985, when it was almost as large as that of FDI, and although it fell in 1986 it remained higher than between 1981 and 1984. As Table 2.17 shows, the net inflow of FDI fluctuates considerably from one year to the next. For instance, the 57% increase in 1986 followed a drop of almost 55% the previous year. Compared with the average for the preceding five-year period, the net inflow in 1986 was not much higher. Moreover, net inflows in 1986 rose mostly because outflows fell rather than because the inflow of FDI increased from their 1985 levels. In the 1981-85 period FDI inflows were, on average, divided equally between equity and loans. By the end of the period, the share of equity was larger and accounted in 1986 for about 60% of total inflows.

2.31 Sectoral Shares. As seen in Table 10.4 in the Statistical Annex, the sectoral shares of net FDI inflows have also varied considerably between 1980 and 1986. Comparing the periods 1976-80 and 1981-85, the shares of oil exploration (within the mining sector) and of petroleum products rose at the expense of textiles and the services sector. The share of oil exploration and petroleum products has declined since 1984 and was lower in 1986 than in 1981-85. While the share of industry has remained almost constant in 1986,

the decline of textiles and machinery and transport equipment continued and was matched by increases in the shares of processed food, chemicals, and other manufacturing, relative to 1981-85.

2.32 Origins of FDI. In terms of the nationality of net FDI inflows, the main change that occurred between the periods 1976-80 and 1981-85 was the shift from Japan to the US as the largest source. This shift was reversed in 1986 as Japan accounted for almost 45% of all net FDI with its share in 1987 likely to have been even higher. Despite fluctuations in its share between 1981 and 1985, Hong Kong remained the third largest source of FDI in this period and its share rose in 1986 as did that of Singapore. While the shares of Taiwan and Australia are still small, they continued to rise in 1986, relative to 1981-85.

FDI and Promotion by the Board of Investment

2.33 Foreign investment has constituted a significant proportion of the total that has received promotional privileges from the Board of Investment (BOI) and indications are that its share in promoted investment has been rising. Since data on BOI-promoted investment by national origin are not available, data on the share of foreign capital in promoted firms is used instead.^{13/} The registered capital of firms that have received BOI approval or promotion certificates, classified by nationality, for the periods 1960-84 and 1985-87 shows that foreign capital accounted for about 27% of the total registered capital of firms that received promotion certificates until 1984 but over 31% of those between 1985-87. Similarly, the share of foreign capital in the total registered capital of firms whose projects received BOI approval also rose from 34% in 1986 to 44% in 1987 and almost 50% in the first quarter of 1988.

2.34 At the end of 1984, Japanese firms accounted for over 27% of the total registered capital of foreign firms that had received promotion certificates since 1960 while American firms accounted for about 14%. Despite investment from Taiwan being only a small part of FDI, it accounted until 1985 for almost 9% of the total foreign capital of promoted firms with Hong Kong and Singapore each comprising about 5%.

2.35 This pattern has changed substantially since 1985. Between 1985 and 1987, the corresponding shares in total registered capital were about 55% and 37% for firms from Japan and Taiwan respectively and only 11% for American firms. Similarly, among the firms with projects approved by the BOI between 1986 and the first quarter of 1988, the share in total registered capital of Japanese firms was almost half, with those from Taiwan and the US accounting for 15% and 6% respectively.

^{13/} Obviously, this foreign ownership share in promoted firms is only an approximate measure of the share of foreign investment in total promoted investment because not all promoted projects are undertaken by new firms. However this approximation is adequate if the relationship between investment and registered capital is roughly similar for foreign and domestic firms.

FDI Inflows - A Regional Comparison

2.36 Foreign direct investment flows into Thailand were small relative to its ASEAN neighbors between 1976 and 1980 due to the political uncertainty during this period. However, as Table 2.18 shows, its volume has increased considerably since 1980. It is somewhat puzzling that the level of net FDI into Thailand fell in 1987 when its ASEAN neighbors all experienced increases, particularly since Thailand has been considered the prime beneficiary of the surge in such investment in this region. However, for the first half of 1988, the net inflow into Thailand did rise to \$468 million, far surpassing the levels it had experienced before.

Table 2.18: NET FDI FLOWS TO ASEAN COUNTRIES
(US\$ million)

	1976-80 (average)	1981	1982	1983	1984	1985	1981-85 (average)	1986	1987
Thailand	95	288	189	348	400	162	277	261	182
Indonesia	254	133	225	292	222	310	236	258	307
Malaysia	559	1,265	1,397	1,261	798	695	1,083	489	575
Philippines	80	172	16	105	9	12	63	127	186
Singapore	684	1,675	1,298	1,085	1,210	809	1,215	479	982

Source: International Financial Statistics, IMF.

2.37 As noted before, Japanese direct investment has accounted for a significant share of FDI flows into Thailand in recent years and its volume has risen considerably as well. Direct investment from Japan has been significant in other economies of the region as well. The volume of Japanese direct investment flowing to the Asian NICs, i.e., Hong Kong, Korea, Taiwan, and Singapore, rose substantially in 1986 and 1987 from its average level between 1980 and 1985. However, despite increases for Korea and Taiwan the share of these four economies in Japanese direct investment abroad fell relative to the 1980-85 average (Table 2.19). Among the other countries in the region, the same pattern held for Malaysia while Japanese investment in Indonesia and the Philippines was also lower in absolute terms in 1986 and 1987 than its average during 1980-85. In this sense, Thailand outperformed its ASEAN counterparts in attracting Japanese investment in 1986 and 1987. The level of investment rose while its share in Japanese direct investment abroad remained almost the same as in 1980-85. However, despite the current predominance of Japanese investment in net FDI flows into Thailand, its share in Japanese investment abroad remains small as does its volume, even in relation to the flows to the Asian NICs.

Table 2.19: SHARES OF JAPANESE DIRECT INVESTMENT ABROAD
(percent)

	1980	1981	1982	1983	1984	1985	1980-85 (average)	1986	1987
Thailand	0.7	0.3	1.2	0.9	1.2	0.4	0.8	0.6	0.7
Indonesia	11.3	27.3	5.3	4.6	3.7	3.3	8.7	1.1	1.6
Malaysia	3.1	0.3	1.1	1.7	1.4	0.6	1.2	0.7	0.5
Philippines	1.7	0.8	0.4	0.8	0.5	0.5	0.7	0.1	0.2
Singapore	3.0	3.0	2.3	4.0	2.2	2.8	2.8	1.4	1.5
Hong Kong	3.3	3.7	5.2	6.9	4.1	1.1	3.8	2.2	3.2
Korea	0.7	0.8	1.3	1.6	1.1	1.1	1.1	2.0	1.9
Taiwan, China	1.0	0.6	0.7	1.3	0.6	0.9	0.8	1.3	1.1
USA	31.6	26.4	35.6	31.5	33.1	44.2	34.5	45.5	44.1

Source: Ministry of Finance, Japan.

E. Inflation

2.38 During the 1982-87 period, inflation at the consumer level has averaged 2.4% per year and remained below 4% in every year since 1982.^{14/} The record of price stability is quite impressive, given the 14% devaluation of the baht in November 1984 and the subsequent depreciation of the baht in relation to the Japanese and European currencies. In 1987, there was some price pressure building up at the wholesale level in 1987, mostly in agriculture-based commodities. Although the 12-month growth rates of the PPI for finished goods and the PPI for intermediate goods had moderated by July 1988 to 4.2% and 8.7% respectively, a tendency for inflation should be recognized.

2.39 The Thai economy has historically responded to excess domestic demand by increasing imports rather than domestic prices. However, the exceptionally vigorous private investment and strong private consumption growth combined with prospects of sizable increases in public sector expenditures make the Thai economy susceptible to inflation in the near term. This argues for cautious fiscal and monetary policies.

^{14/} The 5.2% growth for 1982 shown in Table 2.20 is based on the change in the annual average CPI level. From December 1981 to December 1982, the index rose only 2.6%. See the footnote to the Table.

Table 2.20: INFLATION TRENDS
(percent)

	1981	1982	1983	1984	1985	1986	1987
CPI, whole Kingdom	12.7	5.2	3.8	0.9	3.3	1.7	3.7
PPI, finished goods	10.8	5.6	1.9	-3.4	4.2	0.3	10.8
PPI, intermediate goods	9.1	0.1	-2.2	-0.7	0.2	-4.4	9.0

Note: Due to data limitations on the PPI series, the growth rates shown here for all three series are the changes in annual average levels of the indexes for 1981-84, and the December-to-December changes in them for 1985-87. On the December-to-December basis, CPI grew 12.3% in 1981, 2.6% in 1982, 3.8% in 1983, and -0.4% in 1984.

Source: Bank of Thailand.

F. The Causes of the Recent Economic Success

2.40 At the outset of Chapter 1, this report argued that it was important to understand the extent to which the economic boom since 1986 has been due to external factors on the one hand and structural and policy changes within Thailand on the other. The favorable external factors that have helped the Thai economy in the last few years include the depreciation of the dollar since 1985, the drop in oil prices in 1986, the general decline in international interest rates, the shifting comparative advantage in some segments of manufacturing from the Asian NICs to ASEAN countries, and the relocation of factories from Japan and Taiwan to other areas of East and Southeast Asia. The analysis in the preceding sections confirms that these external factors were important. Many other countries, however, also faced essentially the same set of favorable external shocks, but failed to take full advantage of it. This difference must be explained by domestic factors.

2.41 Econometric estimation of an export demand function for Thailand's manufactured exports shows that both income and relative prices are significant determinants of such exports. While the calculated short-run elasticities are relatively low, the long-run income and price elasticities are 2.25 and -1.71 respectively. Using a partial equilibrium framework and assuming a supply price elasticity of 2.5, the simulation model suggests that had the baht not been devalued vis-a-vis the US dollar in November 1984,

export revenues would have grown by 22.5% instead of 27.3% in 1985-87 (see Annex 2 for details).^{15/} It also suggests that had the dollar not depreciated after the baht devaluation, export revenues would have grown by 23.3% in 1985-87. Despite the strong assumptions on which it is based, this exercise provides an estimate of the extent to which the growth of manufactured exports revenue in the last three years is attributable to the 1984 devaluation (about 4.8% p.a.) and the depreciation of the dollar (about 4% p.a.).

2.42 These quantitative estimates support the notion that the export success since 1986 owes much to the depreciation of the baht. However, the response of the Thai economy to the favorable external shocks has so many dimensions that a broader, qualitative analysis is also necessary to judge the relative importance of domestic and external factors. Table 2.21 places Thailand's export success in a regional context. Since the statistical definitions are not uniform across countries and appropriate deflators for manufactured exports are not available in all cases, the cross-country comparison of export performance focuses on two measures: the nominal growth rate of manufactured exports in a common currency (the US dollar in this case) and the ratio of manufactured exports to GDP. Given the data limitations, only broad inferences based on general trends rather than small differences are meaningful. Nevertheless, the table invites a few immediate observations.

2.43 First, all four ASEAN members shown in the table, and Korea experienced significant depreciation of their real effective exchange rates. This seems to be the key common factor across these countries that may explain significant export success.

2.44 Second, the textile sectors (typically including all textile products as shown in Table 2.21) in all four ASEAN member countries have increased their exports at rapid rates in the last three years. The excellent export performance of the Thai textile industry has been touted as a shining example of the success of the export promotion policy in Thailand. However, the almost equally impressive records of the neighboring countries suggest that the Thai textile industry's success may have depended more on favorable external factors, in particular the depreciation of the dollar, than on the structural increase in the industry's international competitiveness. Although textiles is used as an example, the same observation can be made for many light manufacturing items, including wood products, toys, and footwear.

^{15/} The reduced form model used in this simulation exercise abstracts from all lagged adjustment problems. Therefore, the calculated effect refers to the long-run and uses the relatively arbitrary assumption that the full adjustment had been completed by 1985-87. To the extent there are lags in supply adjustment, the impact of the devaluation during 1985-87 may be overstated. The results are also dependent on the assumptions about the supply elasticity. The foregone export revenue is calculated at the "endogenous" simulated export prices instead of actual prices, because the supply function has been assumed to have a finite price elasticity.

Table 2.21: GROWTH OF MANUFACTURED EXPORTS - REGIONAL COMPARISON

	In local currency				In US dollars			
	1985	1986	1987	1985-87	1985	1986	1987	1985-87
Thailand								
Growth of manufactures	25.7	35.1	45.6	35.2	9.4	39.5	48.9	31.4
Textiles	23.1	32.6	55.4	36.4	7.1	37.0	58.9	32.6
Manufactured exports/GDP	9.4	11.8	15.2	12.2				
Change in REER	-12.4	-12.1	-6.4	-34.1/c				
Real GDP growth rate	3.5	4.5	8.4	5.4				
Indonesia /a								
Growth of manufactures	22.1	30.1	108.9	49.2	12.8	12.6	63.0	27.5
Textiles	49.4	50.1	41.5	47.0	38.0	30.0	10.4	25.6
Manufactured exports/GDP	2.9	3.7	7.1	4.6				
Change in REER	-3.1	-29.8	-36.1	-82.0/c				
Real GDP growth rate	2.4	3.6	3.7	3.2				
Malaysia /b								
Growth of manufactures	-0.4	23.0	30.5	16.9	-6.0	18.3	33.7	14.1
Textiles (plus footwear)	12.6	27.6	32.8	24.0	6.3	22.7	36.0	21.2
Manufactured exports/GDP	16.0	21.5	25.9	21.1				
Change in REER	-5.3	-19.1	-5.2	-31.9/c				
Real GDP growth rate	-1.0	1.2	4.7	1.6				
Philippines								
Growth of manufactures	3.0	14.1	27.6	14.5	-7.6	4.1	26.5	6.8
Textiles	14.7	31.6	48.0	30.7	3.0	20.1	46.7	21.9
Manufactured exports/GDP	8.4	9.5	10.6	9.5				
Change in REER	8.6	-28.0	-8.7	-27.2/c				
Real GDP growth rate	-3.5	2.0	5.7	1.3				
Korea								
Growth of manufactures	12.2	15.2	23.4	16.8	3.9	13.7	32.3	16.0
Textiles	-2.3	29.8	15.2	13.5	-9.5	28.1	23.5	12.7
Manufactured exports/GDP	34.5	34.5	37.0	35.3				
Change in REER	-6.1	-18.5	-0.9	-26.8/c				
Real GDP growth rate	5.4	11.9	11.4	9.6				
Taiwan, China								
Growth of manufactures	1.6	23.2	13.5	12.4	1.0	29.8	36.0	21.2
Textiles	0.1	14.7	3.4	5.9	-0.5	20.7	23.9	14.2
Manufactured exports/GDP	50.8	55.2	54.4	53.5				
Change in exch. rate vs. US\$	-0.6	5.0	16.5	21.6/c				
Real GDP growth rate	4.3	9.9	10.0	8.1				

/a Trade figures are based on fiscal years that begin in April of corresponding calendar years.

/b Exports for 1987 are based on the data for the first 11 months.

/c Cumulative change from 1984 to 1987. A positive change is an appreciation of the local currency.

Sources: World Bank (Report No. 7222-IN); Bank Negara Malaysia and EPU, Malaysia; Economic Planning Board and the Bank of Korea, Korea; Council for Economic Planning and Development and the Department of Statistics, Taiwan, China; and World Bank staff estimates.

2.45 Third, although textile exports from Korea and Taiwan have been slower than those from ASEAN members, these two economies nevertheless managed to increase their exports considerably even under adverse conditions. Thai manufacturers are not yet capable of expanding their market shares through product differentiation like their counterparts in these economies. This suggests that the Thai textile industry has some way to go before achieving the degree of export competitiveness and resilience that its counterparts in Korea and Taiwan seem to have achieved.

2.46 Fourth, although in particular sectors, the export performance of Thailand may not be very different from that of Indonesia, Malaysia, or the Philippines, the export performance of the Thai manufacturing sector in the aggregate has been stronger than that of its neighbors. Thailand's manufactured exports have increased at an average rate of 31.4% p.a. since 1984 (in US dollar terms) and their ratio to GDP has risen by 6% between 1985 and 1987.^{16/} The difference can be probably attributed to the basic soundness of the Thai industrial development strategy. By avoiding large national projects, which have often resulted in creation of inefficient producers in other countries,^{17/} and encouraging the private sector to take the lead in making industrial investment decisions, the Thai Government has created a set of manufacturing industries that is consistent with Thailand's comparative advantage. In relation to Indonesia, the longer history of industrial development in Thailand has obviously given Thai manufacturers more time to mature. Thus, even though sector for sector, the Thai exporters may be no more competitive than Indonesian or Malaysian exporters, there are simply more of them.

2.47 Fifth, despite the generally strong export performance of all four ASEAN countries, the overall growth of the Thai economy stands out. The difference between Thailand and the two oil exporters has much to do with the declining oil prices. However, another important difference is that while Thailand had corrected its major macro imbalances by 1986, Indonesia and Malaysia were still grappling with serious macro distortions.^{18/} The Thai economy was in a much stronger position to respond to the opportunities presented by the favorable turn of external events. The comparison between the Malaysian and Thai experiences in 1987 is particularly instructive.

^{16/} Indonesia's manufacturing sector has also had unprecedented export success in the last three years, but this needs to be slightly discounted by the very small initial base and drastic devaluations.

^{17/} The Malaysian government in particular has invested heavily in major manufacturing projects, including integrated steel, automobile, cement, pulp and paper mill, and a shipyard, which are all languishing.

^{18/} Of course, the slow pace at which adjustment policies have been implemented in Indonesia and Malaysia is largely due to the second oil shock which allowed these countries to maintain expansionary fiscal policies.

Although the growth of manufactured exports was slower in Malaysia than in Thailand, their size relative to GDP is considerably higher in Malaysia.^{19/} Therefore, one might expect a fairly buoyant business climate in Malaysia. Despite 4.7% real GNP growth in 1987, however, neither investment nor consumption has grown much. Instead, the economy amassed a current account surplus of 8.1% of GNP in 1987 (as compared to -1.2% in 1986). The difference between Thailand and Malaysia in the way the domestic economy has responded to the initial stimulus of an export surge must reflect the differences in the investment climate and the basic investor confidence in the economy.

2.48 The five observations above have two broad implications for Thailand. The first is that the economic boom since 1986 was not simply a case of having the right industries at the right time. Although a degree of serendipity cannot be denied, had the Government not corrected the macroeconomic imbalances that characterized the Thai economy in the early 1980s and had it not fostered industrial investments that were consistent with Thailand's comparative advantage over a longer period,^{20/} the economy would not have responded vigorously to the opportune shifts in the external environment. The second implication is that despite the broadly correct policies that the Government has pursued, the Thai manufacturing sector has not achieved the kind of strength that Korea's and Taiwan's manufacturing sector appears to have achieved in many products. Like other ASEAN countries, much of Thailand's export success during the last few years has relied on the competitive exchange rate. Although this experience confirms that the competitive exchange rate policy can be a powerful boost to exports, there is an obvious limitation to this approach. It relies on the presumption that a sufficiently large number of other countries will not adopt the same policy. Therefore, there exists the need for further improvement in industrial and trade policies and further strengthening of financial and other institutions to provide support to industrial growth.

2.49 Besides the macroeconomic adjustments, other domestic changes have contributed significantly to laying the ground for the current boom. First, political stability has been an important factor in enhancing investor confidence. Two attempted coups since 1980 have been unsuccessful, and a relatively open political process has prevailed. Judicious reliance on technocrats in Government bureaucracy has also contributed to continuity and stability of economic policies. Second, the Government has been very effective since the late 1970s in its control of the anti-Government insurgency that earlier

^{19/} About 1/3 of Malaysia's manufactured exports are integrated circuits (ICs) which have very low local value added. Thus the growth of ICs does not help the overall growth of the economy very much. Even subtracting ICs from manufactured exports, however, Malaysia has a significantly higher manufactured exports to GDP than Thailand.

^{20/} Part II presents a detailed analysis of the changes in industrial and trade policies in recent years. Although in the last few years there have not been many major changes in this area and many serious distortions remain, over a longer period, there has been an important shift in the basic emphasis toward export-oriented industries.

threatened the security of some rural areas.^{21/} This has enhanced the confidence of both domestic and foreign investors. Third, domestic manufacturers had exhausted the easy opportunities for import substitution by the 1970s and were turning their eyes to external markets. When falling commodity prices reduced the domestic purchasing power in the early 1980s, Thai manufacturers were forced to look outward for their survival. Fourth, according to the observers of the Thai business community, there has been a rapid generation change at the helm of many well-established family businesses. This younger generation of entrepreneurs is more knowledgeable about foreign markets and better equipped for export business.

2.50 In the end, it is clear that both external and domestic factors have been indispensable to the recent success. Despite the broadly held view in Thailand to the contrary, domestic factors were critically important in laying the foundation for the export success and building business confidence that allowed the economy to take full advantage of various propitious external events. At the same time, however, had it not been for those external shocks, it is almost certain that the Thai economy's performance would have been lack-luster during the last three years. Thus, the contribution of the domestic factors so far can be characterized as "passive" in the sense that they prepared the economy so that it could respond to exogenous stimuli, but have not made it capable of creating opportunities by itself. The task of transforming the Thai economy into a strong international competitor is only half finished.

^{21/} By undermining the political base of the insurgency through rural development and political campaign, the Government has virtually eliminated the threat of the insurgency. See, Suchit Bunbongkarn, The Military in Thai Politics: 1981-86, Institute of Southeast Asian Studies, 1987.

Part II: Issues Affecting to Accelerated Industrialization

3.1 Having overcome the serious macroeconomic imbalances that destabilized the economy in the early 1980s, Thailand now looks ahead at the prospects of accelerated industrial growth. The following three chapters will examine the main issues that affect faster industrialization of the Thai economy. The most important issue is the structure of economic incentives. Chapter 3 reviews trade and industrial policies with a view toward identifying important distortions and biases in the economic incentives faced by Thai industries. The right economic policies alone, however, will not result in industrialization. There are other more physical constraints that inhibit growth of industries. In the Thai context, adequate provision of industrial infrastructure and supply of the right kind of human resources seem to be the two most important factors. Chapters 4 and 5 explore these two areas.

III. TRADE AND INDUSTRIAL POLICY

3.2 The instruments of trade and industrial policy in Thailand include trade taxes and quantitative restrictions, fiscal incentives for investment, export promotion schemes, factory licensing, price controls, domestic content requirements and subsidized credit programs. In general, there has been greater reliance on price rather than quantity instruments in policy implementation. A variety of Government departments and institutions are involved in the formulation and implementation of trade and industrial policy. The principal ones are the Board of Investment (BOI), the Ministry of Industry, the Fiscal Policy Office (FPO) of the Ministry of Finance (MOF), the Ministry of Commerce, the Customs Department and the Bank of Thailand (BOT).

A. Policy Changes since 1980

3.3 While there have been few substantial changes in industrial and trade policies since 1985, a better perspective for their evolution is provided by examining the changes that have occurred since 1980. These changes can be classified into five categories under which they are discussed below. Apart from these categories, the industrial policy framework includes macroeconomic policies. As Chapters 1 and 2 note, the exchange rate policy has facilitated the sharp depreciation of the real effective exchange rate since the late 1984 and restrictive fiscal and monetary policies have reduced domestic absorption.

Import Protection

3.4 Before the late 1960s, tariffs in Thailand were used, as in other developing countries, mainly to generate revenue and limit the consumption of imported goods. Nominal tariff rates were relatively low and there was little escalation in their structure in that finished goods were not subject to much higher rates than for inputs such as intermediate and capital goods. Such escalation occurred throughout the 1970s, particularly after 1974. During

this period average nominal and effective rates also rose, with most nominal rates rising to the range of 30-60%.^{1/} The consumer goods and transport equipment sectors emerged with the highest effective protection rates by the end of the decade.

3.5 In 1980, the NESDB's subcommittee on the industrial sector as well as a Bank report^{2/} noted these trends toward higher tariff rates and greater variation in these rates across sectors. In particular, it was observed that the tariff structure resulted in high average nominal and effective protection. Moreover as several later studies noted, the escalation in nominal rates resulted in higher effective rates of protection for consumer goods and light intermediates.^{3/} As a result, tariff reform with a narrower band of rates and a subsequent reduction in the average level was made an explicit objective of the Fifth Five Year Plan (1982-86). However, the changes that have been made since then show that policymakers' awareness of distortions due to the tariff structure is matched by their concerns about revenue losses, if rates were lowered, and inflationary pressures were rates to be raised. As noted below, the protection levels for certain sub-sectors have been altered but the overall protection structure remains similar to that in 1980.

3.6 Tariff changes announced in October 1982 were intended to initiate the reform and aimed to reduce the sectoral variation in effective rates by lowering nominal rates to a maximum of 60% while raising those on intermediate chemical products and machinery.^{4/} However, fears about their impact on production costs caused an almost immediate reversal of most of the tariff increases. Similarly, potential revenue losses led to the imposition of a special surtax on imports which lasted over two years. While the net effect of these changes was a reduction in the average nominal rates for consumer goods and increases for all other goods, the escalation in nominal rates remained almost unchanged. The average effective rate of protection (ERP) as

1/ See Chapter 7 in World Bank, Thailand: Managing Public Resources for Structural Adjustment, Report No. 4366-TH, 1983, for details of the tariff changes in the 1970s. While most of these adjustments, particularly the higher tariffs on consumer goods were intended to protect domestic industry, some had other aims. For instance, the tariff revisions in 1974 were intended to reduce inflationary pressures.

2/ World Bank, Industrial Strategy in Thailand, Report No. 2804-TH, 1980.

3/ See in particular, N. Akrasanee, "Trade Strategies for Employment Growth in Thailand," in, A. Krueger et. al. (ed.), Trade and Employment in Developing Countries, University of Chicago Press, 1981 and, World Bank, Thailand: Growth with Stability, Report No. 6036-TH, 1986.

4/ The tariff changes during this period and particularly those in 1982 are described and analyzed in World Bank, op. cit., 1986.

well as its variance across sectors also remained the same although both measures exhibited changes at a more disaggregated sectoral level, increasing for agriculture, agroprocessing, and other primary processing and falling for other manufacturing.

3.7 The removal of the import surtax following the 1984 devaluation reduced average ERPs at the aggregate and sectoral levels. But this effect was shortlived because of the tariff changes in April 1985, which were also apparently motivated by revenue concerns. As part of this revision, nominal rates on all raw materials and intermediate goods were raised by 5% while rates on finished goods, except certain textile and machinery items, were raised by 10%. The maximum tariff rate remained at 60%. As a result of this adjustment the average ERPs increased marginally for most sectors except for automotive products where it rose substantially and for chemical products where it fell.

3.8 No major tariff changes have been introduced since April 1985, and the adjustments that occurred until January 1988 are shown in Annex 3. The most significant of these changes were the reductions of tariffs on, electrical and electronic goods as well as inputs into these products;^{5/} a range of sporting goods and accessories; musical equipment; and, certain inputs in activities where the existing structure was perceived to be unfair.

3.9 Since these changes were relatively minor they were processed mainly by the Inter-Ministerial Tariff Committee and as Table 3.1 shows their overall impact on the nominal and effective tariff structure has been insignificant. In particular, the variance in ERPs fell only marginally, implying that the distortionary effects of the tariff structure improved only slightly. Apart from these tariff rate adjustments, there have been several announcements since 1985 concerning the preferential trading arrangement between Thailand and other ASEAN countries.^{6/} A final change has been the shift to a "harmonized" tariff code in January 1988. This move was designed both to make the tariff code more explicit and more consistent with those of its trading partners, but it is too early to evaluate the impact of the new system.

5/ This reduction was designed to curb the incentive to smuggle these products and were carried out with the approval of the electrical and electronic products club of the Federation of Thai Industries. It provides a recent example of cooperation between the public and private sectors in policy-making by using the Joint Public-Private Sector Consultative Committee to support this tariff change.

6/ As a consequence, the intra-ASEAN tariff rates have been reduced on a number of products covered by this arrangement, including milk powder, wheat, portland cement, pesticides, iron scraps, lead, metal-working machines, dyestuffs, and jewelry.

**Table 3.1: AVERAGE EFFECTIVE RATES OF PROTECTION
(percent)**

Sector	After April 1985 Changes			January 1988		
	VADP	VAWP	UNWGTED	VADP	VAWP	UNWGTED
Agriculture	19.4	13.2	3.0 (29.4)	19.4	13.1	28.0 (29.4)
Other primary products	12.6	10.7	10.5 (12.4)	13.1	11.3	10.9 (12.1)
Agro-processing	84.0	32.8	135.2 (264.4)	84.1	32.9	135.4 (264.4)
Other manufacturing	61.4	51.9	66.3 (69.6)	60.7	51.2	63.6 (67.3)
of which:						
Textile products	78.3	59.9	118.4	78.3	59.9	118.4
Leather products	113.6	114.8	152.7	100.1	100.5	119.3
Wood products	54.6	49.6	62.0	51.4	46.1	60.3
Paper and pulp	50.2	49.2	53.5	50.8	49.2	54.0
Chemical products	10.0	9.2	44.5	10.4	9.5	45.2
Rubber products	19.3	-6.2	42.0	19.3	-6.2	42.0
Other non-metal products	79.6	68.7	108.5	79.4	68.7	108.3
Metal products	79.6	64.6	70.9	79.6	64.6	70.9
Machinery	36.8	34.9	29.3	37.1	35.2	29.4
Consumer goods and Motor vehicles	73.5	70.0	45.6	72.6	68.7	40.0
Overall average	46.6	30.0 (132.0)	65.9	46.4	29.7 (131.4)	64.6

- Notes: (1) Effective rates of protection represent the potential incentive effects of the protective structure and were calculated according to the Corden method using input coefficients from the 1980 input-output table. See Annex 3 for the nominal rates that were used.
- (2) Numbers in parentheses represent standard deviations.
- (3) VADP - using 1980 value-added in domestic prices as weights.
- (4) VAWP - using 1980 value-added in world prices as weights.
- (5) UNWGTED - simple numerical averages.

Source: World Bank staff estimates.

3.10 Hence, the major adjustment that has been made in the overall tariff structure since 1980 is that nominal rates in excess of 60% do not, in effect, apply to any products. At the sectoral level, protection for textiles and chemicals products has fallen sharply while that for automotive products and machinery has risen since 1980. The escalation in nominal tariffs and the consequent sectoral variation in effective protection rates that were noted in the early 1980s remain problems. For instance, as Table 3.1 shows, finished products such as consumer goods, motor vehicles and leather and textile products have high effective protection rates compared to machinery and heavy intermediates such as chemical products. In this sense, the tariff structure continues to discriminate against the development of domestic industries in these latter sectors.^{7/}

3.11 However, these computations of ERPs do not include the effects of the various rebate and drawback schemes for import duties that are available to exporters and BOI-promoted firms. These schemes can be used for imported inputs used in producing exports and machinery (by BOI-promoted firms) and as is discussed below, improvements in their administration has increased their usage, particularly by large firms. To this extent the anti-export bias of the tariff structure is reduced since these firms have access to their inputs at prices close to their free trade levels. But the increased usage of these export promotion facilities is a mixed blessing from the perspective of domestic capital and heavy intermediate goods industries against whom it worsens the bias of the tariff system. Since these schemes apply mostly to imported machinery and intermediate inputs, they reduce the protection accorded to these sectors relative to consumer goods even more than is indicated by the ERP computations here. Therefore, if the development of these sectors is to be encouraged, the reform of the tariff structure must receive priority.

3.12 Import Surcharges. While the overall tariff structure has remained almost unchanged, there is less reliance now on BOI surcharges to protect promoted firms. In the 1970s and early 1980s the BOI actively used these surcharges, imposed through the FPO, to protect promoted firms producing a variety of products and such protection was normally renewed for periods longer than a year. At the end of 1985, such surcharges applied to about 30 products and the rates varied between 5% and 50% with most being between 20% and 30%. Most of these surcharges were allowed to lapse in 1986 and 1987 and they affected only 9 products, mainly chemicals and pharmaceuticals, at the

^{7/} However, it is worth noting in this context that the ratio of tariff receipts to imports by economic classification has fallen steadily since 1980 for consumer goods, while rising for intermediate goods, raw materials, and capital goods. Despite the limitations of such ratios as measures of nominal tariff levels, these trends provide an indication that the escalation of nominal tariff rates has decreased since 1980. Note also that since the tariff receipts include the effects of duty drawback schemes that are used mainly for imports of raw materials, intermediates and capital goods, the average tariffs (without duty exemptions) that apply to these categories may be understated by these ratios of receipts to imports.

end of 1987. Moreover, on 2 of these products the current surcharge is lower than it was a year ago while on 4 others it has been in effect less than four years. Since these surcharges had been used in the past to provide quasi-permanent protection to promoted firms, these recent changes are an encouraging sign that the BOI's policies are becoming less protectionist.

3.13 Quantitative Restrictions. Quantitative restrictions for both imports and exports are administered by the Ministry of Commerce although in some cases (about 40% of the products requiring permission), the Customs Department can give that permission without prior licensing from the Ministry. The frequency and duration of these restrictions has risen during the 1970s but have been reduced sharply since 1980. As of January 1988 about 53 products required import licensing of which 20 were subject to import bans.^{8/} Most of the products subject to these requirements are agricultural. Within manufacturing the subsectors that are relatively more protected are, paper products, chemicals, textiles, porcelain and marble. Among exports some 35 products are currently subject to export permission, 3 subject to quotas and 7 are prohibited. Again, most are agricultural products, fuels and minerals and metal products.

3.14 Export Taxes. Given the objective of promoting exports, duties on agricultural exports such as rice were reduced from 5% to 2.5% in 1983 before being abolished in 1986. Rubber export taxes have also been recently eliminated.

3.15 Domestic Content Regulations. Apart from a variety of minor manufactured products, the main impact of these requirements has not changed since 1980 and continues to be felt in the automotive sector. Although these rates have remained at their 1985 levels--45% for automobiles and 70% for motorcycles--it has been announced that from mid-1989 locally manufactured engines will be required for all locally assembled automobiles and motorcycles thereby raising the domestic content requirement considerably.

3.16 A recent Bank study compared Thailand's nominal tariff structure with those of some of its East Asian neighbors.^{9/} Thailand's average nominal tariff level in 1985 was the highest among the countries in the sample. When the effects of non-tariff restrictions and duty rebate and drawback schemes are included, Thailand's protective regime appears broadly similar to those in Indonesia and the Philippines. Korea and Malaysia on the other hand appear to have significantly less protective regimes in terms of average tariff levels, non-tariff barriers and escalation in their nominal tariff structures. Among these countries it should be noted however that Korea, Indonesia and the Philippines implemented tariff reforms in the early 1980s that significantly

^{8/} In contrast, about 75 products were subject to some form of import licensing in 1985 and imports of 43 of these was prohibited (see Atchaka Sibunruang, "Industrial Development Policies in Thailand," report prepared for the World Bank, 1986).

^{9/} World Bank, Trade and Industrial Policies in the Developing Countries of East Asia, Report No. 6952, 1987.

lowered both the average levels and dispersion of nominal rates while Malaysia maintained relatively moderate levels of protection. As has been established, progress on tariff reform in Thailand has been slower. This study also notes that the levels and dispersion of nominal protection in all these East Asian countries, including Thailand, are much lower than in most developing countries in Latin America and South Asia.

Export Promotion

3.17 The system of import duty exemptions and drawbacks mentioned before has been in place since the 1960s and aims to provide exporters and BOI-promoted firms with duty-free imported inputs. There are currently three agencies within the Government that implement such schemes.^{10/} The Customs Department's scheme provides exporters either with prior exemptions on import duties and business taxes for imported inputs or with individual drawbacks of duties and taxes paid on these. The FPO scheme, which is also administered by the Customs Department, provides exporters with fixed drawbacks on the basis of pre-determined input-output coefficients and applies either to domestic inputs alone or to imported inputs as well. The BOI also operates a prior exemption scheme that is less cumbersome than the Customs system and applies to machinery and raw material imports of promoted firms. These schemes are supplemented by two other instruments whose use is more recent. The system of bonded manufacturing factories allows firms engaged exclusively in manufacturing exports to bypass Customs procedures and taxes on imported inputs. Similarly, factories located in an export processing zone (currently only one exists but two more are to be established soon) are also exempt from tax and duty payments on imported inputs. Table 3.2 below shows the value of drawbacks and exemptions that have been provided. It is worth noting that the value of drawbacks provided by the Customs Department and the FPO has risen sharply in relation to the effective duty collected on raw materials and intermediates as has the value of exemptions provided to BOI promoted firms. Since data on the value of imported inputs or exports to which these exemptions and drawbacks refer are not available, it is not possible to make any inferences as to whether the access of exporters to duty free imports has improved in recent years. However, administrative improvements in these schemes and the commitment to export promotion within the Government appear to have made it easier for exporters to benefit from this system in recent years.

^{10/} For details of these schemes see, World Bank, Thailand's Manufactured Exports, Report No. 5670-TH, 1985.

Table 3.2: IMPORT DUTY DRAWBACKS AND EXEMPTIONS
(millions of baht)

	1983	1984	1985	1986	1987
Value of drawback/individual exemptions (Customs and FPO schemes) /a	1,965	3,326	4,410	5,181	7,333
Total effective duty collection (intermediates and raw materials)	7,791	7,709	8,794	9,759	12,200
Ratio of drawback/exemptions to effective duty collection (%)	25.2	43.1	50.2	53.1	60.1
Value of tax exemptions to BOI-promoted firms					
Raw materials	2,328	3,347	3,382	7,677	13,697
Machinery	1,142	700	1,411	1,504	3,612
Value of duty and tax exemptions					
Bonded manufacturing factories	n.a.	1,040	1,220	1,410	2,209
Export processing zone	--	--	--	137	600

/a Includes drawbacks and exemptions on business taxes as well as import duties.

Sources: Bank of Thailand and Board of Investment.

3.18 Two sets of problems were identified with this export promotion system in the early 1980s.^{11/} First, the FPO and Customs Department schemes were cumbersome and costly to exporters, compared to the BOI's method of providing prior exemptions, which was considered more efficient in providing access to duty-free inputs. The second problem was the lack of access to this system and to export financing of indirect exporters, i.e., those who supply inputs or outputs to ultimate exporters. There have been some changes since then in the duty exemption and drawback schemes operated by the Customs Department and the FPO. While retaining the basic design of these schemes, these changes have focused mainly on improving the computation and application of the technical input-output coefficients that they use. As a result, the benefits to exporters of using these schemes have increased, accounting in

^{11/} See the previously cited Bank report on manufactured exports for this analysis.

part for the rise in their usage in recent years (Table 3.2). Similarly, the increased use of the BOI's exemption scheme also reflects improvements in its administration as well as the recent surge in BOI promotion. The importance of trading companies that have access to the BOT's Export Refinancing Scheme has grown recently and in 1987 these firms handled about 12% of manufactured exports.

3.19 However, few policies have been implemented to improve the access of indirect exporters to these export promotion and financing schemes. The domestic letter of credit (DLC) system, similar to that used successfully in Korea, was introduced for trading companies by the BOT in 1985. But its use has been limited (Table 3.3) and as noted below, the usage of the BOT's Refinancing Scheme is concentrated among a few commodities and exporters. Similarly, no progress has yet been made toward setting up a preshipment guarantee scheme for working capital loans to these exporters. While the establishment of an Export Credit Guarantee Fund has been approved in principle, its actual implementation remains uncertain and it would insure only against postshipment risks.

3.20 Apart from providing import duty exemptions, the BOI provides additional tax benefits to export-oriented projects and uses export orientation among its criteria in providing fiscal incentives to projects (Annex 4). Export orientation has received progressively more prominence in determining the extent of promotional privileges. Although the BOI had begun promoting international trading companies in 1978, this was suspended in 1981 and has not been resumed since.

3.21 In general, institutional support to exports has been strengthened in recent years. The Department of Commercial Relations as well as the Export Development Committee and its Secretariat have been restructured and now provide improved support services for export marketing. Greater emphasis is also placed on export promotion at the highest levels of the Government. For instance, public-private sector cooperation in promoting exports has grown with the influence of advisory bodies such as the Joint Consultative Committee and the Export Promotion Committee that are chaired by the Prime Minister and the Deputy Prime Minister respectively. Similarly the frequency of trade fairs and missions and awards for outstanding export performance has risen and these events now receive considerable publicity. Hence, although export promotion has been a stated policy of the Government since the early 1970s its support for this objective appears to have solidified since 1980.

Investment Promotion

3.22 Investment incentives are provided through the Investment Promotion Act which is administered by the Board of Investment (BOI). This Act was revised substantially in 1972 and 1977. The first public announcement of the BOI's promotion criteria was made in 1983 and designed mainly to shift promotional privileges toward export oriented and labor intensive projects. These promotion criteria were modified in September 1987 and Annex 4 shows the changes for each type of incentive. The types of incentives provided by the BOI to promoted projects have not changed with the corporate income tax exemption and the exemption/reduction of import duties and business taxes on imported machinery and raw materials still the principal ones.

Table 3.3: EXPORT CREDIT REFINANCING OF BOI PROMOTED TRADING FIRMS
 (in million Baht)

	1985				1986				1987				1988	1985 to 1988 (Q1)
	Q2 to Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Total refinancing														
Promoted trading firms (million baht)	2,507.8	708.1	1,090.4	1,070.4	965.3	1,081.5	711.0	810.1	748.2	1,329.8	10,972.6			
Number of producers														
Issuing P/Ns														
Backed by DLCs														3
Backed by Purchase Orders														18
Shares in total refinancing of promoted trading firms (%)														
Producers' P/Ns														
Backed by DLCs	0.8	0.0	0.0	0.3	0.8	0.0	1.7	1.0	0.5	0.1	0.5			
Backed by Purchase Orders	0.1	5.0	2.6	17.5	9.7	21.1	9.5	8.2	8.1	15.0	8.6			
P/Ns issued by trading firms	99.1	95.0	97.4	82.3	89.5	78.9	88.8	90.8	93.4	84.9	90.9			

P/N = promissory note.

Source: Bank of Thailand.

3.23 These changes in 1987 can be viewed as an attempt by the BOI to respond to the most persistent criticisms of its past policies as well as to maintain greater conformity between these criteria and other industrial policies. In particular, the revisions address the criticisms that past BOI promotion policy has been too discretionary and has discriminated against small investment projects and firms.

3.24 The 1983 criteria allowed the BOI considerable latitude in determining the length and magnitude of fiscal incentives that promoted firms could receive. The revised criteria spell out more clearly the conditions that govern these privileges. The category of projects deemed to be of "special importance," for which the BOI could extend the length of the corporate tax exemption has been eliminated. Similarly, exemptions/reduction of the business tax and import duty that were previously handled on a case-by-case basis now depend on the type of activity and its location.

3.25 The revised criteria deal with two sources of bias against small projects that existed in past BOI policy. The minimum investment requirement for export oriented projects has been lowered from B 5 million to B 1 million, which level is low enough that it no longer precludes small firms from seeking promotion for their projects. Another bias against small projects existed because the provision of the corporate income tax exemption/reduction and its length depended on conditions such as minimum employment size (usually 200 persons), investment scale or volume of foreign exchange earnings, that obviously favor larger projects and firms. While these conditions are now less applicable with the new criteria, they have not been eliminated entirely (see Annex 4).

3.26 The provisions in the 1983 promotion criteria that sought to decentralize industrial activity have been simplified and sharpened with the revision in 1987 and also provide more generous benefits when they apply.^{12/} As against the four Investment Promotion Zones (IPZs) that were defined in the past with variations in incentives between them, there is only one such zone now and it includes all 67 provinces outside the Bangkok Metropolitan Region (BMR).^{13/} In determining the scale of incentives, there is a further distinction now between general locations in Bangkok and Samut Prakarn on the one hand and industrial estates in these areas as well as all locations in the rest of the BMR. Privileges such as the corporate income tax exemption and the tax exemption on imported raw materials may not be granted now to projects in Bangkok and Samut Prakarn whereas previously only the exemption period was reduced for these.

12/ The efficacy of these changes and of other policies in influencing industrial location is examined in Chapter 4.

13/ The BMR consists of the Bangkok Metropolitan Area (BMA) and the five neighboring provinces of Samut Prakarn, Samut Sakhon, Pathum Thani, Nonthaburi and Nakhon Pathom.

3.27 The impact of these changes in locational incentives is mitigated for some classes of projects by partially or totally exempting them from these provisions under certain conditions. Export oriented projects and those that save a minimum amount of foreign exchange (including import substitution projects) are the main beneficiaries of these exceptions. For instance, large (over 200 employees) export oriented projects can receive corporate income tax exemptions even if they locate in Bangkok or Samut Prakarn. The new criteria undoubtedly reduce the promotional benefits that can accrue to all projects locating in the BMR. However, the exceptions to the locational incentives imply that the loss in benefits is smallest for large export oriented or import substituting projects and those located on industrial estates or that use agro-based raw materials.

3.28 The complexity of the BOI's approval procedures and the resultant delays have also been criticized. In response, there have been improvements in the administration of the promotion system, particularly in terms of the time required for project approval which has been expedited since 1985 with three levels of approval being used depending on the project size. In 1977, an Investment Service Center (the so-called One-Stop Shop) was set up to issue factory licenses and permits, particularly to promoted foreign firms.

3.29 As of January 1989, the BOI promotion criteria were revised again. There are now three areas: the BMR, ten surrounding provinces, and the rest of the country. This revision apparently aims at strengthening the relative attractiveness of the provinces that are farther away from the BMR. Whereas under the 1987 criteria, all provinces outside the BMR were treated equally, the new criteria created an intermediate area between the BMR and the outer areas. The promotion privileges in the remotest area seem to be about the same as the maximum that was previously offered and those offered in the intermediate area seem to be roughly half of the privileges offered in the outer areas.^{14/}

3.30 Despite these improvements, two problem areas remain. First, the BOI's capacity for project and data analysis and monitoring continues to be limited. Second, there has been no attempt in revising the promotion criteria to formulate a negative list that would specify activities that will not be promoted. The current positive list remains too broad to provide much guidance to potential investors.

Tax Policy

3.31 The business tax that is levied on the gross sales receipts of all enterprises in manufacturing and some service industries is the most broad-based consumption tax in Thailand. Due to its "cascading effect" as well as its complexity it discourages subcontracting and discriminates against

^{14/} Since all the details were not immediately available, a thorough comparison with previous BOI criteria and privileges was not possible here.

products that involve multiple stages of processing. It has therefore long been recommended that it be replaced by a value added tax that does not cause such biases.^{15/}

3.32 This recommendation has now been accepted and a value added tax is scheduled to replace the business tax in 1990. The preparation process for this change is already well underway. Meanwhile, in order to reduce the cascading effect of the business tax, the rates on raw materials and intermediate and capital goods were reduced in 1984 while those on consumer goods were raised. Also, the tax rate was lowered to 1.5% on registered transactions between industrial manufacturers. However, the registration requirements for this lower rate are so stringent that only a few manufacturers have taken advantage of it.^{16/} Business tax rates continue to be higher on imports than for domestic goods in many cases thereby biasing the choices of producers toward domestic inputs.

Financial Sector Policies

3.33 One problem with the financial system in the early 1980s was the conflict faced by the Bank of Thailand (BOT) in its regulatory role. These problems arose from the multiple objectives that the BOT was forced to pursue. For instance, the developmental role it served through the operation of its subsidized rediscount facilities particularly for exports (see Chapter 1) conflicted with its function of maintaining monetary control. Similarly, its imposition of sectoral credit allocations on commercial banks, also for developmental reasons, implied that such assets could not be subjected to the same tests of quality as the rest of these banks' portfolios thereby interfering with the BOT's regulatory function. A second problem with the financial system was the relative lack of competition among financial institutions. This stemmed from the segmented approach to regulation, interest rate controls and restrictions on entry into commercial banking as well as exit by unviable institutions.^{17/}

3.34 The greatest progress in reforming financial sector policies has been in enlarging the regulatory role of the Bank of Thailand. Recent amendments to the Bank of Thailand Act have strengthened its regulation of commercial banks and finance companies in terms of supervising their lending, requiring them to raise capital and making adequate provisions for bad debts and reorganizing their ownership and control if necessary. Despite these changes, there has been no move toward broadening the activities of specialized

15/ See, for example, World Bank, op. cit., 1980 and, IMF, Thailand: Tax Reform for Export Promotion, Investment Expansion and Growth, May 1987; (cited with permission from the Fiscal Policy Office, Ministry of Finance).

16/ For example, it was reported that until the end of fiscal 1985 only 113 firms had registered to qualify for this lower rate. See, IMF, op. cit., 1987.

17/ See, World Bank, Thailand: Perspectives for Financial Reform, Report No. 4085-TH, 1983, for an analysis of these problems and suggested reforms.

financial institutions such as the BAAC and in this sense, financial sector regulation remains segmented by institution rather than being focused on activity. The Financial Institution Development Fund (FIDF), set up in 1985, has been used by the BOT to increase the capital of problem financial institutions. But the use of the Fund precludes exit, opting instead to keep these institutions afloat and hence it does not fully achieve the aims of a deposit insurance scheme. However, the BOT is considering the conversion of the FIDF into a deposit insurance scheme. Interest rate ceilings have remained in force although their levels have been relatively high and not binding since 1985 on deposits and for most loans (see Chapter 1 for details).^{18/} Although sectoral credit allocations remain binding on commercial banks, proposals currently being made within the BOT would shift their funding toward a more market-based system financed from Government revenues or borrowing. Along with the proposed reduction in the BOT's role in financing exports through the repurchase facility, this change would allow it to concentrate on its monetary control and regulatory functions.

3.35 The Stock Exchange of Thailand (SET) Act was revised in 1984 so as to resolve some areas of conflict with the Public Company Act regarding the issuance of debentures and shares. It also gave the SET greater control over trading activities and the use of insider information by traders. Despite these changes the restrictions of the Public Company Act are still viewed as a major obstacle to the expansion of equity and debentures markets. Recent changes in the tax laws concerning interest income and capital gains on bonds as well as dividends on shares have enhanced their attractiveness relative to savings and time deposits. However, secondary markets in Government bonds remain weak with commercial banks being the main participants due to the regulatory requirement that they hold specified proportions of their deposits in this form.

3.36 The relative weakness of the Thai capital market may become an important constraint to the industrial take-off. Both public and private investment is rising rapidly, and an increasing number of projects will be much larger than before and require much longer-term financing. As more Thai firms move into highly competitive international markets, they would need a cushion of greater equity bases to weather market fluctuations. All these trends call for a stronger capital market that can efficiently intermediate equity capital and long-term credit.

B. The Recent Emphasis in Industrial Policy

3.37 As is clear from the preceding evaluation of recent policy changes, the high priority given by the Government since the 1970s to export promotion remains. Apart from export orientation, three other aspects of industrial policy warrant further discussion. First, there is now an attempt to broaden

^{18/} Further evidence that the BOT is now committed to a less activist role in setting interest rates on loans and deposits is provided by its refusal to intervene in 1987 in response to pleas of commercial banks who argued that market determination of these was resulting in "too much" competition (Far Eastern Economic Review, February 25, 1988).

industrial policy by encouraging manufacturing firms and particularly exporters to expand into technologically more advanced areas. Second, the Government hopes to address the problem of inter-regional income disparities through the promotion of rural industries. Finally, there will be continued reliance on foreign direct investment flows, particularly from Japan and the NICs, to accelerate industrial growth.

Industrial Strategy

3.38 Having been successful in exporting light manufactures, Thai policymakers are now concerned with the need to "upgrade" or "deepen" the industrial structure. There are two aspects to this discussion. First, it is thought that there should be greater emphasis on building backward linkages by encouraging the manufacture of machinery, parts and equipment rather than concentrating on the assembly of these components as is the case currently. This objective appears sound particularly in the context of the recent inflow of foreign direct investment into these activities. Second, in order to sustain rapid growth, it is felt that there must be a shift from simple manufacturing such as common grade textiles to more sophisticated textile products, consumer electronics, and perhaps even automobiles and machinery. This aim is justifiable when the Thai economy is viewed in the context of its regional competitors. On the one hand, Indonesia and China, with immense reservoirs of cheap labor, are rapidly developing labor-intensive light manufacturing industries. On the other side, the NICs are moving ahead into increasingly high-technology industries while losing competitiveness in the middle range of manufacturing. Meanwhile, it must be recognized that the Thai economy cannot depend on cheap labor as the source of growth for much longer.

3.39 However, while the need for the development of such backward linkages and more sophisticated manufacturing might be apparent, it is not obvious that these activities should be actively promoted by government policy. Such industries would be more capital intensive than those that currently characterize Thailand's manufacturing sector. Barring specific market failures therefore or policies that discourage their growth, such industries will develop in time in response to shifts in comparative advantage with rising real wages. Such a gradual expansion is usually more efficient than one dictated by government policy. In this regard, the Korean experience in the early 1970s is particularly relevant. Thailand appears today to be at a similar juncture in its industrial development, having achieved success in light manufactured exports and being conscious of the need to diversify into more sophisticated products. Korea's policies in the 1970s and their contrast with those of the previous decade are also useful in examining the efficacy of policies that target specific sub-sectors.^{19/}

^{19/} Such selective incentives aim at altering the sectoral structure of the industrial sector by encouraging the development of particular industries or sub-sectors. In contrast, functional incentives are aimed at rectifying specific market failures without necessarily affecting the sectoral output mix.

3.40 Korea's industrial policy between 1961 and 1973, the so-called takeoff stage in its development used a mix of instruments to create an incentive system that combined import substitution in some sectors with aggressive export promotion in other sectors.^{20/} The domestic market was protected by high tariffs mainly in industries that produced importables with exportable sectors receiving little protection. In practice, this translated into higher levels of effective protection for consumer goods than for industrial raw materials and capital goods. Among export oriented activities, there was little attempt by the Korean government to identify industries that would receive special encouragement. Instead, the fiscal and financial systems were used to offset the effects of the protective system for direct and indirect exporters. As a result, manufactured exports grew rapidly during this period and their composition corresponded closely to Korea's comparative advantage, being concentrated in labor intensive products within light manufacturing.

3.41 This policy mix changed in the early 1970s with the shift in emphasis toward the development of heavy and chemical industries. Trade, fiscal, and financial interventions now became more selective in nature and aimed at encouraging these industries with a view to "deepening" the industrial sector. Hence, the targeted industries were given access to subsidized credit and provided with investment tax credits, tax holidays and other fiscal incentives. They were also provided import protection through tariffs and quantitative restrictions. The sectoral variation in effective protection rates rose considerably as did the protection received by the targeted industries. These policies did achieve their desired result in terms of altering the structure of the industrial sector and the composition of exports. By 1983, about 50% of all exports and 16% of value added were accounted for by heavy and chemical industries, up from about 25% and 11% respectively in 1975. However, while some of these industries, notably steel and consumer electronics, have become internationally competitive, others such as shipbuilding, petrochemicals and heavy machinery have been forced to restructure with the help of large subsidies.^{21/} On balance therefore, the costs of the targeted industrial policies of this period in terms of forgone exports from other sectors and unused capacity in these industries may have exceeded those of a less selective strategy.

3.42 While no general conclusion is warranted about the effectiveness of a strategy based on such selective interventions, the Korean experience before and after 1973 shows that such policies are difficult to implement

20/ The description of Korea's industrial policy that follows is based on, Korea - Managing the Industrial Transition, World Bank Country Study, 1986.

21/ Korea's success in some industries was also in part due to fortuitous circumstances. For instance, the expansion of its steel industry coincided with the restructuring of the industry in the US and Europe.

successfully. The selection of industries to be targeted is particularly difficult when they are technologically sophisticated since even an efficient bureaucratic apparatus is unlikely to be sufficiently well informed. In this sense, the mixed results of Korea's drive to develop heavy and chemical industries are not surprising. This experience shows that Thai policymakers must be very cautious in using the available policy instruments to selectively encourage subsectors that they believe have potential. As discussed below, a more efficient method of encouraging these sectors would be to reform the tariff structure so as to reduce the biases that currently exist against them.

Rural Industrialization

3.43 The promotion of rural industries reflects the latest shift in the Government's priorities from growth to equity. The objective is to develop an economic system that tends to spread the benefits of industrial growth to a wider segment of the population. The key elements in this strategy are to strengthen backward linkages from the urban manufacturing sector and to develop industries that link rural workers to urban and export markets. The recent changes in the BOI's promotion criteria discussed earlier, whereby firms locating further away from the BMR receive more generous promotional privileges, reflect this objective. The emphasis on subcontracting in a broad sense (including contract farming for instance) as well as the promotion of small and medium enterprises, or SMEs, (to the extent that these firms are more likely to rural areas) are also means of encouraging industrial growth in rural areas.

3.44 A highly successful example of a rural industry that has developed recently and is often cited by the Government is gem cutting. Gem cutting has grown rapidly in the last few years, especially in the North, and now employs about 400,000 people by one estimate. Farmers cut the gems at home on a part time basis using simple power tools with the supply of uncut stones as well as the collection and marketing of the finished products being handled by middlemen. This linkage between the rural hinterland and external markets is the kind that the Government hopes to encourage with its policy of rural industrialization. However, its high value added in relation to unit weight and the high labor intensity of the cutting process help explain why gem cutting is suited so ideally to be a rural industry despite the poor condition of industrial infrastructure in rural areas. Therefore, it is not obvious what other industries can be developed along the same line.

3.45 To the extent that small firms are more likely to locate in small regional towns and rural areas, the general biases against SMEs that are noted in the next Section also constrain rural industrial development. There are, however, additional constraints that make the business environment in those areas less appealing to investors. Chapter 4 identifies the lack of efficient government and business services, information flows for marketing and technology, and access to transport facilities as the main constraints. It also provides evidence that when some of these constraints are removed, private investors do move into these areas. Therefore, while the Government would certainly like to identify other industries like gem cutting that can operate efficiently in rural areas, it should probably concentrate more on removing these basic constraints and biases against firms that locate there.

Foreign Direct Investment

3.46 In general, Thailand's policies toward foreign direct investment (FDI) continue to be liberal. The investment promotion system and the system of tax and tariff incentives do not distinguish between domestic and foreign investors. The only significant restriction on foreign investment occurs in the form of limits placed by the Alien Business Law (1972) on foreign ownership shares within particular sectors. Since promoted projects are exempt from most of its provisions, it is unlikely that this law has been a significant barrier to foreign investment.

3.47 In addition, the Investment Promotion Act (1977) allows the BOI to place conditions on the amount and source of foreign capital but only for promoted activities. Its guidelines stipulate majority Thai ownership for projects that serve the domestic market and those in agricultural, mining, and service industries. These conditions do not apply to projects where at least 50% of the output is exported and in practice the BOI has considerable discretion in determining the extent of foreign ownership considering, in addition to export share, such factors as the level of technology, location, and employment creation. Therefore, while the BOI policy appears to favor joint ventures over full foreign ownership, the share of approved joint venture projects, as opposed to projects with full foreign participation, in promoted foreign investment fell from 88% in 1986 to 78% in 1987 and 66% in the first quarter of 1988. With the exception of Singapore which has almost no restrictions on foreign ownership, these regulations in Thailand are no more stringent than those in other ASEAN countries.

3.48 While land ownership by foreigners is restricted in Thailand, any BOI-promoted firm including those that are wholly foreign owned ^{22/}can acquire land for industrial purposes. This policy is less stringent than those in Indonesia and the Philippines, where land can be owned only by citizens and corporations with local majority shares. Malaysia's policies were recently relaxed to allow non-citizens to acquire land for industrial activities. Like other ASEAN countries, Thailand generally imposes no restrictions on the remittance of foreign exchange and the repatriation of profits and capital by foreign investors. All the countries offer guarantees to foreign investors against expropriation and all but the Philippines guarantee against nationalization.

3.49 As Table 3.4 shows, the corporate tax rate in Thailand is among the lowest in ASEAN. However, even without tax incentives, the tax rate is only one determinant of the impact of the corporate tax structure. The effect of the tax structure depends also on features such as depreciation provisions, loss offsets and dividend credits. One measure of the impact of the tax structure is the marginal effective tax rate (METR) for an investment project, defined as the difference between the before and after tax rates of return, expressed as a percentage of the former. The METR differs from the statutory tax rate to the extent that other features of the tax system result in a

22/ In fact, this is viewed by foreign firms as a major benefit of BOI promotion. It has also led recently to concern that foreign investors' land purchases have been pushing up land prices.

divergence between taxable and economic income. A recent study estimated this measure for a sample that included Thailand and other ASEAN countries.^{23/} It compared the before and after tax cash flows for a hypothetical project after taking into account various features of the corporate tax system (except indirect taxes and tax incentives). The results of these simulations in Table 3.4 show that the METR for Thailand's tax system is the lowest in the ASEAN and is much lower than the values for Indonesia and the Philippines. This variation in METRs within this group of countries occurs despite little difference in their statutory tax rates. The main reason, as the study notes, is that Thailand like Malaysia and Singapore has a dividend credit for personal income taxes which almost eliminates double taxation of dividends. Despite its restrictive assumptions, this analysis does show that the tax system in Thailand is favorable to domestic and foreign investment.

Table 3.4: CORPORATE TAX STRUCTURES IN THAILAND AND
...IGHBORING COUNTRIES
(percent)

Country	Statutory Rate	Marginal Effective Tax Rate (All equity investment project)
Thailand	35	<u>/a</u> 24.9
Singapore	40	29.5
Malaysia	40	31.7
Philippines	35	40.5
Indonesia	35	41.6

/a A lower rate of 30% applies to all SET-registered companies.

Source: Pellechio, et. al., op. cit.

3.50 Thailand and the rest of the ASEAN also offer investors additional tax and tariff incentives whose impact is not considered in computing these METRs. The most important incentives are corporate tax exemptions/reductions, investment tax credits, accelerated depreciation allowances and exemptions/reductions of duties and taxes on imported machinery and raw materials. The corporate tax exemption in Thailand is granted to BOI-promoted projects and varies in length from three to eight years depending on location, export-

23/ See, A. Pellechio, G. Sicat and D. Dunn, "Taxation of Investment in East Asian Countries," DRD Discussion Paper No. 261, World Bank, March 1987.

orientation, and size (Annex 4).^{24/} Malaysia's tax exemptions also apply to approved projects, depend on technology, location, and local content and are somewhat longer and supplemented by investment tax credits and accelerated depreciation allowances. Singapore's incentive system includes all these features and is the most generous. The Philippines' system was based on value added and local content until 1987 but now resembles the systems in Thailand and Malaysia. Indonesia abolished its corporate tax exemption system in 1984 and currently offers no tax holidays.^{25/}

3.51 All the countries in the region including Thailand offer tariff incentives to exporters in the form of import duty drawbacks or refunds on machinery and raw materials used in production.^{26/} While the details of the schemes varies across countries, there have been recent efforts particularly in Malaysia and Indonesia to improve their effectiveness in providing exporters access to duty-free imports.

3.52 In sum, Thailand provides incentives that are comparable to those in Malaysia and more generous than those in the Philippines and Indonesia. The ranking of countries according to the METRs in Table 3.4 is therefore likely to remain almost the same even when these fiscal incentives are considered. Taking account of the effective tax rates as well as the other regulations noted before, the environment for foreign investment is among the most favorable in the region. This conclusion does not however mean that generous fiscal incentives are the most important determinant of net inflows of foreign direct investment. Thailand's experience in the 1970s, when such inflows were lower than in other ASEAN countries, underlines the importance of factors such as political stability. Hence, although the investment incentives available through the BOI have enhanced the attractiveness of Thailand as a destination for foreign investment, it is difficult to determine the additional investment that has been attracted due to the availability of these benefits.

^{24/} The difference between the METR with and without a particular tax incentive is termed the "tax wedge" associated with that incentive. A negative tax wedge represents the decrease in effective taxation due to a tax incentive. Simulations that incorporate the effect of tax exemptions in the model described before show that the tax wedges are about -13% and -30% respectively for corporate tax exemptions of three and eight years.

^{25/} See, World Bank, World Development Report (1988) for a brief description of the Indonesian policy changes.

^{26/} Using a model that includes an import duty of about 12% on machinery and assumes that 90% of all machinery is imported, simulations show that the tax wedges are about -6% and -12% respectively for import duty exemptions of 50% and 100%.

3.53 The major issue with regard to FDI flows continues to be whether such investment is concentrated in manufacturing activities that involve mainly assembly type operations or is being directed toward the production of more sophisticated components and machinery as well. No data are available to answer this question directly, even for BOI-promoted firms. However, anecdotal evidence indicates that recent investment in components manufacture has been increasing, particularly by Japanese and Taiwanese firms producing automotive and electrical products. A related issue is the extent to which technology is transferred due to foreign investment. Again firm inferences are difficult to make but observers note an improvement since the 1970s at least in terms of the willingness of foreign firms to hire more Thais in managerial and technical positions.

C. Supporting Industries, Subcontracting and Small and Medium Enterprises

3.54 The desire to diversify manufactured exports toward products of greater technological sophistication also motivates the Government's recent emphasis on "supporting industries" and hence, on subcontracting and small and medium enterprises (SMEs). Supporting industries are those that supply parts and components into final assembly operations in automobile, machinery, electrical equipment and electronics, and other manufacturing industries. The final assemblers in these industries typically rely on a network of subcontractors and therefore, their success requires the development of a strong subcontracting system. Subcontracting for foreign assemblers is also viewed by the Government as a necessary step for Thai manufacturers before they can independently undertake final assembly operations.

3.55 This reliance on subcontracting and supporting industries is an integral part of the Japanese system of industrial production that is viewed as a model for industrial organization in East Asia. The competitiveness of Japanese manufacturers in such industries as automobiles, electronics, and machinery, all of which involve assembling numerous parts and components, derives importantly from the efficiency of subcontractors. Producers are typically organized in several layers in a pyramid shape, with major manufacturers such as Toyota, Matsushita, and Hitachi, occupying the top.²⁷ By contrast, despite a wide variance across sectors, US manufacturers tend to be more vertically integrated.

3.56 This difference in the extent of vertical integration arises, according to a recent study, from a more basic distinction in the organization of industrial production between Japan and the US. One way to characterize

^{27/} One study reported that an automobile company had 168 first-tier subcontractors, 4,700 second-tier subcontractors, and 31,600 third-tier subcontractors. See, R. Komiya, et. al., Japan's Industrial Policy University of Tokyo Press (in Japanese), 1984, p. 458.

the former is in terms of being a "flexible production" system, in contrast to the orientation toward a "mass production" system in the US.^{28/} In a mass production system, manufacturers compete by producing standardized products at the lowest cost. Vertical integration is promoted because production occurs in large quantities and efficiency improvement at each stage of production is achieved through specialization of workers. In a flexible production system, manufacturers compete by constantly differentiating their products and capturing smaller segments of what might otherwise be considered a mass market. Since competitiveness in this system derives from the special features of products, reliance on subcontracting is encouraged because it provides final assemblers greater flexibility in changing their product lines.

3.57 Although there is no convincing evidence as to which of these systems is more efficient, its ability to adapt to changes in market conditions and technology may make the flexible production system more competitive in the current economic environment. For Thailand, there may also be other reasons that make a system based on subcontracting particularly appropriate. First, given the relatively small size and the openness of the domestic market, Thai manufacturers will be unable to realize the cost advantages from scale economies with the mass production system. Second, there has been an increase in investments from Japan and Taiwan, particularly in the automobile, machinery, and electrical and electronics industries. Most of these firms already use subcontracting extensively in their home countries and are therefore likely to be more efficient using such a system in their operations in Thailand as well. Moreover, they would provide technical assistance to their local suppliers thereby allowing these Thai manufacturing firms to upgrade their skills. Finally, subcontracting could contribute to the equity objective of the Government by strengthening the linkages between the growth of the manufacturing sector, that has hitherto been concentrated around Bangkok, and other regions. While a more integrated operation is likely to concentrate its production activities in one area, probably in or near Bangkok, subcontractors being smaller may be able to exploit other advantages by locating elsewhere.^{29/} Such location decisions would lead to the more decentralized pattern of industrialization that the Government is pursuing.

Small and Medium Enterprises

3.58 As in most developing countries, data on these firms is sparse in Thailand. The main data source that has been used in previous work is the factory registration statistics from the Industrial Works Department of the

^{28/} See, D. Friedman, The Misunderstood Miracle, Cornell University Press, 1988.

^{29/} An example is a successful automobile components manufacturer in Nakhon Ratchasima in the Northeast. Despite the lack of much industrial activity in the area, the firm located its factory there because of the owner's family and local connections there.

Ministry of Industry.^{30/} Despite the limitations of these data some tentative conclusions can be drawn about the structure of this segment of the manufacturing sector. Although the criteria used to define small and medium enterprises vary widely, the definition used here is the most common with firms being classified according to the number of full-time employees. The cottage sector comprises those that employ less than 10 workers, small-scale enterprises those that employ between 10 and 49 workers, and medium-scale enterprises those that have between 50 and 200 workers. Given their coverage, the data concerning the cottage sector, and to a lesser extent, the small-scale sector must be interpreted with particular caution.

3.59 Using this classification, Table 3.5 shows the size distribution of manufacturing establishments for Thailand in 1984 and indicates that the vast majority were SMEs. The table also shows the size distribution of establishments for Korea and Taiwan in 1975 and 1971 respectively. Although the size categories are not the same and differences in coverage between countries imply that comparisons must be made cautiously, it is worth noting that the size distribution for Thailand is the most skewed towards smaller firms. Moreover, it resembles the Taiwanese distribution more than it does that for Korea. Similar conclusions follow from comparing the shares of manufacturing employment for each size category in these countries (also shown in Table 3.5). Data on the distribution of value added by firm size are available for Thailand only for 1979, when it was estimated using the Industrial Survey sample that SMEs accounted for about 48% of the value added in the manufacturing sector. While data for the same size categories are not available for Taiwan and Korea, firms with less than 100 employees contributed 23.5% and 19.5% of total manufacturing value added in these economies in 1971 and 1973 respectively, illustrating again the greater significance of small firms in Thailand.

^{30/} These data are based on the Ministry's regulation that all factories with seven or more workers or that use machinery of more than five horsepower be registered with the Ministry of Industry. Since it is difficult to enforce this regulation, these statistics obviously exclude the firms, mostly at the lower end of the scale, that have chosen not to register. Other than these data, a study for the Bank in 1982 used the 1979 Industrial Survey to infer the characteristics of SMEs. Unlike the factory registration data, however, this Survey covered only a sample of manufacturing firms and the two are therefore not directly comparable. As is noted below in the description of subcontracting there have also been other informal surveys concerning SMEs whose coverage has differed from both the factory registration data and the 1979 Industrial Survey.

Table 3.5: COMPARATIVE STRUCTURE OF MANUFACTURING SECTOR BY FIRM SIZE

Firm Size (No. of Employees)	Percent of Establishments			Percent of Employment		
	Thailand (1984)	Taiwan (1971)	Korea (1975)	Thailand (1984)	Taiwan (1971)	Korea (1975)
< 50	93.1	86.8	81.4	38.6	25.5	17.4
50 - 99	3.5	5.9	7.7	11.2	9.4	8.7
100 - 199	1.8	n.a.	5.0	10.5	n.a.	11.5
200 - 499	n.a.	n.a.	.8	n.a.	n.a.	18.8
100 - 499	n.a.	6.0	8.8	n.a.	28.6	30.3
> 199	1.6	n.a.	n.a.	39.7	n.a.	n.a.
> 499	n.a.	1.3	2.1	n.a.	36.5	43.6

Sources: Thailand: Industrial Works Department, Ministry of Industry; Taiwan, China: Report of the 1971 Industrial and Commercial Censuses of Taiwan and Fukien Area; Korea: Report on the Mining and Manufacturing Survey 1975.

3.60 The industries within which SMEs are concentrated can be seen from Table 3.6. The proportion of cottage and small-scale firms is higher in industries that use bulky and dispersed raw materials or produce primarily for local markets, such as food processing, ceramics and leather products, as well as in metal and machinery industries that involve simple assembly operations that are separable and involve no scale economies. This pattern is consistent with that in Taiwan and Korea in the 1960s and early 1970s, whereby locational and process influences are most significant in explaining the distribution of cottage and small-scale firms among industries. Medium-scale firms, on the other hand, are distributed more evenly across industry groups with relatively high proportions in beverages, textiles and apparel, petroleum and its products, basic metals and electrical machinery. It is striking however that a smaller than average proportion of such firms are to be found in the fabricated metal and general machinery industries, where subcontracting by larger manufacturers might have been expected to support more medium sized firms.

Table 3.6: SIZE DISTRIBUTION OF FIRMS BY INDUSTRY (1984)
(percent)

Industry (employees)	Small and Medium Scale Enterprises					Large Scale 200+	Number of Firms
	Cottage 1-9	SSEs 10-49	MSEs 50-99	100-199	Total		
<u>Consumer Products</u>	59.4	33.5	3.3	1.8	98.1	1.9	13,778
Food	65.3	29.5	2.5	1.4	98.6	1.4	8,076
Beverages	40.6	32.3	4.7	12.5	90.1	9.9	192
Tobacco	19.3	52.3	10.9	6.6	89.1	10.9	331
Apparel	14.4	67.8	9.5	4.6	96.2	3.8	1,458
Leather and products	57.9	34.9	2.5	2.2	97.5	2.5	278
Footwear	48.6	42.7	2.7	1.8	95.9	4.1	220
Furniture	60.4	34.7	3.4	0.8	99.2	0.8	1,151
Printing and publishing	77.4	20.3	1.2	0.6	99.4	0.6	2,072
<u>Intermediate Products</u>	50.8	37.5	6.2	3.0	97.4	2.6	9,793
Textiles	25.2	51.1	8.9	5.9	91.2	8.8	1,355
Wood and products	58.1	33.3	6.0	1.9	99.4	0.6	3,053
Paper and products	61.7	26.1	5.1	3.5	96.5	3.5	452
Chemical and products	41.5	43.7	8.4	3.8	97.4	2.6	948
Petroleum and products	34.5	31.0	17.2	3.4	86.2	13.8	29
Rubber and products	52.4	32.5	6.5	5.2	96.7	3.3	765
Plastic products	64.0	31.9	2.4	1.2	99.4	0.6	1,454
Ceramics	24.5	54.4	12.7	4.2	95.8	4.2	237
Glass and products	8.9	48.9	20.0	8.9	86.7	13.3	45
Non-metal mineral	53.5	38.3	4.8	2.2	98.8	1.2	1,455
<u>Capital Products</u>	76.3	19.7	2.1	1.0	99.1	0.9	13,497
Basic metal	16.6	53.1	14.9	10.3	94.9	5.1	175
Non-ferrous metal	62.2	32.7	2.2	1.6	98.7	1.3	312
Metal products	77.4	19.4	1.7	0.8	99.4	0.6	4,716
General machinery	83.0	15.3	1.1	0.3	99.8	0.2	5,066
Electric machinery	57.9	31.3	5.4	2.9	97.5	2.5	905
Transport machinery	73.6	20.7	2.6	1.4	98.3	1.7	2,233
Scientific equipment	44.3	40.0	5.7	4.3	94.3	5.7	70
Other products	73.9	22.8	2.2	0.7	99.5	0.5	2,578
<u>Total</u>	<u>64.0</u>	<u>29.1</u>	<u>3.5</u>	<u>1.8</u>	<u>93.4</u>	<u>1.6</u>	<u>100.0</u>
Number of firms	25,342	11,532	1,404	707	38,985	641	39,626

Source: A. Kuroda, et. al., "Development Strategies for Small and Medium Industries in Thailand," (1987).

3.61 Finally, Table 3.7 shows the annual growth rates in the number of manufacturing firms within each category during the periods, 1975-79 and 1980-84. In the earlier period, the fastest growth occurred among the smallest enterprises while large firms, those with more than 200 employees, grew fastest after 1980. The growth in the size of the cottage sector between 1975 and 1979 probably reflects the transition in manufacturing activity from household production (which is not reflected in the factory registration statistics) to small factories. Such a shift is characteristic of economies in the early stages of industrialization.^{31/} On the other hand, the rapid growth in the number of large firms after 1980 reflects the active Government promotion (through the BOI) of such enterprises, a point that is further elaborated below, as well as the growth of successful medium sized firms. These data also show that in each period, the slowest growth occurred in the number of medium scale firms. This may reflect the difficulties that firms face once they have grown to medium size due to policy biases against this scale of operation. Such biases, which are examined further below, have probably slowed the growth of small-scale firms into medium size.

Table 3.7: ANNUAL GROWTH RATES OF MANUFACTURING FIRMS BY SIZE (percent)

Firm Size (number of employees)	1975-79	1980-84
Cottage (0-9)	13.4	8.6
SSEs (10-49)	12.8	7.9
MSEs (50-199)	7.7	7.5
LSEs (>199)	6.7	15.7
<u>Total</u>	<u>12.7</u>	<u>8.4</u>

Sources: N. Akresanee, et. al., "Small and Medium Industries in Thailand," 1982; A. Kuroda, et. al., "Development Strategies for Small and Medium Industries in Thailand," 1987.

State of Subcontracting

3.62 The limited information that is available on the use of subcontracting in Thailand is based on a few ad hoc surveys. A recent study by the

^{31/} See, D. Anderson, "Small Industry in Developing Countries - Some Issues," World Bank Staff Working Paper No. 518, 1982, for evidence.

Institute of Developing Economies (IDE) of Japan reports these data and is probably the best source of information on the subject.^{32/} The study concludes that subcontracting is very limited in Thailand based on a 1984 survey (that focused on SMEs in general) which found that only 8% of the 304 firms surveyed had subcontracting relationships. This compares with about 43% in Singapore and 37% in the Philippines according to similar surveys in those countries.

3.63 That study also used data on SMEs from a 1985 survey, conducted jointly in 1985 by the IDE and Thammasat University, which covered 140 SMEs, 67 of which subcontracted work from other firms. Since it did not use a random sampling design, generalizations from the data must be made with due caution.^{33/} Nevertheless, a rough picture of subcontracting emerges from it. In particular, the study notes the following as the outstanding characteristics of subcontracting in the Thai manufacturing sector.

3.64 First, most subcontracting seems to occur among SMEs. Of the 67 firms, only one subcontracted work from a large firm (employing at least 200 workers). Second, subcontracting is more common in the light manufacturing industries, including wood products, furniture, textiles, garments, and chemicals, and is uncommon in industries such as machinery, electrical appliances, and transport equipment, in which subcontracting is widespread in more developed economies such as Japan and Taiwan. Third, the typical pattern of subcontracting in Thailand is not one based on specialized technology and scale economies in the production of parts and components. In fact, SMEs that were subcontractors tended to produce low price, low quality products and were on average smaller than the independent SMEs in terms of assets, sales, and employees. Finally, the study notes signs of an increase in subcontracting activities. One automobile assembler reported that whereas in 1973 there were only 8 subcontractors (of which 1 was Thai owned), by 1985 there were 45 (of which 30 were Thai owned).

Government Assistance to SMEs

3.65 The need for strengthening small and medium enterprises (SMEs) within the manufacturing sector with an industrial strategy that emphasizes supporting industries and supporting industries has been recognized by the Government. A variety of special financial and technical assistance programs has been instituted to address the problems of these firms. Such assistance was first provided in Thailand in 1964 following the recommendations of an ILO mission, with the establishment of the Office for Loans to Small Industries (now the Small Industries Finance Office). The promotion of small firms has

^{32/} See "Research Report on Small and Medium Scale Firms in Developing Countries," Institute of Developing Economies, (in Japanese), 1986. For a summary, see, A. Suehiro and O. Yasuda, Industrialization of Thailand, Industrialization of Asia Series, No. 3, Institute of Developing Economies, Tokyo, (in Japanese), 1987.

^{33/} Since this survey was trying to focus on the relationship between large and small firms, the sample, by design, has a disproportionately large number of firms with subcontracting relationships.

been a stated policy of the Government since the Third Plan (FY1972-76) and these policies are reviewed and evaluated below.

3.66 Government support for SMEs has been provided mainly in the form of financial assistance and has been justified by the alleged credit market imperfections that face them. This rationale is reviewed briefly before the credit schemes themselves are evaluated.^{34/} These imperfections, it is argued, restrict lending to SMEs from the formal financial sector forcing them to rely on credit, usually at high interest rates, from the informal market. As a result, these firms do not undertake projects that would be profitable at the prevailing interest rates in the formal market. In most developing countries, including Thailand, lending to SMEs by commercial banks and other private financial institutions is perceived to be risky and therefore unprofitable at market interest rates. This perception is usually reasonable given the high costs of screening such borrowers, who lack suitable collateral and repayment records, and of establishing procedures to administer these small loans. While it may still be possible for commercial banks to lend to SMEs at the high interest rates that prevail in the informal market, they may be unwilling to do so because such rates are unacceptable politically or pose moral hazard problems of higher default. Alternatively, interest rate ceilings as in Thailand may prevent banks from adjusting their rates to levels that compensate them for the perceived riskiness of SMEs. The alternative of keeping interest rates low and accepting short-run losses may also be unattractive for banks because the long-run gains from lending to SMEs are uncertain given the changing structure of the economy.

3.67 While formal lending to SMEs is inhibited by the high cost of establishing screening and administrative procedures, these costs would on average be expected to decline with the volume of such lending. An appropriate policy would therefore be to make such lending profitable to financial institutions by initially subsidizing some of their costs in reaching SMEs. However, such programs must be designed so as to increase the flow of credit to SMEs while still providing the institutions appropriate incentives to establish rigorous procedures for screening potential borrowers and maintaining repayments so that such lending can eventually be self-sustaining. As

^{34/} Apart from equity considerations or as a second best approach to rectifying policy biases against them, the promotion of SMEs can also be justified if they produce some societal benefit for which they are not compensated by the prices they face. For instance, support for SMEs is often recommended because of their supposed labor intensity in economies in which labor is relatively abundant. However, as noted in I.M.D. Little *et. al.*, Small Manufacturing Enterprises, Oxford University Press, 1987, this argument requires not only a demonstration that SMEs are more labor intensive but also that their capital productivity and technical efficiency are higher than in larger firms within narrowly defined industry groups. The cross-country evidence shows that firm size, measured by employment, is not correlated with labor and capital intensity or with capital productivity and technical efficiency (Little *et. al.*, *op. cit.*) It is therefore difficult in general to make a strong case for SMEs on the basis of their superior employment potential.

experience in other countries shows, such schemes are extremely difficult to implement and administer. As a result, programs to provide financing to SMEs usually fail to reach their intended beneficiaries or involve large and permanent subsidies. Therefore the range of feasible policies available to governments to improve the access of SMEs to formal credit are limited and new initiatives should be undertaken cautiously.

3.68 There are three main institutions in Thailand that provide financial assistance through preferential and often subsidized credit to the SME sector. Table 3.8 shows the volume of lending by each since 1981. The Small Industries Finance Office (SIFO) was the first credit scheme for SMEs. It experienced serious financial problems in the late 1970s due to the high proportion of bad loans in its portfolio and of outstanding in arrears. Loan approvals fell as a result and although they have risen since 1984, they continue to be lower, even in nominal terms, than in the early 1970s (Table 3.8). The SIFO operates two loan schemes--one jointly with the state-owned Krung Thai Bank (KTB) and the other involving direct loans that it administers. The former implies that the default risk is borne by KTB although the authority to make loan decisions rests with the SIFO's Loan Board. This confusion of responsibilities has led to high default and arrears rates on such loans and in 1985, almost 65% were in default (against 11% of its direct loans) with about 60% of the outstanding amount being in arrears. Consequently the SIFO's emphasis has shifted in recent years toward making direct loans. The SIFO continues to face problems because it has not been designated as a financial institution and its legal status is therefore unclear. Hence it lacks a branch network which limits its ability to reach its target group of small borrowers.

Table 3.8: FINANCING TO SMALL AND MEDIUM ENTERPRISES BY SOURCE
(millions of baht)

	1982	1983	1984	1985	1986	1987	1988 (Q1)
SIFO	3.0	6.9	6.2	16.1	22.3	37.3	n.a.
SSI Refinancing Scheme (Bank of Thailand)	-	-	-	-	14.5	29.5	n.a.
IFCT							
- SSI Financing Facility	-	-	-	177.9	203.3	204.1	52.4
- Export Industry Modernization Programme	-	-	-	3.7	37.8	42.7	16.9
SICGF							
- Number of lenders	-	-	-	-	6	10	8
- Number of projects	-	-	-	-	15	119	33
- Guarantee amount approved	-	-	-	-	8.5	76.9	24.0

Sources: Ministry of Industry, Bank of Thailand, and IFCT.

3.69 A second credit scheme for SMEs is the refinancing facility that the Bank of Thailand has operated since 1978, specifically for promissory notes issued to such firms by commercial banks and the Industrial Finance Corporation of Thailand (IFCT). In response to its low usage, its terms were altered in March 1986 so as to raise the spread available to lenders to 4% and following those changes, the total amount refinanced rose in both 1986 and 1987. However, it still represents a negligible fraction of the total amount refinanced by the BOT and is only a small proportion of the amount of credit provided to large firms under its Industrial Refinancing Scheme (see Table 6.5 in the Statistical Annex). Despite the low refinancing rate charged by the BOT, it also sets the maximum rate commercial banks can charge borrowers at a relatively low level. Hence the spread available to commercial banks on such lending, particularly after the business and municipal taxes that apply to interest earnings, is still too low to cover their costs of lending to SMEs. The refinancing scheme thus fails to address the problem the subsidy to banks is supposed to rectify because it tries to force them to pass the subsidy element on to borrowers.

3.70 The third institution that administers credit facilities aimed toward SMEs and whose role has increased in recent years is the IFCT. Although its primary clientele remains large firms, the IFCT has increased its involvement in lending to SMEs since 1984 and currently operates two schemes. It also manages a third scheme, the Small Industry Credit Guarantee Fund (SICGF), which was set up in 1984 as a joint public-private venture to provide access to institutional credit from commercial banks or the IFCT for viable small firms without collateral. The application and screening procedure for guaranteed loans is conducted by the financial institution from which the loan is sought. Loan approvals under the Fund have risen rapidly since its inception in 1985, as have the number of commercial banks and investment projects that have received guarantees on their loans (Table 3.8). While the Fund guarantees over 80% of the borrower's collateral shortage, it attempts to ensure his commitment to the project by requiring an equity contribution of at least 20% of the total project cost and paying a guarantee fee of 1.5%. Moreover, to assure that lenders exert sufficient efforts to recover their loans, the guarantee amount is paid to them only after attempts to enforce repayment have failed and a final judgment against the borrower has been awarded.

3.71 Of these schemes that currently provide financial assistance to SMEs, those operated by the IFCT are the most promising. The SICGF is particularly noteworthy since it directly addresses the difficulty that even viable SMEs have in providing suitable collateral, a factor that limits their borrowing from commercial banks. The experiences of the IFCT and of participating commercial banks should be watched closely so as to assure that the Fund's design provides lenders sufficient incentives to recover guaranteed loans and that the guaranteed credit is being channelled to the intended beneficiaries. The SIFO faces both organizational and financial problems. The possibility of designating it as a financial institution should be considered besides strengthening its personnel and funding sources. The BOT's refinancing scheme for small-scale firms does not appear particularly suited to encouraging the involvement of commercial banks in financing SMEs.

3.72 Apart from credit, SMEs also receive technical and managerial assistance through the Department of Industrial Promotion in the Ministry of Industry. The Department's activities consist mainly of providing extension and training services to these firms for upgrading their management skills and industrial techniques.

3.73 While these efforts have had some success in promoting SMEs, it is also desirable that the Government's trade and industrial policies do not favor large firms. In this respect, the experiences of Korea and Taiwan are relevant. Despite the similar export orientation of their trade and industrial policies, the firm size distributions that emerged at the end of the 1970s in these economies differed considerably. For instance, the average manufacturing firm in Taiwan had about 35 employees in 1976, about half that of the average Korean firm. Moreover the number of manufacturing firms in Taiwan more than doubled between 1966 and 1976 while this number rose only by 10% in Korea. Conversely, the increase during this period in the average size of manufacturing establishments in terms of number of employees was only 29% in Taiwan but over 170% in Korea.^{35/}

3.74 The key difference was that Korea's growth strategy emphasized the expansion of large and medium sized firms whereas Taiwan did not adopt policies that encouraged their growth. Given the success of each strategy it is difficult to conclude that either one is preferable. However, as Table 3.5 showed, the size distribution of Thailand's manufacturing sector is closer to that of Taiwan than Korea in the 1970s and the most promising approach for Thailand may therefore be to ensure that the orientation of industrial policy is neutral toward firm size. But as described below, the current policy regime imposes a variety of biases against SMEs.

The Policy Bias Against SMEs

3.75 The most significant bias against SMEs in Thailand arises from the structure of the business tax. This tax is levied on all manufactured goods, domestic as well as imports, and on some categories of services. As noted earlier, its application to gross sales receipts results in a "cascading effect" that encourages vertical integration. Hence, the business tax has distorted the industrial structure by discouraging the use of subcontracting by downstream firms. A considerable degree of vertical integration has already occurred in many sectors, including the textile industry.^{36/} Subcontracting has been an important source of growth for SMEs in Japan and Taiwan and in this sense, the use of the business tax has constrained their development in Thailand. Unlike the business tax, the value added tax (VAT) does not result in such disincentives and its proposed introduction in 1990 would therefore bring substantial benefits to the SME sector by promoting the

^{35/} These figures are drawn from T. Scitovsky, "Economic Development in Taiwan and South Korea: 1965-81," Food Research Institute Studies, No. 3, 1985.

^{36/} See, Japanese Chamber of Commerce, Bangkok, Industries of Thailand, (in Japanese), 1988.

development of subcontracting. The business tax is also biased against SMEs because of the complexity that has developed over time in its application. For instance, the same item may be subject to several different rates depending on the circumstances. Larger firms are better able to cope with this due to the scale economies involved in complying with tax requirements of this sort.

3.76 As was shown earlier in this Chapter, the structure of protection within the Thai manufacturing sector has remained relatively unchanged since 1982 and the dispersion of effective protection rates remains high. While the system of duty and tax drawbacks and refunds on inputs described before is intended to compensate for the subsidy implicitly provided to domestic value added, the access of SMEs to these schemes is restricted. Despite recent improvements, the drawback schemes of the FPO and Customs Department are still time-consuming and the refunds that are provided are uncertain. To the extent that because of their size SMEs are more risk averse and less able to cope with bureaucratic delays, these features affect them more than they do large firms. The prior exemptions provided by Customs require that a bank guarantee be posted for the value of the duty exemptions being sought. As explained below, the access of SMEs to commercial bank financing remains very limited, and even when available is more costly than for larger firms. Despite the potential advantages of prior exemptions therefore, it is unlikely that smaller firms are able to make much use of it. Finally, the exemptions provided by the BOI are also not available to the great majority of SMEs because not many of them have been promoted.

3.77 The BOI's investment promotion system has often been criticized for using criteria and procedures that limit the availability of promotional privileges to SMEs. Table 3.9 presents data since 1982 on promotion applications, approvals and promoted projects starting operations, classified by investment size. However, since these data have no breakdown of projects below B 100 million before 1986 and below B 20 million since then, they are too aggregated to allow more than tentative inferences about the shares of SMEs among promoted firms. The data since 1986 show that almost two-thirds of all projects smaller than B 100 million that sought promotion were larger than B 20 million. It is therefore plausible that few of those that sought promotion and were smaller than B 20 million involved investments less than B 10 million, which is likely the maximum amount that SMEs would be able to invest.³⁷ For this reason, it is likely the share of SMEs among firms that applied for and received promotion was probably very small. This conclusion is reinforced by the criteria that the BOI has traditionally used in granting promotion. While the minimum size required for export-oriented projects to be eligible for promotion has been reduced from B 5 million to B 1 million, additional minimum size criteria remain for investments in specific

³⁷/ According to the industrial registration statistics, only about 1.5% of all SMEs (those with less than 200 employees) and 15% of medium sized firms (between 50 and 200 employees) had invested capital greater than B 10 million in 1984.

Table 3.9: DISTRIBUTION OF BOI PROMOTION BY INVESTMENT SIZE

Investment size (millions of baht)	1982	1983	1984	1985	1986	1987	1988 (Q1)
Promotion Applications							
< 20					126	251	89
20 - 100					211	505	184
< 100	164	263	289	255	337	756	273
100 - 500	30	64	65	51	69	227	56
500 - 1,000	2	9	15	12	17	33	14
> 1,000	4	5	7	7	8	41	33
Total	200	341	376	325	431	1057	376
Promotion Approvals							
						1987 (1st half)	
< 100	93	118	205	174	230	182	
100 - 500	16	20	50	26	47	45	
500 - 1,000	0	1	5	4	12	11	
> 1,000	1	1	6	6	6	8	
Total	110	140	266	210	295	246	
Promoted Projects Starting Operation							
						1987 (1st half)	
< 100	80	91	79	70	118	55	
100 - 500	20	14	12	5	18	6	
500 - 1,000	2	3	1	1	5	2	
> 1,000	2	2	1	2	4	2	
Total	104	110	93	78	145	65	

Source: Board of Investment.

industries. While some of these size requirements may be justified by scale economies, their use contributes to the image of the BOI as being a promoter of large firms. The data in Table 3.9 support this view in that there has been a steady increase since 1982 in the share of approved projects with investments over B 500 million. Similarly, Revenue Department data drawn from 1983 tax returns also find that, on average, the annual sales of promoted firms was much higher than for non-promoted ones. Although the BOI has attempted in its recent policy changes to reduce its bias in favor of large firms, it must necessarily prescribe a minimum size for eligible projects in order to control the administrative costs of its promotion system. Moreover such a requirement, if effective, would restrict the access of most SMEs to the promotional system. Similarly, the administrative procedures that are most efficient for the BOI to use would also be most costly for smaller firms to deal with. For these reasons, it is unlikely that the BOI system can be modified so as to extend its direct benefits to large numbers of SMEs while remaining cost-effective.

3.78 The access of SMEs to credit from the formal financial sector, particularly commercial banks, is limited. Although no figures are available on lending to firms of different sizes, data on their loans outstanding by loan size show that at the end of June 1983 only about 6% were for amounts less than B 3 million which is probably close to the maximum that could be borrowed by most SMEs. In part, high administrative and screening costs explain the limited lending of commercial banks to SMEs. But, Government policies that have limited competition within the banking sector as well as the use of interest rate ceilings have also restricted the role of commercial banks. The market structure in the banking sector is characterized by high concentration in terms of lending, deposits and assets, which has risen since the mid-1960s.^{38/} The high concentration is reinforced by the lack of entry and exit into the sector as well as the ownership links between the major commercial banks and the largest industrial groups. These circumstances imply that there is little pressure for banks to seek new borrowers among SMEs or to develop new instruments with which to attract their business. For example, the limited use of long-term and project loans by banks particularly affects medium sized firms which, being viewed as less creditworthy than large corporate borrowers, are less assured of renewals for the overdrafts that are offered instead. Competition among banks is also more intense for the business of large firms that usually have access to funds from foreign banks and offshore sources. Although finance companies are more involved in lending to SMEs and operate in a more competitive environment, they have been constrained by financial problems and their limited branch network. While interest rate ceilings on loans have not been binding recently for medium and large borrowers, their levels almost certainly do not compensate banks for the costs of serving smaller firms and to this extent have forced these borrowers to rely on more expensive funds from informal sources.

^{38/} For instance, at end-1987 the top four banks (including the state-owned Krung Thai Bank) accounted for almost 65% of loans, deposits and assets for all commercial banks. Also see, World Bank, Thailand: Perspectives for Financial Reform, Report No. 4085-TH, 1983, for evidence that the Herfindahl index of concentration for commercial banks' assets and deposits rose steadily between 1962 and 1980.

3.79 The final source of bias against SMEs arises from the export financing system and applies to firms that are direct or indirect exporters. As in most other East Asian countries, the main source of export finance in Thailand is the export credit refinancing system operated by the BGT which was extended to all exports in 1970. The subsidy element in the scheme was unintentional and emerged in the mid 1970s when the refinancing rate as well as the rate charged borrowers became negative in real terms.

3.80 The total volume of export refinancing is shown in Table 3.10 while the interest rate structure in recent years is summarized in Table 6.6 of the Statistical Annex. The refinancing system provides only limited benefits to SMEs mainly because commercial banks are unwilling to offer them such financing. Obviously, this reluctance is based on these firms' lack of collateral and their comparative inexperience in dealing with the formal financial system. But the small spreads available to banks due to the subsidized interest rates on such lending also provide little incentive to reach small exporters. The available data on the usage of export refinancing is sparse but confirms that its benefits accrue mostly to large firms. In July 1984, of the 863 exporters that received credit under the scheme, the smallest 482 accounted only for about 4% of the total outstanding while the share of the largest 30 was about 50%. Similarly, it was estimated that of about 900 exporters who received credit in 1985, the shares of total refinancing were about 20% for the largest 8, 60% for the largest 100 and over 80% for the largest 300 firms. Given that agricultural trading companies tend on average, to be larger than manufacturing exporters, this concentration of usage among large exporters arises partly because of the large share of agricultural exports. The share of the five main agricultural exports has been between 40 and 50% of the total refinanced amount each year between 1982 and 1987 (Table 3.10) while these now account for less than a quarter of total export value.

Table 3.10: SHARES OF TOTAL EXPORT REFINANCING BY COMMODITY
(percent)

	1982	1983	1984	1985	1986	1987
Rice	19.1	17.9	17.9	13.7	13.2	16.3
Maize	5.4	7.1	7.9	7.5	6.5	2.2
Tapioca	18.1	20.2	17.6	14.5	14.3	16.9
Sugar	9.1	8.0	5.5	6.2	6.8	6.5
Rubber	2.2	2.2	2.6	2.6	2.2	1.9
Textiles and products	9.0	8.8	10.6	8.4	8.2	7.6
Canned food	8.7	8.7	9.1	9.7	10.7	10.2
<u>Total export refinancing</u> (millions of baht)	<u>62,014</u>	<u>71,325</u>	<u>81,751</u>	<u>81,842</u>	<u>85,815</u>	<u>79,788</u>

Source: Bank of Thailand.

3.81 Small firms are at some disadvantage in most countries. The peculiarity of the Thai situation is that medium-sized firms may face the most adverse environment. There are two main reasons for this. First, while small and medium scale firms both face similar difficulties in terms of not having easy access to credit and BOI incentives, small firms have been traditionally more successful in evading corporate income taxes and business taxes. The lack of other incentives for these firms is thus compensated to some extent by the lax enforcement of tax collection. Medium scale firms, however, are much more visible to the tax authorities and are less able to avail themselves of this informal incentive. Second, as Chapter 4 explains, medium scale firms face the greatest difficulty in finding appropriate industrial sites.

3.82 This strong bias against medium scale firms is a serious hindrance to developing strong subcontracting networks. Large assemblers in manufacturing typically buy many assembled components as well as single parts. These components are assembled by medium scale firms which in turn buy smaller components and parts from smaller firms. With this form of industrial organization, an extensive subcontracting network cannot be built only with large and very small firms. When a large number of subcontractors is used, a multi-layered structure with large, medium and small firms is also more effective from the viewpoint of quality and inventory control.

Strategy for the Promotion of SMEs

3.83 It is important therefore that the Government act to reform policies that currently discriminate against SMEs. The need for such reform is underscored because the Government has few other tools of industrial policy with which to promote small firms. Japan's experience in promoting SMEs under the guidance of its Ministry of International Trade and Industry (MITI) is often cited as a success but also provides lessons as to the limits on Government action.^{39/} Support for SMEs in Japan included the establishment of financial institutions to assist them, legislation to protect subcontractors against abuses such as payment delays and programs to train these entrepreneurs and upgrade their technology. However, a recent study argues that the MITI's promotion of small and medium scale industries was very much the result of successful lobbying by the associations of these firms in different industries and of the broader political process that favored protection of small firms.^{40/}

39/ See, C. Johnson, MITI and the Japanese Miracle, Stanford University Press, 1982, for an interpretation that stresses the importance of the MITI in Japanese industrial development.

40/ See Friedman, op. cit., 1988 for this view contrary to that of Johnson and others. In fact, the MITI tried for many years until recently to consolidate small firms in some industries to create larger firms that can take advantage of scale economy. But these firms not only successfully resisted these attempts but managed to obtain the necessary assistance from the MITI to become increasingly independent and competitive. This view of the MITI's industrial policy is shared by a recent book by leading Japanese scholars. See Komiya, et. al., op. cit., 1984.

The significant point that emerges from these studies is that providing special incentives or support to some industries alone may not be effective and may not occur at all, if there is no political and social demand for them. In this regard, it is encouraging that what has been termed the "politics of small firms" is beginning to play an important role in Thailand, much as the politics of export promotion has done since the late 1970s. The Government as well as political and business leaders are advocating support for small firms. Therefore, the political climate seems right for a strategy that encourages the removal of biases against these firms. However, reaching the smaller firms in particular poses a special challenge to the Government. Although technical experts believe that these firms require technical assistance, they are difficult to reach because they have operated outside the formal network of Government supervision. Moreover, they are reluctant to develop closer links with the Government because they often also evade taxes. The most useful way to reach them may be to encourage and assist them in forming local trade or industry associations. These can then be used as means of determining their needs and channelling technical assistance to small firms. In Japan, such associations have served these purposes besides dealing with the MITI on behalf of their members.

D. Policy Conclusions

3.84 The preceding analysis establishes that while further reforms are needed in some areas, significant changes have occurred in some aspects of industrial policy. Most important, the bias against export, relative to domestic, value added has been reduced in several ways. The depreciation in the real exchange rate since 1984 has obviously been a major contributory factor. But other policy changes such as the decrease in the use of quantitative restrictions and BOI import surcharges, the elimination of export taxes, the greater emphasis on export orientation in providing BOI promotional benefits and the improvements in the duty drawback and refund schemes have also contributed. In terms of sectoral incentives therefore, the trade regime is now more neutral with regard to export and domestic production, particularly for BOI-promoted firms and those with access to the export promotion system.

3.85 The tariff structure remains a problem area. Although progress has been made in reducing rates in excess of 60%, nominal rates still remain higher on finished goods than on inputs so that the structure of effective protection favors consumer goods and light intermediaries at the expense of the capital goods and heavy intermediate sectors. Moreover, the sectoral variation in nominal and effective protection rates remains high in relation to those East Asian economies with which Thailand will increasingly compete. The impact on efficiency of these distortions in the incentive structure has been muted in recent years due to the fortuitous external circumstances and the depreciation of the real effective exchange rate. Moreover, the sectors against which the tariff structure has discriminated in the past were not those that were then consistent with Thailand's comparative advantage. However, given the need for industrial deepening within the Thai economy, its industrial structure must now shift toward products of greater sophistication. This shift would be facilitated if the protection of consumer goods and light

intermediates were reduced significantly by altering the tariff structure so that all rates lie within a band of 10 to 40%. By reducing their protection, such a reform would also enhance Thailand's international competitiveness in these industries by exposing them to greater foreign competition. Since this would involve changes at both the upper and lower ends of the tariff rate structure the revenue impact would probably be negligible.^{41/} The present situation is also promising for tariff reform in that the recent buoyancy in tax revenues makes the possibility of revenue losses less threatening.

3.86 Along with the slow pace of tariff reform, the limited progress in modernizing the export financing and duty rebating systems has meant that smaller exporters, direct and indirect, continue to face a substantial anti-export bias. Steps should be taken to broaden the coverage of the duty refund and drawback schemes of the Customs Department and the FPO so as to include indirect exporters and particularly SMEs. Moreover, integration of the prior exemption method used by the BOI into these schemes should be attempted.

3.87 Reducing the policy biases that exist against SMEs would have the greatest impact in promoting these firms and encouraging the growth of subcontracting and supporting industries. In particular, replacing the business tax with the value added tax would remove the most serious bias, especially against medium scale firms. The changes that have been suggested above in the tariff structure and export incentive schemes would also benefit small and medium exporters by reducing the anti-export bias that affects them disproportionately. With regard to financing, there does not appear to be the need for a new institution to serve these firms. Reforms in financial sector policies that would increase competition among commercial banks by allowing freer entry and exit and that reduce the impact of interest rate ceilings would increase bank lending particularly to medium sized firms. Among the existing schemes, the most promising is the credit guarantee fund (SICGF) and its coverage both in terms of commercial banks and SMEs should be extended. The SIFO's legal status should be clarified and it should preferably be designated as a separate institution with greater emphasis being placed on its own loans rather than those made in conjunction with the Krung Thai Bank.

3.88 The BOI has enhanced the transparency of its promotion criteria and improved the administrative efficiency and implementation of its promotion procedures. However, problems remain with its monitoring and data collection capabilities. Although it does compile data on the performance of promoted activities through an annual survey, most firms do not respond to this survey and the veracity of their responses is not checked. Providing this

^{41/} These recommendations are similar to those in the last Country Economic Report. Simulations of the impact of such reforms, shown in that Report, indicated that a tariff band between 10% and 40% would reduce average effective protection rates and its sectoral variation substantially. Moreover, using this tariff range would actually raise tariff revenues by about 7%. Since tariff rates have remained substantially unchanged since late 1985 when those estimates were derived, it is likely that the impact of such a reform would be similar even now.

information should be made a condition for promotional status and the BOI should use more of its resources to audit the records of firms to verify these data. (This does not necessarily mean that the BOI can do all this without an increase in its resources.) Such monitoring is particularly important in the context of the recent changes in promotion criteria whereby the magnitude and duration of the fiscal incentives are tied to the firm's export orientation. At present, the BOI has little more than the firm's assurance at the outset that it will in fact comply with the export requirements. Not surprisingly, the proportion of projects approved for promotion that have claimed to be export oriented has risen sharply since 1981 (Table 3.11). The need for more stringent monitoring is underscored by the promotional benefits that the BOI provides foreign investors. These are generally compared to those provided by other ASEAN countries. Therefore, rather than providing more incentives, the BOI should improve its monitoring and follow-up procedures and use these to assure greater consistency between Thailand's industrial strategy and the types of investment that receive promotional privileges.

Table 3.11: PROJECTS APPROVED FOR BOI PROMOTION WITH EXPORT CONDITIONS

Year	1983	1984	1985	1986	1987	1988 (Q1)
Number of projects	140	266	210	295	623	271
Share of projects approved with export condition (>80% of output)	42.1	48.1	69.1	63.1	83.3	84.5

Source: Board of Investment.

3.89 Other than policies that promote competition among commercial banks, financial sector reforms should be considered in two areas. The statutes of development financial institutions should be reviewed so as to reduce their specialization while the use of market-based schemes to finance them as well as the Government's targeted lending to agriculture and rural industry should be considered. The reform of the export refinancing system should also be attempted. The subsidy element that is currently built into the rates makes it unprofitable for commercial banks to offer such credit to small exporters. Therefore, its elimination by allowing banks to charge higher rates may actually increase the flow of credit to export-oriented SMEs. Steps that would enhance the availability of such financing to exporters of manufactured goods, particularly for products with high value added components, should also be considered.

3.90 In general, it is encouraging that Thai policymakers have not targeted the instruments of industrial policy toward the development of particular industries or subsectors. As experience elsewhere has shown, such selective interventions are difficult to implement successfully. It would be desirable if this approach were to continue so that industrial policy would be implemented through functional incentives that are aimed at rectifying specific market failures in the industrial and financial sectors.

IV. INFRASTRUCTURE POLICY FOR INDUSTRIAL GROWTH

A. The Primacy of Bangkok and Government Policies

4.1 With almost six million people, Bangkok is nearly thirty times larger than the second largest city, Chiang Mai. The secondary cities in Thailand have stayed small and have not shared proportionately in industrial growth. There is a strong perception within and outside the Government that Bangkok has severe congestion problems because the city is becoming "too big." The fact that as many as 35,000 cars are added to the city each year accentuates such a perception. The traffic congestion in Bangkok is now so extreme that the high travel density and low average traffic speed remain almost unchanged in a wide area of the city throughout the day. Out of 700,000 water connections in Bangkok, only 150 are for manufacturing firms. All other firms use ground water, which contributes to the subsidence problem. Although electric power supply is available, outages and voltage drops occur. These strains on the basic infrastructure facilities in Bangkok affect business operations, imply additional costs to firms there, and reduce the overall efficiency of the urban area.

4.2 As in other developing countries such as Indonesia, Korea, Nigeria, India, and Mexico, the Government of Thailand is concerned with the increasing concentration of economic activity in the primate city. With the objectives of reducing congestion in Bangkok and mitigating regional disparities in industrial development, the Government has pursued explicit spatial policies intended to decentralize industries from Bangkok to outlying areas and regional cities. In the past, this effort concentrated on improving the basic transport and communication infrastructure. More recently, in addition to various tax incentive schemes offered to firms locating in designated areas outside Bangkok, the Government has attempted to induce industries to locate in regional cities by establishing industrial estates there, for example, the Northern Region Industrial Estate near Chiang Mai. Despite such policies, congestion in Bangkok has been worsening.

4.3 The urgency of the Government concerns on these issues is reflected in the Board of Investment (BOI) policy changes introduced in September 1987 specifically aiming at dispersing manufacturing industries from the Bangkok Metropolitan Region (BMR)^{1/} to other regions. Under the new scheme (Annex 4), the BOI promoted projects locating in Bangkok or Samut Prakan Province, adjacent to the south of Bangkok, will be excluded from various tax exemptions and also from tax reductions allowed for both installation and operating costs of infrastructure facilities such as transport, water, and electricity. Those projects locating in one of the four other provinces surrounding Bangkok will receive reduced benefits. All provinces other than Bangkok (BMA) and the five

1/ The Bangkok Metropolitan Region (BMR) includes the city of Bangkok, officially called Bangkok Metropolitan Administration (BMA), and five surrounding provinces, Samut Prakan, Samut Sakhon, Pathum Thani, Nonthaburi, and Nakhon Pathom. (See the attached map of the BMR.)

surrounding provinces are designated as an Investment Promotion Zone. However, the BOI makes exceptions for export-oriented large scale firms with at least 200 or more employees even if they locate in Bangkok or Samut Prakan, and for those locating in industrial estates. (This point is further analyzed below.) These incentives to encourage decentralization of industries from the BMR were strengthened further in January 1989 (see Chapter 3).

Decentralization Trends of Manufacturing Activity

4.4 According to the Ministry of Industry factory registration data, during the past two years, a period of rapid growth with rising exports, Bangkok has been losing its share of manufacturing establishments relative to other regions of the country (Table 4.1). The Central Region excluding the BMR, and all other regions had a net gain of establishments with a growth rate higher than the national average of 3.6%, while Bangkok experienced a net loss. The BMR excluding Bangkok (BMA), and the Northern and the Northeastern Regions attracted manufacturing establishments at rates twice the national average. This general trend of countrywide decentralization of manufacturing industries, however, was already occurring with little influence of the BOI policies. During the first three months of 1988, for instance, only 11 of the 271 BOI approved projects located in the Northern and the Northeastern Regions. Actually, these two regions' share of approved projects declined from 8% in 1987 to 4% in 1988 (Table 4.3).

4.5 Although the BMR was gaining manufacturing establishments at an annual rate of only 1.7% (Table 4.2), less than half of the national average, manufacturing activity in non-BMA part of the BMR, i.e., the five provinces surrounding Bangkok, had the highest annual growth rate in the country at 9.7% (Table 4.1). This trend of manufacturing employment decentralization from the central city to surrounding regions is similar to what has occurred in large cities in other countries such as Seoul, Sao Paulo, Bombay, and Bogota. Within the BMR, the growth of manufacturing establishments was highest in Samut Prakan and Pathum Thani provinces (see the map in the back). As discussed further below, these trends are the aggregate outcome of location decisions of individual firms in response to operations of the land and other markets rather than to the explicit spatial policies such as the BOI incentive schemes. Given these existing decentralization trends in the location of manufacturing activity in Thailand, excessive spatial policies would induce low density development patterns and would raise the costs of providing infrastructure services.

Table 4.1: CHANGES IN REGIONAL DISTRIBUTION OF MANUFACTURING ESTABLISHMENTS

Region	1985		1987		Annual Average Growth Rate (%)
	Number	Percent	Number	Percent	
BMA (Bangkok)	17,022	45.02	16,920	41.69	-0.3
BMR excluding BMA ^{1/a}	4,136	10.94	4,974	12.26	9.7
Central excluding BMR	3,728	9.86	4,033	9.94	4.0
Eastern	2,438	6.45	2,625	6.47	3.8
Northern	3,280	8.68	3,795	9.35	7.6
Northeastern	4,484	11.86	5,230	12.89	8.0
Southern	2,722	7.20	3,007	7.41	5.1
Total	37,810	100.00	40,584	100.00	3.6

^{1/a} The Bangkok Metropolitan Region (BMR) includes Bangkok (BMA) and the five surrounding provinces.

Source: Factory Registration Files, Ministry of Industry.

Table 4.2: CHANGES IN DISTRIBUTION OF MANUFACTURING ESTABLISHMENTS BY PROVINCE IN THE BANGKOK METROPOLITAN REGION (BMR),

Province	1985		1987		Annual Average Growth Rate (%)
	Number	Percent	Number	Percent	
BMA (Bangkok)	17,022	80.45	16,920	77.28	-0.3
Samut Prakan	2,086	9.86	2,526	11.54	10.0
Samut Sakhon	658	3.11	767	3.50	8.0
Pathum Thani	358	1.69	462	2.11	13.6
Nonthaburi	518	2.45	609	2.78	8.4
Nakhon Pathom	516	2.44	610	2.79	8.7
Total	21,158	100.00	21,894	100.00	1.7

Source: Factory Registration Files, Ministry of Industry.

Table 4.3: REGIONAL DISTRIBUTION OF BOI APPROVED PROJECTS

Region	Jan - Mar 1987		Jan - Mar 1988	
	Number	Percent	Number	Percent
Bangkok (BMA) and Samut Prakan	42	40.78	111	40.96
BMR excluding Bangkok and Samut Prakan	18	17.48	68	25.09
Central excluding BMR	24	23.30	70	25.83
Northern	2	1.94	7	2.58
Northeastern	6	5.83	4	1.48
Southern	10	9.71	10	3.69
Not specified	1	0.97	1	0.37
<u>Total</u>	<u>103</u>	<u>100.00</u>	<u>271</u>	<u>100.00</u>

Source: Board of Investment.

Alternatives to Spatial Policies

4.6 Spatial policies intended to reduce negative externalities such as congestion and pollution in a large city by reducing the size of population and employment have been found to be ineffective and costly in other countries. For a city the size of Bangkok, even a substantial reduction of its population will have negligible impact on the present level of congestion.^{2/} What is needed is better internal management of city growth with more appropriate infrastructure investment strategy and programs. The current traffic congestion problem, for example, mainly stems from the poor in-city road network that lacks sufficient access roads, inefficient public transit and traffic control systems, and the lack of efficient outlets to main highways. Changing location patterns of residential housing and work places and subsequent changes in commuting patterns should be reflected in transport and other infrastructure investment programs. However, Bangkok's physical infrastructure programs in the past have not been sufficiently sensitive to the location dynamics of service demand.

^{2/} A study conducted by G. Tolley, Urban Growth Policy in a Market Economy, Academic Press, 1979, showed that halving Chicago's population would reduce negative externalities such as congestion and pollution by less than 5%.

B. Infrastructure Constraints on the Growth of Industries

Concentration of Small Firms in Bangkok

4.7 Manufacturing firms tend to locate where they can easily meet their needs for infrastructure and other factors of production. The particular infrastructure requirements of individual firms will depend on the types of product and the size of their operations. More than 40% of the country's 40,000 manufacturing establishments (excluding rice mills) are located in Bangkok (Table 4.1). Three quarters of them had less than 10 employees, 95% had less than 50 employees, and there were only 368 establishments with 100 or more employees in Bangkok according to the Ministry of Industry's 1984 industrial census (see Chapter 3). The size distribution of manufacturing establishments is thus skewed toward small firms. Well established old industrial areas with large factories that exist in major cities in other countries are absent in Bangkok. It is not surprising then that manufacturing activities are rather unnoticeable inside Bangkok.

Infrastructure Needs of Small Firms

4.8 Small firms which account for 95% of all firms in Bangkok operate in the high density areas in the central city where, despite the higher rents, they benefit from readily available externalities such as the supply of skilled labor, easy access to various infrastructure, business and government services and markets, and shared repair and delivery services. The efficient land market without much land use control enables small entrepreneurs to locate their factories almost anywhere in the city, often in the same dwelling units where they live. Since there are plenty of residential or commercial structures that can be easily converted to factory use, these small firms do not suffer from the lack of adequate infrastructure services such as electric power, road access, and telecommunications. As is the case with large cities in other countries, these central areas of Bangkok serve a special function in promoting the birth of small new firms that is so vital to the economy and not easily transferable to outlying areas. Evidence from large cities in both developed and developing countries such as Seoul, Bogota, and major US cities shows that from 60 to 80% of new jobs are created by newly established small firms that tend to locate in the central city.^{3/}

4.9 As these small firms grow and expand, space and infrastructure constraints become more significant for them, and they tend to move outward in the city where more space is available. This pattern in Bangkok is clearly shown in Table 4.5. The proportion of the smallest category of firms declines

^{3/} K.S. Lee, "Intra-urban Location of Manufacturing Employment in Colombia," Journal of Urban Economics 9, 1981; "An Evaluation of Decentralization Policies in Light of Changing Location Patterns of Employment in the Seoul Region," Urban Development Discussion Paper UDD-60, The World Bank, 1985;
D.L. Birch, "The Job Generation Process," MIT Program on Neighborhood and Regional Change. Prepared for US Department of Commerce, Economic Development Administration, 1979.

from 82% in Ring 1 (Old Business Area) to 46% in Ring 4 (Outer Area) while the proportion of the larger size firms (50-199 persons) rises from 6% to 19% as the distance from the center increases (see para. 4.23 for definition of Rings). Evidence from other countries shows that small firms do not move long distances. When they move, they tend to avoid increases in their delivery and employees' commuting distances and setup costs at the new location.⁴

Table 4.4: DISTRIBUTION C` NEWLY REGISTERED MANUFACTURING ESTABLISHMENTS BY PROVINCE AND EMPLOYMENT SIZE IN BMR, 1987

Province	Employment Size in Percent					Total Number of Establishments
	1-19	20-49	50-199	200-299	300 or more	
BMA (Bangkok)	69.35 (871)	20.06 (252)	8.52 (107)	0.96 (12)	1.11 (14)	100.00 (1,256)
Samut Prakan	43.79 (134)	22.88 (70)	25.82 (79)	4.25 (13)	3.27 (10)	100.00 (306)
Samut Sakhon	43.86 (50)	21.93 (25)	26.32 (30)	6.14 (7)	1.75 (2)	100.00 (114)
Pathum Thani	61.54 (48)	14.10 (11)	17.95 (14)	1.28 (1)	5.13 (4)	100.00 (78)
Nonthaburi	79.63 (43)	7.41 (4)	7.41 (4)	1.85 (1)	3.70 (2)	100.00 (54)
Nakhon Pathom	56.72 (38)	16.42 (11)	22.39 (15)	1.49 (1)	2.99 (2)	100.00 (67)
<u>Total</u>	<u>63.15</u> <u>(1,184)</u>	<u>19.89</u> <u>(373)</u>	<u>13.28</u> <u>(249)</u>	<u>1.87</u> <u>(35)</u>	<u>1.81</u> <u>(34)</u>	<u>100.00</u> <u>(1,875)</u>

Note: The values in parentheses represent the number of establishments in individual categories.

Source: Factory Registration Files, Ministry of Industry.

4/ See Lee, op. cit., 1981, 1985.

Table 4.5: DISTRIBUTION OF NEWLY REGISTERED MANUFACTURING ESTABLISHMENTS BY CONCENTRIC RING AND EMPLOYMENT SIZE IN BMA, 1987

Ring	Employment Size in Percent					Total Number of Establishments
	1-19	20-49	50-199	200-299	300 or more	
Old business area	81.82 (27)	9.09 (3)	6.06 (2)	0.00 (0)	3.03 (1)	100.00 (33)
New business area	68.13 (327)	22.50 (108)	7.50 (36)	0.83 (4)	1.04 (5)	100.00 (480)
Rapidly growing suburbs	71.35 (493)	18.52 (128)	8.54 (59)	0.87 (6)	0.72 (5)	100.00 (691)
Outer area	46.15 (24)	25.00 (13)	19.23 (10)	3.85 (2)	5.77 (3)	100.00 (52)
<u>Total</u>	<u>69.35</u> <u>(871)</u>	<u>20.06</u> <u>(252)</u>	<u>8.52</u> <u>(107)</u>	<u>0.96</u> <u>(12)</u>	<u>1.11</u> <u>(14)</u>	<u>100.00</u> <u>(1,256)</u>

Note: The values in parentheses represent the number of establishments in individual categories.

Source: Factory Registration Files, Ministry of Industry.

Site Constraints for Medium Size Firms

4.10 When firms grow to medium size (50 to 200 employees) and want to relocate, the five existing industrial estates in the BMR are a poor alternative even though they are intended to provide sites for small and medium size firms. For these firms they are too far (more than 30 to 50 kilometers from the city center) and too expensive. The price of a completely developed site in the estates is 50 to 100% higher than comparable sites nearby. Since firms make site selections in response to land price differences and other market signals, successful infrastructure planning for industries must be consistent with the locational needs of individual firms of different types. Otherwise, the facilities in place will be underutilized or unoccupied for an indefinite period of time. Indeed, the occupancy rate of the existing industrial estates in the BMR remained low until 1987 when all available sites were sold out to new foreign (mostly Japanese and Taiwanese) firms. The privately developed Nava Nakorn Industrial Estate located about 50 kilometers north of the city center holds a waiting list for new applicants, but mostly from foreign countries. This rising demand for industrial sites by foreign firms pushes up the price and will adversely affect Thai firms by worsening the site constraints for them.

4.11 For these growing Thai firms, alternative locations for plant expansion seem limited. They could locate on undeveloped private land, but setup costs would be high there. The initial capital investment would include access roads, electric power generators and transmission equipment, boreholes and water treatment facilities, and the drainage system. These costs would be prohibitively high for small firms. The generators and boreholes alone could require 10 to 20% of the initial investment. Such capital and subsequent operating costs will affect the competitiveness of Thai industries. The extensive private provision of basic infrastructure services by individual firms also means unnecessary duplication of the existing facilities in the public sector.

Costs of Infrastructure Deficiencies

4.12 The infrastructure conditions even in established industrial areas including the industrial estates are inadequate. Power outages and voltage fluctuations occur frequently and firms typically experience such interruptions at least once a week. Most large firms have standby generators for essential operations during the disruption to avoid damages to their machinery and materials. As mentioned earlier, almost all manufacturing establishments in the BMR use ground water as it is available at a price (one baht per cubic meter) that is one-seventh the price of surface water. This price incentive to use ground water contributes to the city's subsidence and flooding problems. The absence of surface water supply for industries could be a critical constraint for industrial growth.

4.13 The severe strain on the transport system in and around Bangkok is particularly visible. Because of the heavy traffic congestion, the firms typically provide bus services for employees' commuting and often housing for workers. Congestion plagues much of Bangkok for long periods throughout the day. The average traffic speed varies from 13 to 16 kilometers per hour, which is close to the lowest level found in other major cities. Even the main roads to industrial areas such as Bang Poo, Bang Phli, and Samut Sakhon remain congested thereby raising delivery time. The low capacity of Bangkok port, combined with the poor performance of the new monopoly that handles containers, has led recently to costly delays in shipping.⁵

Upgrading Existing Industrial Areas

4.14 Certain areas with concentration of industries in surrounding provinces may offer alternative locations for expanding small firms. Phra Pradaeng in Samut Prakan Province is such an area. But the familiar pattern of congestion prevails there too. Phra Pradaeng, located only 10 kilometers away from the city center on the other side of the Bangkok port, was developed

5/ Because of these delays, the shipping companies that are members of the Asia North America Eastbound Rate Agreement agreed to levy surcharges on containers loaded in Bangkok beginning on May 20, 1988. See, The Asian Wall Street Journal, April 21, 1988.

in the early 1960s with industries locating there. Factories are clustered along the two lane road stretching about one mile from Sukhumvit Road to the river. Beyond the rows of factories on both sides of the road are vast unused land areas that are "landlocked" without access roads and therefore unavailable for development despite agglomeration economies of industrial concentration that have existed there for at least two decades. The major problem of the land market in Bangkok has been the difficulty of acquiring road access and the fragmented land ownership. The price of usable land in a place like Phra Pradaeng tends to be high because of the difficulty of developing the landlocked areas. Because of some environmental concerns, Phra Pradaeng in the final analysis may or may not prove to be an appropriate area for further industrial development. However, it is a good example of an area that market forces have identified as an attractive location for industries.

4.15 Table 4.6 shows that Samut Prakan Province has the highest share of industries among the five provinces surrounding Bangkok and its relative share of manufacturing establishments in the BMR has been rising while that of Bangkok declining, indicating a strong decentralization of manufacturing employment from Bangkok to the surrounding provinces. Also, in 1987 Samut Prakan and Samut Sakhon had the largest proportion of newly established medium size firms (50-199 persons); about 25% of newly established firms were in this size category for these two provinces while the proportion was less than 10% for Bangkok (Table 4.4). Nevertheless, the 1987 BOI policy changes exclude Samut Prakan as well as BMA from the promoted zone. As mentioned earlier, however, the new BOI policies make exceptions for export-oriented large scale firms with 200 or more employees to locate in these central areas, even though they are the ones that could more easily internalize externalities and operate in outer areas. During the first three months of 1988, BOI approved 111 projects to be located in BMA and Samut Prakan with an average employment size of 269 persons.

Table 4.6: DECENTRALIZATION OF MANUFACTURING ESTABLISHMENTS BY PROVINCE IN THE BANGKOK METROPOLITAN REGION (BMR), 1987

Province	All Establishments/a 1984		New Establishments/b 1987		Birth Rate /c (2)/(1)
	Number(1)	Percent	Number(2)	Percent	Percent
BMA (Bangkok)	16,920	77.28	1,256	66.99	7.42
Samut Prakan	2,526	11.54	306	16.32	12.11
Samut Sakhon	767	3.50	114	6.08	14.86
Pathum Thani	462	2.11	78	4.16	16.88
Nonthaburi	609	2.78	54	2.88	8.87
Nakhon Pathom	610	2.79	67	3.57	10.98
Total	21,894	100.00	1,875	100.00	8.56

/a The number of new establishments at the amphoe (district) level for 1987 were tabulated by the World Bank Resident Mission, Bangkok.

**Table 4.7: DECENTRALIZATION OF MANUFACTURING ESTABLISHMENTS
BY CONCENTRIC RING IN BANGKOK (BMA), 1984 - 1987**

Province	All Establishments/a 1984		New Establishments/b 1987		Birth Rate /c
	Number(1)	Percent	Number(2)	Percent	(2)/(1) Percent
Old business area	1,710	8.24	33	2.63	1.93
New business area	9,522	45.90	480	38.22	5.04
Rapidly growing suburbs	9,033	43.53	691	55.02	7.65
Outer area	487	2.33	52	4.14	10.68
Total	20,752	100.00	1,256	100.00	6.05

- /a The numbers at the amphoe (district) level for 1984 were tabulated by the City Planning Division of BMA.
/b The number of new establishments at the amphoe level were tabulated by the World Bank Resident Mission, Bangkok.
/c 1984 as base year.

Source: Factory Registration Files, Ministry of Industry.

Overall Location Patterns of Industrial Growth

4.16 The development of the Eastern Seaboard is intended to establish an industrial area around Laem Chabang and Map Ta Phut, which are located 130 and 200 kilometers away from Bangkok respectively. Since there is a high demand for plant sites by foreign firms, it is plausible that industrial enclave type development could occur mainly for export processing led by foreign investment. However, experiences of other countries such as Korea, India, and Ghana, indicate that developing a new industrial town in undeveloped areas tends to be extremely costly and the probability of success is low. A distance of 100 to 200 kilometers from the main urban center is too far for small and medium size firms.

4.17 There are a number of newly established large scale operations along the eastern highway toward Chonburi. This development represents a more natural pattern of industrial expansion and should be encouraged. If this trend continues, a major industrial corridor would eventually emerge connecting Bangkok and Chonburi, and possibly leading to the Eastern Seaboard. However, Government planners seem to favor a very different pattern of industrial development in the region. They envision a totally separate industrial area

emerging in the Eastern Seaboard with the area between Bangkok and Eastern Seaboard remaining undeveloped. The Bangkok General Plan ^{6/} under the auspices of the Ministry of Interior seems to be designed to arrest the industrial expansion to the east by establishing a "greenbelt" cutting across this growth corridor in Samut Prakan. The main elements of the industrial location strategy in the Plan include, (a) not allowing manufacturing establishments to locate outside industrial estates; (b) establishing a "buffer zone" between a residential area and an industrial area to minimize the effects of industrial pollution; and (c) not allowing industries to locate along major roads to prevent traffic congestion. As the Eastern Seaboard development proceeds, the industrial concentration in Samut Prakan Province would increase and extend toward Chonburi. A policy attempt to thwart such development would be costly and unnecessary. Such a policy may also adversely affect the formation of backward linkages in production, since small firms (as they grow) tend to follow their "parent" industries so as to benefit from agglomeration economies for particular types of production activities. The Government should instead be encouraging the growth of such development because market forces are signaling the desirability of this area for industrial growth. At the same time, the Government should nurture the "incubator" function of the central city for providing a good "hatching" ground for young industries. The new BOI policies are biased against small and medium size firms which locate in BMA and Samut Prakan. But these areas are precisely where these small firms would be trying to locate, while large firms move to outer areas where land is available at lower prices.

C. Managing the Growth of Bangkok

Extent of Undeveloped Land

4.18 The lack of industrial sites in Bangkok is not due to the shortage of land itself. To the contrary, according to the National Housing Authority's Bangkok Land Management Study (1987), the ring between 6 and 10 kilometers from the city center still remains half vacant with 89 square kilometers of undeveloped land and two thirds of the ring between 11 and 20 kilometers undeveloped. The study further indicates that if a policy of "infill" land development were adopted, developing infill plots alone would accommodate Bangkok' housing needs until the year 2000 without the need to convert outlying agricultural land. This abundance of available land in the city again implies that what is needed for reducing the existing congestion of infrastructure facilities in Bangkok is not a spatial policy intended to decentralize economic activity but instead the more efficient internal management of city growth.

6/ An attempt at establishing an integrated urban plan for Bangkok is not new. The past attempts, however, have not had much success because of strong community oppositions on various proposed plans and regulations.

Weaknesses in Infrastructure Planning

4.19 It has been accepted within the NESDB that Bangkok will continue to grow and that a more appropriate urban development strategy is to manage the growth efficiently rather than attempt to slow the growth.^{7/} Nevertheless, the Government's infrastructure investment programs have not fully reflected the urban growth patterns that result from the operations of land and other markets, partly due to the lack of inter-agency coordination. This in turn has resulted in mismatches between infrastructure investment and the increasing service demand in the rapidly growing areas. As a result, traffic and other congestion has worsened in the city, inducing inefficiency in resource use.

4.20 Public agencies providing infrastructure services rely on the basic data supplied by the Town and Country Planning Department of the Ministry of Interior in making location specific demand projections and physical investment planning. The Town and Country Planning Department is however responsible for the general land use plan of all 130 municipalities in the country and it lacks resources to make detailed plans and monitor them on a short term basis. Also, its physical planning does not seem to take market signals into account. For instance, the Metropolitan Waterworks Authority (MWA) is an efficient and well managed agency. Nevertheless, its plan for water distribution network is based on an outdated general land use plan provided by the Town and Country Planning Department. Because of this, the MWA will have to undertake a major modification of the capital investment plan for the water distribution network in order to serve the new residential areas to the west of the central city. In these areas that are still designated as "green areas" in the land use plan, new residential development is taking place rapidly. The Town and Country Planning Department should develop new approaches to be able to adjust its physical planning to the location dynamics of service demand and to increase its coordination with the BMA and specialized agencies that provide various infrastructure services.

4.21 The difficulty of inter-agency coordination also constrains the efficient management of the growth of Bangkok. For the transport sector alone, there are almost a dozen agencies and committees involved in infrastructure investment planning and implementation - Bangkok Mass Transit Authority (BMTA), Expressway and Rapid Transit Authority (ETA), Department of Highways, Department of Public Works, Department of Land Transport, State Railway of Thailand, Traffic Engineering Division of BMA, Department of Town and Country Planning, Office of the Committee for the Management of Road Traffic, among others. Under the auspices of the Bangkok Metropolis and its Environs Development Committee, investment plans have been prepared for implementing the above mentioned Bangkok Metropolitan Regional Development Proposals for the Sixth Plan period in three key areas: traffic and transportation, flood control and waterworks, and housing and land development. Although the individual plan documents have identified a long list of specific projects with financial analyses, the lack of close inter-

^{7/} See NESDB, Bangkok Metropolitan Regional Development Proposals, 1986.

agency coordination raises questions about (a) the efficiency with which these projects can be implemented, and (b) the extent to which these projects will collectively be consistent with the rapid changes in spatial development patterns and the corresponding demand for various infrastructure services.

Decentralization of Population and Employment within Bangkok and Implications for Infrastructure Planning

4.22 Preparing and implementing more appropriate infrastructure investment programs require information on where growth is taking place and on the overall trend in location patterns of population and employment. The growth of Bangkok's population as a whole declined from 4.3% per year in the 1970s to 3% in the 1980s (Table 4.9). The analysis of the population data for Bangkok shows that its population has been decentralizing as in most other large cities worldwide.

4.23 For more detailed analysis, Bangkok (BMA) has been divided into four concentric rings by aggregating amphoe (districts) as shown on the map (see the back of this report). Ring 1 is the old business area in the center; Ring 2 includes recently developed business areas; Ring 3 has rapidly growing suburbs; and Ring 4 is the outer area. Table 4.9 shows that during the 15 year period, both Ring 1 and Ring 2 lost their share of population while Ring 3 gained its share substantially. More recently, the level of population in the old business area (Ring 1) has actually declined while that of Ring 3 increased rapidly, indicating a strong decentralization trend of population. The analysis of the factory registration data noted before shows that manufacturing activity in Bangkok has also been decentralizing. Ring 3 is attracting more new firms than both Ring 1 and Ring 2 and its share of new firms is larger than its share of all firms in 1984 (Table 4.7). The "birth rate" of manufacturing establishments rises rapidly as the distance from the center increases; it was five times higher in the outer area than in the old business area. The birth rate of 6% for Bangkok as a whole is comparable to that of cities such as Seoul and Bogota.

4.24 These findings indicate that in Bangkok both residential housing and workplaces have been decentralizing rapidly from the city center to suburban areas. The National Housing Authority confirms that most residential development is now taking place away from the city center. This pattern should be an important factor for planning future transport and other infrastructure investment. In the case of the transit system, since travel directed to the city center is expected to decline as a share of total travel, the existing radially oriented system will become less important and a more circumferential network (such as the Middle Ring Road which is yet to be completed) will be needed. Therefore, there is a need for new approaches to urban development that accommodate the rapidly changing location patterns of economic activity in Bangkok.

**Table 4.8: CHANGES IN DISTRIBUTION OF POPULATION BY PROVINCE IN THE BANGKOK METROPOLITAN REGION (BMR), 1970 - 1985
(1,000 persons)**

Province	1970		1980		1985 /a		Annual Average Growth Rate (%)	
	Persons	%	Persons	%	Persons	%	1970-80	1980-85
BMA (Bangkok)	3,185	67.94	4,852	70.62	5,626	70.59	4.30	3.00
Samut Prakan	341	7.27	503	7.32	603	7.57	4.00	3.70
Samut Sakhon	208	4.44	256	3.73	287	3.60	2.10	2.31
Pathum Thani	242	5.16	332	4.83	393	4.93	3.21	3.43
Nonthaburi	278	5.93	383	5.57	458	5.75	3.26	3.64
Nakhon Pathom	434	9.26	545	7.93	603	7.57	2.30	2.04
Total	4,688	100.00	6,871	100.00	7,970	100.00	3.90	3.00

/a NESDB estimates.

Sources: Population Census 1970, 1980 and NESDB.

**Table 4.9: CHANGES IN DISTRIBUTION OF POPULATION BY CONCENTRIC RING IN BANGKOK (BMA), 1970 - 1985
(1,000 persons)**

Ring	1970		1980		1985 /a		Annual Average Growth Rate (%)	
	Persons	%	Persons	%	Persons	%	1970-80	1980-85
Old business area	300	9.43	365	7.52	341	6.06	1.98	-1.35
New business area	1,733	54.45	2,461	50.71	2,682	47.68	3.57	1.74
Rapidly growing suburbs	1,018	31.98	1,845	38.02	2,386	42.42	6.13	5.28
Outer area	132	4.15	182	3.75	216	3.84	3.26	3.49
Total	3,183	100.00	4,853	100.00	5,625	100.00	4.31	3.00

/a NESDB estimates.

Sources: Population Census 1970, 1980 and NESDB.

D. Infrastructure Investment Needs

4.25 The Thai Government has been traditionally conservative in its approach to infrastructure investment. It has tended to invest only as the need became obvious, for example through severe road congestion. While this approach entails economic costs in terms of the shortage of infrastructure services, it also avoids large potential losses from ill-conceived investment programs. Since this strategy has worked reasonably well in Thailand, it seems sensible to continue the same strategy, particularly at this time when maintaining a sound fiscal balance is important. Better planning of infrastructure investment and greater participation of the private sector in such investment will also enhance the impact of Government spending on infrastructure. However, this approach cannot eliminate the need for greater public sector investment on infrastructure in the near term, especially since the Government has underinvested in basic infrastructure during the last five years.

Table 4.10: PUBLIC INVESTMENT ON ROAD AND ELECTRICITY INFRASTRUCTURE

	1980	1981	1982	1983	1984	1985	1986	1987
Roads /a								
Real investment /b (billions of 1987 baht)								
Real investment/GDP (%) /c	10.2	10.8	11.6	10.8	10.3	10.4	10.6	10.6
Growth rate (%)	1.23	1.23	1.26	1.10	0.97	0.96	0.93	0.86
Electricity /d								
Real investment /b (billions of 1987 baht)								
Real investment/GDP (%)	11.5	13.7	17.7	19.5	18.9	16.6	14.2	
Growth rate (%)	1.40	1.56	1.93	1.98	1.79	1.52	1.25	
	32.2	18.5	29.4	10.1	-3.2	-12.3	-14.4	

/a Capital expenditures by the Central Government only.

/b Three-year moving average (i.e., average of the three years ending in that year) of spending in 1987 baht.

/c Denominator is real GDP in 1987 baht.

/d Capital expenditures by the Electricity Generating Authority of Thailand, Metropolitan Electricity Authority, and Provincial Electricity Authority.

Source: Bank of Thailand.

4.26 Table 4.10 shows a sharp slowdown in public sector expenditures on roads and electricity infrastructure in the last five years. In the case of road investment, a marked worsening in traffic congestion in the BMR clearly indicates that the actual investment level was far short of what was necessary

to keep pace with the rising demand. In the case of electricity, a serious power shortage has not developed as yet, but it is expected that a shortage will develop around 1991-92 despite a recent revision of its investment plan by the Electricity Generating Authority of Thailand (EGAT) for the Sixth Plan period from B 81 billion to B 100 billion. This indicates that investment during the last few years has not been sufficient to build the pipeline of additional power generating capacity for the future. Given that the Thai economy may sustain a growth rate of around 7% p.a. for the next 10 to 15 years (see Chapter 7) how much should the public sector be investing in basic industrial infrastructure to meet the rising demand? Using roads and electricity generation as two examples, a rough estimation is attempted here.

4.27 Investment on roads: As is the case with other developing countries, the demand for road transport in Thailand can be expected to grow faster than output. The ratio of the growth rates of these two variables, which can be interpreted as the elasticity of demand for road with respect to output growth, may be conservatively estimated as 1.2 (though it may well be considerably higher). Then 7% annual GDP growth requires 8.4% annual growth in the stock of roads. In a steady state, assuming that annual depreciation of roads is a constant proportion of the existing stock, total investment on roads (i.e., replacement and new investment) must also grow at 8.4%. Hence, the recent trend of decline in road investment is clearly inadequate. To obtain the actual level of investment needed, the stock of roads must be estimated. While such an estimation poses a number of technical difficulties, rough calculations show that the value of this stock may be around B 110 to 120 billion.^{8/} If so, the level of investment in 1988 that is required to increase the stock by 8.4% (though the projected GDP growth rate for 1988 is higher than 7%) is about B 15 to 16 billion in 1987 prices, provided that the unit cost of building roads remains constant. Thus, it is clear that the expenditure of about B 11 billion currently envisioned in the Government plan is too small. This level is also too low by historical standards. Since the average annual investment level of around B 10.5 billion during the last five years has been evidently inadequate, the same level of investment in the face of much stronger growth prospects must also be too low.

8/ The replacement portion of the road investment plan of the Department of Highways for the Sixth Plan period is about B 28.6 billion (in 1987 prices). Assuming that this is adequate to meet depreciation, which is assumed to take place at the rate of 1/20 of the stock each year, the existing stock of roads can be estimated to be B 114.6 billion. Under the same depreciation assumption, an alternative method of simply adding gross investment on roads during the last 13 years proves to be a robust estimator of the stock. (As long as the growth rate of the road stock is in the range of 4 to 10% p.a., the margin of error is 10% or less.) This approach produces an estimate of the existing road stock of B 125.7 billion.

4.28 Investment on electricity generation capacity. Past experience in Thailand and other developing countries shows that the elasticity of demand for electricity with respect to GDP growth is at least 1.2 and probably considerably higher (which has been the case during 1986-87). Even if an estimate of 1.2 is used, 7% annual GDP growth requires 8.4% growth in the capacity and annual investment in a steady state. In fact, this projection is very close to the latest projections by the EGAT (which accounts for the bulk of power generation in Thailand). According to those projections, the EGAT's generation capacity must grow from 4,800 MW in 1986 to 11,000 MW in 1996, an average annual increase of 8.6%. To achieve this increase, the EGAT estimates that investments worth B 100 billion would be required during the Sixth Plan period (1987-91). For the Seventh Plan period (1992-1996), it is estimated that additional investments of about B 135 billion (in today's prices) will be required. These levels imply that annual investment programs need to be much higher than the actual levels permitted by the Government during the last three years, which averaged only B 7.1 billion a year in 1987 prices.

4.29 These shortfalls are one of the costs of macroeconomic adjustment undertaken since 1980. Had the levels of investment on roads and power generation capacity (by the EGAT) kept pace with GDP growth since 1983, they would have matched the levels needed today based on the above estimates. Although roads and electricity were used as two examples here, it appears that the public sector's infrastructure investment in general has fallen below the level required to adequately support today's economic activity. Chapter 7 will further explore the possible magnitude of public sector investment that is needed to meet the future demand.

E. Constraints on Industrial Growth in Regional Cities

4.30 Regional cities have stayed small in Thailand. In these cities, wages are lower, land is cheaper, and workers who can be easily trained are available. The main constraints are the lack of efficient government and business services, information flows for marketing and technology, and transport access. Chiang Mai's recent experience is a case in point. During the past two years, Chiang Mai has begun to attract foreign investment mostly because it is the only city outside Bangkok which has a customs office and direct airline connections to foreign countries through Hong Kong. The availability of government and business services in addition to the locational attributes mentioned above seems critical in attracting industries to these cities. The role of the municipal governments could increase substantially to promote industrial and commercial activities. Expanding the "incubator" function (discussed above) of regional urban centers could expedite industrial growth.

4.31 The rapid growth in the number of manufacturing industries (not including rice mills) in the Northern and Northeastern regions (Table 4.1) is probably more due to the recent political stability there and past Government efforts in improving transport and communication networks than because of explicit spatial policies. For example, the Government's attempt to develop industries through the establishment of the Northern Region Industrial Estate

in Lampang has not been successful. This industrial estate with a land area of 1,760 rai opened in 1983. As of February 1988, an area of only 35 rai has been occupied by three establishments with 480 employees. Lampang is only 23 kilometers from Chiang Mai, but even such a short distance is considered too far by local entrepreneurs and has thwarted the development of the industrial estate. This experience, as well as similar experiences in other countries, shows that the Government's efforts to promote regional industrial development should focus on improving and strengthening local market functions that reflect the needs of individual entrepreneurs.

4.32 The Secondary Cities Project supported by the Bank has been a leading element in the Government's strategy to strengthen the municipal government management and operations. In addition to infrastructure investment programs, the project focuses on the financial and investment planning and management. Chiang Mai, Khon Kaen, Nakho Ratchasima, and Songkhla, which are four of the five cities identified for development under the Fifth Five Year Plan, are included in the project. The Government is preparing the second project which will include eight other secondary cities identified for development under the Sixth Five Year Plan. This approach to the development of regional cities through strengthening the financial and investment management capability of 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. Better management capability within local governments would also reduce the probability of making the wrong physical investments. It should be emphasized again that infrastructure investments alone will not induce economic activity unless they reflect the market demand for these services.

4.33 Decentralizing certain Central Government administrative functions, such as customs clearance and issuing passports, will also expedite the industrial development process in regional cities. The Government has already taken this policy direction by allowing provincial governments to issue factory permits to new establishments. Such delegation of administrative functions should be extended to the level of municipal governments.

F. Policy Conclusions

4.34 Thailand's industrial infrastructure, particularly the transport and power facilities in Bangkok, is being strained by the current economic boom. In part, these stresses are a consequence of the recent reductions in public infrastructure investment that resulted from the Government's program of fiscal restraint. The inadequacy of industrial infrastructure and the constraints it poses to sustained economic growth must be recognized by the Government. Therefore, it must conduct a detailed review of the public sector investment plan.

4.35 Bangkok will continue to grow but at a slower rate. The current decentralization of both population and employment will continue. Therefore, the Government should not pursue spatial policies that are inconsistent with market forces and intended solely at dispersing economic activity from Bangkok

to outlying areas and other regions. What is needed for reducing traffic and other congestion in Bangkok is a more appropriate infrastructure investment strategy that can respond to the location dynamics of service demand in Bangkok and surrounding provinces. Fifty percent or more of the land area beyond six kilometers from the center of Bangkok still remains undeveloped. Bangkok can accommodate further growth with new approaches to urban development. Excessive decentralization measures will reinforce the current low density development patterns and result in unnecessarily high costs of providing infrastructure services.

4.36 The current spatial policies intended to decentralize manufacturing activities from Bangkok will have a significant negative impact on the growth of industries, since these policies neglect the infrastructure and locational needs of different types of firms, particularly those of small but growing firms. Historically, the role of the Thai Government in providing infrastructure services for manufacturing industries has been limited to the provision of general services such as major roads or electric power generation and has neglected more location specific needs of industries. More recently, the NESDB's Bangkok Metropolitan Regional Development Proposals (1986) designated 75 square kilometers of land area (but located outside BMA) as industrial areas out of the total BMR land area of 7,639 square kilometers. But that study stopped short of presenting appropriate strategies and programs for relieving the shortage of industrial sites faced by new and expanding industries in Thailand today. There is a view that the infrastructure services required by new and expanding manufacturing establishments will be the most crucial constraint on the future growth of Thai industries. It is clear that there is an increasing demand for industrial sites and complementary services. Nava Nakorn, the private industrial estate, has a waiting list of applicants and is planning to expand its development. Toshiba's development of 1,000 rai area in Samut Sakhon was quickly sold out to about 20 establishments. A large number of Korean firms is now negotiating with the Government for permission to develop a large industrial estate in the Bangkok area. During the first three months of 1988 there were about 30 Japanese firms applying each month for factory permits.

4.37 The Government can also play an important role in generating positive externalities for industrial growth with more aggressive measures to provide incentives for the private sector to engage in land development and infrastructure provision for industrial use. This could include a new approach to acquiring access to "landlocked" areas and regulatory reforms to allow private enterprises to invest in the production and delivery of certain types of infrastructure services.

4.38 For more efficient management of Bangkok's growth, better inter-agency coordination is crucial. Moreover, there is a need to monitor the rapidly changing patterns of urban development in the BMR on a continuous basis and use this information to review infrastructure investment programs at regular intervals of six months or a year. In fact, the Government is

concerned about these problems. The Investment Plan for the transport subsector ^{9/} sets out guidelines for urban development, which include the need for (a) "better coordination of town planning measures and road networks under the master town plan," (b) "correspondence (of transport projects) with the investment plans for other public service networks," such as flood control plan, and (c) "correspondence (of transport projects) with land utilization plan in the master town plan." These functions of interagency coordination and monitoring can best be carried out at the local level. Therefore, it seems desirable for the BMA to play a much greater role in planning and implementing major infrastructure investments in all subsectors.

4.39 The following specific policy measures are recommended:

- (a) Allow the private sector to develop industrial areas for small and medium scale industries within BMA (beyond six kilometers) either on its own or jointly with the Industrial Estate Authority of Thailand (IEAT). In these areas, polluting industries should not be allowed and water intensive industries should be discouraged. By increasing private sector involvement in industrial site development, the Government can expect that the selection of the land area and provision of infrastructure and other services for development will be more responsive to the demand for such industrial sites and consistent with the operations of the land market in Bangkok. This would lead to a natural deconcentration of economic activity within BMA, relieve the congestion in the center by changing commuting patterns, induce more efficient land use, and most importantly reduce the costs of expansion for small and medium size firms.
- (b) Upgrade traditional industrial areas which have been developed by individual firms that have located there. With a small amount of additional investment, such areas could accommodate a large number of medium size firms that move out of Bangkok.
- (c) Reduce regulatory, bureaucratic, and institutional constraints on private sector involvement in developing industrial sites and providing complementary infrastructure services such as electricity, water supply, access roads, and waste collection. While the Industrial Estate Authority of Thailand enjoys the full support of the Government in the acquisition of land, development of infrastructure facilities, and in dealing with regulatory and bureaucratic procedures, private developers have to operate on their own. The Government should provide much greater support to the private sector in these areas.
- (d) Designate an operational body (possibly the BMA or the Ministry of Interior) to be responsible for inter-agency coordination in regard

^{9/} NESDB, Investment Plan to Solve the Traffic and Transportation Problems in the Bangkok Metropolis and its Environs during the Sixth National Economic and Social Development Plan Period (1987-1991), August 1987.

to planning and implementing major infrastructure investments in all sectors of Bangkok. Such a body should monitor the evolving pattern of urban growth on a continuous basis and use this information to plan infrastructure investment that is consistent with such pattern.

- (e) In the regional cities, identify basic infrastructure and service constraints that currently raise the costs of existing firms and newly established small firms and upgrade conditions in regional urban centers so as to enhance their "incubator" function. Increase the financial and administrative autonomy of municipal governments so that they can respond to the demand for local services by small entrepreneurs, and collaborate with local business organizations and universities in carrying out business promotion activities and extension services.^{10/}

10/ Regional community development schemes are already under way in the Northern Region led by Chiang Mai University in collaboration with foreign agencies.

V. HUMAN RESOURCES FOR INDUSTRIAL GROWTH

5.1 While providing the right investment incentives is clearly important for successful industrial growth, human resources are equally, if not even more, important. This chapter examines the quantitative as well as qualitative aspects of Thailand's human resources. The Government's industrialization strategy has favored labor-intensive industries, based on the premise that there is a large pool of underemployed workers in rural areas. The first section of this chapter examines the validity of this assumption and cautions that the Government may need to change its thinking. As Thailand transforms itself from an economy that is based largely on agriculture to one that is based more on modern industries, the nature of labor markets changes. While in a mainly agrarian economy labor supply to non-agricultural sectors is dictated by the seasonality of agriculture, in the industrial economy the more constant labor demand outside agriculture becomes the dominant factor. As the Thai economy continues to industrialize, the labor market must facilitate the changing labor demand pattern, especially by inducing the agriculture sector to adapt to increased competition for workers. The second section examines this critical labor market transition that appears to be taking place in Thailand, and assesses how well the economy is adjusting. Finally, the qualitative characteristics of Thai labor have important implications for the pattern of Thailand's industrialization. The ability of the education system (including on-the-job training) to supply the changing skill mix that is required also influences the speed of industrialization. The third section considers these issues and the ways in which the education system may be strengthened to support Thailand's industrialization.

A. Supply of Labor

5.2 The Government has long believed that there is a problem of serious seasonal underemployment in rural areas.^{1/} This has led to the promotion of rural industries that can utilize seasonally underemployed workers on the one hand and a development strategy that emphasized labor-intensive industries on the other. The Bank has already addressed the question of seasonal underemployment in a 1983 report,^{2/} and rejected the notion that a huge reservoir of underemployed rural workers exists during the dry season. This issue, however, remains the source of an important policy debate. The controversy over the issue stems partly from the incomplete nature of the labor statistics available to date. Despite the important policy implications of this issue and despite a degree of awareness that there may be methodological problems in the available labor statistics, the Government has not conducted a thorough review of the reliability of the existing statistics. Perhaps in the past,

^{1/} The Bank's last country economic report on Thailand estimated total slack season underemployment to be 5.3 million, of which most were not working. See Thailand: Growth with Stability - A Challenge for the Sixth Plan Period, Report No. 6036-TH, 1986, p. 241.

^{2/} Growth and Employment in Rural Thailand, Report No. 3906-TH, 1983.

seasonal underemployment was so evident that even large errors in statistics would not have altered the basic picture. However, the situation is no longer as clear-cut and accurate statistics are necessary before firm conclusions can be reached on many labor market issues.

5.3 In terms of the statistical methodology and definition, three issues are particularly important: the absence of annual employment figures, the broad definition of the labor force, and the definition of the working-age population as everyone 11 years of age and over. Each of these issues is considered in detail in Annex 5. The age "problem" is the easiest to resolve; the 1986 data are used to support a definition of the working-age population which excludes persons under the age of 15 and over the age of 59. Including the very young (ages 11-14) and the oldest group (60 and over) in the population base as is done currently tends to obscure the main features of labor force participation and employment patterns with which this report is concerned.

5.4 The official statistics define the total labor force as those who are employed or unemployed plus those who are "seasonally inactive," i.e., those who are "waiting for the appropriate season." However, it is more useful to focus on the "current labor force," which excludes the seasonally inactive workers (see Annex 5 for a detailed discussion). The following analysis is based primarily on the current labor force in the 15-59 age group.

5.5 The annualization of seasonal data is more difficult and the analysis of Labor Force Survey data cannot resolve this issue. The Labor Force Survey, from which most labor statistics are derived in Thailand, is conducted three times a year: February (the post-harvest dry season), May (the beginning of the rainy season), and August (the middle of the rainy season). There is no survey during the harvest season in November and December. The data from the three surveys are not sufficient to determine the seasonal pattern of employment in agriculture. Annex 5 recommends possible ways to improve the statistical system in this regard.

5.6 Despite these problems, the existing Labor Force Survey statistics do yield useful information about the seasonal underemployment issue. The detailed analysis of labor force participation and employment patterns in 1986 (see Annex 6) confirms the finding of the earlier Bank report. The rate of labor force participation for rural men did not show a significant seasonal drop between August and February (and was similar to that for urban men) while that for women did, dropping from 82.7% to 71.6%. While this does seem to indicate that there is a large pool of underemployed workers (at least among women) in the agricultural slack season, the labor force participation rate for rural women in February was still much higher than that for urban women (63.8%). Therefore, it is difficult to argue that there is a large pool of underemployed female workers in rural areas which can be tapped for industrial jobs.

5.7 Many of the industries that have been growing rapidly in Thailand rely on the abundant supply of relatively unskilled female workers at low wages (e.g., textiles, garments, canning, and ICs). According to the above analysis, however, it may be wrong to assume that Thailand can continue to

develop industries on the same basis, at least without encountering wage pressures soon. Therefore, while the Government's emphasis on labor-intensive industrial growth was appropriate in the past, the Government may need to begin thinking about the next phase in which increased labor demand in industries will raise general wage levels. The process of such a transition is the subject of the next section.

B. Employment and Economic Development in the Medium Term

5.8 In a traditional monsoon-driven agrarian economy, where the seasonality in agriculture's labor demand dictates the labor market conditions, labor supply for non-farm activity is characterized by pronounced seasonality. In an industrial economy by contrast, the year-round labor demand of modern industry and service sectors dominates labor market dynamics and traditional agriculture is forced to accommodate the labor needs of the modern sector by reducing seasonality and increasing labor productivity. In the transition from the agrarian economy to the industrial economy, two things happen that importantly influence the labor market. First, counter-seasonal (i.e., counter to agricultural seasonality) industries expand to offset the slack labor demand in traditional agriculture. These industries may be called "traditional industries." This contributes to fuller utilization of labor. Second, modern industries begin to emerge and hire workers on a year-round basis. As these industries grow, they begin to bid workers away from seasonal agriculture and traditional industries, because labor productivity tends to be higher in these industries. Eventually, the more seasonal sectors are forced to adapt to the new labor market situation by increasing labor productivity (through mechanization) and reducing seasonality (through means such as crop diversification and irrigation). This transitional phase in economic development is critically important for industrialization, because the ability of the economy to adjust to the changing situation, especially through an efficient labor market, influences how smoothly it can develop into a modern industrial economy. This section examines where the Thai economy stands in this process, how well it is adjusting, and what the Government can do to facilitate a smooth transition.

5.9 Traditionally, family farms have dominated the employment picture for rural Thailand. Off-farm employment during the slack season (February) has been viewed as an opportunity for farm families to relieve poverty. Thus the relatively large number of female own-account workers in February is attributed to the movement of male household heads to work elsewhere (sometimes involving short-term migration) during the off-season, presumably as employees. Similarly, the relatively low rates of labor force participation in February are interpreted as indicators of surplus labor in agriculture. The Government has promoted rural industries based on the notion that there is marked seasonal variation in labor supply for non-farm activities. This has probably added to the natural tendency for traditional industries and services in rural areas to offset the seasonality in the agricultural labor demand.

5.10 The Government continues to promote counter-seasonal rural industries on the assumption that there remains a serious underemployment problem during the dry season. Thus the first important question is whether the labor market

continues to be dominated by the agriculture-driven seasonality of labor supply for the non-agricultural sector or is influenced more by the demand seasonality in non-farm activities. Even the simplest test to distinguish between these two alternative hypotheses would require data on seasonal differences in wage rates. If seasonal employment in manufacturing, for example, were predominantly supply-driven, the manufacturing wage rate in February (when labor supply is great) should be lower than in August. On the other hand, the February wage rate should be higher than the August rate if the difference in employment is caused by a seasonal difference in the demand for labor in manufacturing.

5.11 Information on sectoral differences in wage rates is very scarce and rarely reported on a seasonal basis. The 1986 Labor Force Survey reports the average wage earnings per month for private employees (Table 5.1). Among rural men aged 15-59, the average monthly wages for private employees in manufacturing was higher in February than in August for every region but the Central. Earnings for private employees in construction were higher in February than in August for every region but the North, and earnings in commerce were higher in February for both the Central and South regions. Although scarcely conclusive, these data suggest that the seasonal variance in labor demand in these industries is more important than surplus agricultural labor as the dominant factor in the rural labor market.

Table 5.1: MEAN WAGES FOR PRIVATE EMPLOYEES, MEN AGED 15-59, 1986
(baht per month)

	Agriculture		Manufacturing		Construction		Commerce	
	Feb	Aug	Feb	Aug	Feb	Aug	Feb	Aug
<u>Municipal Areas</u>								
Bangkok	1,425	1,313	3,163	3,351	3,079	3,156	4,195	3,917
Central	1,586	1,242	1,888	2,403	2,384	3,145	2,153	2,225
South	1,679	2,031	2,051	3,069	2,337	3,051	2,403	1,643
North	/a	985	1,667	1,010	2,362	1,795	1,912	1,317
Northeast	/a	864	2,032	1,433	1,739	1,941	2,421	2,642
<u>Non-Municipal Areas</u>								
Central	1,182	1,470	2,501	2,760	2,426	2,148	2,208	2,129
South	1,806	1,710	2,155	1,974	2,935	2,213	3,203	2,165
North	904	/a	1,590	1,271	1,890	2,545	1,515	3,958
Northeast	1,268	/a	1,639	1,403	1,949	1,527	1,566	3,322

/a Mean wages based on a sample size of fewer than 10 observations.

Source: NSO, Labor Force Survey 1986.

5.12 The second question is where the Thai economy stands in the critical transition process and how well it is adjusting. In this regard, the regional differences in the pattern of seasonal employment are particularly useful. Table 5.2 shows the seasonal pattern of rural employment by region. (Employment in urban areas shows very little seasonality. See Table A9.3.) Large increases in agricultural as well as total employment between February and August 1986 clearly characterized the Northeast, which is the least developed region. The non-agricultural sector has not developed sufficiently to offset the seasonality in agricultural employment. This, however, does not necessarily mean that there is serious seasonal underemployment, as the wage data in Table 5.1 indicate. In the North, the February-August increase in agricultural employment was much less pronounced, with other sectors more than offsetting that seasonal rise. It appears that this region has well developed counter-seasonal industries but the modern industries are not yet dominant. The Central and South regions show very small seasonal increases in agricultural employment (which appear to be sustained largely by migrants from other regions) and stable employment patterns in other sectors. These two regions, where considerable mechanization and crop diversification have already taken place in agriculture, are clearly in the late stages of the transition toward labor market dominated by non-seasonal modern industry. Seasonal migration from the Northeast must also contribute to keeping wage levels in these two regions broadly unchanged between February and August (Table 5.1).

**Table 5.2: RURAL EMPLOYMENT BY REGION AND INDUSTRY
DIFFERENCE BETWEEN FEBRUARY AND AUGUST, 1986
(millions of employed persons aged 15-59)**

Type of Employment and Industry	Women				Men			
	North- east	North	Central	South	North- east	North	Central	South
All Employed	+1.79	.+12	.+13	-.09	.+99	-.20	.+10	.+02
Agriculture	+2.01	.+33	.+09	-.12	+1.41	.+07	.+11	-.02
Manufacturing	-.14	-.10	-.01	-.01	-.19	-.11	-.05	.+01
Construction	<u>/a</u>	-.04	.+01	.+01	-.11	-.09	.+01	.+02
Commerce	-.03	-.03	-.05	.+06	-.06	-.07	-.03	.+02
Transport	<u>/a</u>	<u>/a</u>	.+01	.+00	-.02	-.01	.+01	.+02
Service	-.04	-.03	.+08	-.03	-.04	.00	.+05	-.03
Private Employees	+.01	-.01	.+01	-.01	-.39	-.18	-.04	.+01
Agriculture	.+04	.+07	-.06	-.03	-.10	<u>/c</u>	<u>/c</u>	<u>/c</u>
Manufacturing	-.03	-.03	.+05	<u>/b</u>	-.04	-.08	<u>/c</u>	.+02
Construction	<u>/b</u>	<u>/b</u>	<u>/c</u>	<u>/b</u>	-.08	-.07	<u>/c</u>	.+03
Commerce	<u>/c</u>	-.01	.+01	<u>/c</u>	-.03	-.02	.00	-.01
Transport	<u>/a</u>	<u>/a</u>	<u>/b</u>	<u>/a</u>	-.02	<u>/c</u>	-.01	.+01
Service	<u>/c</u>	-.04	.+01	<u>/c</u>	-.02	+.01	<u>/c</u>	.00

/a Fewer than 500 persons in either survey round.

/b Ten or fewer sample observations in either survey round.

/c Difference in sample size between rounds is 10 or less.

5.13 The above analysis suggests two things: First, the development of traditional industries has reached the point where they can, at least with the help of migration, largely offset the seasonality of labor demand in agriculture. Therefore, continued promotion of rural industries whose labor demand is counter-seasonal to that of agriculture may be an inappropriate policy. In order to accommodate further expansion of modern industries, these industries as well as seasonal agriculture are likely to be forced to reduce the seasonal variation in their demand for labor soon.^{3/} Second, such an adjustment appears to be already taking place in the Central and South regions rather smoothly. This provides an encouraging indication that the Thai labor market is able to cope with a radical transformation of the economy without major difficulties.

5.14 The evidence presented above, however, is still tentative, and it does not indicate how rapidly the labor market dynamics is changing. After all, the official statistics show that agriculture still accounted for 67.1% of employment in 1986.^{4/} This seems to give agriculture a rather dominant position in the labor market. However, Table A6.2 (Annex 6) suggests that the 67.1% figure may be too high. There are other reasons to believe that the official statistics, based on Labor Force Survey data, overstates the proportion of labor actually devoted to agriculture (Annex 7).

5.15 Since a reliable estimation of the true employment distribution cross the three main sectors is impossible, a few feasible scenarios are used to illustrate the changing labor demand pattern. The projection takes the likely growth rates of industrial and service employment as given, and derives agricultural employment growth rate as the residual. This shows how fast agricultural employment can grow (or in the thinking of the Sixth Plan, "must grow" to absorb the new labor force entrants). For the starting point of the projection, i.e., 1986, the official labor force statistics were used, though the size of labor force itself may well be overstated because it is based on the August round of the Labor Force Survey. For the purpose of projections, however, the absolute levels of employment do not matter; only the relative share of each sector and the sectoral growth rates do. The labor force growth

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- ^{3/} It is conceivable that seasonal agriculture combined with counter-seasonal off-farm activities can adopt labor saving technology to compete with modern industries that offer year-round employment. However, this may be costly because the machinery that is used to enhance labor productivity in agriculture and off-farm activities is likely to be different, which means relatively low utilization of such machinery. Thus some degree of reduction in seasonality also seems necessary for these sectors to compete with modern industries.
- ^{4/} Based on the labor force including everyone 11 years or older, the notion of total labor force rather than the current labor force, and the benchmark month of August.

rate is approximated by the projected growth rate of the population in the 15-59 age group.^{5/} In the base case scenario (see Part III), the output of the industry sector is projected to grow by about 7%. Assuming that about half of this growth comes from the gain in labor productivity and the rest from the expansion of employment, industrial employment will grow at 3.5% p.a. For the service sector, the projected growth is about 6%, of which it is assumed that about one third may come from labor productivity gain and the rest from employment expansion. Thus service employment should grow about 4.0% p.a. Under the optimistic growth case, these rates are raised to 4% and 4.5%, respectively. Assuming a frictional unemployment rate of 2.5%, agricultural employment is derived. For the initial employment share, in addition to the share based on the official statistics, three different cases are illustrated, with agriculture initially claiming 60%, 50%, and 45% respectively.

5.16 Projection results are shown in Table 5.3. Under most cases, the employment in agriculture will have to decline in absolute terms within 10 years to accommodate the increasing labor demand of the other two sectors. The last column of the table shows the year in which the absolute decline of agricultural employment begins. However, the projections should not be taken as an indication of what will actually happen because as the growth of labor demand in industry and services begins to outstrip the growth of labor supply, wages will tend to rise faster and employment elasticities will change. Nevertheless, they do point out that a fundamental shift in the labor market conditions may be at hand. Although the Thai economy probably has not been a labor surplus economy in the classical sense,^{6/} there has until now been generally sufficient growth of labor supply. In fact, the Sixth Plan is preoccupied with the need to create sufficient jobs to absorb the rapidly increasing labor force. The projections suggest that under plausible assumptions the labor demand in industry and services will grow so much that in several years the absolute level of employment in agriculture may have to decline to support such growth. If the employment share of agriculture is actually 50%, which seems quite reasonable by international standards, the critical turning point will come in the early 1990s.

5.17 This analysis reinforces two points that have already been made. First, an industrial development strategy that is based on cheap labor would be no longer appropriate for Thailand. The Government should be concerned with upgrading the general skill level of the Thai workers so that the economy can compete internationally in producing more skill intensive products. Second, as the industry and service sectors attract an increasing share of the labor force (especially new labor force entrants), agricultural wages and incomes must rise so that it can compete for workers. This will accelerate the mechanization of agriculture. Therefore, the Government should be

^{5/} The demographic projections are based on the World Bank's own projections.

^{6/} Such an economy is one in which the traditional (agricultural) sector has surplus labor that can be tapped by the modern sector without affecting the real wage rate in the agricultural sector.

concerned more with facilitating this transition than with keeping agriculture labor intensive and creating more agricultural jobs.^{7/}

C. Labor Quality and Employment

5.18 The nature of Thailand's recent economic growth is largely determined by the vitality and quality of its work force. Although not yet as highly skilled as workers in industrialized countries, there are clear indications of improvements in this regard. It also seems that the quality of Thailand's labor, particularly with regard to its "trainability," has been an important attraction for some of the new, export-oriented industries. This section explores some of the quality characteristics of the labor force, its determinants, and ways in which they might be strengthened.

Educational Attainment

5.19 Thailand's population is characterized by moderate levels of educational attainment that reflect a series of improvements and expansions of the education system during recent decades. According to the August 1986 round of the Labor Force Survey, some 63% of the working-age population (aged 15-59) had less than a primary-level education, an additional 17% had completed primary school, and less than 6% had a secondary (high school) or university degree (see Table 5.4).^{8/} However, the younger cohorts are generally much better educated than their elders, and this trend appears to be accelerating.

5.20 The most striking improvement suggested by the Labor Force Survey (August 1986) is the result of expanding primary education and increased retention of students at that level. Among working-age teenagers (aged 15-19), only 21% had less than a complete primary education and 54% had left school after having finished the primary level. In contrast, some 54% of the next oldest cohort (aged 20-24) had less than a primary education and 19% had completed the primary level before leaving school, while among persons aged 25-29 only 9% had completed the primary level before leaving school. This pattern may be attributed to the combined effects of increased demand for schooling, expansion of public primary education and enactment of compulsory attendance laws.

^{7/} The Sixth Plan projects agricultural employment growth of about 1.4% p.a. for the 1987-91 period.

^{8/} Because of changes in the education system, these categories correspond to different grades and tracks for persons in different age cohorts. As used here, primary education is usually equivalent to 6 years of school, lower secondary to 9 years, and upper secondary to 12 years. Persons classified as having a university education do not include those with degrees from teacher training colleges. A person who entered but did not complete a course of study is classified according to the highest degree completed.

Table 5.3: STRUCTURE OF EMPLOYMENT, 1986-2001

<u>Initial Share</u> (1986)	<u>Average Annual Growth Rate</u>			<u>Share in</u> <u>2001</u>	<u>Ag. Employment</u> <u>Falls Beginning</u>
(Labor Force Growth)		2.6%	2.0%	1.8%	
A. BASE CASE					
Agriculture	67.1%	2.2%	0.9%	0.5%	58.0% (after 2001)
Industry	10.5%	3.5%	3.5%	3.5%	12.8%
Services	22.4%	4.0%	4.0%	4.0%	29.2%
Agriculture	60.0%	2.0%	0.5%	-0.1%	49.0% 1998
Industry	13.0%	3.5%	3.5%	3.5%	15.8%
Services	27.0%	4.0%	4.0%	4.0%	35.2%
Agriculture	50.0%	1.6%	-0.3%	-1.2%	36.3% 1993
Industry	17.0%	3.5%	3.5%	3.5%	20.6%
Services	33.0%	4.0%	4.0%	4.0%	43.1%
Agriculture	45.0%	1.3%	-0.8%	-2.1%	30.0% 1992
Industry	20.0%	3.5%	3.5%	3.5%	24.3%
Services	35.0%	4.0%	4.0%	4.0%	45.7%
B. OPTIMISTIC CASE					
Agriculture	67.1%	1.9%	0.6%	-0.0%	54.9% 2000
Industry	10.5%	4.0%	4.0%	4.0%	13.7%
Services	22.4%	4.5%	4.5%	4.5%	31.4%
Agriculture	60.0%	1.6%	0.0%	-0.8%	45.2% 1994
Industry	13.0%	4.0%	4.0%	4.0%	17.0%
Services	27.0%	4.5%	4.5%	4.5%	37.9%
Agriculture	50.0%	1.0%	-1.1%	-2.6%	31.5% 1992
Industry	17.0%	4.0%	4.0%	4.0%	22.2%
Services	33.0%	4.5%	4.5%	4.5%	46.3%
Agriculture	45.0%	0.6%	-1.9%	-4.1%	24.8% 1990
Industry	20.0%	4.0%	4.0%	4.0%	26.1%
Services	35.0%	4.5%	4.5%	4.5%	49.1%

Source: World Bank staff projections.

**Table 5.4: EDUCATIONAL ATTAINMENT BY AGE AND AREA
(percent distribution)**

Level of Education /a	Age Cohort				
	All (15-59)	15-19	20-24	25-29	30-59
<u>Whole Kingdom</u>	100.0	100.0	100.0	100.0	100.0
Primary or less	80.3	74.6	72.6	76.3	86.9
(Completed Primary)	(17.0)	(53.9)	(18.8)	(8.6)	(3.0)
Lower Secondary	11.8	22.7	13.6	11.0	6.7
Upper Secondary	2.8	*	7.5	3.4	0.9
University	2.7	*	*	5.2	2.5
<u>Bangkok</u>	100.0	100.0	100.0	100.0	100.0
Primary or less	52.9	42.5	35.3	42.9	64.2
(Completed Primary)	(13.1)	(32.4)	(14.0)	(10.4)	(8.5)
Lower Secondary	25.3	47.5	29.6	24.7	18.2
Upper Secondary	8.6	*	23.4	10.1	3.6
University	10.0	*	*	18.8	9.9
<u>Other Urban</u>	100.0	100.0	100.0	100.0	100.0
Primary or less	54.2	41.3	40.8	48.8	66.9
(Completed Primary)	(12.6)	(30.1)	(12.0)	(9.0)	(6.2)
Lower Secondary	28.0	55.3	32.9	23.8	16.1
Upper Secondary	5.0	*	10.1	8.0	2.2
University	7.0	*	*	12.5	6.8
<u>Rural</u>	100.0	100.0	100.0	100.0	100.0
Primary or less	87.1	81.1	80.8	85.0	93.0
(Completed Primary)	(18.0)	(58.4)	(20.1)	(8.2)	(1.7)
Lower Secondary	8.1	17.2	9.6	7.3	3.7
Upper Secondary	1.6	*	5.0	1.8	0.3
University	1.1	*	*	2.0	0.8
<u>Total Population</u> (millions)	30.41	6.21	5.35	4.47	14.38

/a Highest certificate earned. Thus, persons classified as "Completed Primary" (6 years) would include persons with 7-8 years of schooling if they did not complete the lower-secondary course (9 years).

Note: * indicates an age cohort which would normally include persons enrolled at this level of schooling.

Source: NSO, Labor Force Survey 1986, Round 3.

5.21 The Whole-Kingdom figures are heavily influenced by the education levels of the rural population where schooling levels are still relatively low.9/ Although not as dramatic as improvements in rural education levels, the same pattern may be observed in cities and towns. In Bangkok, for example, only 10% of the urban teenagers aged 15-19 have less than a primary education. Another 33% are classified as having completed primary school, in contrast to about 14% of the population aged 20-24, 10% of those aged 25-29, and 9% of those aged 30-59.

5.22 The success of recent policies to improve access to education at the secondary level is suggested by the high fraction of persons aged 15-19 completing lower secondary degrees: 48% in Bangkok, 53% in other urban areas, and 17% in rural areas, with a Whole-Kingdom average of 23%. Since some of these teenagers would be continuing their education beyond the lower-secondary level, these figures are not comparable to those for older age cohorts.10/ However, it should be noted that the fraction of persons aged 30-59 with any secondary or higher degree was only 32% for Bangkok, 25% for other urban areas, and 5% for rural areas, with a Whole-Kingdom average of 10%. It is clear that the younger cohort far exceeds this level of educational attainment.

5.23 The older cohorts consistently have more people with a university degree than with upper secondary education, and the size of each of these categories is larger in Bangkok than in other urban areas. These findings presumably reflect the primacy of Bangkok and the orientation of Thailand's secondary schools toward preparing students for university entrance, despite the recent expansion of vocational secondary education. It is not clear how much this has changed for younger cohorts. Among the university-age population (20-24 year olds), for example, 34% of those in Bangkok and 18% of those in other urban areas are still not in the labor force because of "studies." Part (or all) of this difference, however, may be attributable to the concentration of universities in Bangkok.

9/ The low levels of educational attainment in rural areas need not be attributable to the absence of educational opportunities for rural children, since rural-urban migration is especially common among persons who have completed primary school.

10/ In August 1986, 25% of the persons in this age group (15-19 years) reported "studies" as the reason why they were not in the labor force. It is clear that this group can be expected to further upgrade their educational attainment.

On-the-Job Training (OJT)

5.24 These rising levels of educational attainment tell only part of the story about skill levels in Thailand. Post-school skill acquisition that occurs during employment, often referred to as on-the-job training (OJT), appears to be quite common.^{11/} Although difficult to measure directly, the importance of OJT investments in a well-functioning labor market can be gauged by the steepness of the experience-earnings profiles for workers with a given level of formal schooling. Workers with high productivity because of prior OJT command relatively high wages. Young people are thus attracted to jobs with good OJT opportunities, and competition for those jobs leads to lower-than-average wages for new workers. The greater the skill investments involved, the lower is the starting wage and the higher is the wage subsequent to the OJT process.

5.25 A recent survey of workers and firms in the garment industry clearly shows this pattern of wages and experience. A worker without the basic skill required to operate a sewing machine can find work only as an apprentice.

"....If workers do not possess such skill, they have to accept a starting low wage because firm will not provide general training at free of charge. Most of the newly recruit workers acquire skill from experience in the small garment firms or through on the job training provided by employers. Generally, these new workers start with the less complicated work before they advance to the more complicated chores. Once the workers become skillful after training, their starting wage will be raised..... Thus most of the skilled workers are working in the large and exporting firms where a high quality and complex fashion line products are needed in order to compete in the world market."^{12/}

New recruits tend to be young and characterized by high turnover, in part because of labor legislation that raises the employer's real labor costs after a three-month probationary period. Thus general OJT is acquired through a

^{11/} Following the conventional practice in the literature on human capital, on-the-job training (OJT) includes all post-school investments in human capital, regardless of how formal or informal the job in which it is received or the structure of the training itself.

^{12/} Poapongsakorn and Watanajit, Wages and Working Conditions in Thailand: A Case Study of the Garment Industry, unpublished manuscript, 1988, p. 56.

succession of jobs. Skilled workers are more likely to be hired on a permanent basis and to be paid a higher wage. In addition, most opportunities to acquire firm-specific OJT are reserved for skilled workers, and layoffs are relatively rare for this group.13/

5.26 The existence of this supply of skilled labor is attributed to the fact that the garment industry is no longer "new." That is, in its earlier phase when there was no skilled work force even large firms in the garment industry would hire unskilled workers and provide them with opportunities for general training. That this is no longer the case is an indicator of the maturity and competitiveness of the Thai garment industry.

5.27 It is significant that this pattern of OJT and skill development characterizes a number of newly-expanding industries in Thailand. In general, industries that provide OJT for semi-skilled and skilled jobs are desirable for economic development.14/ Even for new firms in new industries, however, it may not be necessary for employers to bear the full cost of training workers with new skills. Once the pattern is established and workers recognize the potential for future increases in earnings, they may be attracted to a new industry with OJT opportunities even at a low wage rate (comparable to that of an apprentice). The competitiveness of Thai labor for such an industry turns on the readiness of workers to invest in the skills associated with it and their aptitude for acquiring those skills.

5.28 As a general characteristic, various sources have ascribed to the Thai workers a quality of "trainability," by which is meant both capability and willingness to adapt to new work situations and to learn new skills as part of their job. For instance, an American investor who has set up a plant in Chiang Mai to produce artificial fish bait gave the trainability of workers as one of the critical elements in his decision to locate there. The production requires workers with a high degree of manual dexterity and the mastery of a fairly intricate assembly process. The firm hires about 70 teenage female workers, mostly with primary education. About 80% of them are

13/ Firm-specific OJT involves skills that are productive for a particular employer (firm) but have no value elsewhere. Thus they have no market value, and the wage premium they command is only high enough to assure the employer of a low quit rate. In contrast, general OJT involves skills that are demanded by many employers and hence command a competitive market price. Most of the evidence cited for OJT refers to the general type.

14/ Industries that depend on low-wage unskilled labor are desirable for their employment generating capabilities only for countries with a large labor surplus. It seems clear from numerous recent studies that Thailand is not such a country. See World Bank, Growth and Employment in Rural Thailand, Report No. 3906-TH, 1983; T. Bertrand and L. Squire, "The Relevance of the Dual Economy Model: A Case Study of Thailand," Oxford Economic Papers 32, 1980; N. Akrasanee, et. al., Rural Off-Farm Employment in Thailand (Summary Report and Synthesis of the Rural Off-Farm Employment Assessment Project), Bangkok, 1983.

receiving 6-month training to prepare for production. That the investor is willing to make a sizable initial investment in training indicates the degree of confidence he has in the trainability of these workers. It also appears that jobs with variety or training opportunities are viewed as desirable and workers are willing to accept them at lower wages, ceteris paribus. Although the evidence is still tentative, it seems that Thailand's comparative advantage in the international market is in industries that require semi-skilled (and in some cases skilled) labor with a high degree of trainability.

5.29 Although various newly-expanding industries in Thailand clearly provide OJT experiences, the traditional use of labor in Thai industry has been for unskilled jobs with high turnover and few opportunities for advancement. In fact, many private sector employees are young people who will eventually leave wage employment to start their own enterprise or to join a family firm. Ambitious youngsters find this type of employment attractive despite low wages and poor opportunities for advancement primarily because it provides an opportunity to save enough money to start his or her own business and to acquire the experience needed to succeed in it. In effect, wage employment serves a function analogous to an apprenticeship for future entrepreneurs and family workers.

5.30 Young wage-workers in Thailand typically invest in assets, both human and non-human, required for a small enterprise, viewing wage work as a relatively short-term employment preparatory to their adult occupation. There is some indication, however, that this is not a preference for self-employment per se but rather a reflection of market opportunities. It appears that workers are attracted to firms with OJT opportunities, naming this feature as a reason why they are seeking jobs at apparently low wages. In those (relatively few) instances where skilled wages are high, workers remain in wage employment; if wages for skilled workers are slow to respond to the increased market value of skills, young people follow the traditional pattern of starting their own enterprises.

5.31 New industries that have been growing rapidly rely heavily on semi-skilled workers. Although such workers are not readily available in abundance, many firms are adapting to the situation by hiring low-wage young workers who are unskilled but highly trainable. Their current work force, therefore, tends to be composed largely of young people and seasonal workers.^{15/} These firms provide OJT to their young, low-wage workers, and higher wages to their more experienced employees. As these firms succeed in retaining more workers in the older age groups, the traditional small-business pattern is likely to change.

^{15/} For instance one tuna canning firm has about 4,200 employees, mostly teenage female workers. Of those, about 3,000 are categorized as "temporary" workers. Their turnover is relatively high and many of them become unavailable during certain seasons, presumably the agricultural peak seasons. For semi-skilled jobs, the firm trains workers for about 6 months on the job.

Supply of Skills: OJT and Education

5.32 Although for some purposes it is helpful to view OJT as an alternative to schooling as a means of investing in human capital, they are potentially highly complementary to each other. Such "tool" skills as literacy, numeracy, and a knowledge of the scientific method of inquiry can greatly enhance a person's ability to acquire new knowledge in general, and specifically to acquire new knowledge from experience in a job situation. To the extent that Thailand's school curriculum provides skills of this type, formal education effectively increases the trainability of the future labor force and enhances the value of OJT to both workers and employers.

5.33 The same tool skills that enhance trainability of workers are also important determinants of allocative skill.^{16/} The importance of allocative skills as a determinant of incomes and potential for economic development has been emphasized by many economists, most notably by T.W. Schultz. The well-established price responsiveness of Thai farmers, entrepreneurs and wage employees provides ample evidence of the high levels of allocative skills embodied in Thailand's labor force.^{17/} "Pragmatism," which is often mentioned as a characteristic feature of Thailand's traditional culture, may be viewed as a manifestation of allocative efficiency not only in business but also in broader aspects of consumption and family life.^{18/}

^{16/} Following T.W. Schultz (see Transforming Traditional Agriculture, Yale Press, 1962, and, "The Value of the Ability to Deal with Disequilibria," Journal of Economic Literature, 1975) and as is now conventional in the analysis of LDC labor markets, allocative skill is distinguished from production skill. Allocative skill level determines a person's efficiency as an economic decision maker when market conditions are changing. Production skill level determines the efficiency of the worker as an input into a particular production process.

^{17/} See, for example, J. Behrman, Supply Response in Underdeveloped Agriculture: A Case Study of Four Major Annual Crops in Thailand, 1937-1963, North Holland, 1978; World Bank, Thailand: Rural Growth and Employment, 1983.

^{18/} The recent decline in Thailand's fertility rate may be interpreted as dramatic evidence of allocative efficiency among all segments of the population. Nearly every study of the motivation underlying this phenomenon suggests that families are responding to the changing economic environment in a way that enables them to purchase more goods and services for each of their children. (See, for example, Knodel, Chamrathrithirong, and Debaalya, Thailand's Reproductive Revolution: Rapid Fertility Decline in a Third World Setting, University of Wisconsin Press, 1987). The speed of this response, and the openness with which it is admired, is an indication of the high intrinsic value placed on allocative skill in the cultural environment.

5.34 In contrast to allocative skills, which are useful in all economic activities and which tend to enhance a person's ability to learn further, production skills are much more likely to be associated with a particular industry, product, or even a production technique. Production skills may be acquired in a variety of ways, sometimes in school but more often through an apprenticeship or other OJT arrangement. Even those production skills that are taught most efficiently in a classroom setting tend to be acquired in specific vocational courses, lasting anywhere from a few weeks to a few years depending on the skill involved.

5.35 In Thailand, the public vocational schools account for a relatively small portion of the total investment in production skills. There is a private education sector, however, which seems to be serving this function quite effectively. Short courses are available (for a fee) for a wide variety of skills. In addition, the print and broadcast media provide a variety of "self-improvement" instruction that appears is evidently quite popular. There thus appears to be substantial demand for the acquisition of production skills and sufficient levels of allocative skill for the market to respond quickly to that demand.

5.36 The public school curriculum is not as quick as the private sector in its response to changes in the economic environment in which its students find themselves. In part, of course, this is because public education is a conservator of traditional values. Yet the question still remains as to the complementarity between education received in school and the skills required for modern life. It is this aspect of the public school curriculum that is of concern here.

5.37 The basic tool skills that enhance a person's ability to learn, which are also fundamental to the acquisition of allocative skill, are appropriately taught to all children regardless of their future occupation. These tools constitute the core subject matter of the primary school curriculum. Although production skills of various sorts may also be taught in the primary schools, the vocational courses appear to be less popular than the general ones.^{19/} Part of the reason for this is undoubtedly the higher value of allocative skill, as compared to any particular production skill, in a changing world with an uncertain future.

5.38 Apart from learning useful skills, obtaining a degree also provides students with the opportunity to continue on to higher levels of education. Known as the "option" value of education, this appears to be especially important in Thailand at the secondary level. In the past, the general academic curriculum in secondary schools has been heavily oriented toward preparing students for university entrance in liberal arts, law, and other

^{19/} One recent curriculum innovation is to require certain "vocational" skills for all students. In effect, such a requirement alters the educational objective of the course. Rather than training future workers, its purpose is to teach future decision-makers about the nature of various tasks.

non-technical fields. As a result, a high proportion of those finishing secondary school continue on to the university. There is also relatively little demand for secondary schooling among those who do not wish to continue to the university level.

5.39 Recent educational reforms have been responsive to the increased demand for skills associated with flexibility in dealing with an unknown job market in the future. Vocational education is being de-emphasized and left increasingly to the active private education sector. Increased emphasis is being placed on subjects associated with allocative skills, especially at the primary and lower secondary levels.

5.40 From the perspective of economic development, the weakness in Thailand's education system is in not providing the more sophisticated allocative skills at the secondary level. The needs of students who do not continue their education beyond this level would be well served by additional studies in general subjects, especially mathematics and scientific methods and applications.^{20/} Recent increases in enrollments at the lower secondary level may be in part a recognition of this need, although the evidence is confused by the changes in compulsory attendance laws. In practice, however, the secondary schools (especially upper secondary) still appear to be relatively more concerned with preparing students for higher education.

5.41 To the extent that Thailand's competitiveness in its new export-oriented industries depends on the trainability of its workers, education that enhances the ability to learn and acquire new skills through OJT will enhance that competitiveness. In effect, the most supportive role of the education system is in the development of allocative skill, with the emphasis on basic learning tools and decision-making sophistication. In contrast, an education system that focuses on vocational skill is competing (usually inefficiently) with the private sector. Perhaps worse, an education system that focusses primarily on preparing students for higher levels of schooling in non-technical fields may be actually competing with the economy for middle-level manpower and thereby contributing to rather than alleviating a shortage of crucial skills.

^{20/} The relative lack of emphasis on these subjects relates to the traditional orientation of the higher education system toward non-technical subjects. A greater emphasis on science and engineering (as suggested in Chapter 6) may naturally change this situation at the secondary level, thereby strengthening the secondary education system.

Part III: Medium-Term Prospects

VI. DEVELOPMENT STRATEGY AND EMERGING POLICY ISSUES

A. The Government's Development Strategy

The Sixth Plan

6.1 The basic development strategy of the Government is embodied in the Sixth National Economic and Social Development Plan (1987-91). It defines the two major objectives as follows.^{1/}

"Economic: Maintain an average rate of growth at a level not below 5% in order to absorb the minimum of 3.9 million persons who will be entering the labour market. Growth should be accomplished in such a way that economic stability is strengthened and the economic problems that arose during the Fifth Plan period are solved."

"Social: Develop the quality of the population so that social development can progress, peace and justice be attained and development of the country as a whole supported. The national identity, culture and system of values will be maintained and the quality of life of the Thai people will be raised in both rural and urban areas."

The Plan document goes on to set three key "development guidelines." The first is to redefine the roles of the Government and private sector in national development. The Government should confine its role to the provision of public services proper and play this role within its fiscal capabilities, while the private sector role should be "enhanced both in production and in the provision of infrastructure services hitherto provided by the government."^{2/} The second is to improve the competitiveness of the Thai products by improving the "production system and marketing" and raising the "quality of the basic economic factors."^{3/} The third is to distribute the benefits of economic growth to the lagging regions, presumably the Northeast and North in particular.

^{1/} See the plan document, Government of Thailand, The Sixth National Economic and Social Development Plan (1987-1991), NESDB, p. 5.

^{2/} The Sixth Plan document, p. 5.

^{3/} The Sixth Plan document, p. 5.

Table 6.1: MAIN ECONOMIC TARGETS IN THE SIXTH PLAN

Categories	Fifth Plan Actual Trends (1982-86)	Sixth Plan Targets (1987-91)
Trade Deficit/GDP (average)	5.8%	2.7%
Current Account Deficit/GDP (average)	3.8%	0.9%
Export Growth Rate (average)		
Value	9.8%	9.9%
Volume	8.4%	7.4%
Import Growth Rate (average)		
Value	3.7%	9.7%
Volume	2.0%	4.5%
Real Economic Growth (average)		
Agriculture	2.1%	2.9%
Manufacturing	5.1%	6.6%
Mining	6.1%	6.4%
GDP	4.4%	5.0%
Production of natural gas (million c.f./day)	320/a	720/b
Real Expenditure Growth (average)		
Private consumption	4.3%	3.7%
Private investment	0.8%	8.1%
Public consumption	3.3%	5.3%
Public investment	1.8%	1.0%
Central Government revenue/GDP (average)	14.8%	15.8%
Central Government deficit (overall)	3.4%/c	2.0%/b
Population growth rate	1.7%/a	1.3%/b
Inflation rate (average)	2.9%	2.3%
Per capita income (baht)	21,395/a	27,783/b

/a In 1986.

/b In 1991.

/c Average actual deficits/GDP.

Source: Sixth Plan document, NESDB, pp. 34, 38-39, and 59.

6.2 Much of the plan, especially its emphasis on efficiency and equity, extends the Fifth Plan (1982-86). However, the great emphasis that the Fifth Plan placed on financial stabilization and economic restructuring has been replaced in the Sixth Plan by a special concern for employment creation. The plan is clearly based on the recognition that the immediate threat of instability in the economy has passed and longer-term adjustment efforts are well on their way. The new concern with employment comes in the face of the rapid rise in the labor force and the moderation of output growth which the adjustment program necessitated. For the first time in the history of Thai five-year plans, the Sixth Plan includes a specific section on employment. Based on the estimated labor force expansion of about 4.1 million people during the

Sixth Plan period (1987-91), or about 3% p.a., the plan goes into rather detailed targets for job creation in each of the major sectors to come up with 3.9 million new jobs. In order to achieve these targets, the plan estimates that the economy must grow at least 5% a year. Since the Government has in recent years shown a strong reliance on market forces in most spheres of economic management, this departure from the usual approach is curious. Probably this deviation should be interpreted as the indication of how deeply the Government is concerned with the possible unemployment problem on hand rather than a sign that it intends to play a more interventionist role in this area.

6.3 The major quantitative targets for overall economic performance are show in Table 6.1. It is clear from these targets (especially the 1% real annual growth in public investment in an economy that is projected to grow 5% per year) that the Sixth Plan envisions continued fiscal restraint to achieve both smaller external and fiscal deficits.

6.4 Based on the Sixth Plan document, the operational policy objectives for the medium-term may be summarized as follows.

- (a) Job creation through GDP growth of at least 5%.
- (b) Rural development through both integrated programs and industrial incentives to encourage location of new firms in the priority areas.
- (c) Improvement of industrial policy, including reform of tariffs, business taxes, investment incentives, export incentives, and the financial system. Particular emphasis will be placed on promoting "supporting industries," small and medium scale enterprises, and rural industries.
- (d) Strengthening of the Government's financial position by maintaining conservative expenditure control and reforming the tax system.
- (e) Improvement of the efficiency of state enterprises so that they will increase public sector savings and provide better infrastructure services.
- (f) Redefinition of the roles of the Government and private sector. Government intervention will be reduced where the market system can produce desirable results and the private sector will be encouraged to expand its role beyond its traditional realm in Thailand.

Changing Policy Focus

6.5 Since the Thai economy began to grow at a very vigorous pace in 1987, industrial restructuring and macroeconomic adjustments have receded to the background in economic policy discussions in Thailand. The problem of income disparities, both inter-regional and intra-regional, has become the policy issue of the highest priority. The economic policy of Thailand has been always framed in terms of the balance between the two different objectives: growth and equity. While the Government never neglected either, it has placed different relative emphases on the two objectives. During the Fifth Plan,

when macroeconomic imbalances were threatening the long-term growth prospects, the equity objective received less attention. Now that the growth side of the political equation is in order, the balance has shifted distinctly toward the equity side.

6.6 The concern over income disparities has a multitude of dimensions, but the most acute concern is over the income levels and development potential in the Northeast region. The "Green Northeast" project is a clear indication of the special importance of the poverty problems in that region. In the Thai economic policy tradition, the concern over income disparities has led to measures that are designed to improve income distribution more through growth than through direct intervention. The Government is carrying forward this tradition in its emphasis on rural industries and small and medium scale enterprises. It is in this context that the Government's development strategy should be understood.

6.7 Most recently, as the Thai economy increased its pace of expansion in 1988, the Government's main concern has shifted again slightly. The Government has increasingly recognized that the Thai economy faces an opportunity to turn the current boom into an industrial takeoff. To the extent that such an opportunity does not arise very often, the Government now appears to place a very high priority on maintaining this growth momentum, especially by increasing infrastructure investment to ease the bottlenecks that are becoming severe in several key areas. Because of what in hindsight was underinvestment on infrastructure during the last few years, the Government appears to be focusing almost all its attention on infrastructure deficiencies. As Section B below argues, however, there are other important issues that should not be neglected, and a more balanced policy package is necessary to make an industrial takeoff a reality.

The Government's Medium-Term Strategy

6.8 Recently, many Thai observers have started speculating that Thailand may be the next country to join the ranks of the four Asian NICs. The Thais themselves, however, seem to have mixed feelings about the possibility of such a transition. While they share the notion that the Thai economy is facing prospects of accelerated industrial growth, they are at the same time concerned with its social consequences. Some of them even reject the idea that Thailand should become a "NIC." They argue that since the proportion of the labor force employed in agriculture remains unusually high (67% in 1986 according to the official data) in Thailand, the kind of industrial growth that Korea and Taiwan experienced simply will not happen in Thailand. Instead of the newly industrialized country (NIC), some Thais advocate the "newly agro-industrialized country" (NAC or NAIC) as the model for the Thai economy.⁴

4/ The ambivalence about the accelerated industrial growth also reveals how Thailand arrived at what many other countries would envy as a good example of outward-looking industrial growth pattern. It was not a result of a grand design and clear intent, but more due to a combination of circumstances. That is probably why there is almost a sense of dismay at the powerful energy of growth that has been unleashed by the events of recent years.

6.9 Both Korea and Taiwan experienced drastic reductions in agriculture's employment share during their rapid industrialization phases. In Korea, during the fifteen years after 1970, this share fell by 25.5%, while in Taiwan, during the fifteen years after 1965, it fell by 27% (see Table 6.2). To most Thai development planners, such a shift is unthinkable because it means that the share of the industry and service sectors (currently only one-third according to the official statistics) would have to nearly double in 15 years. Such a transition also conjures up a nightmarish image of massive migration from rural areas to urban centers, particularly Bangkok, where non-agricultural activities are concentrated. This too makes the prospects of a NIC-type transition unacceptable to the Thai Government.

Table 6.2: AGRICULTURAL TRANSITION IN KOREA, TAIWAN, AND THAILAND (percent)

	1960	1965	1970	1975	1980	1985
Korea						
Agriculture's share in employment	n.a.	58.6	50.4	45.9	34.0	24.9
Agriculture's share in output	36.5	37.6	26.4	24.7	14.4	13.9
Taiwan, China						
Agriculture's share in employment	50.2	46.5	36.7	30.4	19.5	17.5
Agriculture's share in output	31.6	26.4	17.6	14.4	9.0	6.6
Thailand						
Agriculture's share in employment			n.a.	73.4	70.8	68.9
Agriculture's share in output			25.9	26.9	23.2	16.7

Sources: Economic Planning Board, Korea; Directorate-General of Budget, Taiwan, China; and NESDB (national accounts and Thailand's Country Paper, 1988).

6.10 As Chapter 5 points out, however, there are reasons to suspect that agriculture's share in employment may be seriously overstated in Thailand. The analysis in that chapter suggests that even 50% may be a reasonable estimate for the current level of agricultural employment share. If so, it is not very different from what Korea had in 1970 (50.4%) and what Taiwan had in 1965 (46.5%). Therefore, it appears that there is no reason to think that the initial condition of the Thai economy precludes an industrialization pattern of the kind that occurred in Korea and Taiwan.

6.11 Perhaps a more important reason for this concern about NIC-type growth is the suspicion that a large segment of the rural population in the North and Northeast may be left out of the economic benefits of industrial growth. Given their relatively poor resource endowments and the geographic

disadvantage of these regions for manufacturing, it is felt that there has been a tendency for dualistic economic development that has excluded these outlying regions from the benefits of growth. The empirical basis for this notion is the overwhelming share of employment in agriculture in those regions that does not seem to have declined very much and the low income levels found in these regions. The theoretical backing for this notion may be provided by the model of traditional monsoon agriculture. This thesis holds that when an economy is based on seasonal (monsoon) agriculture with monocropping, it cannot fully utilize its labor force, and hence it is difficult to generate surpluses that can support the modernization of agriculture or development of industry. In short, these economies cannot break out of their low output equilibrium.^{5/}

6.12 However, applying this analysis to the regional economies of the North and Northeast may be inappropriate. Since the overstatement of agricultural employment in Thailand is most likely due to the undercounting of hours worked by rural workers in nonagricultural sectors, the farm population in the outer regions is probably much more closely integrated into the fast growing industrial and service sectors than the official statistics indicate. Increased seasonal migration because of improvement in the transport network has also strengthened this linkage. Chapter 5 presents evidence indicating no serious underemployment, certainly for the rural areas as a whole. That chapter also shows that even the Northeast's economy is not confined to the traditional monsoon agriculture. Of course, this does not mean that there is no problem of regional income disparities. However, it does suggest that the perceived risk of dualistic growth may be exaggerated. Furthermore, to the extent that nonagricultural activities are more widespread in the rural areas than employment statistics imply, further industrialization would not necessarily result in a massive concentration of population in Bangkok.

6.13 Whether the Thai economy will become a "NIC" in the Korea and Taiwan mold or a pathbreaking "NAC" is in a sense a moot question. The Government cannot effectively dictate which pattern should emerge. It is the comparative advantage of the Thai economy and market forces that will determine the nature of its industrial growth. Nevertheless, from the Government's point of view, it is important to anticipate the likely direction of economic growth and facilitate the transition. In this regard, the Government may be underestimating the relevance of the Korea and Taiwan type growth pattern.

6.14 There is already some evidence that Thailand may be closely following the Korea's path in terms of its manufacturing development. According to a recent study, Thailand's "revealed comparative advantage (RCA)" in 1986 closely resembles that of Korea in 1970.^{6/} The revealed comparative advantage

^{5/} See, H.T. Oshima, Economic Growth in Monsoon Asia, University of Tokyo Press, 1987.

^{6/} See Su-Yong Song, "An Analysis of the Impact of Wage Increase and Won Appreciation on the Competitiveness of Korean Manufacturing by Subsector", World Bank, forthcoming.

is based on the idea that a country's export competitiveness in a given product can be measured by comparing its share of the world export market in that product to the country's share of world export market in all manufactures. The ratio of these two shares is defined as the RCA index for that product (see Annex 8 for details). For 50 subsectors of manufacturing, the study calculated the RCA index. In 1986, Thailand had comparative advantages in essentially unskilled-labor intensive light industries such as textiles, clothing, leather and wood products, while it had comparative disadvantages in most capital-intensive heavy and chemical industries. However, between 1975 and 1986, there was a gain of competitiveness in most of the heavy and chemical industrial items and a loss of competitiveness in most of the light industrial items.

6.15 The ranking of the RCA indexes for these 50 subsectors can be compared across countries and time periods to determine the similarities in the export competitiveness structure. The study compares the 1986 RCA ranking for Thailand with the rankings for Korea and Taiwan in 1970, 1975, and 1986. With respect to Korea's RCA indexes, the correlation becomes stronger when the 1986 Thai RCA ranking is compared with Korea's RCA ranking of earlier years. The rank correlation between 1986 Thai RCAs and 1970 Korea RCAs is the strongest cross-country correlation that the study finds among comparisons involving these three countries as well as Japan. On the other hand, the correlation between the 1986 Thai RCA indexes and Taiwan's RCA indexes from three different years is not exceptionally high and shows no strong pattern over time. The rank correlation between Korea's 1986 RCAs and Japan's 1970 RCAs was also among the highest. This suggests that the industrial growth in Thailand is following that of Korea with a lag of about 15 years, which in turn is following that of Japan with a similar lag.

6.16 However, given its rich land endowment, Thailand should have a greater comparative advantage in agriculture than most other Asian countries, and hence is more likely to retain a larger agriculture sector than Japan, Korea, or Taiwan. Table 6.3 shows that Thailand has by far the largest arable land per capita among most Asian countries. Although this ignores differences in the quality of land and the cropping intensity that is feasible, Thailand's relative abundance of land is evident in relation to its East Asian industrial neighbors.

6.17 Despite the lingering concerns of the Government about the impact of the new growth trends, the long-run strategy of export-led growth with manufacturing playing the key role has been firmly set. The Government is only trying to maintain a better balance between growth and equity by promoting rural industries and small and medium scale enterprises. Although such an emphasis may have stemmed primarily from equity concerns, it may happen to be the right emphasis for maximizing industrial growth as well at this particular stage of industrialization in Thailand (see Chapter 3). While there was always a tendency to seek a balance between growth and equity, these two objectives were usually viewed as conflicting and the balance as a compromise between them. In the new emphasis on SMEs and rural industries, the Government may have found a way to resolve this seeming conflict and achieve both objectives at once.

Table 6.3: ARABLE LAND TO POPULATION RATIOS

	Agricultural Population Density /a (1979) (1)	Employment Share of Agriculture (1980) (2)	Per Capita Arable Land /b (hectare) (2)/(1)
Thailand	2.0	0.709	0.355
Japan	2.7	0.110	0.041
Korea	6.7	0.342	0.051
Taiwan, China	5.8	0.195	0.034
Philippines	2.3	0.516	0.224
West Malaysia	1.7	0.365	0.215
Indonesia	4.6	0.609	0.132
India	2.6	0.725	0.279
Sri Lanka	3.6	0.504	0.140
Nepal	3.2	0.899	0.281

/a Agricultural population density is agricultural population per hectare of arable land and land under permanent crops.

/b Assuming that the share of agricultural population in total population is reasonably close to the employment share of agriculture, the arable land to population ratio can be derived by dividing (2) by (1).

Sources: Agricultural density and the employment share of agriculture are adapted from Oshima, Economic Growth in Monsoon Asia, 1987, (Tables 3.7 and 7.4). Only agriculture's share of employment in Thailand is derived from NESDB source.

B. Building on the Recent Success

Constraints to Growth and Emerging Policy Issues

6.18 The driving force of Thai economic growth in the next decade or so will be the manufacturing sector. Therefore, the most important constraints to growth are those that hamper the expansion of this sector. However, as the experience of the 1980s shows, sound macroeconomic balances are prerequisite conditions for industrial growth. In order to avoid costly disruptions in the industrial growth process, the Government must maintain both fiscal and external balances in good order. In particular, the investment-savings balance should be monitored carefully.

6.19 Investment-Savings Gap. If the Thai economy succeeds in turning the recent economic boom into a long-lasting push for greater industrialization, the capital-output ratio of the economy will increase through several channels. First, since manufacturing tends to be relatively capital intensive,

expansion of its size in the economy directly increases the capital-output ratio. Second, the shift in the Thai manufacturing sector toward heavy and high-technology industries would also increase the capital intensity. Third, since labor productivity is typically higher in manufacturing than more traditional sectors, the expansion of the manufacturing sector will tend to raise the general wage level in the economy. This would force other sectors, i.e., agriculture and services, to enhance labor productivity by increasing the capital intensity of production. Fourth, the general improvement in income levels increases the demand for social infrastructure which is not directly productive (at least according to the conventional output measures) and raises the aggregate capital-output ratio. Finally, the public sector's investment on industrial infrastructure is beginning to increase sharply to compensate for low investment levels during the last few years. For the near term, this rising trend will continue.

6.20 In the aggregate, the share of investment in GDP will almost certainly increase in the medium term. Since the gross savings rate has not responded positively to income growth in the last 15 years in Thailand, rising investment may lead to wider investment-savings gaps. As the projections in Chapter 7 indicates, lax management of public expenditures will make the investment-savings balance vulnerable to unfavorable shifts in export demand. To the extent that deterioration in the fiscal and external balances may disrupt steady industrial growth (through another round of macroeconomic adjustments or erosion of investor confidence), domestic resource mobilization will be an important constraint to growth in the medium term.

6.21 Therefore, the Government should maintain a basically conservative fiscal stance. In particular, it should continue its effort to raise the operating efficiency of the state enterprises sector. Since rising income levels will almost inevitably lead to increased public services, the Government should anticipate some escalation in its current expenditures and make plans to increase its revenue over time. In order to encourage private savings, the Government should also continue its effort of financial liberalization. While empirical evidence suggests that the income level is the most significant determinant of savings, greater competition and increased efficiency in the financial sector should also contribute to raising private savings.

6.22 To the extent that the prospects for the Thai economy continue to be viewed favorably, part of these increased investment needs would be filled with foreign direct investment (FDI). In the balance of payments sense, such investment is, by definition, fully financed by external funds and does not therefore increase external debt as it is usually defined. However, this does not mean investment financed by FDI poses no problems to the Thai economy. First, the investors may in the future try to repatriate their investment. Since the BOT must honor free convertibility of the baht into foreign exchange in this instance, larger FDI may pose the same liquidity problem as external debt does. (To the extent that repatriation of FDI is unpredictable, the difficulty of managing the external balance may be even greater.) Second, greater reliance on these flows implies increased foreign ownership and

control within the manufacturing sector. This could raise sensitive political issues, particularly when this investment is concentrated, as is the case currently, within a few manufacturing subsectors.

6.23 The experience of the 1980s has another lesson. Although the macroeconomic adjustment since 1980 has laid the foundation of the recent economic success, that success would not have resulted without the propitious external shocks since 1985. The competitiveness of Thai industries still derives chiefly from the competitive exchange rate. If the external environment becomes less supportive, the recent economic success may end as a temporary export-led boom, much as that in the late 1970s did when the real effective exchange rate appreciated and industrial economies entered a period of slow growth. Through sound macroeconomic environment and political stability, the Government has prepared the Thai economy to seize fortuitous opportunities. However, it has not succeeded in transforming Thai industries into stronger exporters that can compete with a qualitative edge in areas such as innovation, product differentiation, and reliability. While an element of luck probably played an important role in every success story of Japan and the Asian NICs, it was the qualitative superiority of these economies that raised them above other economies of the less industrialized region. If Thailand is to join the ranks of these economies, it must upgrade the qualitative competitiveness of its industries.

6.24 The preceding chapters have analyzed several existing as well as potential constraints to the continued success of industrialization in Thailand. Some constraints, such as the growth rate of import demand in industrial economies, are largely beyond the control of the Government. What follows is a summary of those constraints that can be removed or mitigated by policy actions.

6.25 Industrial Policy. While Thailand has made substantial progress, there remain various sectoral and anti-export biases. These biases must be removed so that industries can develop in a pattern that is consistent with Thailand's comparative advantage, thereby enhancing the efficiency of the economy. While the promotion of rural industries and small and medium scale enterprises (including supporting industries and subcontracting) is important and timely, it is not as though the more general concern for industrial and export promotion should be forgotten. Although better treated, even larger enterprises in some sectors continue to face important distortions and constraints. Furthermore, as Chapter 3 argues, the basic approach toward promoting target activities (i.e., rural industries, SMEs, supporting industries and subcontracting) should first emphasize improving the environment for the industrial sector in general. More specific and targeted interventions, such as training, technical assistance and financing, will not be effective if the overall environment is not favorable to the growth of these activities.

6.26 A major obstacle that will hinder the growth of capital goods and heavy intermediate goods sectors is the current structure of tariff protection which is biased against those sectors. It is important to remove such sectoral biases so that industrial development will be consistent with

Thailand's changing comparative advantage. One critical factor that has held back the rationalization of the tariff system in the past is the Government's concern about revenue losses. With the buoyant tax revenues, this is an opportune time to implement the potentially revenue reducing reform.

6.27 Although the overall incentive regime has become more export oriented, some of the key tools that are used to offset the anti-export biases need further improvement. The duty drawback/exemption schemes and export refinancing scheme should be improved in terms of both the general administrative efficiency and their accessibility to all exporters (including indirect exporters).

6.28 There is also a scope for improving the efficiency of the financial market so that it can support rapid growth of Thai industries. In addition to policies that will increase competition, particular attention should be paid to the system of specialized development finance institutions. A more market oriented approach in this area is likely to bring important efficiency gains. The subsidy element in the export refinancing scheme should also be removed for greater efficiency.

6.29 In addition to the general constraints, there are specific constraints that affect the environment for SMEs and rural industries. The cascading effect of the business tax and the cumbersome procedure for various export promotion schemes (which limit SMEs' access to these schemes) are important constraints. As Chapter 3 points out, investment incentives are generally biased against SMEs and subcontracting as well. Finally, the limited competition among commercial banks as well as interest rate ceilings restrict their provision of credit, particularly to medium sized firms.

6.30 Infrastructure. After only three years of vigorous economic growth, the limitations of certain types of infrastructure are becoming acute. There are clear indications that the existing industrial infrastructure is not sufficient to sustain the accelerated pace of industrial growth much longer. In particular, road, port, surface water supply, and telecommunication infrastructure seems already inadequate. The power generation capacity, while adequate at the moment, may also face problems within a few years.

6.31 There are also signs that well developed sites for industrial production are becoming scarce. The problem is particularly serious for small but growing enterprises. They are becoming too large to stay in the crowded central city but are not large enough to move out to isolated areas. The past and present patterns of infrastructure provision by the Government have not encouraged development of industrial areas suitable for these growing enterprises.

6.32 What has contributed to the current situation of severe strain on the existing infrastructure is the sharp slowdown in the growth of public expenditures on infrastructure since FY1982. Although it has become aware that more rapid economic growth might require increased investment on infrastructure, the Government had been unwilling to change its tight fiscal

stance, at least until FY1988. However, the Government's attitude has changed sharply in FY1989 to the point of becoming somewhat complacent about the danger of overheating the economy and exposing Thailand to adverse external shocks. Given the importance of maintaining sound macroeconomic balances, the Government should be very careful in embarking on a massive investment program. Furthermore, such a radical change may not be necessary. As Chapter 4 argues, there is a scope for significant improvement in the efficiency of infrastructure investment. Thus increases in public spending in selective areas may be sufficient for addressing the most pressing infrastructure needs of the industry. More detailed scenarios for greater public investment are explored in Chapter 7.

6.33 Regardless of the level of public investment, however, there is a question of efficient management of investment on industrial infrastructure. Inadequate infrastructure planning and insufficient responsiveness to the needs of industrial firms at different stages of evolution can add to the cost of investment. In the case of Bangkok's infrastructure, there seems to be a problem of coordination among various agencies involved in different aspects of infrastructure services. Therefore, by improving the planning process and coordination, the Government can expect to ease the infrastructure constraints on industrial growth without adding very large amounts to its capital expenditures.

6.34 Development of industrial sites for small but growing firms is an area where the Government's policy of greater private sector involvement can make an important contribution. The private sector is likely to be more effective in identifying the areas that are attractive to these firms and the type of services needed. The Government can play the role of facilitating such activity, especially in the area of land acquisition and bureaucratic clearance process.

6.35 Human Resource Development. As Thai industries move from mostly labor-intensive industries that compete on the basis of cheap labor to more advanced industries, the general education and skill levels of Thai workers need to be upgraded. As Chapter 5 points out, the secondary school education system may deserve particular attention in this regard. The industries in which the Thai economy will be competitive in the medium term are likely to require an increasing number of workers with secondary education. The rapidly rising education level of the younger age group most likely indicates that the potential workers (or their parents) are already perceiving the changing labor demand. Traditionally, secondary education in non-technical fields in Thailand has been considered primarily as a preparatory step toward higher education and has focused on preparing students for university entrance examinations. The quality of secondary education per se seems to have suffered as a result. While the private sector has been active in offering training programs for specific skills and appears highly responsive to market needs, the formal education system does not respond as readily to the market signals. The Government should take a more active role in responding to these shifts in labor market conditions.

6.36 Another trend that will make such a transition more important and urgent is taking place in the labor market. While the Government is still concerned primarily with creating a sufficient number of jobs for the rapidly growing labor force, the underlying labor market balance may be quickly shifting from labor abundance to labor shortage. The analysis in Chapter 5 shows that if employment in the industry and service sectors continues to grow in line with the expected output growth rates, employment in the agriculture sector will begin to decline in absolute terms within the next decade or so. This reinforces the need to upgrade the skill and technology content of Thai exports.

6.37 Technology. For Thailand to be able to move into more sophisticated industries, it must obviously acquire and apply advanced technologies. The speed at which it can absorb and develop such technologies will be an important determinant of the rate and pattern of future industrialization. The present level of technological capabilities within Thai industry is not considered to be very high. Although a detailed review of this issue is beyond the scope of this report, three points are noted here.

6.38 First, upgrading the level of technology would require commensurate spending on research and development (R&D). The share of R&D expenditures in GDP was only 0.3% in Thailand in 1985 compared to 1.6% in Korea, 1.1% in Taiwan, and over 3% in the US, Japan and West Germany. This suggests that Thailand would need to strengthen its R&D programs significantly to catch up with Korea and Taiwan. In this regard, the Government may have to play a much greater role both in encouraging R&D expenditures in the private sector and in committing public resources to R&D programs.

6.39 Second, there is a widespread concern that science and engineering graduates are in short supply. Given the emphasis on expanding Thai manufacturing into activities that use more advanced technology, it is likely that the demand for such skills will increase, thereby creating a major bottleneck. Although the private educational institutions in Thailand have been generally responsive to the changing needs of the economy, experiences elsewhere show that it is difficult for the private sector alone to provide high-quality education in these fields. Therefore, the Government must ensure that the higher education system in the public sector responds to the increasing demand for science and engineering graduates.

6.40 Third, in order to increase the technological level of Thai industries, technology transfer from more advanced economies must be facilitated. To this end, the Government is now emphasizing the backward linkages from foreign direct investment (FDI) in high-technology industries and encouraging joint ventures in these industries. The Government can use BOI promotional privileges to encourage FDI flows into projects that contribute to technology transfer. However, one constraint in this regard is the BOI's limited capacity to monitor promoted firms (discussed in Chapter 3). This adds to the importance of the recommendation (in Chapter 3) to strengthen the BOI's follow-up monitoring of promoted firms.

6.41 Short-Term Economic Management. The GDP growth rate accelerated to 11% in 1988 and the current account deficit widened to 3.3% of GDP. It is widely expected in Thailand that the current account deficit may be as high as 5% of GDP in 1989. Many in the Government views this prospect as an acceptable risk of rapid growth, especially since much of the increase in imports is attributed to larger investment and exports. However, an economy that runs a current account deficit of 5% under rather favorable global economic conditions is potentially very vulnerable to adverse external shocks. The Government should be very cautious in managing the domestic demand at this juncture.^{7/} This issue is further discussed in the context of economic projections in Chapter 7.

6.42 In summary, a number of areas has been identified where reforms would be helpful in strengthening the economy. The recent economic boom gives the Government a unique opportunity to act on some of the more difficult reforms, including those of the tariff system and the duty drawback and exemption schemes. Other countries' experiences suggest that periods of rapid expansion are opportune for tackling backlogs of reform which have been clearly identified and for which policymakers are confident that remedies are available.

^{7/} The income tax cut of January, 1989, for instance, could have been tied to increased savings. By introducing a special tax exempt savings instrument or by exempting some amount of interest/dividend taxes, the Government could have reduced income tax and encouraged savings at the same time.

VII. MEDIUM-TERM ECONOMIC OUTLOOK

7.1 In projecting the medium-term growth prospects for Thailand, three broad areas need to be examined closely. The first is the outlook for export growth. The second covers the domestic supply factors, in particular the overall incentive regime and the removal of physical bottlenecks (most importantly those related to industrial infrastructure). The third is the macroeconomic balances. Without vigorous export expansion, the chance of Thailand maintaining strong growth is bleak. The rate of economic growth in industrial countries, the degree of protectionism that the Thai exporters will face, and the Bank of Thailand's exchange rate policy all have important implications for the growth rate of Thai exports. The longer-term export competitiveness of Thai industries will also depend on to what extent the existing incentive regime is improved and physical bottlenecks are removed. The implementation of various reforms suggested in Chapters 3 to 5 will be important in this regard. Finally, as a basic prerequisite to extending the recent economic success, the Government must continue its sound macroeconomic management. Since the demand for public sector investment on industrial infrastructure is likely to be high in the coming years, both the public sector and external balances must be managed carefully.

A. The Prospects for Export Growth

7.2 The structural change in the Thai economy is mirrored in the growing share of manufactured goods in total exports. For instance, the value of textile exports, which amounted to less than half the value of rice exports (traditionally the largest single export item of Thailand) in 1980, had grown to more than twice the value of rice exports by 1987. Exports of manufactures (SITC categories 5-8) now account for over 50% of merchandise exports and will certainly increase their share further. This change makes it particularly important to assess the prospects of manufactured exports in Thailand's main markets.

Demand Prospects

7.3 As noted before, East Asian countries and Thailand in particular have sharply increased their exports to industrial countries in the last decade. The share of Thailand's manufacturing exports to the US, EEC, and Japan, has increased from 48.5% in 1982 to 58.2% in 1987 (see Table 2.7). This makes Thai exports of manufactures sensitive to demand growth in industrial nations and the US in particular. As the US continues its effort to reduce its fiscal and trade deficits, the growth of import demand in the US must slow. As Japan opens its domestic markets further and stimulates the domestic demand, its import demand should continue to expand, but such growth is not likely to offset the slowdown in the US import demand. The EEC will not grow much faster than in the recent past, and is moving in the direction of creating a common market that is totally open to all countries within it but more closed to the rest of the world. Although the net effect is unclear, it seems prudent to assume that the real demand growth will decelerate from the annual average of about 9.5% during 1985-87.

7.4 However, the impact of slower demand growth in the main industrial countries on Thailand and East Asia in general should be mitigated by two factors. First, the relatively low share of intra-East-Asian trade (see Chapter 2) should prevent an external shock from compounding itself as it has tended to in Latin America. Second, these countries have shown increasing competitiveness in the past and hence are likely to find alternative markets or win greater shares of existing markets.

7.5 A simulation exercise based on the export demand and supply functions derived from recent data sheds some light on the quantitative implications of slower demand growth (see Annex 2 for details). The simulation estimates the revenue effect of changes in the world demand for imports through what is called "activity variable" in the export demand equation.^{1/} The results depend on the values of three key parameters; the income and price elasticities of export demand and the price elasticity of supply. The latter is assumed to be 2.5; the income and price elasticities of export demand were estimated to be 2.25 and -1.71, respectively. Based on these estimates, the multiplier (or the total effect of a unit change in the world demand) was found to be 1.87.^{2/} This means that if total foreign demand at constant prices had grown at 4.5% p.a. during 1985-87, instead of 9.5% p.a. as has been the case, the value of Thai exports would have grown at 29% p.a. instead of 38% p.a.

7.6 The simulation also implies that if the main industrial countries increase their manufactured imports at 4.5% p.a. in constant dollar terms in the coming years, Thailand's real export growth of manufactures may decelerate to about 9% p.a. in the medium-term. However, this estimate is based on the assumption that the ability of the Thai manufacturers to enter new markets or increase their shares will remain the same as in the recent past. To the extent that the Thai exporters are relatively new in many international markets and will gain from experience, they will probably increase their exports faster than the simulation indicates. A scheduled change in the US GSP coverage in 1989 should also boost Thai exports for a few years (see the next section). Further, some policy changes that have taken place in recent years and the prospective policy changes in Thailand should strengthen the competitiveness of the Thai exporters.

Generalized System of Preferences

7.7 Thailand's exports under the generalized system of preferences (GSP) are concentrated in the EEC (54%) and the US (25%). In line with the general pattern of GSP based trade (see Table 7.1), most Thai exports under the GSP

^{1/} The activity variable for the export demand equation is defined as the weighted average of manufactured imports of main trade partner countries. For Thailand, the weights are: US and Canada, 0.35; Japan, 0.084; EEC, 0.215; East Asia, 0.289; South Asia, 0.03; East and West Africa, 0.008; Latin America, 0.004; the rest of the world (non-EEC Europe, Middle East and North Africa), 0.02.

^{2/} This is higher than one but considerably lower than previous estimates for a sample of LDCs. See, in particular, W.R. Cline, Exports of

are manufactured products. In comparison with the Asian NICs, Thailand is exploiting only a small fraction of eligible articles under GSP, at least in the US market. Thailand accounts for only 3.4% of the total duty-free GSP imports to the US (see Table 7.2). However, the proportion of duty-free

Table 7.1: STRUCTURE OF COMMODITIES EXPORTED UNDER GSP
(1987, percent)

	<u>Composition of exports under GSP</u>	<u>Share of total exports under GSP</u>
	Agricultural products	Industrial products
EEC	26.4	73.6
US	11.9	88.1
Japan	14.5	85.5
Other countries	30.6	69.4

Source: Department of Foreign Trade, Ministry of Commerce.

Table 7.2: TARIFF-FREE EXPORTS TO THE US UNDER GSP
(1987)

<u>Exporting country</u>	<u>Tariff-free GSP exports (US\$ million)</u>	<u>Share (%)</u>	<u>Share of country's GSP exports that are tariff-free</u>
Taiwan, China	4,172.9	25.6	30.0
Korea	2,503.9	15.4	41.0
Hong Kong	1,703.1	10.4	43.0
Mexico	1,677.4	10.3	40.0
Singapore	1,296.9	8.0	63.0
Brazil	1,044.7	6.4	52.0
Thailand	551.6	3.4	88.0
Israel	486.9	3.0	48.0
Malaysia	347.0	2.1	70.0
Philippines	329.3	2.0	74.0
Others	2,185.9	13.4	n.a.
<u>Total</u>	<u>16,299.6</u>	<u>100.0</u>	

Sources: Department of Commerce, US, and Department of Foreign Trade, Ministry of Commerce, Thailand.

imports to total GSP imports from Thailand is among the highest.^{3/} (In this sense, Thailand still enjoys a relatively privileged position among the East Asian countries.) The relatively low utilization of GSP quotas leaves much room for export expansion on preferential terms. Adding to the advantageous position of Thailand is a major change in GSP coverage for more developed East Asian countries, scheduled to take place in January 1989. At that time, a large number of commodities, including many textile products, will be excluded from GSP for Hong Kong, Singapore, and Taiwan. For these goods, Thailand's shares are generally small, leaving room for substantial future growth.

Protectionism

7.8 Exports from LDCs face various trade restrictions and biases, as discussed in Annex 9, and exports from Thailand are no exception. While Thai exports face no more restrictions than other LDCs in general, there are some specific instances where Thai exports are disproportionately affected by non-tariff barriers (NTBs). For instance Thai exports of clothing face particularly high NTB coverage in the US and EEC. Thai exports of footwear to Japan seem to be specially discriminated against (see Annex 9 for details). Overall, however, the effect of NTBs on Thai exports is relatively moderate. One study estimates that the complete removal of NTBs against Thai exports may result in an increase of export earnings by about 11% in the short run (see Annex 2 for detail).^{4/} Although such estimates are subject to various limitations, it does indicate that Thai exports are not severely hampered by NTBs.

7.9 While Thai exporters of manufactured goods do not face serious protectionist barriers today, continued export success will inevitably increase the risk of encountering country specific barriers. In the US market, Thai exports are already relatively important for some products and these might face restrictions if the impressive growth rate of the recent years continues. These goods are: electrical goods, furniture, jewelry, rubber and plastic household articles, and artificial flowers.

Exchange Rate Policy

7.10 As noted in Chapter 2, the empirical evidence indicates that Thailand's export performance is significantly affected by the level of the real exchange rate. It is estimated that a 10% appreciation in the real effective exchange rate would reduce export earnings by about 4.3%, and export volumes by slightly less than 4%. The projections in Section D shows that even an appreciation of 5% is likely to have a major impact on export growth as well as GDP growth.

^{3/} Some GSP imports are subject to reduced tariff rates, while others are subject to no tariffs.

^{4/} R. Faini, F. Clavijo, and A. Senhadji, "International Demand Constraints to Export Growth in LDCs -- The Case of Manufactures," unpublished paper, World Bank, 1988.

7.11 While it is most likely that the BOT will try to maintain a relatively competitive exchange rate to support export-led growth, its ability to do so may be circumscribed by external pressures. First, political pressures from industrial countries (primarily the US) on Asian NICs to revalue their currencies may spill over to other East Asian countries with greater export success, and Thailand in particular may face demands for an outright revaluation. Second, if the US dollar appreciates sharply (perhaps as the foreign exchange market enters a "correction" phase following a major swing in one direction), it may become difficult to maintain the same level of the real effective exchange rate, because that would require a devaluation against the dollar.

B. Supply Factors

7.12 In addition to a competitive exchange rate policy, two other supply factors will play critical roles in determining the medium-term prospects of the Thai economy. First, the incentive regime must be improved to encourage further development of industries that will be consistent with the changing comparative advantage of Thailand. Second, after a period of low investment on industrial infrastructure, there is a pressing need to improve such infrastructure.

7.13 In order for Thailand to maintain a rapid pace of export-oriented industrialization, it must deepen and upgrade its industrial structure. As Chapter 3 points out, the existing incentive regime is still biased against the very sectors that Thailand hopes to develop and the small and medium enterprises that are expected to play an important role in that process. The policy changes that are suggested in Chapter 3 are designed to remove these biases. These changes may not produce immediate results, but will significantly strengthen the competitiveness of the Thai economy in the long run. Precisely because this process takes time, it is important to implement the necessary policy reforms soon. In the context of economic projections, the increased competitiveness of Thai industries will raise the growth rate of manufactured exports.

7.14 That the existing industrial infrastructure is not adequate to support continued rapid growth is apparent in several areas, including roads, port facilities, surface water supply and telecommunication. The situation has been exacerbated by the sharp reduction in public sector investment programs since about 1983, which was an essential part of the economic adjustment effort in the early 1980s. The share of gross fixed capital formation by the public sector in GDP has fallen to 5.8% by 1988, from an average of 8.6% for 1980-82. Now that the public sector deficit has fallen to a manageable level, there appears to be a broad consensus in Thailand that the public sector can increase its investment level again. The critical questions, therefore, are by how much it should be increased and how that should be balanced against the need to maintain sound macroeconomic balances.

7.15 Since this report does not analyze in detail the infrastructure demand of the Thai economy, it cannot suggest a level of capital expenditures

based on specific investment programs. However, it is reasonable to expect, barring gross misallocation of resources, some correspondence between the aggregate level of public investment needs and the level of economic activity. Section D of Chapter 4 argues that had the levels of roads and electricity investment kept pace with GDP growth since 1983, they would be roughly consistent with the estimated investment requirements today. To the extent public sector investment programs were cut back across the board, it can be argued that a similar case holds for the overall investment level. According to the approach in Chapter 3, which uses the three year moving average over 1980-82 as the pertinent level for 1982, gross fixed capital formation undertaken by the public sector accounted for 8.6% of GDP in that year. This would imply that overall public sector investment may need to be increased to a similar level.

7.16 There are, however, several important factors that mitigate the need for such a large increase. First, since the key constraint to be addressed immediately is industrial infrastructure (which accounts for about three quarters of total public sector investment), the relevant target level should be accordingly lower. Second, as Chapter 4 argues, it is possible to increase the efficiency of infrastructure investment considerably, thereby reducing the need for large increases in the absolute amount of investment. Third, the Government is encouraging the private sector to play a greater role in providing some of infrastructure services that have been traditionally provided by the public sector in Thailand. On the other hand, it is probably necessary to make extra investment in the near term to compensate for several years of low investment. Therefore, it may be reasonable to assume that in order to maintain rapid economic growth the share of public sector investment in GDP must rise from 5.8% (in 1988) to about 7.3-7.8% in the next few years and then fall slightly thereafter.

7.17 The Government's new budget for FY89 suggests that it is moving in the direction of raising public sector's fixed investment to around 7.2% of GDP in 1989. In the following projection exercise, a public sector investment stream that is consistent with this trend is used for the base case. It also explores the implication of even greater investment to achieve the maximum potential of the economy.

C. Macroeconomic Balances

7.18 The need to significantly increase the public sector's infrastructure investment poses a new challenge to sound macroeconomic management. Even without such an increase in public investment, gross investment as a share of GDP is likely to rise, as the Thai economy enters into industrial maturity over the coming years (see Chapter 6). One way to capture the change in gross investment as a share of GDP is the notion of the incremental capital output ratio (ICOR). The past trend of the ICOR for the Thai economy and the experiences of the Korean and Taiwanese economies provide some basis for anticipating how this ratio will change in the future. The figures in Table 7.3 generally support the conjecture that the ICOR tends to rise with industrial maturity. Another general characteristic of the ICOR is that it rises as growth slows down, and these fluctuations due to changes in the growth rate tend to dictate the short-term trend. For Thailand, the second half of the 1970s was a high growth period with a low ICOR, and the first halves of the 1970s and 1980s were low growth periods with high ICORs. In 1987-88, the ICOR

fell to about 2.6, as the economy grew rapidly based mostly on the production capacity that had already existed and investment lagged slightly.

7.19 Given the likelihood of relatively high and efficient growth (due to the stronger market discipline to which the economy is subjected by greater international trade), the ICOR is likely to remain well below 4 for the next few years. However, the experiences of Korea and Taiwan indicate that toward the end of the projection horizon, Thailand's ICOR should edge up toward 4 even if the economy is growing at relatively rapid rates. In the simulations presented in the next section, the ICOR will be lower than 4 in the scenario of rapid growth, but not as low as in the 1976-80 period. In the slow growth scenario, it will be above 4 again.

Table 7.3: COMPARISON OF THE ICOR
(period averages)

	1961-65	1966-70	1971-75	1976-80	1981-85
<u>Korea</u>					
Real GDP growth rate (%)	6.5	10.4	9.1	7.7	7.6
Real manufacturing growth rate (%)	12.3	21.5	17.7	13.7	8.4
Gross national savings/GDP (%)	6.2	14.9	17.5	24.4	24.6
Gross investment/GDP (%)	13.0	23.4	23.4	29.7	30.5
ICOR	1.5	2.1	2.4	4.1	4.0
Per capita GDP (in 1986 US\$)	348	537	848	1,340	1,812
<u>Taiwan, China</u>					
Real GDP growth rate (%)	9.5	9.8	8.8	10.6	6.5
Real manufacturing growth rate (%) /a	13.6	15.1	11.4	13.9	8.0
Gross national savings/GDP (%)	16.3	23.1	30.8	33.6	32.3
Gross investment/GDP (%)	15.7	21.5	26.5	27.9	23.6
ICOR	1.3	1.8	2.8	2.6	4.3
Per capita GDP (in 1986 US\$)	849	1,181	1,719	2,440	3,140
<u>Thailand</u>					
Real GDP growth rate (%)			5.8	8.1	6.1
Real manufacturing growth rate (%)			10.3	9.8	4.6
Gross national savings/GDP (%)			23.6	21.1	19.5
Gross investment/GDP (%)			25.3	26.5	24.9
ICOR			4.0	3.2	3.9
Per capita GDP (in 1986 US\$)			466	595	720

/a GDP deflator was used to deflate the manufacturing output in current prices.

Note: Growth rates are annualized rates.

Sources: Economic Planning Board, Korea; Directorate-General of Budget, Taiwan, China; NESDB.

7.20 With a rise in the ICOR, the share of gross fixed investment in GDP will rise. Especially for 1989 and 1990, the gross fixed investment to GDP ratio will rise substantially given the large increase in backlog of BOI promoted projects approved during 1986-88 that will be implemented during this period. As Chapter 2 points out, Thailand's gross national savings rate (i.e., gross national savings/GDP) has not shown a tendency to rise with income growth, in contrast to the cases of Korea and Taiwan. Therefore, it will most likely lag behind the surge in the gross fixed investment rate for the near future.

7.21 The potential vulnerability of the investment-savings balance makes it important for the Government to prevent the gap from widening significantly while the public sector's investment programs are expanded. In particular, the Government must ensure that the tax buoyancy, which rose sharply in 1987 and 1988, will remain relatively high. In this regard, the prompt introduction of the VAT system should be a high policy priority, as it is expected to improve the tax buoyancy. However, should the public sector deficit increase significantly as a result of larger investment programs, the Government should consider adopting other tax measures to protect a sound public sector balance. In the short run, the highly buoyant domestic demand is beginning to cause some concern about overheating of the economy. This too argues for raising tax revenue at least in line with expenditures, if not raising it faster to keep the fiscal policy neutral.^{5/} Another important consideration is the proper phasing of investment programs. By gradually increasing the investment programs, the Government can not only reduce inflationary pressures but also retain a possible tool for fiscal stimulation in the later years.^{6/}

D. Projections

7.22 The projections consist of two parts. The first covers the next five years and analyzes the medium-term performance of the Thai economy in some detail. The second part extends the projections to the year 2001 (the end of the Eighth Plan) to explore the structural changes that may take place when certain growth patterns are sustained. In order to conform to Thailand's five year plan period, the results are presented for periods covering 1989-91 (the rest of the Sixth Plan), 1992-96 (the Seventh Plan), and 1997-2001 (the Eighth Plan). While the economic performance in the first period will be strongly influenced by the inertia of the recent boom, it should attain during the 1992-96 period a medium-term equilibrium path of growth characterized by steadier trends. The average performance in that period can be viewed as

^{5/} Because of the multiplier effect, raising both expenditures and tax revenues by the same amount produces a positive fiscal stimulus.

^{6/} A sudden surge in investment may also be detrimental to the development of the domestic construction industry. For example, a sharp increase in investment in the late 1970s and early 1980s in Malaysia mostly benefited Japanese and Korean contractors and contributed very little to the growth of domestic contractors.

reflecting the economic situation in five years' time (i.e., 1993). The projection for the third period is basically an extension of such a sustainable pattern.

7.23 The simulations were conducted with a model that has been developed jointly by the NESDB and the Bank.^{7/} There are three scenarios presented below. Since the Thai economy's performance is importantly influenced by the external events as well as domestic policy actions, the external environment and domestic policies can be broadly rated as unfavorable, neutral (or most likely), and favorable. The most likely scenario, or the base case, combines the neutral external and currently forecasted domestic conditions, while the high case corresponds to the combination of the slightly more favorable external and domestic developments and the low case to the combination of the unfavorable external and domestic developments.

Base Case

7.24 External assumptions. This case assumes that the industrial nations will leave their policies broadly unchanged for the projection period. Large international imbalances will improve, but only gradually. A high degree of tension and uncertainty will persist in major financial markets, and may cause further fluctuations in exchange rates. However, in the absence of any clear direction, the exchange rates among the major currencies are assumed to remain unchanged. The US will slowly reduce its fiscal deficit, while Japan and the Federal Republic of Germany will maintain expansionary fiscal policies to prevent a recession. Industrial economies will maintain conservative monetary policies with relatively high real interest rates and inflation will remain low. Agricultural subsidies in major industrial countries will continue and the general level of protectionism will remain unaltered. Oil prices will not change significantly in real terms.

7.25 Domestic assumptions: The Government will maintain its relatively cautious fiscal policy in the face of an uncertain external environment. Some reforms to improve industrial and trade incentives will take place, but only gradually, and important distortions in tariffs and industrial incentives will remain. Therefore, the export performance will fall short of full potential. The share of public investment in GDP is increased by 1.4% from the 1988 level to 7.2% in 1989 and maintained at about that level thereafter. To accommodate this increase, the Government allows the large budget surplus that emerged in FY1988 to decline. More specific assumptions are contained in Annex 11.

7.26 Growth with stability: On the basis of these assumptions, the base case simulation is conducted to explore the likely growth path of the Thai

7/ See Annex 10 for the description of the model.

economy and its implications (see Table 7.4 for main indicators). The base case is characterized by moderately rapid GDP growth rates of around 6% after the initial spurt, small fiscal deficits, and external deficits that are very high initially but will decline gradually. The Thai economy will grow about 8.4% in 1989 due to the continued export and investment boom as well as strong consumption. Manufactured exports will increase by about 22% in real terms and total exports of goods and nonfactor services will increase about 13%. Private fixed investment will rise about 9.4%, but public fixed investment will rise over 30%. The real growth rate will slow to about 7.4% in 1990, as the growth rate of manufactured exports begins to moderate, and will stabilize at around 6.3% p.a. for the 1992-97 period. The real growth rate of manufactured exports will fall to around 12.2-12.5% p.a. in the medium term. This is some 3% higher than the 9% rate estimated on the basis of the simulation model discussed in Section A of this Chapter. This difference is attributable to the increasing competitiveness of Thai exporters.

Table 7.4: BASE CASE - MEDIUM-TERM OUTLOOK
(period average)

	Actual		Projected		
	1982-86	1987-88	1989-91	1992-96	1997-2001
<u>Real Growth (%)</u>					
GDP	5.3	9.7	7.7	6.3	6.1
Exports /a	9.4	20.1	10.8	8.4	8.9
Per capita GNP	3.5	8.2	6.2	4.4	4.5
<u>Per Capita GNP /b</u> (in 1987 US\$)	809	959	1,242	1,442	1,821
<u>Share in GDP (%)</u>					
Investment	24.0	26.7	28.5	27.4	27.1
Savings	20.3	24.4	23.5	23.9	24.6
Current account balance	-3.7	-2.2	-5.0	-3.5	-2.5
Public sector balance	-5.8/c	0.0/d	-1.3	-1.4	-1.7
<u>External Debt Burden /e</u>					
Total debt service ratio (%)	24.2	16.6	14.0	14.6	14.0
Total debt outstanding share in GDP (%)	39.4	41.4	39.8	39.8	38.1

/a Exports of goods and nonfactor services.

/b Values of the end of the period.

/c Average for FY82-86.

/d Average for FY87-88.

/e Including short-term debt.

7.27 There are two related sources of concern in the base case. First, the public sector plans to increase its investment over 30% in real terms in 1989 in the face of buoyant domestic final demand on the part of the private sector. Second, precisely because of this combination of strong private and public sector demand, the current account deficit rises to about 5% of GDP for the 1989-91 period. Gross domestic investment as a share of GDP will rise to 28.5% in 1989-91 and thereafter gradually fall to around 27.5% in the medium term. Gross national savings on the other hand will rise only slowly from 23.8% of GDP in 1988 to about 24% of GDP in the medium term. Nevertheless the investment-savings gap will be only compressed from the very high level of 5% of GDP during the 1989-91 period to about 3.5% in the medium term. As in the past, the strong pressure of the domestic final demand in the near term is released by increasing imports, rather than turning into inflation. However, this should be recognized as a signal that the economy may be bordering on overheating. While current account deficits of 5% (of GDP) for the next three years may not pose any immediate threat to the debt situation, they will make the external balance sensitive to adverse shocks. Total debt outstanding will rise continuously in absolute terms, but its ratio to GDP will decline slightly. The total debt service ratio will decline from 18.7% in 1987 to about 14.3% in 1993.

Alternative Scenarios

7.28 Simulations under alternative scenarios are conducted in part to reflect uncertainties in both the external environment and domestic policies as well as other developments. However, they are also meant to indicate what the Thai economy could achieve if the slightly more restrained expansion policies are adopted. The key uncertainty on the external side is the growth rate of the world demand faced by Thai exporters. Although interest rate fluctuations and the exchange rates between the dollar and other major currencies have important implications on Thailand's debt service burden, external debt is no longer a critical element in the outlook. Therefore, the favorable and unfavorable external environment scenarios will be mainly distinguished by the difference in the rate of world demand growth. On the domestic policy side, the most important questions are: (i) how far and how fast the Government can implement many of the reforms suggested in this report to strengthen the export competitiveness of Thai manufacturers (ii) and the Government's success in maintaining a competitive exchange rate and a sound fiscal balance. In the case of favorable domestic conditions, the exchange rate will remain competitive, the fiscal balance will be sound, and policy reforms will enhance the Thai economy's export competitiveness, while in the case of unfavorable domestic conditions, the exchange rate will appreciate, the fiscal balance will deteriorate, and few policy reforms will be implemented to support industries.

High Case

7.29 This is the ideal case which combines strong policy actions at home and relatively favorable external conditions. It assumes that the Government will implement most of the reforms suggested in this report within a few years. In particular, the remaining biases in the incentive regime will be

reduced and infrastructure investment will be improved both qualitatively and quantitatively more than in the base case. It also assumes that during the next few years the US makes significant strides in rectifying its twin deficits and as a consequence global trade imbalances will improve. These changes will add stability to the foreign exchange and capital markets, and a better investment climate and faster growth of industrial economies will result. Protectionism will recede somewhat and agricultural subsidies will be curtailed by major industrial economies.

7.30 The key external assumption is that world output will grow at 3% p.a. in real terms during 1989-2001 and the real growth rate of import demand that Thailand faces will be about 5.5% p.a. Although infrastructure investment by the public sector is increased more in this case than in the base case, it is assumed that the Government phases it carefully to avoid overheating the economy. This is important especially since in this scenario the slightly stronger external demand keeps the domestic private demand very vigorous, thereby making the economy even more susceptible to inflationary pressures than in the base case. The public sector's fixed investment in 1989 is modestly scaled back from the base case level. However, its share in GDP continues to rise to 7.3% in 1990 and 7.5% in 1991-92 (as compared to 7.2% for all three years in the base case), then falling back to 7.4% thereafter. The lower level of fixed investment by the public sector in 1989 does not require any revision in FY89 budget. Since the actual investment is likely to lag the rapid increase in the investment budget, the Government has considerable flexibility in adjusting the actual spending pattern. (See Annex 11 for details.)

7.31 Accelerated Industrial Growth. Under these assumptions, the Thai economy will experience faster growth (slightly above 7% p.a. in the medium term as compared to 6% p.a. in the base case). Furthermore, the adroit phasing of public investment moderates the sharp increase in external deficits during the 1989-91 period experienced in the base case projection. Although the difference between this case and the base case is not striking over the next five years, when projections are extended to the year 2001, it becomes clear that this case can be seen as Thailand's transformation into a NIC in the tradition of Korea and Taiwan (see the section on long-term projections below). The growth rate of manufactured exports will moderate to around 14-15% p.a. in the 1990s, some 2.5% higher than the base case. This is the driving force behind the better performance of the economy in the high case. Gross domestic investment will remain around 28-29% of GDP for much of the projection period, but more rapidly rising savings will keep the investment-savings gap smaller than in the base case. (See Table 7.5 for the main indicator.)

7.32 Because of the higher investment spending in this scenario, the public sector deficit as a share of GDP will be about 0.2% higher than the base case during 1992-96. Thus, provided that the public sector's revenues rise in line with higher levels of GDP in the high case scenario, it appears that the additional public investment can be accommodated without raising new taxes. However, should such increases in the revenues fail to materialize, some revenue enhancing measures may be advisable.

**Table 7.5: HIGH CASE - MEDIUM-TERM OUTLOOK
(period average)**

	1989-91	1992-96	1997-2001
Real Growth (%) p.a.)			
GDP	8.2	7.1	7.1
Exports /a	12.7	10.2	11.1
Per capita GNP	6.5	5.6	5.8
Per Capita GNP /b (in 1987 US\$)	1,160	1,516	2,004
Share in GDP (%)			
Investment	28.9	28.2	28.3
Savings	24.1	25.0	27.1
Current account balance	-4.8	-3.2	-1.2
Public sector balance	-1.3	-1.7	-1.8
External Debt Burden /c			
Total debt service ratio (%)	13.5	13.3	11.4
Total debt outstanding share in GDP (%)	39.3	38.7	34.0

/a Exports of goods and nonfactor services.

/b End of the period.

/c Including short-term debt.

Low Case

7.33 This case is designed more to illustrate the potential risk that the base case presents than to characterize a likely development. In particular, it highlights the vulnerability of the external balance to adverse external conditions. It assumes four unfavorable developments: slower external demand growth (3.5% p.a. instead of 4.5% in the base case), a 5% appreciation of the real effective exchange rate, no significant measures to address conditions that constrain industrial development, and a less cautious fiscal management. One likely scenario for exchange rate appreciation is that the US dollar appreciates against the yen and European currencies and the Government cannot (perhaps due to international political pressures) devalue the baht against the dollar to maintain the same real effective exchange rate. For the purpose of this simulation, however, it is assumed that the baht simply appreciates against all currencies. The main assumptions are in Annex 11.

7.34 Under these assumptions, the GDP growth rate falls sharply to around 4.5-5.0% and the current account deficit swells to around 8% of GDP in the

next five years. As the growth of the revenue base slows, the public sector deficit increases to about 5% of GDP. Table 7.6 presents main economic indicators. This scenario shows that under a set of assumptions that are reasonably realistic, the very strong economic performance of today can falter rather quickly. However, the projected figures (particularly for the 1997-2001 period) should not be necessarily taken as indicative of what is likely to happen when such an unfavorable set of events begin to unfold. Before long, the Government is certain to take many corrective measures to mitigate the situation. Thus the projection only serves to illustrate how far things could deteriorate if no such action is taken.

Table 7.6: LOW CASE - MEDIUM-TERM OUTLOOK
(period average)

	1989-91	1992-96	1997-2001
<u>Real Growth (%)</u>			
GDP	5.8	4.6	4.0
Exports /a	5.5	5.3	5.1
Per capita GNP	4.1	3.1	2.7
<u>Per Capita GNP /b</u> (in 1987 US\$)	1,136	1,321	1,509
<u>Share in GDP (%)</u>			
Investment	27.2	25.2	24.1
Savings	19.8	17.1	12.8
Current account balance	-7.4	-8.1	-11.3
Public sector balance	-3.2	-4.9	-6.9
<u>External Debt Burden /c</u>			
Total debt service ratio (%)	16.0	24.7	39.1
Total debt outstanding share in GDP (%)	44.0	57.7	81.6

/a Exports of goods and nonfactor services.

/b End of the period.

/c Including short-term debt.

Export and Investment Performance

7.35 One of the most important factors that determine economic performance under these three scenarios is the real growth rate of manufactured exports. Table 7.7 shows the simulated results of export performance. In the high case, the growth of manufactured exports in the medium term is about 2.5% higher than in the base case. While this difference may not seem very large,

since the somewhat larger difference in the growth rate in the 1989-91 period places the high case on a much higher export growth path, the cumulative differences become quite significant over time. In the low case, the appreciation of the baht in the beginning of the projection period puts it on a sharply lower growth path by 1991, and some 5% slower growth thereafter (as compared to the base case) makes the external balance progressively worse.

Table 7.7: REAL GROWTH OF MANUFACTURED EXPORTS
(compounded period average, % p.a.)

	Sixth Plan		1992-96	1997-2001
	1989-91	1987-91		
Base case	17.2	25.6	12.4	11.7
High case	21.1	28.3	15.0	14.2
Low case	7.8	20.1	7.0	6.2

7.36 The difference in the efficiency of growth between the three cases can also be seen by comparing the ICORs (see Table 7.8). In the high case, the ICOR remains relatively low even as compared to much of the 1970s and 1980s, while in the base case it does go into a somewhat higher range than before on a sustained basis. In the low case, the ICOR indicates that the deterioration in the economic performance will be more serious than during the early 1980s.

Table 7.8: INCREMENTAL CAPITAL OUTPUT RATIOS (ICOR) /a
(period average)

	Actual		Projected		
	1982-86	1987-88	1989-91	1992-96	1997-2001
Base case	3.9	2.3	3.4	3.9	3.8
High case	-	-	3.2	3.6	3.5
Low case	-	-	4.4	5.0	5.3

/a ICOR measures the amount of gross fixed investment necessary to generate unit growth in gross output. A low ICOR indicates high investment efficiency.

Structural Changes in the Long Run

7.37 The economic performance in the high case may not seem significantly better than that in the base case over the next five years (see Tables 7.4 and 7.5). However, if the economy sustains the high case performance over a long-

er period, the difference from the base case becomes apparent. In order to compare the longer-term implications of these two scenarios, the projections are extended to the year 2001. They also show that even in the base case, the Thai economy will undergo major structural changes.

7.38 After 1993, the economy is on a 7% growth path in the high case as compared to a 6% growth path in the base case. This difference is supported by a faster growth rate of manufactured exports (around 14.5% against 12%), a higher gross investment rate (around 28% against 27%), and higher efficiency of investment (ICOR of 3.6 against 3.9). The main differences in the structure and the level of economic activity between the two cases are shown in Table 7.9. In either case, industry's share in GDP rises sharply, mostly at the expense of agriculture, and per capita income roughly doubles. The stimulations in Chapter 5 indicate that employment share of agriculture may be 15 to 20% lower in 2001.^{8/} Within the context of these drastic changes, the high case economy still has a significantly larger industrial sector than the base case economy, with manufacturing accounting for much of the difference. Export performance is also stronger, with the current account showing a surplus. The employment share of the industry and service sectors may be around 5% larger in the high growth case (see Table 5.3).

Table 7.9: LONG-TERM OUTLOOK

	1987	2001	
		Base case	High case
Structure of GDP (%)			
Agriculture	16.1	9.5	8.7
Industry	34.7	40.8	44.3
Manufacturing	23.9	29.6	33.5
Services	49.2	49.7	47.0
GDP (in billions of 1987 baht)	1,234	3,123	3,438
Per capita GDP (in 1987 US\$)	863	1,821	2,004
Gross investment/GDP (%)	25.1	27.0	28.3
Gross national savings/GDP	23.9	25.6	29.3
Merchandise account balance/GDP (%)	-3.5	-2.4	0.2
Current account balance/GDP (%)	-1.3	-1.4	1.0

7.39 The high case scenario is predicated not only upon a favorable external environment but strong Government actions to support industries. The

^{8/} See Table 5.3. These figures must be interpreted with caution, because the simulations assume that agriculture would employ the residual workers after other sectors satisfy their needs.

simulation shows that in order to maintain a faster growth path, the economy must increase both the level of investment and its efficiency. In this regard, the recommendations made in Chapter 4 are critically important. Through the improvement in infrastructure planning, they increase the efficiency of investment. Further, they encourage greater private sector investment in infrastructure. However, given that the public sector will remain the main provider of infrastructure services in Thailand for the foreseeable future, it is only realistic to assume that public sector investment must also be higher to sustain faster growth. In the high case scenario, the public sector needs to increase its investment by an average of about 9.1% p.a. over the 1989-2001 period (which is about 1% faster than in the base case). In order to make the high case scenario possible, export performance must also improve (above and beyond what the favorable external conditions are likely to bring). The prompt implementation of the recommendations in Chapter 3 would make industrial and trade policy more supportive of Thai industries, thereby increasing their export competitiveness. Finally, continued efforts to improve the financial system will be important in both meeting the expanding needs of the Thai economy and contributing to greater domestic resource mobilization.

7.40 Regardless of whether the base case or the high case is pursued, sound macroeconomic management will be critically important. Only after the successful macroeconomic adjustment during the early 1980s, today's economic success became possible. Since the Thai economy is already pushing the limits of its existing production capacity today, vigilance on inflationary pressures as well as the external deficit (which is often the result of inflationary pressures in the case of Thailand) is particularly important. In order to ward off inflation and large external deficit, the Government must manage the public sector deficit through careful phasing of investment and adequate revenue measures. In the context of an economic expansion that borders on overheating, slower increase in public investment and some revenue enhancement would prove effective in maintaining stability. It would also give the Government an added degree of freedom in pursuing an expansionary fiscal policy should it become desirable later.

7.41 Given this domestic economic condition and the uncertainty in the external environment, the high case scenario presents both higher potential returns and higher risks. The higher levels of public investment in this scenario is predicated upon the assumptions that the external demand conditions will be somewhat better than in the base case and other domestic policies will be taken to improve the incentive regime. Increasing public investment when the other conditions are not met will pose a serious danger of overinvestment. Thus the public sector's investment level must be adroitly adjusted on a continual basis. However, the risks that the high case scenario implies are well worth taking since by the year 2001 real per capita income is projected to double. Faster income growth also promises a possibility of improving income distribution more quickly.

ESTIMATION OF VALUE ADDED IN EXPORTS

1. The direct contribution of exports to GDP growth is the domestic value added in the incremental exports. The estimates for Thailand and Taiwan were based on value added shares derived from the statistics available for Korea.

2. For Korea, the following ratios of domestic value added to gross exports are available by sector. Great stability of these ratios, even in manufacturing where major efforts were made in some sectors to increase local contents, suggests that these ratios for broadly defined industrial sectors are likely to be quite similar among the countries that have similar general economic framework. Based on the statistics for Korea, it appears that, for Thailand, a value added to export ratio of 50% for manufacturing should be a conservative estimate. For other sectors, the ratio should be close to 80%. Applying these ratios to manufactured and other exports, the domestic value added in exports was estimated.

Table A1.1: DOMESTIC VALUE ADDED IN KOREAN EXPORTS
(percent)

Sector	1975	1980	1985
Agriculture, forestry, fisheries	82.7	80.3	82.4
Mining	87.9	85.2	86.6
Manufacturing	57.7	57.4	58.4
(Light industry)	61.7	59.8	61.3
(Heavy and chemical industries)	51.2	55.2	56.6
Electric, gas, piped water, construction	70.0	68.7	78.4
Other services	81.6	73.0	77.4
All sectors	63.9	61.8	62.8

Source: The Bank of Korea, as reported in The Korea Herald, March 29, 1988.

3. Given the general stability of the ratio over time, the value added to export ratio for Korea in 1970 was assumed to have been 63%. For Taiwan, since the ratio of primary to manufactured exports has been almost identical to that of Korea since 1970, the overall Korean ratios were used.

4. The specific procedure for estimation of domestic value added in exports at 1972 constant prices is as follows. The Bank of Thailand publishes exports in current prices by commodity groups. Those groups that correspond to SITC categories 5-8 are included in exports of manufactures. They were deflated by the implicit deflator (base year 1972) for manufacturing output in the national accounts. The value of manufactured exports in 1972 prices was then subtracted from total exports of goods and nonfactor services in 1972 prices in the national accounts to obtain the real exports of primary

commodities and services. Finally the total domestic value added in exports was obtained by applying the domestic value added factors of 50% to manufactured exports and 80% to other exports.

MANUFACTURED EXPORTS: SIMULATION MODEL

Stimulation Model

1. When simulating the impact of a shift in world demand and a devaluation, the following model is used, in which all variables are in logarithm:

$$(1) X^d = a_0 - a_1 (PX - PW) + a_2 YW,$$

$$(2) X^s = b_0 + b_1 (PX - PH) + b_2 C,$$

$$a_1, a_2, b_1, b_2 > 0.$$

Equations (1) and (2) are respectively the export demand and export supply equations. Taking differentials,

$$dPX = \frac{a_0 - b_0}{b_1 + a_1} + \frac{b_1}{b_1 + a_1} dPH + \frac{a_1}{b_1 + a_1} dPW + \frac{a_2}{b_1 + a_1} dYW - \frac{b_2}{b_1 + a_1} dC,$$
$$dX = \frac{b_0 (b_1 + a_1) + b_1 (a_0 - b_0)}{b_1 + a_1} -$$

$$\frac{1}{b_1 + a_1} [b_1 a_1 (dPH - dPW) - b_1 a_2 dYW - a_1 b_2 dC],$$

where

X^d = Export demand of manufactures at constant dollar prices;

X^s = Export supply of manufactures at constant dollar prices;

PX = Price of manufactured exports in dollar terms (source: Bank of Thailand);

PW = Manufactures unit value index (source: International Financial Statistics, IMF);

PH = Price of home goods, which is the weighted average of the deflators for construction, gas and water, and private and government services (source: NESDB);

YW = Activity variable in constant dollars, defined as a weighted average of manufactured imports of principal trade partners, or

$$YW = \sum_{i=1}^n w_i MMANUF_i ; \quad w_i = \frac{XMANUF_i}{XMANUF_T}$$

where $MMANUF_i$ = total imports of manufactures of partner country and $XMANUF_T$ = Thailand's total manufactured exports (for 1985, the values of w_i are as follows: USA and Canada, 0.35; Japan, 0.084; EEC, 0.215; East Asia, 0.289; South Asia, 0.03; Africa, 0.008; Latin America, 0.004; and the rest of the world, 0.02); and

C = Capacity variable, constructed as the fitted value of the following regression:

$$\text{LSCALE} = \alpha_0 + \alpha_1 \text{LSCALE} (-1) + \alpha_2 \text{LRPMANPH} (-1) + \epsilon$$

where LSCALE is the value added in the manufactures sector in constant prices; and

LRPMANPH is the ratio of the price of manufactured goods to domestic goods.

2. The revenue effect is the volume plus the price effect, that is $dR = dPX + dX$. Thus, when simulating the impact of a change in the world demand, the total multiplier will be:

$$dR = \frac{\alpha_2}{b_1 + a_1} + \frac{b_1 \alpha_2}{b_1 + a_1}$$

On the other hand, the effect of a devaluation, which is a reduction of PH, is:

$$dR = \frac{-b_1}{b_1 + a_1} + \frac{b_1 \alpha_1}{b_1 + a_1}$$

Abstracting from adjustment periods and simulating with long-run elasticities (see equation estimates below), the following multipliers (i.e., total impact of a unit change in the relevant variable on export revenue) are estimated:

The effect of world demand change: $dR = 1.876$

The effect of devaluation: $dR = .421$

(By assumption the price elasticity of supply is 2.5 and the long-run income and price elasticities are 2.25 and -1.71, respectively, as shown in equation (3) below.)

Estimated Equations

3. The equations estimated by instrumental variables are equations (1) and (2). The export demand equation estimated for 1967-1986 gives the following parameters:

$$(3) \quad X^d = -23.04 - 1.45 (PX - PW) + 1.915 YW + .1515 X(-1) \\ (6.98) \quad (6.44) \quad (7.34) \quad (1.42)$$

$$\bar{R}^2 = 0.992$$

$$DW = 1.92$$

t-statistics are in parentheses.

Estimating the same equation with data through 1984 gives similar results. (A predictive failure test is clearly rejected, accepting the hypothesis of parameter stability.) Consequently, equation (3) based on data from 1967-86 is used for all simulations.

CHANGES IN THE TARIFF STRUCTURE OF THAILAND, APRIL 1985 - JANUARY 1986

BTN code	Description	Old rate	New rate	Notification	Date	Remarks
10.01.01	Wheat	2.75(S) 25%	2.30(S) 35%	NMF 7/29	08/07/86	
15.10.01	Oleic acid	25%	35%	NMF 7/29	08/07/86	
15.10.09	Other	25%	35%	NMF 7/29	08/07/86	
15.10.10	Acid oils from refineries	25%	35%	NMF 7/29	08/07/86	
16.04.14	Tuna in sealed containers	30% 50(S)	10% 15(S)	NMF 7/29	08/07/86	Exemption
26.01.27	Antimony ore	5%	10%	NMF 2/30	02/08/87	
27.01	Coal, briquettes, ovoids, etc.	10%	25%	NMF 2/29	01/13/86	
27.02	Lignite	10%	25%	NMF 2/29	01/13/86	
27.03	Peat	10%	25%	NMF 2/29	01/13/86	
27.04	Coke and semicoke of coal, lignite or peat	10%	25%	NMF 2/29	01/13/86	
28.10.02	Phosphoric acids	20%	10%	NMF 7/29	08/07/86	
28.38.10	Potassium aluminum sulfate	20%	30%	NMF 1/29	01/21/86	
28.38.21	Ammonium aluminum sulfate	20% 30%	30%	NMF 1/29	01/21/86	
28.38.23	Sodium sulfates, acid or neutral	20% 30%	30%	NMF 1/29	01/21/86	
28.38.24	Potassium sulfates, acid or neutral	20% 30%	30%	NMF 1/29	01/21/86	
28.38.25	Magnesium sulfates, artificial	20% 30%	30%	NMF 1/29	01/21/86	
28.38.26	Aluminum sulfates	20% 30%	30%	NMF 1/29	01/21/86	
28.38.29	Other sulfates and persulfates	20%	30%	NMF 1/29	01/21/86	
28.38.29	Other, except zinc sulfates	30%	20%	NMF 7/29	08/07/86	Exemption
28.42.01	Neutral sodium carbonate (soda ash)	20%	10%	NMF 7/29	08/07/86	
28.42.02	Calcium carbonate	30% 20%	20%	NMF 1/28	04/05/85	
28.47.09	Other, sodium bichromate	20%	10%	NMF 2/30	02/08/87	Exemption
29.02.29	Other, methylchloride to be used in pesticide industries	20% 15%	15% 5%	NMF 1/28	04/05/85	Exemption
29.27.01	Acrylonitrile to be used in acrylic fiber industries	20%	7%	NMF 7/29	08/07/86	Exemption
29.35.20	Other, pyridene and their derivatives to be used in pesticide industries	20%	5%	NMF 7/29	08/07/86	Exemption
34.02	Wetting agents to be used in pesticide industries	40% 7.50(S)	5% 1.00(S)	NMF 7/29	08/07/86	Exemption
38.19.39	Other, chemical liquid with radioactive substances for detecting antibodies or foreign matter in human body	35%	10%	NMF 10/29	12/17/86	Exemption
39.02	Polyvinyl chloride resins	80% 8.00(S)	40% 7.00(S)	NMF 1/29	01/21/86	Exemption
39.07.29	Gloves, especially for sports	60% 14.00(S)	10% 7.00(S)	NMF 9/30	11/28/87	Exemption
39.07.30	Ear stoppages for water prevention, especially for water sports	60% 14.00(S)	10% 7.00(S)	NMF 9/30	11/28/87	Exemption
40.08.21	Other, rubber pads for table-tennis bats	50%	10%	NMF 9/30	11/28/87	Exemption
40.13.01	Gloves, especially for sports	50%	10%	NMF 9/30	11/28/87	Exemption
40.14.29	Ear stoppages for water prevention, especially for water sports	50%	30%	NMF 9/30	11/28/87	Exemption
42.05.00	Leather mittens for gymnastic use	100%	10%	NMF 9/30	11/28/87	Exemption
44.03	Wood in the rough	1%	7%	NMF 7/29	08/07/86	
48.16.09	Other, paper bags coated in polyethylene for making ready-to-drink milk containers	40%	10%	NMF 7/29	08/07/86	Exemption
55.01	Cotton, not carded or combed	6.25(S) 5%	0.80(S) 5%	NMF 13/28	10/29/85	See Note 3
55.02	Cotton linters	5%	1.00(S) 5%	NMF 13/28	10/29/85	See Note 3
55.03	Cotton waste, not carded or combed	5%	1.00(S) 5%	NMF 13/28	10/29/85	See Note 3
55.04	Cotton, carded or combed	5%	1.00(S) 5%	NMF 13/28	10/29/85	See Note 3

BTN code	Description	Old rate	New rate	Notification	Date	Remarks
61.01	Judo garments knitted for the whole suit or the upper part from waist up	60%	10%	NMF 9/30	11/26/87	Exemption
61.01	Fencing or wrestling garments	60%	10%	NMF 9/30	11/26/87	Exemption
61.02	Fire-fighting garments	60%	10%	NMF 10/29	12/17/86	Exemption
61.02	Judo garments knitted for the whole suit or the upper part from waist up	60%	10%	NMF 9/30	11/26/87	Exemption
61.02	Fencing or wrestling garments	60%	10%	NMF 9/30	11/26/87	Exemption
64.01	Footwear with metallic toe caps to be used as safety instruments	10%	30%	NMF 9/30	11/26/87	Exemption
64.01	Footwear with knobs or nails, especially for sports	60%	10%	NMF 9/30	11/26/87	Exemption
64.01	Footwear for wrestling	60%	10%	NMF 9/30	11/26/87	Exemption
65.06.00	Headgear for water polo	100%	10%	NMF 9/30	11/26/87	Exemption
68.16.20	Other, graphite molds not over 1-inch diameter	80%	20%	NMF 10/29	12/17/86	Exemption
70.03.01	Neutral glass tubes for making ampoules	20.00(S)	5.00(S)	NMF 1/29	01/21/86	
		17%	15%	NMF 7/29	08/07/86	
		15%	10%	NMF 1/28	04/05/85	
70.03.09	Other, neutral glass tubes for making syringes	30%	10%	NMF 1/29	01/21/86	Exemption
		10%	15%	NMF 7/29	08/07/86	
		15%	10%	NMF 9/30	11/26/87	
71.09	Palladium alloy with at least 20% of palladium combination for making false teeth	35%	0%	NMF 9/30	11/26/87	Exemption
74.04.00	Copper-clad laminate for making circuit boards	17%	10%	NMF 10/29	12/17/86	Exemption
74.05.10	Copper-clad laminate for making circuit boards	17%	10%	NMF 10/29	12/17/86	Exemption
74.05.20	Copper-clad laminate for making circuit boards	17%	10%	NMF 10/29	12/17/86	Exemption
84.06.11	Diesel and other heavy oil engines for motor vehicles	20%	30%	NMF 7/29	08/07/86	
84.06.12	Diesel and other heavy engines for marine use	20%	30%	NMF 7/29	08/07/86	
84.06.22	Piston, piston rings and piston rods	20%	30%	NMF 7/29	08/07/86	
84.06.23	Inlet and exhaust valves	20%	30%	NMF 7/29	08/07/86	
84.53	Statistical machines, magnetic disk type	40%	10%	NMF 9/30	11/26/87	
84.55	Keyboards	40%	10%	NMF 9/30	11/26/87	Exemption
85.01.27	Other, coils	35%	10%	NMF 9/30	11/26/87	Exemption
85.01.30	Transformers (valid until 09/30/88)	35%	10%	NMF 9/30	11/26/87	
	Transformers (valid from 10/01/88)	10%	30%	NMF 9/30	11/26/87	
85.01.31	Transformers (valid until 09/30/88)	35%	10%	NMF 9/30	11/26/87	
	Transformers (valid from 10/01/88)	10%	30%	NMF 9/30	11/26/87	
85.01.32	Transformers (valid until 09/30/88)	35%	10%	NMF 9/30	11/26/87	
	Transformers (valid from 10/01/88)	10%	30%	NMF 9/30	11/26/87	
85.01.33	Transformers (valid until 09/30/88)	35%	10%	NMF 9/30	11/26/87	
	Transformers (valid from 10/01/88)	10%	30%	NMF 9/30	11/26/87	
85.06	Parts and accessories, whether or not finished and imported for domestic production and assembly	10%	20%	NMF 9/30	11/26/87	Exemption
85.14	Microphones, loudspeakers, etc.	50%	40%	NMF 9/30	11/26/87	
85.14.02	Loudspeakers to be used with automatic electronic data-processing machines performing operations according to instruction sets of work system (programs) that can be changed	50%	30%	NMF 9/30	11/26/87	Exemption
85.15.21	Television receiving sets, color	60%	40%	NMF 9/30	11/26/87	
85.15.22	Television receiving sets, black and white	60%	40%	NMF 9/30	11/26/87	
85.15.26	Radio reception apparatus	50%	30%	NMF 9/30	11/26/87	
85.15.27	Radio reception apparatus	50%	30%	NMF 9/30	11/26/87	
85.18.01	Electrical capacitors, fixed or variable	30%	10%	NMF 9/30	11/26/87	
85.18.02	Parts	30%	10%	NMF 9/30	11/26/87	
85.19.01	Switches	35%	10%	NMF 9/30	11/26/87	
85.19.04	Fuses	35%	10%	NMF 9/30	11/26/87	
85.19.05	Plugs and sockets	35%	10%	NMF 9/30	11/26/87	
85.19.17	Resistors, fixed or variable	35%	10%	NMF 9/30	11/26/87	
85.19.19	Other, circuit boards	35%	10%	NMF 9/30	11/26/87	Exemption

BTN code	Description	Old rate	New rate	Notification	Date	Remarks
85.21.21	Electronic tubes, diodes	35%	10%	NMF 9/30	11/26/87	Exemption
85.21.22	Transistors	35%	10%	NMF 9/30	11/26/87	
85.21.23	Cathode ray tubes for producing and assembling of 85.15 b(1), (2) or (3) (valid until 09/30/88) (valid from 10/01/88)	35% 10%	10% 30%	NMF 9/30 NMF 9/30	11/26/87 11/26/87	Exemption Exemption
85.21.24	Photovoltaic cells	35%	10%	NMF 9/30	11/26/87	
85.21.29	Other, deflection yoke for producing and assembling of 85.15 b(1), (2) or (3) (valid until 09/30/88) (valid from 10/01/88)	35% 10%	10% 30%	NMF 9/30 NMF 9/30	11/26/87 11/26/87	Exemption Exemption
85.21.29	Other, integrated circuits	35%	10%	NMF 9/30	11/26/87	Exemption
85.23	Insulated electrical wire, cable, bars, etc.	40%	10%	NMF 9/30	11/26/87	
85.25	Insulators of any materials to be used with automatic electronic data-processing machines performing operations according to instruction sets of work systems (programs) that can be changed	35%	10%	NMF 9/30	11/26/87	Exemption
87.06.10	Joints of caterpillar tractor belts, wrought but not finished	30%	17%	NMF 7/29	08/07/86	Exemption
87.10.01	Racing bicycles	40%	10%	NMF 9/30	11/26/87	Exemption
87.12.02	Parts and accessories for racing bicycles	40%	10%	NMF 9/30	11/26/87	Exemption
89.01	Ships with gross tonnage over 1,000 tons	35%	1%	NMF 8/29	11/03/86	Exemption
89.01	Racing sailboats	35%	10%	NMF 9/30	11/26/87	Exemption
89.02	Tugs with gross tonnage over 1,000 tons	0%	1%	NMF 8/29	11/03/86	Exemption
90.04	Goggles for swimming	60%	30%	NMF 9/30	11/26/87	Exemption
90.05.00	Refraction telescopes for shooting sports	40%	10%	NMF 9/30	11/26/87	Exemption
90.07.07	Photographic cameras	25%	10%	NMF 10/29	12/17/86	
90.07.10	Parts of cameras, lenses	25%	10%	NMF 9/30	11/26/87	Exemption
92.01.01	Pianos, harpsichords, etc. to .09	50%	10%	NMF 7/29	08/07/86	
92.02.01	Other stringed musical instruments to .09	40%	10%	NMF 7/29	08/07/86	
92.03.00	Pipes and reed organs	40%	10%	NMF 7/29	08/07/86	
92.04.01	Accordions and concertinas to .09	40%	10%	NMF 7/29	08/07/86	
92.05.00	Other wind musical instruments	40%	10%	NMF 7/29	08/07/86	
92.06.00	Percussion musical instruments	40%	10%	NMF 7/29	08/07/86	
92.07.10	Electromagnetic musical instruments a. Pianos	50%	10%	NMF 7/29	08/07/86	
92.07.21	Electromagnetic musical instruments to .29 b. Other	40%	10%	NMF 7/29	08/07/86	
92.09.00	Musical instrument strings	40%	10%	NMF 7/29	08/07/86	
92.10.00	Parts of musical instruments	40%	10%	NMF 7/29	08/07/86	
92.11.10	Sound recorders and players to .28	50%	30%	NMF 9/30	11/26/87	
92.11.24	Video recorders	50%	30%	NMF 9/30	11/26/87	
97.04.19	Other, table-tennis bats and balls	0%	10%	NMF 9/30	11/26/87	Exemption
97.06.00	Golf balls	50%	10%	NMF 9/30	11/26/87	
98.03.10	Parts and fittings, metal pieces for using solely in manufacturing ballpoint pens	5.00(S) 30%	1.00(S) 20%	NMF 7/29	08/07/86	Exemption
98.04.02	Other, nib points to be used solely in ballpoint pen industries	30%	20%	NMF 7/29	08/07/86	Exemption

Notes: (1) S - denotes a specific tax rate per unit volume.

(2) Exemption - denotes a tariff adjustment that cannot be identified exactly with the respective four- or six-digit BTN code, i.e., applies only to a subset of commodities within one or more six-digit codes.

(3) Signifies that if the import tax burden exceeds one baht per kilogram, an import duty of only one baht per kilogram will be levied.

BOARD OF INVESTMENT POLICY CHANGES - 1983 to 1987

Type of incentive	1983 Privileges and criteria	1987 Privileges and Criteria
Corporate Income Tax Exemption	3 to 5 years depending on investment scale or number of employees; exemption period increases for larger projects; extension of exemption possible (up to a maximum of 8 years) if project satisfies one of the following: net annual foreign exchange savings from it exceeds \$500,000 in first 3 years of operation; it uses indigenous agricultural produce, processed agricultural products or other domestic raw materials; it is located in an industrial estate or outside Bangkok, Samut Prakarn and the 4 neighboring provinces; it has special importance.	Exemption period depends on location as follows: No exemption for projects in Bangkok and Samut Prakarn, except if located on an industrial estate or unless the project satisfies 2 of the following 3 criteria (in which case exemption for 3 years): it produces primarily for exports, in that by the third year 80% of output is exported; it saves or earns at least \$1 m. in foreign exchange annually; employs at least 200 persons fulltime; For projects in the 4 other provinces neighboring Bangkok (Nakhon Pathom, Nonta Buri, Pathum Thani and Samut Sakhon) or in industrial estates in Bangkok and Samut Prakarn, exemption for 3 years which can be extended to 5 years if the project meets one of the following: it saves or earns foreign exchange of at least \$1 m. annually; it is an agro-based activity; it uses agricultural products as raw materials or domestic supplies for at least 60% of the value of its raw material; it employs at least 200 fulltime persons; it is located in an industrial estate; For projects in the other 67 provinces, exemption period depends on whether they are engaged in target activities (export-oriented, <u>1/</u> engineering or agro-based products). For target activities, exemption for 4 years, renewable up to a maximum of 8 years if the project meets one of the following: it saves/earns foreign exchange of at least \$1 m. annually; it is an agro-based activity; it uses agricultural products as raw

Exemption from or reduction of import duty and business tax on imported machinery

If the project is located in Bangkok or Samut Prakarn, exemption of import duties and business taxes only if at least 80% of the production is for export 2/ or 50% tax reduction if the project is an expansion of an existing operation. For projects outside Bangkok and Samut Prakarn, tax exemption/reduction granted on a case by case basis when machinery is not locally produced or assembled and cannot be substituted with manual labor.

Exemption from or reduction of import duty and business tax on imported raw materials.

Consideration on a case by case basis using the following factors: ability to compete with imported products, tax and duty rates for the project's raw materials compared with those for its finished products, benefits to the national economy.

materials or domestic supplies for at least 60% of the value of its raw material; it employs at least 200 full-time persons; it is located in an industrial estate. For general (non-target) activities, the basic exemption period is the same except that it is renewable only up to 7 years if the project satisfies one of the five criteria noted above.

If the project is located in Bangkok or Samut Prakarn but not on an industrial estate, no exemption or reduction unless it is export-oriented, in which case tax exemption may be granted; If located in one of the 4 other provinces neighboring Bangkok or on an industrial estate in Bangkok and Samut Prakarn, 50% tax reduction except for export-oriented projects or those in industrial estates for which tax exemption may be granted; For projects in the remaining 67 provinces, tax exemption.

No reduction/exemption for projects located in Bangkok, Samut Prakarn or the 4 neighboring provinces, including those on industrial estates; In the remaining 67 provinces, for target activities, exemption for 5 years on raw materials used in the manufacture of exports and 50% tax reduction for 1 year on materials used in producing for the domestic market; no tax reduction for non-target activities in these provinces.

Additional tax and duty reductions for projects in Investment Promotion Zones

Reduction in business tax on sales or products from project depending on its location: in Zones 3 and 4, 90% for the first 3 years and 75% for the next 2 years, beginning from when income is first earned; in Zones 1 and 2, the corresponding reductions are 75% and 50%; in industrial estates, the reductions are 50% for the first 3 years; Reduction in corporate income tax by 50% following any exemption period for a project located in Zones 1, 2, 3 or 4 or in an industrial estate outside Bangkok and the 5 neighboring provinces if it satisfies one of the following conditions: investment size (excluding land and working capital) exceeds B 300 m; has at least 200 full-time employees; its net annual foreign exchange earnings exceed \$1 m in the first 3 years; it uses agricultural produce or processed agricultural products as raw materials and at least 50% of its output value is exported; it is of special importance; Double deduction of transportation costs from taxable profits for 8 years (10 years) for projects located in Zone 1 or 2 (Zone 3 or 4); deduction from profits of 10% (20%) of installation and construction costs of infrastructural facilities for projects in Zone 1 or 2 (Zone 3 or 4).

All provinces other than Bangkok and its 5 neighboring provinces are Investment Promotion Zones; within these Zones all promoted activities can receive 90% reduction in business tax on sales for 5 years from when income is first earned; 50% reduction in corporate income tax for 5 years following any exemption period; and, on a case by case basis, double deduction of water, electricity and transportation costs from taxable income for 10 years and deduction from profits of 25% of the installation and construction costs of infrastructure facilities.

Additional tax and duty reductions for export-oriented projects	Exemptions of import duty and business tax on raw materials for 1 year for projects exporting at least 30% of total output and only for that part of imports that is used in producing for export. This exemption can be extended by the Board on a case by case basis and additional exemptions on imported goods for re-export and from export duty and business tax on exports may also be granted. A deduction from taxable income of 5% of the increase in earnings over the preceding year may also be granted.	Same as in 1983;
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- 1/ An export oriented activity is one that exports at least 50% of the value of its output in the first 2 years after commencing production and at least 80% thereafter. The minimum investment size for promotion of such projects was lowered from B 5 million to B 1 million in 1987.
 - 2/ This requirement was modified in 1985 when it was relaxed for projects locating on industrial estates in Bangkok and Samut Prakarn.

THAILAND'S LABOR STATISTICS

Introduction

1. Published figures for aggregate employment in Thailand, on which virtually all estimates of aggregate productivity and economic activity rest, conform fairly well to the standards for LDC labor statistics established by the ILO. As Thailand's economy continues to develop apace, however, it is increasingly appropriate to compare its employment and productivity patterns to those of the NICs or even of the more developed countries of the world. Concepts underlying its labor force statistics must therefore be adjusted to conform more closely to its current experience.

2. Thailand's labor force data are collected by the National Statistical Office (NSO) three times a year: February, May, and August.^{1/} February is a month of slack labor demand in agriculture. August, while not a month of peak labor demand, appears nevertheless to be characterized by relatively heavy employment in agriculture. The Labor Force Survey is based on a stratified random sample of households. Information is obtained for each member of the sample household and weighted so as to obtain aggregates consistent with the NSO's population estimates by age, sex, and geographic area. Labor force data are reported for all household members over the age of ten years.

3. For the purposes of this report, three issues affect the analysis of employment patterns in Thailand: the absence of annual employment figures, the broad definition of the labor force, and the conventional definition of the working-age population as everyone 11 years of age and over. Each of these issues is considered separately in this section. The annualization of seasonal data is the most difficult, however, and the analysis here must be viewed as a cautionary note rather than a resolution of the problem.

Seasonality and Annualized Data on Labor Force Participation and Employment

4. The basic problem of labor force size (from the perspective of the statistical analyst) arises from the seasonality of demand for agricultural labor which characterizes many LDCs, especially countries in monsoon Asia which rely on rainfall for their annual crop. In most parts of Thailand, there is a "small" peak in labor demand during the rice-planting season, which lasts for a few weeks during May-July (depending on the specific location and

1/ The Labor Force Survey has been conducted on this basis beginning in 1984. For earlier years, the survey was conducted in two rounds: Round 1 during the January-March dry-season period and Round 2 during the July-September wet-season period. Although for some purposes, data from these earlier surveys may be compared with data for 1984 and later, changes in definitions during the 1971-82 period make most time-series comparisons difficult. For an overview of the definitional changes and their implications for analysis, see C. Chiswick, "Statistical Data for Thailand: Surveys of Households and Individuals," Human Resources Institute, Thammasat University (Working Paper Series No. 12), 1987.

timing of the spring rains), and a "large" peak in labor demand during the harvest, some six months later (usually in November-December).

5. Although seasonal demand for labor in the aggregate, or even for agricultural labor, varies much less than the demand for labor in rice farming, each of these peaks is characterized by "full" employment in the sense that agricultural wages rise temporarily and predictably. That is, while diversification of employment both within agriculture and in other sectors is clearly well under way, there are still enough people engaged in rice farming to effect a marked seasonal pattern in the labor force and employment data.

6. The basic problem is whether people who are engaged in seasonal agriculture should be viewed as employed, unemployed, or outside the labor force during the periods of slack labor demand. It is not an easy problem to resolve, since there are sound economic arguments for each possibility.2/ Thailand's statistics, following the ILO recommendations, include as a new category the "seasonally inactive" labor force, defined as those "waiting for the appropriate season, being persons who usually worked without pay on farms, or in business enterprises engaged in seasonal activities, owned or operated by the head of the household or any other member of the household." The household member who owned or operated a farm or business which is seasonally idle would be classified as employed but temporarily absent from work.3/

7. Defining the "seasonally inactive" as a separate category permits a distinction to be made between the "current labor force," which is the conventional definition (the sum of the employed and the unemployed), and the "total labor force" (the sum of the current and seasonally inactive labor force). In principle, most Government analyses are based on the conventional concept (i.e., the current labor force). The August labor force participation rate in 1986 (for persons aged 11 and over) was 73%, with 96% of the labor force employed (see Table A5.1). This was about the same as the August rates for 1984 and 1985. In February 1986, the labor force participation rate was 68%, of which some 92% was employed.

2/ In the US data, persons "with a job but not at work" during the survey week would be classified as employed (e.g., teachers during the school vacation period). Persons "waiting to be called back to a job from which they had been laid off" would be classified as unemployed, as would those who "believed no work was available" in their line of work or in the community. However, persons not working because the slack-season wage is simply too low to make it worthwhile would be classified as outside the labor force.

3/ NSO, Report of the Labor Force Survey 1986, Chapter 2.

Table A5.1: LABOR FORCE PARTICIPATION AND EMPLOYMENT
(persons aged 11 and over)

	February			August		
	1984	1985	1986	1984	1985	1986
<u>Level</u>	(millions of persons)					
Population	35.98	36.93	37.85	36.31	37.32	38.12
Labor force <u>/a</u>	23.99	24.26	25.57	26.27	26.79	27.66
Employment <u>/b</u>	22.32	22.60	23.48	26.00	25.85	26.68
Seasonally inactive labor force	1.48	1.87	1.40	.13	.27	.18
<u>Rates</u>	(percent)					
Labor force participation <u>/c</u>	66.6	65.7	67.6	72.3	71.8	72.6
Unemployment <u>/d</u>	7.0	6.8	8.2	1.0	3.5	3.5

/a Current labor force: Persons not working during the off-season are included as unemployed if they are farmers but are excluded if they are unpaid family workers.

/b Employed labor force: (1) persons working at least one hour during the survey week and (2) persons not working who had regular jobs or enterprises from which they were temporarily absent.

/c Percent of the population in the current labor force.

/d Percent of the current labor force not working during the survey week.

Source: NSO, Report of the Labor Force Survey (various years).

8. Labor force participation rates calculated from the February rounds of the Labor Force Survey are generally somewhat lower than the August rates, and unemployment rates are generally higher in February than in August. However, the February figures are affected by the classification of people in farm families who did not work during the survey week because of the season. The heads of these farm households were classified as "with a job but not at work" (and hence employed) while family members who would have worked as unpaid labor were classified as "seasonally inactive" (and hence not in the current labor force). Excluding the unpaid family members during the off-season tends to depress the labor force participation rate and also to increase the observed rate of unemployment in February. Including farm household heads among the employed even though their experience during the survey week was no different from that of other family members serves to raise the labor force participation rate and to reduce the February unemployment rate. Since these two effects work in opposite directions, their net effect on the February figures is ambiguous.

9. Labor force and employment figures used by the Government and by most analysts of the Thai economy are from the August round of the Labor Force Survey unless explicitly indicated otherwise. Since there are few "seasonally inactive" persons in August, the current labor force in August is approximately the same size as the total labor force in February as well as August. Thus the result is the same as if total labor force were used in either month.

10. August is generally a month of high labor force participation and low unemployment, so these figures are viewed as an upper bound approximation of the corresponding annual rates. However, the peak agricultural season comes not in August but in November-December. August in rural Thailand is probably characterized by sufficient labor demand to employ family members with relatively low opportunity cost, thus "absorbing" those persons who leave employment during the slack season. It seems unlikely that labor demand in this season is sufficiently high to attract persons from other, better paid alternatives.

11. Annual figures for the labor force, employment and unemployment require a survey conducted each month so as to permit seasonal adjustments. The August employment figures (and rates) may be "modal," in the sense that they approximate the experience of some five or six months of the year (possibly May through October). Whether they approximate a true annual rate, however, depends on the length of the seasons of slack and peak labor demand and the relative deviations of the employment levels in these seasons from the employment level in August. For example, if the season of low labor force participation and employment lasts four months (possibly January through April) while the season of peak participation and employment is only two months (November and December) and if the relative deviations are the same, then annual figures and rates will be overstated by the August data.

Working Age Population

12. Labor force data published by the NSO, and aggregate rates based on these data, generally refer to the population aged 11 years and over unless explicitly noted otherwise. In Thailand, however, the young and the elderly are much less likely to be full-time labor force participants (see Table A5.2). Including the very young (aged 11-14) and the oldest age group (60 and over) in the population base tends to obscure the main features of labor force participation and employment patterns with which this analysis is concerned.

Table A5.2: LABOR FORCE PARTICIPATION AND EMPLOYMENT

	February			August		
	1984	1985	1986	1984	1985	1986
<u>Persons Aged 11-14</u>						
Population				(millions of persons)		
Labor Force <u>/a</u>	.65	.69	.81	4.91	4.96	4.95
Employment <u>/b</u>	.59	.63	.74	1.03	1.06	1.02
<u>Rates</u>						
Labor force participation <u>/c</u>	13.24	14.05	15.48	20.77		21.41
Unemployment <u>/d</u>	9.23	8.70	2.63	0.97		3.77
<u>Persons aged 15-19</u>						
Population				(millions of persons)		
Labor Force	5.96	6.08	6.16	6.01		6.22
Employment	3.66	3.58	3.73	4.18		4.29
<u>Rates</u>						
Labor force participation <u>/c</u>	3.18	3.11	3.10	4.06		4.07
Unemployment <u>/d</u>	61.41	58.88	60.55	69.55		68.97
<u>Persons aged 60 and over</u>						
Population				(millions of persons)		
Labor Force	2.61	2.71	2.80	2.64		2.83
Employment	.98	1.02	1.00	1.02		1.01
<u>Rates</u>						
Labor force participation <u>/c</u>	.97	1.01	.99	1.01		1.00
Unemployment <u>/d</u>	37.54	37.64	35.71	38.64		35.69
	1.02	.98	1.00	.98		.99

/a Current labor force: Persons not working during the off-season are included as unemployed if they are farmers but are excluded if they are unpaid family workers.

/b Persons working at least one hour during the survey week.

/c Percent of the population in the current labor force.

/d Percent of the current labor force not working during the survey week.

Source: NSO, Report of the Labor Force Survey (various years).

13. In 1986, fully 85% of all persons aged 11-14 in February, and 79% in August, did not participate in the labor force (see Table A5.2). Most of these non-participants are students, which accounted for 77% and 73% of this age group in February and August, respectively (see Table A5.3). Another 2% were in the labor force part-time (working less than 30 hours during the survey week), and it is possible that many of these were students also. In August 1986, only 14% of the total in this age group were full-time labor force participants (working 40 hours or more during the week) and only 6% were

classified as non-participants for reasons other than school. The picture in February was not much different: 11% were full-time labor force participants and about 8% were outside the labor force but not in school.

Table A5.3: TYPES OF PARTICIPATION BY AGE - 1986
(percent)

Age Groups	All Persons		Non-Municipal Areas		Municipal Areas	
	February	August	February	August	February	August
<u>Ages 11-14</u>	100.00	100.00	100.00	100.00	100.00	100.00
Hours employed						
40 or more	11.00	14.29	12.62	15.97	3.44	5.68
30-39 hours	1.63	2.80	1.98	2.46	.00	.00
less than 30	2.04	1.63	2.23	1.97	1.15	.00
Students	76.78	72.86	73.76	68.30	90.80	89.77
<u>Ages 15-19</u>	100.00	100.00	100.00	100.00	100.00	100.00
Hours employed						
40 or more	41.23	59.16	44.36	65.25	25.49	28.85
30-39 hours	5.68	3.70	6.42	4.05	1.96	1.92
less than 30	3.57	2.57	3.89	2.90	1.96	.96
Students	28.08	24.92	21.40	18.34	61.76	57.69
<u>Age 60+</u>	100.00	100.00	100.00	100.00	100.00	100.00
Hours employed						
40 or more	26.07	28.62	27.07	30.87	21.57	19.23
30-39 hours	5.00	6.36	5.24	6.96	3.92	3.85
less than 30	3.93	3.89	4.80	4.78	.00	.00
<u>Ages 15-59</u>	100.00	100.00	100.00	100.00	100.00	100.00
Hours employed						
40 or more	58.89	70.24	60.32	74.43	53.22	53.73
30-39 hours	9.22	8.48	8.59	7.71	11.74	11.53
less than 30	4.15	2.89	.46	3.18	2.48	1.79
Students	7.13	6.28	5.02	4.41	15.54	13.64

Source: NSO, Report of the Labor Force Survey 1986.

14. It is also increasingly common in Thailand for school enrolments to be relatively high, and labor force participation to be correspondingly low, for older teenagers. As Table A5.3 indicates, 28% of all persons aged 15-19 were students in February and another 9% were part-time workers; even in August, 25% were students not in the labor force. The corresponding percentages for urban areas are substantially higher: about 60% of the 15-19 year olds in municipal areas are full-time students. This is an important

phenomenon, of interest in its own right. In rural areas, however, which have most of the population, 50% of this age group worked for 30 hours or more during the February survey week and 70% during the August survey week. It therefore seems reasonable to include this age group among the working-age population.

15. Among persons aged 60 and over, non-participants accounted for 64% of the total in both February and August. Moreover in rural areas the fraction of participants working full-time (more than 40 hours per week) in August was only 28% in this age group, as compared to 87% for persons aged 15-59. Although the elderly are less numerous than the young, and so have less of an influence on the aggregate figures, it nevertheless seems appropriate to exclude them from the working-age population.

Conclusions and Recommendations

16. Whenever possible, the analysis in this report uses labor force and employment data based on the current labor force aged 15-59. Data will pertain to a specific reference month, unadjusted for seasonal variation, which is specified accordingly (see Table A5.4).

Table A5.4: LABOR FORCE PARTICIPATION AND EMPLOYMENT
(persons aged 15-59)

	February			August		
	1984	1985	1986	1984	1985	1986
<u>Level</u> (millions of persons)						
Population	28.45	29.32	30.14	28.72	29.62	30.33
Labor force <u>/a</u>	22.35	22.56	23.75	24.57	24.73	25.62
Employment <u>/b</u>	20.76	20.96	21.75	23.97	23.84	24.66
Seasonally inactive labor force <u>/a</u>	1.37	1.75	1.27	0.12		0.16
<u>Rates</u> (percent)						
Labor force participation <u>/c</u>	78.6	76.9	78.9	83.5	83.5	84.5
Unemployment rate <u>/d</u>	7.1	7.1	8.6	2.4	3.6	3.7

/a Current labor force: Persons not working during the off-season are included as unemployed if they are farmers. If they are unpaid family workers they are defined as Seasonally Inactive and excluded from the current labor force.

/b Employed labor force: Persons working at least one hour during the survey week.

/c Percent of the population in the current labor force.

/d Percent of the current labor force not working during the survey week.

Source: NSO, Report of the Labor Force Survey (various years).

17. It is recommended that the Government consider the feasibility of collecting seasonal adjustment data, or alternatively conducting a survey for labor force participation, employment, and unemployment on a year-round basis. The former might be obtained most readily as an add-on set of questions to some other year-round survey, such as the Socio-Economic Survey currently conducted by the NSO in twelve monthly "equally representative" samples.

THE PATTERNS OF LABOR FORCE PARTICIPATION AND EMPLOYMENTLabor Force Participation Rates

1. Among persons aged 15-59, labor force participation rates in August 1986 were 89.9% for men, 78.3% for women, and 84.5% overall (see Table A6.1). Labor force participation rates were higher in rural than in urban areas, with a large part of the difference accounted for by the greater tendency of urban youths to remain in school. For example, students classified as outside the labor force comprised 5% of the rural and 15% of the urban men in this age group. Similarly, 4% of the rural women and 13% of urban women in the 15-59 age groups were classified as students.

Table A6.1: LABOR FORCE PARTICIPATION BY AREA AND SEX 1986
(percent of persons aged 15-59)

	Both Sexes		Men		Women	
	February	August	February	August	February	August
<u>A. Labor Force Participation Rates /a</u>						
All areas	78.8	84.5	87.5	89.9	70.0	78.3
Rural	80.7	87.5	89.6	92.2	71.6	82.7
Urban	71.2	70.9	78.9	80.6	63.8	61.5
(Bangkok)	(70.0)	(69.7)	(79.0)	(81.0)	(61.1)	(59.2)
(Other)	(73.4)	(73.0)	(78.6)	(80.0)	(68.8)	(65.8)
<u>B. Economic Activity Rates /b</u>						
All areas	85.9	90.8	95.3	96.9	77.5	83.9
Rural	85.7	92.0	95.1	97.3	76.1	86.5
Urban	86.8	84.6	96.0	95.4	77.5	74.0
(Bangkok)	(85.1)	(82.6)	(95.2)	(95.2)	(74.7)	(70.6)
(Other)	(89.6)	(88.1)	(97.3)	(95.7)	(82.6)	(80.2)

/a Current labor force as a percent of the population.

/b Current labor force plus non-participants classified as students as a percent of the population.

Source: NSO, Labor Force Survey 1986.

2. Labor force participation rates indicate the proportion of the working-age population that either are employed or unemployed. This includes many people who are investing in human capital part time (most typically through on-the-job training), but it does not include those for whom such investments are a full-time activity. In Thailand, schooling is viewed as an appropriate economic activity for persons in their late teens, and by excluding students the labor force participation rates do not fully reflect the number of people engaged in productive activity. The lower panel of Table A6.1 presents data on "economic activity" rates, the combined participation rate for both labor force participants and non-participants who give

"studies" as their reason for non-participation. This economic activity rate was fully 97% for working-age men and 84% for women in August, while it was 95% and 78%, respectively, even in February when labor force participation is presumably at its lowest during the year.

3. In addition to being quite high, the economic activity rates for men scarcely differed in 1986 between urban and rural areas and between February and August: in rural areas it was 95% in February and 97% in August, while for urban men it was 96% in February and 95% in August. Even for the conventionally measured labor force participation rates in February (the agricultural slack-season), the rate for rural men was 90%, only 2 points lower than in August. For urban men the labor force participation rate was also only 2 points lower in February than in August, but this was because the number of urban men who were students was greater in February.

4. Economic activity rates for women showed rather more variation than for men. In August 1986, economic activity rates for women were 87% in rural areas, 80% in urban areas outside the Bangkok Metropolis, and 71% in Bangkok. The difference between men and women (10, 16 and 24%, respectively) can be accounted for almost entirely by persons engaged in "household work" outside the labor force (see Table A6.2), a category almost exclusively female which tends to be more important in larger urban areas.^{1/}

5. Seasonal differences in female labor force participation and economic activity rates were negligible for urban women but were substantially larger in rural areas. During the February slack-season period, only 76% of the rural women were economically active. Thus some 11% of the rural female population aged 15-59 are economically active in August but not in February. In contrast, labor force participation rates for urban women are about two points higher in February than in August although the proportion who are classified as students is lower.

^{1/} Some of these differences may arise because of the classification of various household activities as to whether or not they are "productive." For example, in a rural setting gardening or food processing would be classified as agricultural production for own-consumption and hence a labor force activity. Clothing construction (weaving, sewing, tailoring) for own-consumption would be classified as a labor force activity only if other household members engage in the same production for market. The likelihood of a woman with a given set of household duties being classified as a labor force participant is thus greatest in agricultural households and lowest in households where the other members are wage-employees. (For a fuller discussion see C. Chiswick, "Statistical Data for Thailand: Surveys of Households and Individuals," Human Resources Institute, Thammasat University, Working Paper Series No. 12, 1987.)

Table A6.2: LABOR FORCE PARTICIPATION BY AREA AND SEX, 1986
(million of persons aged 15-59)

	Both Sexes		Men		Women	
	February	August	February	August	February	August
All Areas	30.14	30.43	15.14	15.2	15.00	15.13
Labor force /a	23.75	25.62	13.25	13.35	10.50	11.85
Students	2.15	1.91	1.18	1.07	1.13	0.85
Household work	2.15	1.79	0.02	0.03	2.12	1.76
Seasonally inactive /b	1.27	0.16	0.33	0.04	0.93	0.12
With job, not working /c	(1.51)	(0.55)	(1.11)	(0.35)	(0.40)	(0.20)
Rural	24.09	24.26	12.16	12.25	11.93	12.01
Labor force /a	19.44	21.20	10.90	11.30	8.54	9.93
Students	1.21	1.09	0.67	0.62	0.54	0.46
Household work	1.54	1.04	0.01	0.02	1.53	1.03
Seasonally inactive /b	1.26	0.16	0.33	0.04	0.93	0.12
With job, not working /c	(1.46)	(0.52)	(1.08)	(0.33)	(0.38)	(0.19)
Urban (all)	6.05	6.16	2.98	3.04	3.07	3.12
Labor force /a	4.31	4.37	2.35	2.45	1.96	1.92
Students	0.94	0.84	0.51	0.45	0.42	0.39
Household work	0.61	0.74	0.01	0.01	0.60	0.73
Bangkok	3.83	3.90	1.86	1.89	1.98	2.01
Labor force /a	2.68	2.72	1.47	1.53	1.21	1.19
Students	0.58	0.50	0.30	0.27	0.27	0.23
Household work	0.44	0.01	0.43			
Non-Bangkok	2.22	2.26	1.12	1.15	1.09	1.11
Labor force /a	1.63	1.65	0.88	0.92	0.75	0.73
Students	0.36	0.34	0.21	0.18	0.15	0.16
Household work	0.17	0.00	0.17			

/a Current labor force (excludes the seasonally inactive, includes persons with a job but not working).

/b Unpaid family workers who did not work during the survey week because of the season.

/c With a job but not working during the survey week.

Source: NSO, Labor Force Survey 1986.

6. These figures would seem to suggest that the seasonal character of labor force participation in Thailand is almost entirely attributable to the

participation patterns of rural women.^{2/} The difference between men and women, however, may have been overstated because of the treatment in the Labor Force Survey of seasonal inactivity on family farms (see Annex 5). If the survey week was one in which no work was actually done because of the season, the household head would have been classified as "with a job but not at work" (i.e., employed) while the other family members would have been part of the "seasonally inactive labor force" (i.e., non-participants with respect to the current labor force).^{3/} In February 1986, the number of rural women outside the current labor force because of seasonal inactivity was about 0.9 million, while the number of rural men employed but "not working" was 1.1 million (see Table A6.2). It thus seems plausible that the extent to which actual (as distinct from reported) economic activity differs between February and August may well be the same for both men and women.

Table A6.3: EMPLOYMENT BY INDUSTRY, 1986
(persons aged 15-59)

Industry	Employment (millions)		Percent Distribution	
	February	August	February	August
Employed Persons	21.50	24.67	100.0	100.0
Agriculture	12.32	16.20	56.7	65.7
Manufacturing	2.60	1.98	11.9	8.0
Construction	.75	.58	3.4	2.4
Commerce	2.61	2.49	12.0	10.1
Transport <u>/a</u>	.60	.60	2.7	2.4
Services	2.69	2.64	12.4	10.7
Other <u>/b</u>	.19	.18	0.9	0.7

/a Transport, storage and communication.

/b Mining and quarrying; electricity, gas, water and sanitary services; and unknown.

Source: NSO, Labor Force Survey 1986

Employment by Industry: 1986

7. Depending on the survey month, agriculture accounted for about 60% of the employed labor force in Thailand in 1986, manufacturing for about 10%, commerce and services for about 11% each, construction for 3%, and transport .

2/ Since 80% of the working-age population lives in rural areas, which included 84% of the female labor force in August 1986 (80% in February), the seasonal pattern for rural women dominates the aggregate participation rates.

3/ For household members working on a family farm, one person (the household head, typically a male) would have been designated as an own-account worker and the remaining persons as unpaid family workers.

for 2% (see Table A6.3). The industry pattern of employment was remarkably similar for men and for women, especially if the August figures are taken as the benchmark (see Table A6.4). In February 1986, however, the differences between rural men and women were more pronounced. In effect, men were probably more likely to have been working in commerce or construction while women were more likely to have been out of the labor force.

8. Apart from about 0.1 million persons in agriculture, there was little seasonal variation in urban employment outside the Bangkok Metropolitan Area. Seasonally-driven rural-urban migration does not appear from these figures to have had a substantial effect on the industrial composition of urban employment (see Table A6.4). This is especially true for Bangkok, where the small seasonal difference appears to be synchronous with that of the rural areas rather than complementary to it.

Table A6.4: EMPLOYMENT BY INDUSTRY, AREA AND SEX, 1986
(persons aged 15-59)

Industry <u>/a</u>	Non-Municipal				Municipal (both sexes)			
	Men		Women		Non-Bangkok		Bangkok	
	Feb.	Aug.	Feb.	Aug.	Feb.	Aug.	Feb.	Aug.
(millions)								
<u>Total</u>	10.09	10.99	7.61	9.56	1.53	1.54	2.54	2.59
Agriculture	6.84	8.42	5.29	7.60	.09	.12	.10	.07
Manufacturing	.93	.59	.78	.52	.23	.22	.67	.66
Construction	.48	.32	.08	.52	.06	.06	.13	.15
Commerce	.68	.53	.83	.78	.45	.44	.64	.74
Transport	.28	.28	.01	.02	.10	.10	.19	.20
Services	.79	.76	.58	.57	.56	.58	.76	.73
Other	.08	.09	.03	.02	.04	.03	.05	.05
(percent)								
<u>Total</u>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	67.8	76.6	69.5	79.5	5.9	7.8	3.9	2.7
Manufacturing	9.2	5.4	10.2	5.4	15.0	14.3	26.4	25.5
Construction	4.8	2.9	1.1	5.4	3.9	3.9	5.1	5.8
Commerce	6.7	4.8	10.9	8.2	29.4	28.6	25.2	28.6
Transport	2.8	2.5	0.1	0.2	6.5	6.5	7.5	7.7
Services	7.8	6.9	7.6	6.0	36.6	37.7	29.9	28.2
Others	0.8	0.8	0.4	0.2	2.6	1.9	2.0	1.9

/a The industrial breakdown is the same as in Table A6.3.

Source: NSO, Labor Force Survey 1986

Seasonal Differences in Employment

9. Despite the similarities between men and women in their economic activity rates, there are real differences in their patterns of labor force participation (Table A6.5). This applies much more to rural than to urban areas, where few such differences are evident. In fact, the urban figures (in Panel B) for February and August are virtually identical. Employed urban women were somewhat more likely than men to be working as unpaid family labor and men were slightly more likely to be employers or government employees. The two largest categories, however, were the same for both men and women: about 45% were employees in the private sector and another 20% were own-account workers.

Table A6.5: TYPE OF EMPLOYMENT BY AREA AND SEX, 1986
(percent of employed persons aged 15-59)

	Total		Men		Women	
	February	August	February	August	February	August
A. Non-Municipal Areas						
Total (millions)	(17.69)	(20.54)	(10.08)	(10.98)	(7.61)	(9.56)
Employees						
Government	5.0	4.6	6.3	5.9	3.4	3.2
Private	21.6	15.6	24.2	17.8	18.3	14.3
Employers	0.7	0.5	1.0	0.8	0.2	0.1
Own-account workers	37.0	31.7	45.8	45.2	25.9	16.1
Unpaid family workers	35.4	47.1	22.3	30.5	52.7	66.2
B. Municipal Areas						
Total (millions)	(4.07)	(4.13)	(2.23)	(2.32)	(1.84)	(1.81)
Employees						
Government	14.3	14.7	15.4	16.0	13.0	13.1
Private	43.8	45.2	45.0	45.8	42.4	44.5
Employers	3.5	3.6	4.7	4.8	2.0	2.1
Own-account workers	20.7	20.3	20.7	21.1	20.6	20.4
Unpaid family workers	12.8	12.0	7.3	7.4	19.4	18.1

Source: NSO, Report of the Labor Force Survey 1986

10. In rural areas (Panel A) there were important seasonal differences in the employment patterns for men and women. In February fully 24% of the men

were private employees, 46% were own-account workers, and 22% unpaid family workers; the corresponding percentages for women were 18%, 26%, and 53%. The August proportion of unpaid family workers was higher for both sexes, 31% for men and 66% for women; only 18% of the men were private employees and the proportion of women in own-account work had dropped to 16%.

11. The implications for the rural economy can be assessed more readily when these figures are expressed as seasonal differences (see Table A6.6). Between February and August 1986 the number of men working as private employees fell by 0.6 million, some 25%. Similarly, the number of women in own-account work fell by 0.4 million, about 20%. There was a substantial increase in the number of unpaid family workers, 58% for women and 49% for men, and an increase of 8% in the number of men in own-account work.

Table A6.6: FEBRUARY-AUGUST DIFFERENCE IN EMPLOYMENT LEVEL BY TYPE /a
(millions of persons aged 15-59 in 1986)

Type of employment	Non-Municipal areas			Municipal areas		
	Total	Women	Men	Total	Women	Men
<u>Total</u>	<u>+2.85</u>	<u>+1.95</u>	<u>+0.90</u>	<u>+0.06</u>	<u>-0.03</u>	<u>+0.09</u>
Employees						
Government	+0.07	+0.05	+0.02	+0.03	0.00	+0.03
Private	-0.61	-0.02	-0.60	+0.08	+0.02	+0.06
Employers	-0.02	-0.01	-0.01	+0.01	0.00	+0.01
Own-account workers	-0.04	-0.39	+0.35	0.00	-0.01	+0.01
Unpaid family workers	+3.43	+2.33	+1.10	-0.02	-0.03	+0.01

/a The difference is expressed as the August level less the February level.

Source: NSO, Labor Force Survey 1986

12. Although seasonal employment was most pronounced in agriculture, where it affected some 1.6 million men and 2.3 million women, seasonality was also an important aspect of the rural employment picture for manufacturing, construction and commerce (see Tables A6.4 and A6.7). Each of these industry groups had higher rural employment in February than in August. Manufacturing, which "lost" some 37% of its men and 33% of its women between these two seasons, accounted for about 10% of rural employment in February but only 5% in August. The proportionate drop in employment in construction was similar. Commerce lost 22% of its men but only 7% of its women, while the seasonal decline in rural employment for transport and services was negligible.

13. The seasonal difference in employment by industry is also given separately for private employees, own-account workers and unpaid family workers (Table A6.7). In February, men who in August would work on a family

Farm could be found as employees in agriculture (0.2 million), manufacturing (0.2 million) and construction (0.1 million). Others worked in household manufacturing enterprises as own-account or unpaid family workers (0.2 million). While the men were so employed, women who in August would be unpaid family workers became responsible for the farm, and hence classified as own-account agricultural workers (0.2 million). Manufacturing employment also had a female seasonal component (0.3 million), but nearly all such women worked as own-account or unpaid family labor rather than as employees.

Table A6.7: FEBRUARY-AUGUST DIFFERENCE IN EMPLOYMENT BY INDUSTRY AND TYPE /a
(millions of persons aged 15-59 in 1986)

Type of Employment and Industry /c	Non-Municipal Areas			Municipal Areas	
	Total	Women	Men	Bangkok	Other
<hr/>					
All Employed Persons	+2.85	+1.95	+0.90	+0.05	+0.01
Agriculture	+3.89	+2.31	+1.58	-0.03	+0.03
Manufacturing	-0.60	-0.26	-0.34	-0.01	-0.01
Construction	-0.19	-0.03	-0.16	+0.02	0.00
Commerce	-0.20	-0.05	-0.15	+0.10	-0.01
Transport	+0.01	+0.01	0.00	+0.01	0.00
Service	-0.04	-0.01	-0.03	-0.03	+0.02
Private Employees	-0.61	-0.02	-0.60	+0.05	+0.02
Agriculture	-0.12	+0.05	-0.17	0.00	0.00
Manufacturing	-0.18	0.00	-0.18	0.00	0.00
Construction	-0.15	-0.03	-0.12	+0.01	0.00
Commerce	-0.06	0.00	-0.06	+0.05	+0.01
Transport	-0.03	0.00	-0.03	+0.01	0.00
Service	-0.06	-0.04	-0.02	-0.03	+0.01
Own-account Workers	-0.04	-0.39	+0.35	+0.01	-0.01
Agriculture	+0.33	-0.19	+0.52	-0.02	+0.01
Manufacturing	-0.24	-0.16	-0.08	-0.01	-0.01
Construction	-0.11	-0.07	-0.04	0.00	/b
Commerce	-0.05	-0.03	-0.02	+0.01	-0.01
Transport	0.00	-0.01	+0.01	+0.01	/b
Services	0.00	+0.01	-0.01	-0.01	0.00

/a The difference is expressed as the August level less the February level.

/b No observations.

/c The industrial breakdown is the same as in Table A6.3.

Source: NSO Labor Force Survey 1986.

14. The 1.6 million increase between February and August in male employment in agriculture was nearly all own-account and family workers. In contrast, rural women in own-account agricultural work declined between

February and August by some 0.2 million persons, approximately the same as the decline among own-account workers in manufacturing. Unpaid family farm labor and, to much lesser extent, wage employment in agriculture are the only two categories in which more women were employed in August than in February.

EMPLOYMENT SHARE OF AGRICULTURE

1. One of the basic premises of economic policy in Thailand has been that an unusually large portion of employment is in agriculture. As recently as 1986, official statistics show that 67.1% of employment was in agriculture. This notion colors the fundamental strategic thinking of the Thai policy-makers. They argue that Thailand's initial conditions are so different from those of Korea and Taiwan at the comparable stages of industrial development that the Thai economy will not become a ~~part~~ of the Korea or Taiwan type.

2. However, there are peculiarities in the labor statistics of Thailand that may be overstating the size of agricultural employment. This has been noted by some researchers. H. Oshima notes, in discussing the low employment share of the service sector in Thailand in relation to Malaysia, Indonesia, and the Philippines, that "Thailand's share is low, but this is because of the exceptionally high share of agricultural employment (74 percent), the latter largely the outcome of a very broad definition of female participation in farming, as shown by the fact that share of value added in agriculture is only slightly higher in Thailand than in the other four ASEAN countries."^{1/} C. Sussangkarn notes that "the difference between the share of employment in agriculture and the share of agriculture in GDP in Thailand seems to be unusual when compared to other countries."^{2/} Most recently, an NESDB paper on the Government's employment strategy acknowledged that "it is doubted whether these employment statistics are correct since it seems to contradict the facts that manufacturing sector has been expanded so quick that its share to GDP is as high as 23.2 percent while the share of agriculture dropped to only 17.0 percent in 1986."^{3/} Although it is clear that there are technical reasons why the official statistics are likely to be overstating agriculture's share of employment, it is impossible to gauge, by examining the statistical method in use and available employment data, the extent of distortions in the existing data. There is, however, considerable evidence elsewhere to indicate the distortions may be large.

3. Table A7.1 shows the GDP and employment shares of agriculture, industry (i.e., mining, manufacturing, construction, electricity, and water), and services. The ratio between the GDP share and employment share of each sector indicates the labor productivity in that sector (relative to other sectors of the economy and the economy as a whole). Since industry sector tends to be much more capital intensive than agriculture, this ratio should be higher for industry than for agriculture. However, productivity differential of almost 16 times in 1986 is unusually high. For most middle income

^{1/} See H. Oshima, Economic Growth in Monsoon Asia, University of Tokyo Press, 1987, pp.95-96.

^{2/} See Chalongphob Sussangkarn, "Production Structures, Labour Markets and Human Capital Investments: Issues of Balance for Thailand," TDRI, 1988, pp.16-17.

^{3/} See Lamduan Pawakaranond, "Thailand's Country Paper," presented at the planning meeting for Project "Full-Employment Strategy for Accelerated Growth in Asia," May 1988, p.9.

countries, this ratio is in the range of 3 to 5. Since the Thai industrial sectors is not known to be exceptionally capital intensive and the labor market is generally accepted to be quite efficient, it is difficult to believe that a productivity differential of this magnitude actually exists between two very large segments of the Thai economy.

Table A7.1: GDP AND EMPLOYMENT SHARES BY SECTOR

		Agriculture	Industry	Services
<u>1971</u>				
Share in GDP	(1)	23.9%	27.0%	49.1%
Share in employment	(2)	78.9%	5.7%	15.4%
GDP share/employment share	(1)/(2)	0.30	4.7	3.2
<u>1980</u>				
Share in GDP	(1)	23.2%	30.8%	45.9%
Share in employment	(2)	70.9%	10.5%	18.7%
GDP share/employment share	(1)/(2)	0.33	2.9	2.5
<u>1986</u>				
Share in GDP	(1)	16.5%	34.2%	49.3%
Share in employment	(2)	67.1%	10.5%	22.4%
GDP share/employment share	(1)/(2)	0.25	3.3	2.2

Sources: National income statistics, NESDB, and Pawakaranond, "Thailand's Country Paper," May 1988.

4. Table A7.2 compares the GDP and employment shares of the three sectors across several Asian economies. The low relative productivity of the Thai agriculture sector and high relative productivity of the Thai industry and services sectors stand out in the otherwise quite uniform distribution of sector productivity.^{4/} The relatively high GDP share of the Thai industry sector even in relation to Korea suggests that there may be some statistical problem on the output side as well. Given a thorough revision of the method used for national accounts statistics that was recently completed, however, the prime suspect for the statistical anomaly in Thailand is the labor statistics. A broader comparison of all middle income economies for 1980 also confirms that the Thai pattern is unusual. For the middle income economies as a whole, the average share of agriculture was 15% in GDP and 43% in employment

^{4/} These sectoral productivity figures are not directly comparable across countries. For instance, the productivity figure for industry is 3.2 for Thailand and 1.3 for Korea, but this does not mean that Thailand's industrial sector is more productive than that of Korea. What it means is that the industrial sector's productivity in relation to the whole economy is higher in Thailand than in Korea.

(with the ratio of 0.35), the average share of industry was 40% in GDP and 23% in employment (with the ratio of 1.7), and the average share of services was 45% in GDP and 34% in employment (with the ratio of 1.3).5/

5. Another piece of evidence to support the hypothesis that agricultural employment is seriously overstated in the official statistics is the proportion of incomes that farm families earn from non-agricultural activities. The proportion has risen from 43.9% in 1976 to 58.5% in 1987.6/ Therefore, a significant portion of labor that is attributed to agricultural production in the official statistics must be used in industry and services.

6. The importance of this problem goes beyond having correct statistical definitions and methods. If it is true that non-agricultural employment is larger than the official statistics show, then to the extent that such employment is likely to grow at a faster rate than agricultural employment, the overall labor demand should be rising faster than what is projected on the basis of much smaller non-agricultural employment. The projections in Chapter 5 indicate that this may well be the case.

5/ Based on statistical tables in the Bank's World Development Report, various issues. The GDP share and employment share, however, come from different issues that did not include exactly the same set of countries among the "middle-income economies."

6/ Pawakaranond, op. cit., p. 29.

Table A7.2: GDP AND EMPLOYMENT SHARE BY SECTOR - REGIONAL COMPARISON

		Agriculture	Industry	Services
<u>Thailand (1986)</u>				
Share in GDP	(1)	16.5%	34.2%	49.3%
Share in employment	(2)	67.1%	10.5%	22.4%
GDP share/employment share	(1)/(2)	0.25	3.3	2.2
<u>Malaysia (1986) /a</u>				
Share in GDP	(1)	24.0%	28.0%	48.0%
Share in employment	(2)	35.4%	21.4%	54.6%
GDP share/employment share	(1)/(2)	0.68	1.3	0.88
<u>Indonesia (1985) /b</u>				
Share in GDP	(1)	28.3%	23.8%	47.9%
Share in employment	(2)	55.0%	2.8%	32.2%
GDP share/employment share	(1)/(2)	0.51	1.9	1.5
<u>Philippines (1986)</u>				
Share in GDP	(1)	26.1%	32.4%	41.5%
Share in employment	(2)	49.8%	13.6%	36.6%
GDP share/employment share	(1)/(2)	0.52	2.4	1.1
<u>Korea (1985) /c</u>				
Share in GDP	(1)	13.5%	40.9%	45.6%
Share in employment	(2)	24.9%	30.5%	44.6%
GDP share/employment share	(1)/(2)	0.54	1.3	1.0
<u>Taiwan, China (1985)</u>				
Share in GDP	(1)	6.0%	48.9%	45.1%
Share in employment	(2)	17.5%	41.4%	41.1%
GDP share/employment share	(1)/(2)	0.37	1.3	1.0

/a Excludes mining from both GDP and employment to remove possible distortions created by oil. Transport and communication is included in services rather than industry.

/b Excludes mining.

/c Electricity is included in services rather than industry.

Sources: Table A7.1; Economic Report, 1987/1988, Malaysia; World Bank, Indonesia - Adjustment, Growth and Sustainable Development, Report No. 7222-IND, 1988; Philippine Statistical Yearbook, 1987; Statistical Yearbook, Bank of Korea, Korea; Taiwan Statistical Data Book, 1987, Council for Economic Planning and Development and National Income, Directorate-General of Budget, Taiwan.

REVEALED COMPARATIVE ADVANTAGE OF THAILAND

1. A country's export competitiveness structure in manufacturing can be analyzed by the revealed comparative advantage (RCA) index.^{1/} The RCA index essentially measures how large one country's share of the world market is for a given product relative to that country's share of the world market for all manufactures. The RCA of country j for export item i is defined as:

$$RCA_{ij} = \frac{x_{ij}/s_j}{\sum_i x_{ij}/s_i}$$

where i = export item, and j = country.

2. A recent Bank study calculated the RCA indexes of Thailand in 50 subsectors of manufacturing for 1975 and 1986. (see in Table A8.2) ^{2/} The figures are the natural logarithm of the RCA indexes. Thus log (RCA) of zero would mean that Thailand's export share in that commodity is identical to that in manufactures as a whole. A positive value would mean that Thailand's export share in that commodity is larger than the overall share and a negative value would mean that the share of that commodity is smaller than the overall share.

3. The study found that in 1986, Thailand had comparative advantages in essentially unskilled labor intensive, light industries, such as textiles, clothing, leather and wood products, while it had comparative disadvantages in most capital intensive, heavy and chemical industries. Between 1975 and 1986, however, there have been a gain of competitiveness in most heavy and chemical industrial items and a loss of competitiveness in light industrial items.

4. One country's ranking of RCA indexes for 50 subsectors can be compared to that of another country to determine how similar their structures of export competitiveness are. The study used the Spearman rank correlation coefficient to compare Thailand's RCA ranking in 1986 with that of Korea and Taiwan in 1970, 1975, and 1986 (see Table A8.1). The correlation coefficients are all significantly positive (at 1% statistical confidence level).

1/ See B. Balassa, Trade Liberalization and Revealed Comparative Advantage, Manchester School, 1965.

2/ Su-Yong Song, "An Analysis of the Impact of Wage Increase and Won Appreciation on the Competitiveness of Korean Manufacturing by Subsector", World Bank, forthcoming.

Table A8.1: RANK CORRELATION COEFFICIENTS BETWEEN THAILAND'S 1986 RCA AND COMPARATORS' RCA

Comparator	1970	1975	1986
Korea	0.66	0.53	0.38
Taiwan, China	0.53	0.51	0.49

Source: Su-YongSong, op. cit.

5. In relation to Korea, Thailand's export competitiveness structure is more similar when it is compared to the former's competitiveness structure from earlier years. The correlation coefficient of 0.66 between the 1986 Thai RCA ranking and the 1970 Korean RCA ranking is the highest that the study found in cross-country comparisons involving these countries and Japan. In relation to Taiwan, the degree of similarity does not change very much over time. Based on these figures, it can be argued that the Thai manufacturers are following the pattern of their Korean counterpart with a 15-year lag.

Table A8.2: REVEALED COMPARATIVE ADVANTAGE INDEXES /a

Item	SITC	1975	1986
Textile yarn and thread	651	0.457	1.113
Cotton fabrics	652	1.683	1.297
Non-cotton fabrics	653	1.247	1.329
Special textile products	655	1.524	0.247
Textile products, n.e.c.	656	2.355	1.437
Floor covering	657	-1.377	-0.595
Clothing, not of fur	841	1.374	1.716
Fur and leather clothing	842	N.A.	-5.952
Wood manufactures, n.e.c.	632	2.548	1.712
Furniture	821	-0.100	0.456
Paper and paper board	641	-1.388	-1.747
Articles of paper	642	-0.123	-0.056
Printed matter	892	-3.370	-2.158
Organic chemicals	512	-2.109	-1.460
Plastic materials	581	-1.175	-0.874
Medical products	541	-0.227	-1.762
Soaps and cleaners	554	-0.884	-1.467
Cosmetics	553	-1.249	-0.772
Paints	533	-2.007	-1.205
Rubber articles, n.e.c.	629	-0.497	0.236
Footwear	851	-1.765	0.828
Leather	611	0.519	0.521
Leather manufactures	612	-1.909	2.552
Travel goods, handbags	831	-0.244	0.893
Glass and glassware	644+655	-0.963	-0.022
Clay refractory and building products	662	-0.534	0.495
Pottery	666	-1.422	-0.282
Iron and steel	67-679	-2.021	-0.844
Iron and steel foundries	679	-3.522	N.A.
Nonferrous metals	68	1.983	0.425
Cutlery	696	1.229	-0.035
Tools	695	-0.809	-2.293
Nails, nuts, etc.	694	-1.664	-0.525
Structural metal products	691	-0.531	-0.375
Agricultural metal products	712	-3.734	-2.571
Textile, leather machinery	717	-3.977	-3.118
Machines for special industries	718	-2.978	-1.513
Metal working machinery	715	-2.851	-3.248
Office machines	714	-3.123	-1.126
Telecommunication equipment	724	-1.878	-2.847
Electrical power generating machinery	722	-1.252	1.706
Electrical equipment	721+729	0.249	-0.226
Domestic electrical equipment	725	-2.229	-2.067
Road motor vehicles	732	-4.012	-3.706
Ships and boats	735	-5.558	-1.156
Railway vehicles	731	-7.625	-4.244
Scientific and measuring equipment	861	-1.694	-1.632
Watches and clock equipment	864	0.161	0.328
Sound recorders	891	-3.333	-3.546
Office supplies	895	-2.717	-0.804

/a The logarithm of the RCA index is shown in the table.

Note: n.e.c. = not elsewhere classified.

Source: Su-Yong Song, op. cit.

TARIFF AND NON-TARIFF BARRIERS TO THAILAND'S EXPORTS

Tariff Barriers

1. While Thailand does not face any special tariff disadvantage in relation to other LDCs, developed countries' tariff structures in general are biased against LDC exports. Although tariffs in developed countries are lower on average, their peaks are often concentrated on products exported by LDCs, such as textiles and clothing (see Table A9.1). In addition, processed goods generally face higher rates than raw materials. For example, this tariff escalation is applied to textiles with rates increasing according to the stage of processing (see Table A9.2). Sometimes these biases exceed the advantages of GSP or other preferential treatments that are accorded LDCs.

Table A9.1. POST TOKYO ROUND TARIFF RATES ON TEXTILES AND MANUFACTURES
(in percent)

	Textiles /a	Manufactures
EEC	11.5	6.0
USA	19.0	5.0
Japan	11.5	5.5

/a Excludes fibers and clothing.

Source: GATT, Textiles and Clothing in the World Economy, 1984.

Table A9.2: AVERAGE TARIFF ESCALATION RATES ON TEXTILE INDUSTRY
(percent)

	Fibers	Yarns	Fabrics	Clothing
EEC	0.5	7.0	10.5	13.5
USA	3.5	9.0	11.5	22.5
Japan	0.5	6.5	9.5	14.0

Source: Textiles and Clothing in the World Economy, GATT, 1984.

Non-Tariff Barriers

2. Developing countries also face non-tariff barriers (NTBs) to their exports. These measures, including voluntary export restraints, antidumping and countervailing duties as well as other quantitative import restraints are

generally aimed at more successful exporters.^{1/} According to a recent study, nearly a quarter of developed countries' imports of manufactures from major LDC exporters are subject to NTBs.^{2/} The ratios for textiles and clothing can be as high as two-thirds or even more for some countries (see Table A9.3). Non-tariff barriers on exports of manuiactures are also biased against LDCs. For these exports, LDC exporters face 50% more NTBs than developed country exports.

Table A9.3: PERCENTAGE OF DEVELOPED COUNTRY IMPORTS SUBJECT TO NTBs, 1983
(percent)

	Textiles and Clothing		Total Manufactures	
	From LDC	From DC	From LDC	From DC
EEC	68.9	15.6	29.9	15.2
USA	64.0	31.1	18.6	16.5
Japan	13.0	11.0	4.4	9.7

Source: Nogues, Olechowski and Winters, op. cit.

3. In this regard, Thailand is not an exception, though overall it is still a privileged country. Thailand faces particularly high levels of restrictions on its clothing and sugar exports (see Table A9.4). For exports of clothing, however, Japan is an important exception and does not impose any quantitative restriction. Electrical machinery is facing increasing non-tariff restrictions in the EEC and Japan. Thailand's footwear exports seem to encounter a specially discriminatory treatment, as compared to other Asian exporters, in Japan, whereas rubber products and footwear face lower restrictions than other Asian countries in the European Common Market.

The Multi-Fiber Arrangement

4. The Multi-Fiber Arrangement (MFA) allows importing countries to apply restrictions selectively in terms of products and exporting countries as an exception to the most-favored-nation principle of the GATT. Textile exporting LDCs accepted this arrangement, at least in part because it was supposed to provide assurance of access to the developed country markets while reducing the likelihood of other, less predictable, forms of trade restrictions. Although the MFA allows to balance the interest of its participants by providing standards for year to year quota growth and flexibility for the

^{1/} Import regulations on the basis of health, sanitation, and other technical reasons, are generally not included in NTBs.

^{2/} See J. Nogues, A. Olechowski, and L.A. Winters, "The Extent of Non-Tariff Barriers to Industrial Countries' Imports," World Bank Economic Review, September 1986.

exporting countries as well as the criteria to set quotas by the importing countries, bilateral agreements are becoming the norm in the 1980s. This bilateral agreement allowed developed countries to depart from MFA standards and negotiate with major suppliers particular growth targets and the terms of "flexibility."

5. Thailand's main textile and clothing trade partners, with the exception of Japan which do not apply MFA import restrictions, follow this procedure. The EEC has bilateral MFAs with 25 countries, plus special agreements with several preferential countries in the Mediterranean area (Morocco and Tunisia are a case in point). Very strict controls on import growth are exercised on a group of textile and apparel items accounting for nearly half of the total textile and clothing imports. The US had by the mid-1980s bilateral agreements limiting imports of textiles with 28 countries. Thailand is of course one of these countries.

6. The MFA with the US effective for a period of five years ended on December 31, 1987. This agreement classified textile products into the following two groups:

Group I : yarn, fabric, made-up goods, and miscellaneous textile products; and

Group II: apparel and textile products.

Categories in Group I were allowed to increase between 7 and 10% while for Group II the growth might have gone up to 11% with the use of carry-over and carry-forward clauses. Those categories that are not controlled are subject to request for consultation whenever the US believes that such imports are causing market disruption and impeding orderly trade. As expected, one effect of quotas has been to divert production and trade from restricted to unrestricted countries and products. This diversion often accounted for the sudden surge of a country's exports of textile products to certain markets. For large suppliers of textile and apparel products, one of the reasons for the continuous increase in their exports share is the use of "flexibility." The MFA allows expansion of exports by transferring quota from one category to another, borrowing quotas from a succeeding year, and carrying forward unused quotas from previous years. However, the most important reason for the increasing penetration of the US textile market by the East Asian exporters during the 1980s is the the rising value of the dollar, as pointed out by W. Cline.^{3/} As the ratio of imports to consumption increased fairly steadily in all textile product categories in the US, these countries managed to increase their exports to the US in spite of the large share of textile trade covered by quantitative restrictions.

^{3/} See W.R. Cline, The Future of World Trade in Textiles and Apparel, Institute for International Economics, Washington, D.C., 1987.

Estimates of the Impact of NTBs

7. Estimation of the effects of trade restrictions on LDC exporters is complicated, because restrictions on these exporters might have increased the exports of other countries. While there have been many studies estimating the consumer and efficiency costs in importing countries, estimates of the effects on LDC suppliers have been rare. Moreover, estimates on export earnings tend to take a short-run static perspective, i.e., they have focused on the incremental exports that might result by putting idle resources to use or switching resources to the export producing sectors. With all these caveats, the range of estimates is as follows: (a) UNCTAD estimates that a full OECD liberalization would lead to a more than 10% increase in developing country exports.^{4/} As expected, more than a half of this increase would be in exports of textiles and clothing; (b) Kirmani, *et. al.* estimate that the removal of tariffs and NTBs in the main OECD countries could increase developing country exports of textiles by 82% and clothing by 93%;^{5/} (c) Deardoff and Stern estimate that the apparel industry would increase by more than 20% for half of the 16 countries considered in the study;^{6/} and (d) Faini, Clavijo, and Senhadji estimate that the lifting of NTBs imposed by industrial countries would result in an increase of exports of South Asian countries by about 20% (because for these countries textile exports have the highest shares).^{7/} For some countries of East Asia, namely Indonesia, Malaysia, Philippines, and Thailand, the effect in export increase is estimated to go from about 4% for Malaysia to 11% for Thailand. These calculations using NTBs coverage ratios of 1984 are probably underestimating the positive effects on exports because the current share of textile products in Thailand's exports is much higher than in 1984. Considering the shortcomings of each study as well as the particular hypothesis in which the calculations were made, these results have to be taken solely as indicative and should be interpreted with care.

^{4/} See UNCTAD, Protectionism and Structural Adjustment - Introduction and Part I, TO/B/1081 (Part I), Geneva, January 1986.

^{5/} See N. Kirmani, *et. al.*, "Effects of Increased Market Access on Exports of Developing Countries," IMF Staff Papers, 1984.

^{6/} See A. Deardoff and R. Stern, "Alternative Scenarios for Trade Liberalization," paper prepared for the 10th Annual Middleburg Conference on Economic Issues, Vermont, April 1988.

^{7/} See R. Faini, F. Clavijo, and A. Senhadji, "International Demand Constraints to Export Growth in LDCs--The Case of Manufactures," unpublished paper, Trade Policy Division, World Bank, 1988.

**Table A9.4: THAILAND'S MAIN EXPORTS AND NTB COVERAGE RATIO BY MARKET
(in percent, 1996)**

		Markets		
		EEC	USA	Japan
Rice	Thailand	0.0	100.0	0.0
	Average <u>/a</u>	0.0	0.0	0.0
Sugar	Thailand	100.0	86.6	100.0
	Average	100.0	97.6	100.0
Rubber Manufactures	Thailand	0.4	0.0	100.0
	Average	25.3	6.1	100.0
Textiles	Thailand	0.0	0.0	0.0
	Average	0.0	0.0	0.0
Electrical Machinery	Thailand	21.2	0.0	13.6
	Average	23.4	0.0	0.9
Furniture	Thailand	0.0	4.3	0.0
	Average	0.0	1.3	0.0
Clothing	Thailand	93.8	98.2	0.0
	Average	78.9	4.4	5.4
Footwear	Thailand	4.7	0.0	64.9
	Average	34.2	0.0	0.2

/a Average for Singapore, Indonesia, Korea, Malaysia, and Philippines.

Source: World Bank staff calculations, using UNCTAD data base on trade measures.

PROJECTION MODEL

1. The model that was used to simulate the four scenarios in Chapter 7 was developed jointly by the NESDB and the World Bank in 1988. This annex presents the structure of the model.

The Model

2. The model is an aggregate supply driven model with emphasis on the two-gap; namely, investment-savings gap, and trade gap. The relationships in the model are based on general macroeconomic principles. The model comprises two submodels, a macroeconomic submodel and an external debt submodel.

3. The macro submodel consists of six different sections: production and income; investment and capital accumulation; savings, consumption and government; external trade; money, interest rate and prices; and other indicators. The submodel is self-explanatory (see the Macroeconomic Submodel) with five principle technical and behavioral equations: the production function, the private investment function, GDP deflator and other prices, and export and import demands equations. These equations were estimated by employing appropriate regression methods. The estimated equations are displayed with their t-statistics in parentheses.

4. The External Debt submodel consists of 18 different debt files which are capable of generating debt profiles, given assumptions on terms, conditions and new commitments. The current account deficit, together with other capital flows, creates additional external borrowing called "gapfil" as shown in equation (1) of the debt submodel.

5. In the following equations, * denotes multiplication, ** denotes exponentiation, and (-1) after a variable indicates a lag of one period.

The Macroeconomic Submodel

I. Production and National Income

$$(1) \text{ GDPR} = 3.42 * \text{ND} ** 0.56 * \text{KR}(-1) ** 0.32 * \text{L} ** 0.19 \\ (3.1) \hspace{10em} (2.8) \hspace{10em} (1.9) \\ * (1 + \text{EXMANR}) ** 0.10 \\ (3.0)$$

$$(2) \quad \text{GGDPR} = \text{GDPR} / \text{GDPR}(-1) - 1$$

$$(3) \quad L = L(-1) * (1 + GL)$$

$$(4) \quad ND = (1-U) * NS$$

$$(5) \quad NS = NS(-1) * (1$$

$$(6) \quad GDP = \text{GDPR} * P$$

$$(7) \quad GDPF = GDP - TI$$

(8) GDPFR = GDPF / PGDPE

$$(9) \quad \text{GNP} = \text{GDP} + \text{NFW}$$

(10) GNPR = GNP / PGDP

$$(11) \text{ GNYR} = \text{GNPR} + \text{TTJR}$$

II. Investment and Capital Accumulation

- (13) IPRIR = -9091.52 + 0.49 * GDPFR -0.10 * KR(-1)
(-1.6) (4.7) (-3.2)
-14673.61 * RLR
(-1.3)
- (14) IPUBR = IPUB / PIT
- (15) IPUB = IPUBGDP * GDP
- (16) ITR = IPRIR + IPUBR
- (17) KR = KR(-1) - DR + ITR
- (18) DR = 0.035 * KR(-1)
(27.1)
- (19) D = DR * PGDP
- (20) IT = ITR * PIT
- (21) IVEN = IVENDGDP * [GDP - GDP(-1)]
- (22) GDI = IT + IVEN

III. Savings, Consumption, and Government

- (23) TT = TD + TI
- (24) TD = TDGNY * GNY
- (25) TI = TIGDFF * GDFF
- (26) GRO = GROGDP * GDP
- (27) GREV = TT + GRO
- (28) GEX = CPUB + IPUB + INPDG
- (29) GDEF = GEX - GREV
- (30) NPGS = GREV - CPUB - INPDG
- (31) CPUB = CPUBGDP * GDP
- (32) CPUBR = CPUB / PCPUB
- (33) NPS = GNS - NPGS - D - STD
- (34) GNS = GDI + CABOT
- (35) CPRI = GDP - CPUB - GDI - XGFOB - XNFS + MGCIF + MNFS - STD

IV. External Trade

- (36) EXMANR = (-12.89) * EXMANR(-1) ** 0.43 * [WIM * EXRATE] ** 1.27
(1.7) [MUV] (2.2)
* [PEXMAN] ** -1.02
[MUV * EXRATE/20.8] (-1.8)
- (37) EXOTR = 1.69 * EXOTR(-1) ** 0.28 * [WIM * EXRATE] ** 0.61
(1.8) [AUV] (4.4)
* [PEXOT] ** -0.78
[AUV * EXRATE/20.8] (-3.5)
- (38) XGFOBR = EXMANR + EXOTR
- (39) XGFOB = XGFOBR * PXGBOT
- (40) XFS = (XFSGDP * GDP) + (WR * EXRATE)
- (41) XNFS = (XNFSGDP * GDP) + (TOURM * TOURD * TOURB)
- (42) XS = XFS + XNFS
- (43) XFSR = XFS / PGDP
- (44) XNFSR = XNFS / PGDP
- (45) XGS = XGFOB + XS
- (46) MOILR = MOILRGDPR * GDPR

(47) MOTR	=	$-4.35 * \text{GDPR} ** 1.21 * (\text{PMOT} / \text{PGDP}) ** -0.88$
		(7.5)
(48) MGCIFR	=	$\text{MOILR} + \text{MOTR}$
(49) MGCIF	=	$\text{MGCIFR} * \text{PMGBOT}$
(50) MFS	=	$\text{MFSGDP} * \text{GDP}$
(51) MNFS	=	$\text{MNFGDP} * \text{GDP}$
(52) MS	=	$\text{MFS} + \text{MNFS}$
(53) MFSR	=	$\text{MFS} / \text{PMGBOT}$
(54) MNFSR	=	$\text{MNFS} / \text{PMGBOT}$
(55) MGS	=	$\text{MGCIF} + \text{MS} + \text{NMG}$
(56) TBBOT	=	$\text{XGFOB} - (\text{MGCIF} + \text{NMG})$
(57) CABOT	=	$\text{XGS} - \text{MGS} + (\text{NCT} * \text{EXRATE})$
(58) TTJR	=	$\text{XGFOBR} * (\text{PXGBOT}/\text{PMGBOT}-1)$
(59) NFW	=	$\text{XFS} - \text{MFS}$
(60) FDI	=	$\text{FDIIT} * \text{IT}$

V. Money, Interest Rate, and Prices

```

(61) M2      = M2(-1) * (1 + GM2)
(62) M2GDPR = M2 / GDPR
(63) DRES   = 0.167 * [MGS - MGS(-1)] }      DRES = RES - RES_-1
                                         } or
(64) RES     = RES(-1) + DRES             }      RES = 0.25 * MGS
(65) RLR     = [(1 + RL) / (1 + GPGDP)] -1
(66) PGDP   = 0.14 + 0.57 * PGDP(-1) + 0.22 * PXGBOT + 0.06 * PMGBOT
              (1.6) (3.7)           (4.3)           (0.9)
              + 0.05 * M2GDPR
              (0.6)
(67) GPGDP  = PGDP / PGDP(-1) -1
(68) PGDPB  = PGDP * 1.12168 - TI / GDPF
(69) PIT    = -0.09 + 0.097 * PIT(-1) + 1.02 * PGDP
              (-0.7) (0.5)           (4.7)
(70) PCPUB  = 0.02 + 0.35 * PCPUB(-1) + 0.61 * PGDP
              (0.7) (3.9)           (7.2)
(71) AUV    = AUV(-1) * (1 + GAUV)
(72) MUV    = MUV(-1) * (1 + GMUV)
(73) PMOILS = PMOILSB * 0.4546
(74) PMOIL  = PMOILS * (EXRATE / 20.8)
(75) PMOTS  = PMOTS(-1) * (1 + GPMOTS)
(76) PMOT   = PMOTS * (EXRATE / 20.8)
(77) PMGBOT = (PMOIL * MOILR + PMOT * MOTR) / MGCIIR
(78) PEXMAN = PEXMAN(-1) * (1 + GPEXMAN)
(79) PEXOT  = PEXOT(-1) * (1 + GPEXOT)
(80) PXGBOT = (PEXMAN * EXMANR + PEXOT * EXOTR) / XGFOBR

```

VI. Other Indicators

(81) GDIGDP = GDI / GDP
 (82) ICOR = [ITR(-1)+ IVEN(-1)/PGDP(-1)] / [GDPR-GDPR(-1)]
 (83) GNSGDP = GNS / GDP
 (84) GNSMR = [GNS / PGDP - GNS(-1) / PGDP(-1)] / [GNYR-GNYR(-1)]

(85) MELAS = $[(MGCIFR + MNFSR) / (MGCIFR(-1) + MNFSR(-1)) - 1] / [(GDPR / GDP(-1) - 1]$
(86) TTINDX = $[PXGBOT / PMGBOT] * 100$
(87) CABOTGDP = CABOT / GDP
(88) POP = $POP(-1) * (1 + GPOP)$

The External Debt Submodel

(1) GAPFIL = MGS-XGS-NCT-FDI-MLT-ST+DRES+AMOR(gapfil)+INTS(gapfil)
(2) INTSijt = OUTSijt * Rijt
(3) AMORijt = $COMMijt / (Mijt - GIjt)$; if $Gijt < T < Mijt$
= 0 ; otherwise
(4) DISBijt = $COMMijt * Dijt$
(5) OUTSijt = $OUTSijt(-1) + DISBijt - AMORijt$
(6) TCOMM = SUM(ijt) of $COMMijt / Ej$
(7) TINTS = SUM(ijt) of $INTSijt / Ej$
(8) TAMOR = SUM(ijt) of $AMORijt / Ej$
(9) TDISB = SUM(ijt) of $DISBijt / Ej$
(10) OUTS = SUM(ijt) of $OUTSijt / Ej$

List of Variables for the Macroeconomic Submodel

6. An asterisk (*) denotes an exogenous variable. Flow variables are measured over the length of a year, and stocks are measured at the end of the year. "M.C. baht" indicates millions of current baht, and "M.72 baht" indicates millions of baht expressed in 1972 purchasing power. All prices are indexed to 1972 prices (1972=100).

Variables

AUV	Agricultural Commodity Export Unit Value Index (from World Bank's Commodity Price Forecasts)	
CABOT	Current Account Balance	M.C. Baht
CABOTGDP	Ratio of Current Account to GDP	
CPRI	Private Consumption	M.C. Baht
CPUB	Public Consumption	M.C. Baht
CPRIR	Private Consumption	M.72 Baht
*CPUBGDP	Ratio of Public Consumption to GDP	
CPUBR	Public Consumption	M.72 Baht
D	Depreciation	M.C. Baht
DR	Depreciation	M.72 Baht
DRES	Annual Change in Foreign Exchange Reserves	Mil. US\$ or M.C. Baht
EXMANR	Manufactured Exports (SITC 5-8)	M.72 Baht
EXOTR	Other Merchandise Exports	M.72 Baht
*EXRATE	Exchange Rate (Baht/US\$)	
FDI	Foreign Direct Investment	Mil. US\$ or M.C. Baht
*FDIIT	Ratio of Foreign Direct Investment to Gross Fixed Investment	
*GAUV	Growth Rate of AUV Index	
GDEF	Government Deficit	M.C. Baht

GDI	Gross Domestic Investment	M.C. Baht
GDIGDDP	Ratio of Gross Domestic Investment to GDP	
GDP	Gross Domestic Product	M.C. Baht
GDPF	Gross Domestic Product at Factor Cost	M.C. Baht
GDPFR	Gross Domestic Product at Factor Cost	M.72 Baht
GDPR	Gross Domestic Product	M.72 Baht
GEX	Government Expenditure	M.C. Baht
GGDPR	Growth Rate of Real Gross Domestic Product	
*GL	Growth Rate of Cultivated Land	
*GLS	Growth Rate of Labor Supply (from World Bank's projections)	
*GM2	Growth Rate of Money Supply (M2)	
*GMUV	Growth Rate of MUV Index	
GNP	Gross National Product	M.C. Baht
GNPR	Gross National Product	M.72 Baht
GNS	Gross National Savings	
GNSGDP	Ratio of Gross National Savings to GDP	
GNSMR	Marginal Rate of Gross National Savings	
GNY	Gross National Income	M.C. Baht
GNYR	Gross National Income	M.72 Baht
*GPEXMAN	Growth Rate of Unit Value Index of Manufactured_Exports	
*GPEXOT	Growth Rate of Unit Value Index of Other Merchandise Exports	
*GPMOTS	Growth Rate of Unit Value Index of Other Merchandise Imports in US\$	
PGDP	Growth Rate of GDP Deflator	
PMGBOT	Growth Rate of Unit Value Index of Merchandise Imports	
*GPOP	Growth Rate of Population (from World Bank's projections)	
GPXGBOT	Growth Rate of Unit Value Index of Merchandise Exports	
GREV	Total Government Revenue	M.C. Baht
GRO	Other Government Revenue	M.C. Baht
*GROGDP	Ratio of Other Government Revenue to GDP	
ICOR	Incremental Capital - Output Ratio (with Lag)	
*INPDG	Interest Payments on Government Debt	M.C. Baht
IPRIR	Private Investment	M.72 Baht
IPUB	Public Investment	M.C. Baht
*IPUBGDP	Ratio of Public Investment to GDP	
IPUBR	Public Investment	M.72 Baht
IT	Total Investment	M.C. Baht
ITR	Total Investment	M.72 Baht
IVEN	Inventory	M.C. Baht
*IVENDGDP	Ratio of Inventory to Annual Change in GDP	
KR	Capital Stock	M.72 Baht
L	Land	Mil. Rai
M2	Money Supply	M.C. Baht
M2GDR	Ratio of Money Supply to Real GDP	
MELAS	Import Elasticity	
MFS	Import of Factor Services	M.C. Baht
*MFSGDP	Ratio of Import of Factor Services to GDP	
MFSR	Import of Factor Services	M.72 Baht
MGCIF	Merchandise Imports (C.I.F.)	M.C. Baht
MGCIFR	Merchandise Imports (C.I.F.)	M.72 Baht
MGS	Imports of Goods and Services	M.C. Baht
MNFS	Imports of Non-Factor Services	M.C. Baht

*MNFGDP	Ratio of Import of Non-Factor Services to GDP	
MNFSR	Import of Non-Factor Services	M.72 Baht
MOILR	Import of Fuels and Lubricants	M.72 Baht
*MOILRGDPR	Ratio of Real Import of Fuels and Lubricants_to Real GDP	
MOTR	Other Merchandise Imports	M.72 Baht
MS	Import of Services	M.C. Baht
MUV	Manufacturing Unit Value Index (from World Bank's Commodity Price Forecasts)	
*NCT	Net Current Transfer	Mil. US\$
ND	Demand for Labor	Mil. Persons
NFW	Net Factor Income from Abroad	M.C. Baht
*NMG	Import of Non-Monetary Gold	M.C. Baht
NS	Supply of Labor	Mil. Persons
NPGS	Net Public & Government Savings	M.C. Baht
NPS	Net Private Savings	M.C. Baht
PCPUB	Deflator of Government Consumption	
PEXMAN	Unit Value Index of Manufactured Exports	
PEXOT	Unit Value Index of Other Merchandise Exports	
PGDP	Deflator of Gross Domestic Product at_Purchasers' Prices	
PGDPB	Deflator of Gross Domestic Product at Producers' Prices	
PIT	Deflator of Gross Fixed Investment	
PMGBOT	Unit Value Index of Merchandise Imports	
PMOIL	Unit Value Index of Import of Fuels and Lubricants_in Baht	
PMOILS	Unit Value Index of Import of Fuels and Lubricants in US\$	
*PMOILSB	Nominal Price of Oil (US\$/Barrel)	
PMOT	Unit Value Index of Other Merchandise Imports in Baht	
PMOTS	Unit Value Index of Other Merchandise Imports in US\$	
POP	Population	Mil. Persons
PXGBOT	Unit Value Index of Merchandise Exports	
RES	Foreign Exchange Reserves	Mil. US\$ or M.C. Baht
*RL	Nominal Lending Interest Rate	
RLR	Real Lending Interest Rate	
*STD	Statistical Discrepancies	M.C. Baht
TBBOT	Trade Balance	M.C. Baht
TD	Direct Tax	M.C. Baht
*TDGNY	Ratio of Direct Tax to GNY	
TI	Indirect Tax	M.C. Baht
*TIGDPF	Ratio of Indirect Tax to GDP at Factor Cost	
*TOURB	Average Expenditure of a Tourist	Baht/Day
*TOURD	Average Length of Stay in the Country of a Tourist	Days
*TOURM	Number of Tourists	Mil. Persons
TT	Total Tax	M.C. Baht
TTINDX	Terms of Trade Index	
TTJR	Terms of Trade Adjustment	M.72 Baht
*WIM	World Demand for Thailand's Exports	Mil. US\$
*WR	Worker Remittances	Mil. US\$
XFS	Export of Factor Services	M.C. Baht
*XFSGDP	Ratio of Export of Other Factor Services to GDP	
XFSR	Export of Factor Services	M.72 Baht
XGFOB	Merchandise Exports (F.O.B.)	M.C. Baht
XGFOBR	Merchandise Exports (F.O.B.)	M.72 Baht
XGS	Export of Goods and Services	M.C. Baht

- 209 -

XNFS	Export of Non-Factor Services	M.C. Baht
*XNFSGDP	Ratio of Export of Other Non-Factor Services to GDP	
XNFSR	Export of Non-Factor Services	M.72 Baht
XS	Export of Services	M.C. Baht

List of Variables and Parameters for the External Debt Submodel

Variables

AMOR	Amortization
DISB	Disbursement
GAPFIL	Gap Filler
INTS	Interest
MLT	Medium and Long Term Net Flows
OUTS	Debt Outstanding (Disbursed only)
TAMOR	Total Amortization
TCOMM	Total Commitment
TDISB	Total Disbursement
TINTS	Total Interest
TOUTS	Total Debt Outstanding (Disbursed only)
ST	Short Term Net Flows

Parameters

COMM	New Commitment
D	Disbursement Pattern (percent of commitment)
E	Exchange rate
G	Grace Period
M	Maturity of Loan
R	Interest Rate of Loan

Subscripts

i	Sources of Funds
j	Currency Denomination
t	Commitment Year (1930-2001)
T	Projection Year (1987-2001)

DETAILED ASSUMPTION FOR PROJECTIONS

1. The detailed assumptions for the four scenarios used for economic projections are as follows:

Base Case

2. External Assumptions:

- (a) External Demand: The world economy will grow between 2.0 and 2.5% during 1988-2001, which will translate into real import growth of about 3% for the period. However, Thailand's export destinations, in comparison with LDCs as a whole, are skewed toward higher growth areas, such as Japan, the US, EEC, and East Asian countries. Therefore, the real growth rate of the import demand in the areas relevant to Thailand will be about 4.5% on average.
- (b) Terms of Trade: Thailand's terms of trade improves about 12% between 1987 and 1988 due to favorable commodity prices. Thereafter, world prices of Thailand's exports and imports will move so as to keep Thailand's terms of trade stable. The price of imported oil will be US\$15/barrel in 1988, US\$16/barrel in 1989, and US\$17/barrel in 1990, and rise gradually in nominal terms to around US\$45/barrel by 2001.
- (c) Exchange Rates: The exchange rates among the major currencies are assumed to be stable at the levels that prevailed during the first half of 1988, or at least fluctuate in such a way that the net effect on trade will be about the same as the effect of stable exchange rates.
- (d) Interest Rates: World interest rates on Thailand's external debt will remain largely unchanged from the present levels. In particular, funds from private credit markets will be available to the Government at 7.5% in US dollars and 5.5% in yen, DM, and Swiss francs. The concessionary yen loans from Japan will carry an interest rate of 2.9%.
- (e) Foreign Direct Investment: Foreign direct investment will increase to around 4% of domestic fixed investment during 1988-90, compared with about 2% during 1985-87. This rate will stabilize at around 3% in the medium term.
- (f) Service and Other Balance of Payment Items: Worker remittances will remain constant in real terms, after an initial reduction in 1988. The number of tourists will rise about 6% p.a. throughout the period, while most other trade and transfer items in the balance of payments will grow in line with GDP.

3. Domestic Assumptions

- (a) Fiscal Policy. The Government is expected to continue its cautious fiscal policy by containing the fiscal deficit within a manageable

range. It will be able to increase its revenue share in GDP from about 17.6% in 1987 to 19% by 2001 (though it shows temporarily high levels in 1988-89). The nonfinancial state enterprises will collectively save about 2.7% of GDP. Public sector investment will rise to 7.5% of GDP over the projection period, with particularly high growth during 1989/990 in response to the growing demand for infrastructure investment. The Government consumption share in GDP will also rise in 1989 to accommodate a B 10 billion package for cost of living adjustments in the civil service salary scale. This share will gradually increase toward the end of the century in response to higher demand for social services, and to rectify the past underfunding of certain expenditures, including the maintenance of existing infrastructure and the accumulated arrears to some state enterprises (about B 3.5 billion).

- (b) Monetary Policy. The BOT will maintain the real effective exchange rate of the baht near the current level. Given the external assumptions that the exchange rates among the major currencies will remain stable and that prices will remain reasonably stable, this assumption is equivalent to assuming that the BOT will follow a stable baht/US\$ exchange rate policy at 25.2 baht/US\$. This also means that in 1988, the baht will depreciate about 11.5% against the yen, DM, and Swiss franc, following a depreciation of the same magnitude in 1987.
- (c) Factors of Production. The projection assumes no further expansion of the agricultural land frontier. However, the intensity of land utilization is expected to increase through mechanization and the greater use of fertilizer and pesticides. Therefore, cultivated land in terms of efficiency units is assumed to grow about 0.5% p.a. throughout the projection period. The population growth rate will decline continuously from about 1.8% in 1987 to 1.3% in 2001. Labor force will grow about 2.6% p.a. during the first five years of the projection period, but the growth rate will steadily decline in the following years to about 1.8% by 2001. (The share of labor force in population will rise from 53.7% to 57.5% over the same period.) The rate of open unemployment will decline over time from 1.5% in 1987 to about 1.0% in 2001. The growth rate of real capital formation will be in line with real GDP growth, and will be between 6.2 to 6.9% p.a. over the projection period. During 1988-90, however, this growth rate will be higher at about 7.5% p.a., reflecting an extension of the current investment boom.

High Case

4. External Assumptions

- (a) World output will grow at 3% p.a. in real terms during 1989-2001. The real growth rate of import demand that Thailand faces will be about 5.5% p.a.
- (b) Thailand's terms of trade will improve by 4-5% during 1989-96, as the prices of Thai agricultural exports will be generally higher because of lower agricultural subsidies in major industrial economies.

- (c) With more vigorous investment and consumption in industrial economies, inflation and real interest rates will be higher in the short-run. This will raise Thailand's domestic inflation and real interest rates vis-a-vis the base case during 1989-91. However, greater stability in the world economy will reduce both rates in the longer run.

3. Domestic Assumptions

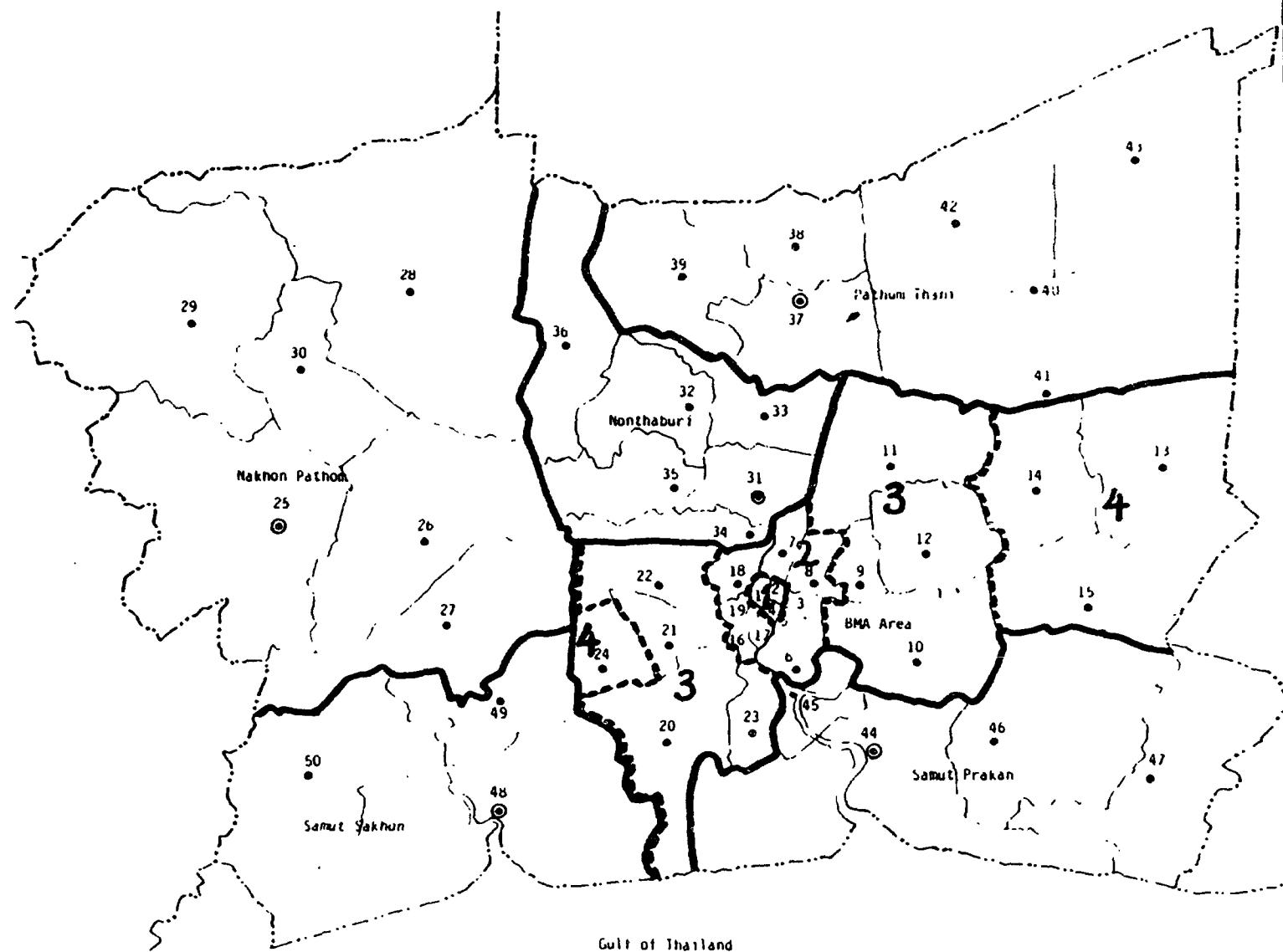
- (a) The share of public sector investment in GDP will be raised to 7.6% in 1989, 8.0% during 1990-92, and 7.8% thereafter. This compares to an investment stream of 7.8% for 1989-90 and 7.5% thereafter in the base case.
- (b) The public sector's revenues will rise with GDP so that their share in GDP will be the same as in the base case.

Domestic Low Case

6. (a) The baht is revalued from the level in the base case by 5% against the US dollar in 1989/90. The new nominal exchange rate is maintained thereafter. No realignments among other currencies are assumed.
- (b) The public sector consumption share in GDP is raised by about 0.5% of GDP in relation to the base case.
- (c) As the current account deficit widens, however, the Government does take measures to slow the economy so as to prevent the external balance and public sector deficits from deteriorating too far, presumably through monetary restraints and higher taxes.
- (d) The external environment will be the same as the high case.

External Low Case

7. (a) The real growth of the world economy will be only about 1.8% p.a. during 1989-2001. This translates into the real growth of about 3.5% p.a. in world demand for Thailand's exports.
- (b) Increased agricultural subsidies in industrial countries will result in lower prices of agricultural exports as compared to the base case. This hurts Thailand's terms of trade.
- (c) The Government will, however, maintain the current level of the real effective exchange rate and push forward with various reforms assumed in the high case.



BMA AREA

- | | |
|--------------------------|-------------------------|
| 1 PHRA NAKHON | 16 NAKHON PATHOM |
| 2 PHU KHAN | 17 SAMUT PRAKAN |
| 3 PATHUM THANI | 18 SAMUT SAKHON |
| 4 SAMUTPRAKARN | 19 SAMUT SONGKHLA |
| 5 BANG KAEK | 20 UTHAI THANI |
| 6 YAN THAI | 21 PHRAE, MUSIK KHANI |
| 7 LOPBURI | 22 BANG KAEK THANI |
| 8 PHAET THANI | 23 PHA SRI |
| 9 KHON KAEN | 24 BANG KHUA |
| 10 PHRA KHANONG | 25 BANG YAI |
| 11 BANG KHEA | 26 JAI KHAI |
| 12 BANG KAPI | 27 KHUNAI, PATHUM THANI |
| 13 KROM LUEK | 28 SAMUTPRAK |
| 14 KIRI BURI | 29 AT LUE KHAI |
| 15 LAT KHA BANG | 30 KHANTHABURI |
| 16 THON BURI | 31 LAM LUE KA |
| 17 KHLOE SAN | 32 KHUNG LUEK |
| 18 BANLUANG KHAI | 33 KHAO SRI |
| 19 BANGKOK YAI | 34 PHAENG SAPUT PRASAE |
| 20 BANG KHUN THIAN | 35 PHAENG TAD |
| 21 PHAET CHAIKHAN | 36 SAMUT PHLI |
| 22 TALUNG CHAI | 37 BANG BU |
| 23 RAT BURANA | 38 PHAENG SAMUT PHLI |
| 24 NONG KHAI | 39 KRATHUM BAEN |
| 25 NONG BUA | 40 SAMUTPHALANG |
| 26 PHAENG BANGKOK PATHOM | 41 SAMUT SONGKHLA |

LEGEND

- - - BOUNDARY OF THE BMA REGION
- BOUNDARY OF CHAMPAT
- BOUNDARY OF AMPHURE
- (●) LOCATION OF AMPHURE ADMIN
- (●) LOCATION OF OTHER AMPHURE
- - - - RING 9

LOCATION MAP OF BMA

WORLD SURVEY

National Economic and Social Development Plan

