The United Nations University

WIDER

World Institute for Development Economics Research

Working Papers No. 207

November 2000

Growth, Structural Change and Inequality
The Experience of Thailand

Isra Sarntisart

UNU World Institute for
Development Economics Research
(UNU/WIDER)

Working Papers No. 207

Growth, Structural Change and Inequality

The Experience of Thailand

Isra Sarntisart

November 2000

This study has been prepared within the project on Rising Income Inequality and Poverty Reduction: Are They Compatible?, jointly sponsored by UNU/WIDER and the United Nations Development Programme (UNDP), and directed by Professor Giovanni Andrea Cornia.

UNU/WIDER gratefully acknowledges the financial contribution to the project by the Government of Sweden (Swedish International Development Cooperation Agency–Sida).

Isra Sarntisart is affiliated with the Faculty of Economics, Chulalongkorn University, Bangkok.

UNU World Institute for Development Economics Research (UNU/WIDER) was established by the United Nations University as its first research and training centre and started work in Helsinki, Finland in 1985. The purpose of the Institute is to undertake applied research and policy analysis on structural changes affecting the developing and transitional economies, to provide a forum for the advocacy of policies leading to robust, equitable and environmentally sustainable growth, and to promote capacity strengthening and training in the field of economic and social policy making. Its work is carried out by staff researchers and visiting scholars in Helsinki and through networks of collaborating scholars and institutions around the world.

UNU World Institute for Development Economics Research (UNU/WIDER)
Katajanokanlaituri 6 B
00160 Helsinki, Finland

Camera-ready typescript prepared by Lorraine Telfer-Taivainen at UNU/WIDER
Printed at Pikapaino Paatelainen Oy, Helsinki

ISSN 0782-8233
ISBN 952-455-104-7 (printed publication)
ISBN 952-455-105-5 (internet publication)

CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

I appreciate the invaluable research assistance of Ratchanee Siboonthieng and Hatairat Juengjariyanon, and Giovanni Andrea Cornia, Carolyn Jenkins, other participants at the UNU/WIDER project meeting in December 1999 in Helsinki, and Pasuk Phongpaichit for their helpful comments and suggestions.

Isra Sarntisart
November 2000, Bangkok

ABSTRACT

The impressive economic growth record of Thailand before 1997 was dominated by the increasing importance of modern industrialization, as well as the expansion of other sectors. This occurred at the expense of agriculture, which accounts for the largest employment pool. At the same time, the country failed to distribute the benefits of the growth equitably. While poverty tended to improve, income inequality worsened. The problem has attracted considerable interest among economists and policy-makers. This study examines the changing structure of the Thai economy and the relevant development policies over the past four decades. The results show that various policies have been behind the success in non-agricultural sectors. Expansion in non-agricultural sectors has raised the return to production factors in the sectors, squeezed the return to agriculture, limited agricultural development, and disequalized the distribution of income. This evidence raises concern about the success of the country's development plans.

I INTRODUCTION

Economic growth in Thailand has been marked by the increasing power of the manufacturing sector. Expansion of manufacturing in the 1960s was dominated by protected industries, which were geared towards the domestic market for consumer goods. Since the beginning of the 1970s, when the domestic market was saturated, the country has moved towards an export-oriented strategy. The export of manufactured goods has gradually taken the place of the export of primary products. The economic importance of agriculture has been declining not only in GDP share, but also in the share of Thailand's international trade.

Although industrialization is believed to be a major factor behind Thailand's economic growth record, in terms of overall development its success has been brought into question by changes in the distribution of income. During the past three decades of modern industrialization and rapid growth, there has been a significant degree of protection for capital-intensive import-competing products, as well as a considerable rise in the export of labour-intensive products. At the same time, it is well known that Thailand failed to distribute the benefits of economic growth equitably, and income distribution deteriorated. When the country started to lose its comparative advantage and economic growth began to slow in the middle of the 1990s, income inequality tended to decline.

The share of other sectors in GDP also expanded at the expense of agriculture. This trend was dominated by the increase in the share of the banking, financial institutions, insurance, and real estate (FIRE) sector that reached its peak in 1994. In 1995, the performance of the FIRE sector and the impressive record of the Thai economy started to show cracks. It is widely believed that this had a substantial impact on the allocation of and the returns to factors of production and on income distribution.

While there is no study on the relationship between the FIRE sector and income inequality, some studies have attempted to establish a relationship between industrialization and income distribution in Thailand (Suganya and Somchai 1988; Teerana 1993; Pranee 1992; Orakoch 1999). However, the study results do not satisfactorily describe the relationship. Basically, the explanations of Suganya and Somchai, Teerana, and Pranee are based on the fact that the share of manufacturing in GDP increased more rapidly than did the share of manufacturing labour in the total labour force. Consequently, output per worker increased more quickly in manufacturing than it did in agriculture, and the agricultural labour force was left with lower incomes. At the same time, income

distribution deteriorated. Orakoch states that economic growth and investment in manufacturing were among the factors that worsened income distribution.

This paper attempts to reexamine the relationship among economic growth, structural change and income inequality in Thailand. Section 2 provides a broad picture of the Thai economy. Section 3 reviews studies on the changes in income inequality from the 1960s through the beginning of the 1990s. Section 4 examines industrialization planning, industrial protection policies, regional income disparities, and the minimum wage bill over the past four decades. Although it is well understood that the present situation in income inequality cannot be explained solely by these policies, a relationship among the FIRE sector, the pattern of industrialization and the composition of income could shed light on the role of industrialization in the distribution of income in Thailand. Section 5 analyses income inequality in 1988, 1992 and 1996 according to the subgroups and source decompositions of income. The final section summarizes.

II ECONOMIC GROWTH AND STRUCTURAL CHANGE

The Thai economy has grown rapidly during the past four decades (Table 1). The annual average rate of growth of real GDP was approximately 8 per cent in the 1960s and 7 per cent in the 1970s. During the first half of the 1980s, the growth rate fell slightly to 5.7 per cent, but rose dramatically, to nearly 10 per cent, in the second half of the decade. With an annual population growth rate of about 2 per cent, the increase of per capita GNP reached 8 per cent during that period. The growth rates of GDP in the beginning of the 1990s were well above 8 per cent. However, they dropped to 5.9 per cent in 1996 and recorded an economic contraction of -1.75 per cent for the first time in many decades in 1997. This change in the performance of the Thai economy is believed to have affected the distribution of income significantly.

The structure of the Thai economy has been changing from a labour-intensive agricultural base to a capital-intensive manufacturing base (Table 2). The share in GDP of the agricultural sector sharply declined, from nearly 40 per cent in 1960 to 25.9 per cent in 1970, 23.2 per cent in 1980, 12.8 per cent in 1990, and around 11 per cent in the second half of the 1990s. The total share in agriculture of three major products, paddy, cassava and rubber, remained fairly constant at around 31 per cent. Consequently, their shares in GDP also declined. These reductions accompanied an expansion of more than 100 per cent in the manufacturing sector, from 12.5 per cent to more than 28 per cent of

GDP. The share of other sectors gradually rose, from nearly 48 per cent to more than 60 per cent, in the same period.

TABLE 1
GDP GROWTH AT 1988 PRICES, VARIOUS YEARS (%)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997[p]
GDP	6.91	5.45	10.41	8.07	8.08	8.38	8.95	8.90	5.93	-1.75
Agriculture	4.18	4.25	3.22	6.13	4.79	-1.34	5.38	2.93	3.57	-0.74
Manufacturing	10.03	4.91	15.12	11.47	11.30	11.20	9.35	11.37	6.90	0.17
Other	7.35	6.07	10.49	6.91	7.26	9.14	9.47	8.79	5.84	-2.97

Source: NESDB (various).

TABLE 2
STRUCTURE OF GDP AND THE COMPOSITION OF AGRICULTURE AND MANUFACTURING AT CURRENT PRICES, BY SECTOR, VARIOUS YEARS (%)

	1960	1970	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997[P]
GDP												
Agriculture	39.8	25.9	23.2	16.7	12.79	12.65	12.30	10.41	10.80	11.22	11.08	11.26
Manufacturing	12.5	15.9	21.3	22.1	27.31	28.24	27.52	28.15	28.00	28.18	28.18	28.22
Other	47.7	58.2	55.5	61.2	59.90	59.11	60.19	61.45	61.20	60.60	60.74	60.52
Agriculture												
paddy		–24.61	26.83	24.10	18.17	18.75	18.54	14.73	15.63	15.45	17.44	20.75
cassava		– 2.49	6.67	3.93	4.69	4.11	3.49	2.48	2.50	3.27	2.04	1.46
rubber		– 4.65	5.15	6.46	7.72	6.90	7.44	7.32	9.71	11.88	10.45	8.80
other		–68.25	61.36	65.51	69.42	70.23	70.53	75.47	72.16	69.40	70.08	68.99
Manufacturing												
food and beverages	42.8	31.9	20.1	24.8	16.12	16.04	15.01	14.35	14.44	14.07	14.11	15.55
tobacco and snuff	14.5	7.4	5.3	5.1	2.94	2.92	2.44	2.16	2.39	2.10	2.14	2.56
clothing + leather	8.4	11.3	12.1	16.1	10.29	11.28	11.36	11.15	11.51	11.44	11.75	12.27
textiles	4.7	7.5	12.2	9.9	10.74	9.62	9.64	8.59	7.96	7.75	6.71	6.46
petroleum refinery	0.04	5.7	8.2	6.8	4.24	5.96	5.73	6.31	6.25	6.46	7.60	8.75
non-metallic minerals	4.0	4.3	3.7	4.7	6.23	6.42	5.95	5.83	5.66	5.30	5.39	4.96
electrical machinery	0.6	1.9	2.4	2.6	5.75	6.38	8.04	8.49	8.80	8.14	8.11	7.88
transport equipment	4.9	5.2	8.2	4.9	9.89	7.54	7.77	9.35	7.79	8.62	8.69	6.17
other	20.1	24.8	27.8	25.1	33.80	33.83	34.04	33.77	35.21	36.10	35.50	35.39
Other sectors												
banking, finance, insurance, real estate	4.51	4.25	5.60	5.36	7.41	9.07	10.69	11.92	12.61	12.44	12.39	11.38
other	95.49	95.75	94.40	94.64	92.59	90.93	89.31	88.08	87.39	87.56	87.61	88.62

Source: NESDB (various).

A shift from simple processing in agriculture-based industries, which were discriminated against, to protected high-processing industries has also characterized the rapid expansion in the manufacturing sector. Typical is the overall share of food, beverages, tobacco, and snuff in total manufacturing products, which decreased from more than 57 per cent in 1960 to about 18 per

cent in the second half of the 1990s, while the overall share of petroleum refining and electrical machinery climbed significantly, from only 0.64 per cent to more than 16 per cent by 1997. The share of other industries which are labour intensive—such as clothing, leather and textiles—that had increased from 13 per cent to about 21 per cent in the first half of the 1990s showed a falling trend, to around 19 per cent, when Thailand started to lose her international competitiveness in these products in the second half of the 1990s. This negatively affected employment and labour earnings.

Other sectors also expanded at the expense of agriculture during the period (Table 2). The share in GDP of other sectors has risen from less than 60 per cent to around 60 per cent since the second half of the 1980s. At the same time, following the influx of foreign direct investment in the second half of the 1980s and financial liberalization in 1993, the share of the FIRE sector in the domestic product of other sectors, which was only around 5 per cent in the 1960s and 1970s, started to increase in the second half of the 1980s and reached 12.6 per cent in 1994. The inflow of foreign direct investment in the second half of the 1980s was greater than the total inflow during the preceding 10 years. It should be noted that this was not solely the result of government policies. The tremendous influx of foreign direct investment mainly originated in Japan, Hong Kong, South Korea, Taiwan, and Singapore and was the effect of changes occurring elsewhere in the world. Beginning in 1995, the share of other sectors in GDP continuously fell, dropping to 11.4 per cent in 1997. The share of the FIRE sector also decreased. This signalled the collapse of the bubble period and led to the 1997 financial crisis in the Thai economy. The performance of the FIRE sector influenced the profit of investment and return to labour in the sector, and it is widely believed that this affected the distribution of income.

TABLE 3
STRUCTURE AND GROWTH OF NET CAPITAL STOCK AT 1988 PRICES, BY SECTOR, VARIOUS YEARS (%)

	1970	1980	1985	1990	1991	1992	1993	1994	1995	1996
Total share										
Agriculture	19.62	14.42	11.09	8.30	7.79	7.38	7.18	7.00	6.83	6.73
Manufacturing	8.54	11.30	11.45	14.44	15.02	15.43	15.72	15.91	16.21	16.40
Other	71.85	74.28	77.46	77.25	77.18	77.19	77.10	77.08	76.96	76.87
Average growth rate	–	5.20	7.22	9.15	13.47	12.36	11.80	11.77	11.54	10.71
Agriculture	–	2.02	1.73	3.00	6.54	6.33	8.75	9.12	8.74	9.11
Manufacturing	–	8.20	7.50	14.35	18.00	15.43	13.91	13.12	13.64	11.97
Other	–	5.55	8.12	9.09	13.37	12.37	11.67	11.75	11.36	10.58

Source: NESDB (1998).

TABLE 4
LABOUR FORCE, BY INDUSTRY, VARIOUS YEARS

	1960	1970	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total (000s)	13,772.1	16,652.3	23,281.4	30,843.7	29,220.3	30,794.3	30,679.9	30,164.3	30,815.1	31,165.8	31,714.3	30,775.5	30,024.5
Agriculture	11,334.4	13,201.9	16,820.6	19,725.7	16,383.9	17,305.1	16,269.5	15,180.4	14,389.1	14,136.6	14,314.6	14,055.9	12,552.9
Manufacturing	471.0	682.6	1,308.5	3,132.6	3,657.8	3,932.6	4,179.0	4,190.8	4,608.1	4,650.8	4,644.2	4,556.2	4,858.1
Other	1,966.7	2,767.3	5,152.7	7,984.7	9,177.8	9,555.8	10,230.6	10,792.0	11,817.2	12,377.5	12,754.9	12,162.5	12,612.8
Sector share (%)													
Agriculture	82.30	79.28	72.25	63.95	56.07	56.20	53.03	50.33	46.69	45.36	45.14	45.67	41.81
Manufacturing	3.42	4.10	5.62	10.16	12.52	12.77	13.62	13.89	14.95	14.92	14.64	14.80	16.18
Other	14.28	16.62	22.13	25.89	31.41	31.03	33.35	35.78	38.35	39.71	40.22	39.52	42.01
Growth rate (%)	–	1.92	3.41	2.85	-5.26	5.39	-0.37	-1.68	2.16	1.14	1.76	-2.96	-2.44
Agriculture	–	1.54	2.45	1.61	-16.94	5.62	-5.98	-6.69	-5.21	-1.75	1.26	-1.81	-10.69
Manufacturing	–	3.78	6.72	9.12	16.77	7.51	6.26	0.28	9.96	0.93	-0.14	-1.89	6.63
Other	–	3.47	6.41	4.48	14.94	4.12	7.06	5.49	9.50	4.74	3.05	-4.64	3.70

Sources: 1960-90: NSO (1960, 1970, 1980, 1990); 1991-98: NSO (2000), Rounds 1 and 3; 1999: NSO (2000), Round 1.

During the past four decades of modern industrialization, manufacturing has become increasingly dominant. The expansion of manufacturing has been characterized by the reallocation of resources in favour of manufacturing and at the expense of agriculture, which employs most of the labour force. Between 1970 and 1997, the capital stock in the agricultural sector expanded at relatively lower rates than that in manufacturing and other sectors (Table 3). However, the growth rates of agricultural capital tended to increase over the 1990s and had nearly matched those in manufacturing and other sectors by 1997.

The changing economic structure has altered the structure of employment, as well as that of capital. The manufacturing labour force expanded at a much more rapid rate than did agricultural labour (Table 4). Despite the extremely high growth rate of the manufacturing labour force, the absolute level was not sufficient to shift the structure of employment, and the majority of the labour force was still in agriculture. During the three decades prior to the 1990s, the average annual growth of the agricultural labour force, around 2-3 per cent, can be considered a result of natural growth rather than resource allocation. In the 1990s, the rate became negative. Coxhead and Jiraporn (1999) also point out that, after 1989, around 15 per cent of the 20-million-strong agricultural labour force walked off the farm. However, the share of agricultural labour in the total labour force, which was about 82 per cent in 1960, was still above 45 per cent during 1995-98 and had dropped to only around 42 per cent by 1999. The share of labour employed in other sectors, which increased from 14 per cent of the total labour force in 1960 to 17 per cent, 22 per cent and 25 per cent in 1970, 1980 and 1990, respectively, jumped to around 40 per cent after 1995. The stable share of labour employed in other sectors clearly followed the decline in the share of the FIRE sector in GDP. In the case of farmland, it is widely known that much of it was left idle and was not being used productively because of price speculation by industrial and real estate developers (see, for example, Somchai 1999).

III TRENDS IN INCOME INEQUALITY

This section examines the size distribution of income in Thailand, thereby explaining the extent to which income is divided equally among households and individuals. The focus on income distribution arises from a mounting concern that structural change and rapid economic growth—induced by trade and industrialization—have been followed in the Thai economy by increases in

income inequality. A large segment of the Thai population has not benefited sufficiently from the economic growth.

Most previous studies—based on the household socioeconomic surveys carried out by the National Statistical Office—divide the Thai population into income quintiles and analyse changes in the income share of each quintile. The Gini index and other indices are used to summarize the extent to which the actual distribution of income deviates from a perfectly equal income distribution. Instead of using net income, previous studies are generally based on gross income. This reflects the fact that, in the view of Thai economists, the redistributive role of the personal income tax has not been impressive in Thailand.

Medhi (1977) has studied income inequality during three years, 1963, 1969 and 1972. He uses both money income and adjusted income, which included income in kind and net retained corporate earnings. Based on household income, he finds severe income inequality during each period. One-half of the households in Thailand shared less than 20 per cent of the country's income. The income share of the bottom 20 per cent of households was less than 3.5 per cent, while the share of the top 20 per cent of households was nearly two-thirds. Medhi concludes that income equality clearly deteriorated during these years. The top 20 per cent in income had been the only group to gain a greater income share, and the top 1 per cent benefited the most (Table 5). Given that poor households tended to be larger than rich ones, the worsening inequality was even more severe in per capita terms.

TABLE 5
DISTRIBUTION OF HOUSEHOLD INCOME, 1963, 1969 AND 1972

	1963	1969	1972
Income share (%)			
20% lowest	2.9	3.4	2.4
20%	6.2	6.1	5.1
20% middle	10.5	10.4	9.7
20%	20.9	19.2	18.4
20% highest	59.5	60.9	64.4
Top 1%	9.6	10.5	15.0
Gini index, money income	0.5627	0.5550	0.6051
Gini index, adjusted income	0.4559	0.4822	0.5348

Source: Medhi (1977: Tables 9 and 10).

Suganya and Somchai (1988) have studied income inequality in 1975/76, 1980/81 and 1985/86. Unlike Medhi, Suganya and Somchai use income on a per capita basis. Since the size of poor households is generally larger than that

of rich households and since the majority of the Thai population is poor, Gini indices of household income can be expected to be slightly lower than those reported by Suganya and Somchai. However, due to different concepts in the household database, the results of the two studies are not comparable.

TABLE 6
DISTRIBUTION OF PER CAPITA HOUSEHOLD INCOME,
1975/76, 1980/81 AND 1985/86

	1975/76	1980/81	1985/86
Income share (%)			
20% lowest	6.05	5.41	4.55
20%	9.73	9.10	7.87
20% middle	14.00	13.38	12.09
20%	20.96	20.64	19.86
20% highest	49.26	51.47	55.63
Top 10%	33.40	35.44	39.15
Gini index	0.426	0.453	0.500

Source: Suganya and Somchai (1988: Table 2.2).

Inequality was shown to have increased during the period. In terms of Gini indices, income inequality was 0.426 in 1975/76, 0.453 in 1980/81 and 0.500 in 1985/86. The degree of worsening inequality was more severe between 1980/81 and 1985/86 than between 1975/76 and 1980/81. This could also be the effect of the agricultural terms of trade and the performance of agriculture. As shown in Table 6, the income share of the top 20 per cent of the population in 1975/76 was 49.3 per cent. In 1980/81 and 1985/86, this share increased to 51.5 per cent and 55.6 per cent, respectively. On the opposite side, the share of the bottom 20 per cent, which was already low, fell from 6.1 per cent to 5.4 per cent and then to 4.6 per cent. Again, the top 20 per cent in income was the only group that gained, and the top 10 per cent gained the most. One could ask whether most of the gain went to the top 1 per cent.

Income inequality in 1988, 1992 and 1996 has been calculated for this paper using the same methodology as that of Suganya and Somchai (Table 7). In 1988, the shares of the three lower quintiles increased significantly, to 4.9 per cent, 8.5 per cent and 12.4 per cent, at the expense of the upper two quintiles, for which the shares decreased to 19.7 per cent and 54.5 per cent. In terms of the Gini index, inequality fell from 0.500 in 1985/86 to 0.4929 in 1988.

It is notable that this was the first time in 30 years that Thailand recorded a decline in income inequality. Medhi, Pranee and Suphat (1991) assert that this situation was similar to that in 1980/81. The major determinant of the reduction was crop prices, which were at a peak in adjacent years. This improvement in

equality coincided with an increase in poverty between 1985/86 and 1988. The rise in poverty was an urban phenomenon. During this period, municipal areas in almost every region experienced an increase in poverty, except for Bangkok and municipal areas in the Central region that were insulated from these increases. Thus, the decline in inequality occurred at the expense of urban residents who became poor.

TABLE 7
DISTRIBUTION OF PER CAPITA HOUSEHOLD INCOME, 1988, 1992 AND 1996

	1988	1992	1996
Income share (%)			
20% lowest	4.89	4.10	4.25
20%	8.45	7.22	7.62
20% middle	12.43	11.23	11.85
20%	19.74	18.76	19.79
20% highest	54.49	58.71	56.49
Top 10%	37.83	42.34	40.00
Gini index	0.4929	0.5310	0.5114
Shorrocks index	0.7929	1.7585	1.2791

Source: Calculated from data of the 1988, 1992 and 1996 household socioeconomic surveys.

Changes in inequality between 1988 and 1996 are very important for policy analysis. Between 1988 and 1992, the changes in inequality followed the same trend as those in previous years. Based on the Gini index and the Shorrocks index of order 2, inequality increased, respectively, from 0.4929[1] and 0.7929 in 1988 to 0.5310 and 1.7585 in 1992. This increase was mainly due to the gain in income share among the top 10 per cent, from 37.8 per cent to 42.4 per cent, while the shares of all other deciles fell. The trend was reversed again in 1996, when the two indices showed a decrease in inequality from 0.5310 and 1.7585 to 0.5114 and 1.2791, respectively. This favourable change was the result of the gain in the income shares of all lower deciles at the expense of the top 10 per cent. The reason behind the gain and the loss in the income share of the top 10 per cent between the two periods calls for further explanation.

The above discussion is based on gross income. The distribution of net income would be less unequal than that of gross income if the structure of the personal income tax were progressive. Chalongphob *et al.* (1999) analyse the incidence of the tax between 1986 and 1996 and point out that the burden of the income tax fell more heavily on households in Bangkok and households in the upper

[1] This is slightly different from the figure reported in Table 10. A reason may be a different treatment of outliers in the database.

income deciles. They also add that the average income tax burden per household increased during the period. The results of Suphanee (1995) differ slightly. Based on the 1990 tax burden on urban households, Suphanee finds that the personal income tax had a progressive structure, and the tax burden fell mainly on wage and salary earners. By comparing the structure of the personal income tax in 1990 and 1992, Usarsee (1996) finds that the 1992 structure was not more progressive than the 1990 structure. Moreover, the 1992 regional and size distributions of post-tax income tended to be more unequal than the corresponding distributions of the pre-tax income. Thus, the results of previous studies indicate that, since not all households are subjected to income taxation, the redistributive impact of the progressive income tax may not be very effective.[2]

IV FACTORS RELATED TO INCOME DISTRIBUTION

Many factors are important in the distribution of the benefits of growth of the Thai economy. These include industrialization plans, industrial protection policies, the minimum wage bill, direct foreign investment, trade liberalization, financial liberalization, land reform, and expansions in education. The extent to which the first three factors have influenced changes in income inequality are discussed in the following paragraphs. The impact of trade liberalization is suggested by the results of previous studies on industrial protection and income distribution (see earlier). The role of financial liberalization, the failure of land reform, and the disequalizing force of expansions in education in Thailand, although they have been crucial and have had a long-term impact on income distribution, are not the focus of this paper.

4.1 Industrialization plans

Modern industrialization did not begin in Thailand until the late 1950s and the beginning of the 1960s. Since 1958, the policy of the Thai government has been to promote and guarantee private investment and to provide infrastructure. In its first development plan (1961-6), the government encouraged industrial expansion in the private sector, mainly by granting privileges and protection to industries producing in competition with imports. Then, after years of import substitution, Thailand moved to limit the process through a gradual switch to a concentration on exports. Although the second development plan (1967-71) did

[2] Chalongphob *et al.* (1999) and Isra (1999) find that indirect taxes such as the business tax and VAT were slightly regressive.

not actively promote exports, the aims of the plan laid more emphasis on both agricultural and manufacturing exports, and the plan also addressed the quality of export products.

Beginning with the third development plan (1972-6), the government has attempted to promote export industries. The third plan sought to promote the exportation of agricultural and manufacturing products based on the use of locally available raw materials. The two following plans (1977-81 and 1982-6) continued to focus on the export sector, but with more emphasis on marketing, industrial decentralization and the promotion of heavy industry. Varying levels of special privilege were granted to selected firms in provincial areas. The purpose was to decentralize industries away from Bangkok and the surrounding provinces. More exporting industries were added to the list of promoted industries, and the protection offered for exporting industries increased. However, import-competing industries were still heavily protected.

The next three development plans tended to be more concerned with distributional issues. The sixth plan (1987-91) placed more emphasis on the distribution of farmland, diversification in agricultural products and the development of agriculture-based industries and small-scale industries. This was expected to raise the income of the rural poor.

The seventh plan (1992-6) focused more on structural adjustment in agriculture and industrial reallocation towards regional centres[3] that was expected to favour small-scale and household industries. This should have reduced the income gap among different regions.

The current plan (1997-2001) assigns more importance to the development of human capital and the improvement of production technology and efficiency. However, attention has also been given to agriculture, agriculture-based industries and other selected areas of manufacturing such as motor vehicles, electrical appliances, electronics, machinery, and telecommunications. Some of these industries have long been heavily protected or have monopoly rent. Though it will be a long time before the distributional consequences of this plan are realized, the distributional impact of the fresh attention on agriculture and agriculture-based industries is expected to be favourable, while the focus on protected industries and monopolists is expected to be unfavourable.

---

[3] These were Chiang Mai, Phitsanulok and Nakhon Sawan in the North, Khon Kaen and Nakhon Ratchasima in the Northeast, Saraburi and Ratchaburi in the Central region, and Surat Thani and Songkhla in the South.

4.2 Industrial protection

The theoretical arguments for industrial protection during industrialization are well known. Temporary protection may assist a young industry to compete with foreign industry, while it develops its latent strengths. Protection raises the domestic prices for protected manufactures above world prices, bids up the return to mobile factors of production and redirects the resources required for industrialization from agriculture to manufacturing.[4] In Thailand, it also involved the maintenance of low manufacturing wage rates through the provision of cheaper agricultural produce for the consumption of manufacturing workers. Consequently, in agriculture, which is the biggest employment pool, it obstructed technological development and any move towards higher productivity and greater incomes. Moreover, protected industries are not encouraged to be more efficient and thus tend to remain inefficient.

Generally, there are four objectives in industrial protection. First, in the case of Thailand, the initial objective was to raise revenue (Ingram 1971).

Second, in an attempt to relieve the difficulties linked to the trade deficit, a high tariff was placed on consumer goods considered luxury items.

Third, protection has been regarded as an appropriate means to stimulate industrialization. The so-called infant industry argument asserts that temporary protection may be required for a young industry to be able to compete with foreign industry, while it is being developed. However, based on improvements in total factor productivity and international competitiveness, Nishimizu and Page (1986) conclude that infant industry arguments for protection in Thailand are only supported empirically for a minority of protected industries.

Fourth, the infant industry argument is frequently accompanied by the employment argument, which is often taken implicitly as a favourable distributional objective of protection. In the case of Thailand, a relationship between labour intensity and the level of protection runs counter to this argument. Table 8 presents estimates of the correlation among sectoral factor intensity (wLrK), the ratio between the wage bill (wL) and the total non-wage bill (rK), and import duty rates (DM) and import tax rates (TDM). Based on data from the 1990 input-output table, the estimates show that there is a negative relationship between sectoral factor intensity and the level of protection (the import duty and import tax rates). Although the correlation

[4] Ikemoto (1991) and Isra (1994) point out that the agricultural terms of trade deteriorated.

coefficients are quite low, they show that the degree of protection tends to be lower for labour-intensive industries. This relationship indicates that the employment argument is not valid, and the distributional impact of the 1995 protective system could be unfavourable. Based on 1985 data, the estimates of Isra (1994) point to a similar conclusion.

TABLE 8
CORRELATION AMONG LABOUR-CAPITAL INTENSITY, IMPORT TAX RATE AND IMPORT DUTY RATE, 1990

Correlation	wLrK	TDM	DM
wL/rK	1	-0.0137	-0.0064
TDM	-0.0137	1	0.9690
DM	-0.0064	0.9690	1

Notes: wL/rK = labour-capital intensity. TDM = (import tax + import duty)/total output. DM = import duty/total output.
Source: Calculated from the 1990 input-output table, Office of the National Economic and Social Development Board.

The distributional impact of protection has been discussed widely in the literature. In the neo-classical world of two countries, two sectors and two factors of production, the Stolper-Samuelson theory states that an increase in the relative price of a product will raise the return to the factor used intensively in the production of that product in relation to both product prices and will reduce the return to the other factor. The Ricardo-Viner-Jones specific factors model, in which a factor is specific to sectors of production, states that the distributional impact of protection depends on the consumption basket of consumers. In the case of Thailand, where agriculture and the simple processing of products are more labour intensive and share much of the consumption basket, the two theories point to the unfavourable impact of industrial protection.

A limited number of empirical studies have also attempted to establish a relationship in Thailand between income distribution and industrial protective measures, such as import tariffs. Generally, these studies do not reach the same conclusions. They fall into two categories. In Chalongphob, Pranee and Tienchai (1988) and Overbusch *et al.* (1988) the income-distributional impact of industrial protection is seen to be ambiguous. Based on a computable general equilibrium (CGE) model, Chalongphob, Pranee and Tienchai assert that the impact of the replacement of import taxes through a proportional tax on household incomes in order to generate exactly the same tax revenue is unclear. Their results depend on the economic closure of the model. With fixed investments, inequality in household income worsens. With a fixed current account, inequality improves. Based on another CGE model, Overbusch *et al.*

find that the income-distributional impact of government intervention in agriculture is inconclusive.

On the other hand, Fabers and Kennes (1982, cited in O'Mara and Le-Si 1985) and Isra (1994) find the distributional impact of industrial protection unfavourable in Thailand. The results of Fabers and Kennes, based on a multisectoral macroeconomic model, indicate that a reduction in import tariff rates increases the share of agriculture significantly. By using a CGE model, Isra shows that the structure of industrial protection in Thailand has favoured urban households, especially those in upper expenditure deciles. This is supported by studies on the incidence of taxation, such as Suphanee (1995) and Chalongphob *et al.* (1999) which also point out that the trade tax is regressive.

4.3 The sectoral and regional bias of protection

The system of industrial protection in Thailand is based on many measures. These include tariffs, import and export licences, business taxes, and excise taxes. These are well discussed in the literature (for example, Narongchai 1973; Pairote 1975; Paitoon, Rachain and Nattapong 1989; Sunee and Sombat 1996). In brief, while the protective effects of other measures are notable, tariffs are the most extensively used measures.

Many studies report estimates of the degree of protection since the 1960s. In most cases, the discussion focuses on aspects of the trade regime and the resource-allocational impact of industrial protection. Despite differences in methodology and definition, these studies reach similar findings. According to Pairote (1975), Paitoon, Rachain and Nattapong (1989) and Sunee and Sombat (1997), the protective structures in Thailand in the 1970s, 1980s and 1990s were characterized by the following features.

First, the structures increasingly protected the manufacturing sector, discriminated against agriculture and were biased in favour of highly processed products. The protection for primary products in agriculture was less extensive than the protection for processed agricultural products. Thus, during the initial phase of industrial development, capital-intensive production was promoted. The benefit of industrialization was not sufficiently shared by the majority of the Thai population.

Second, although an export-oriented strategy has been attempted since the beginning of the 1970s, this has been far from successful, judged by the nominal and effective system of protection. The protection for import-competing industries is still relatively greater than that for export industries.

During the 1980s, the protection for export industries increased slightly, while that for import-competing industries nearly doubled. Export promotion was merely added to existing policies to protect the import-competing industries. The focus on heavy protection for import-competing consumer goods led to a change in the structure of imports—which had consisted predominantly of consumer goods in the 1960s—to intermediate products and raw materials for the production of consumer goods and capital goods in the 1990s.

Third, in terms of protection policies, Thailand is a patchwork of conflicting regional interests. On the one hand, industrial protection is raising the market prices for manufactured products, which are produced mostly in the Central region and Bangkok, forcing buyers in other regions to pay higher prices for manufactures. On the other hand, discrimination or negative protection is lowering the market prices of agricultural goods and thereby subsidizes non-farm consumers at the expense of farmers. Thus, one might expect sectoral and regional income disparities to follow upon industrialization in Thailand. This is discussed in subsection 4.5.

4.4 Regional income disparities

During the past four decades, regional income disparities have been widening. Table 9 shows that the change in the gross regional products (GRP) of Bangkok and vicinity contrasts sharply with the situation in other regions. In 1960, the per capita GRP, at current prices, of the Central region (including Bangkok) was about three times that of the poorest region, the Northeast. In 1973, the gap widened. The per capita GRPs of the Central region and Bangkok were, respectively, more than three times and six times that of the Northeast. More than 26 per cent of GDP went to Bangkok, where the population share was less than 10 per cent. In 1988, Bangkok's share in GDP was 50 per cent. Its per capita GRP was much higher than the per capita GRP of other regions, namely, approximately three and 10 times that of the Central region and the Northeast. The same trend continued in the 1990s. In 1992 and 1996, Bangkok accounted for more than 51 per cent of GDP, and its per capita GRP was approximately 9.1 (1992) and 8.5 times (1996) that of the Northeast. The per capita GRPs of the Central region and the North during these two years were, respectively, 3.0 and 2.8 (1992) and 1.5 and 1.4 times (1996) that of the Northeast.

The causes of regional income disparities are difficult to document. They can be attributed to many factors, including the spatial immobility of labour, transportation costs, the endowment of natural resources, and productivity differences. Because of the variations in industrial mix among regions, productivity differences can also be regarded as a determinant of regional

income disparities. A region with a large proportion of high productivity sectors—for example manufacturing and industries relying on a high level of processing—shows high average productivity and income. Conversely, a region with a large proportion of low productivity sectors—such as agriculture and industries based on a low level of processing—has low income.

TABLE 9
REGIONAL SHARES OF GRP AT CURRENT PRICES, BY INDUSTRY, VARIOUS YEARS (%)

	Total	Central	Bangkok	Northeast	Northern	Southern
1960	100.00	50.50	–	18.97	n.a.	n.a.
Agriculture	100.00	33.73	–	26.66	n.a.	n.a.
Manufacturing	100.00	67.79	–	11.59	n.a.	n.a.
Other	100.00	59.05	–	14.95	n.a.	n.a.
Per capita GRP	1.0000	1.6067	–	0.5569	n.a.	n.a.
1973	100.00	31.35	26.40	15.58	n.a.	n.a.
Agriculture	100.00	35.54	1.55	24.20	n.a.	n.a.
Manufacturing	100.00	41.91	40.14	6.71	n.a.	n.a.
Other	100.00	25.01	38.76	12.65	n.a.	n.a.
Per capita GRP	1.0000	1.4851	2.7155	0.4418	n.a.	n.a.
1988	100.00	16.91	50.08	11.91	n.a.	n.a.
Agriculture	100.00	22.89	9.43	22.88	n.a.	n.a.
Manufacturing	100.00	12.45	77.95	4.27	n.a.	n.a.
Other	100.00	17.10	49.82	12.03	n.a.	n.a.
Per capita GRP	1.0000	1.0077	3.1497	0.3436	n.a.	n.a.
1992	100.00	17.56	51.94	11.85	9.95	8.71
Agriculture	100.00	21.22	9.85	24.43	18.07	26.43
Manufacturing	100.00	20.42	69.29	4.31	3.94	2.05
Other	100.00	15.50	52.61	12.72	11.04	8.13
Per capita GRP	1.0000	1.0381	3.1289	0.3453	0.5220	0.6635
1996	100.00	18.85	51.20	11.82	9.18	8.94
Agriculture	100.00	20.93	9.76	21.30	17.43	30.59
Manufacturing	100.00	25.42	63.65	5.10	3.82	2.01
Other	100.00	15.40	52.91	13.24	10.20	8.25
Per capita GRP	1.0000	1.1247	2.9457	0.3476	0.4943	0.6741

Notes: Since 1988, the GRPs of Samut Prakarm, Pathum Thani, Samut Sakhon, Nonthaburi, and Nakhon Pathom have been excluded from the Central region and included in Bangkok. The total GRP of the Southern region is the total GRP less the GRPs of the Central region, Bangkok, the North, and the Northeast. n.a. = not available.

Source: Calculated from unpublished data on gross regional products, Office of the National Economic and Social Development Board.

The differences in the industrial mix between Bangkok and other regions have been increasing. During the past three decades, the rapid expansion of the manufacturing sector, mostly located in Bangkok and the Central region, has been a key factor in the high average growth rates of the regions. Between 1960

and 1973, the share of Bangkok and the Central region in the country's total manufacturing product rose from 67.8 per cent to 81.5 per cent. In 1988, the share of Bangkok and vicinity and the Central region in the gross manufacturing product was over 90 per cent. Of this 90 per cent, 87 per cent was accounted for by Bangkok and vicinity.[5] In 1992 and 1996, Bangkok and the Central region still represented around 90 per cent of the gross manufacturing product. However, because of the development of industrial estates along the eastern seaboard, the share of the Central region in the gross manufacturing product had climbed significantly, to more than 20 per cent and 25 per cent, respectively, for the two years, while the corresponding share of Bangkok was reduced to 69 per cent and 64 per cent.

The bias in protection for various manufacturing industries has benefited Bangkok and the Central region. Before 1972, the systems of protection discriminated against food processing and construction materials. In the 1980s, protection for industries relying on raw agricultural produce was mostly negative. The protection in place for food processing was low relative to the protection for manufacturing. In 1960, more than 50 per cent of the output of the food processing industry originated from outside Bangkok and the Central region. In contrast, except for rubber products, the highly protected industries—intermediate products, consumer goods, machinery, and transport equipment—were mostly located in Bangkok and the Central region. In the 1970s and the 1980s, these highly protected manufacturing industries still tended to be located in Bangkok and the surrounding provinces. Since the beginning of the 1990s, because of the development of labour-intensive manufacturing in the Laem Chabang industrial estate and of heavy industry in the Map Ta Phut industrial estate, both of which are on the eastern seaboard, the bias of the protective system towards Bangkok and the surrounding provinces has been reduced and a growing share of the benefits of industrial protection has gone to the Central region.

That manufacturing in Bangkok and the surrounding provinces is more capital intensive than manufacturing in other parts of Thailand is also well known (Somsak 1985). Thus, the productivity and the income of the manufacturing labour force in Bangkok and the surrounding provinces are also higher. This fact, together with the concentration of manufacturing in Bangkok and the surrounding provinces, partly explains the widening regional income disparities and the deterioration in income inequality before the 1990s.

---

[5] The 1988 statistics provided by the national income account are for Bangkok and vicinity, rather than for Bangkok alone. The vicinity of Bangkok includes five provinces: Nonthaburi, Pathum Thani, Samut Prakarn, Samut Sakhon, and Nakhon Pathom.

4.5 The minimum wage bill

After nearly two decades of modern industrialization in Thailand, a minimum wage bill was finally introduced on 14 February 1973. A minimum daily wage rate must be set by a tripartite committee consisting of representatives of employers, workers and the government. Each of the three groups names five committee members. The aim of the bill was to raise the minimum wage rate to the average rate in each sector of employment, to increase the competition between those employers who pay a fair wage rate and those who do not and to enhance economic development and income distribution. The bill covers employment in all non-agricultural sectors except the government sector.

Over the past three decades, the rate has been boosted significantly. It was first set at 12 baht[6] for unskilled workers in Bangkok and three surrounding provinces (Nonthaburi, Pathum Thani and Samut Prakarn). Since then, the rate has been increased every one or two years in order to match the rising cost of living.[7] At the same time, more provinces have been added in the coverage of the bill. By the end of 1988, 76 provinces had been included in the bill. The minimum wage was set at 78 baht for Bangkok and five surrounding provinces, 75 baht for Phuket and two other provinces in the South, 70 baht for four growth poles in the Central region, the North and the Northeast, and 65 baht in the remaining 63 provinces. In 1997, the minimum wage rate was raised to 162 baht for Bangkok, the five surrounding provinces and Phuket, 140 baht for the two southern provinces and the four growth poles and 130 baht for the remaining provinces.

The bill was supposed to have a significant impact on the labour market and on income distribution. It was expected to encourage an improvement in labour productivity. As more provinces were added under the coverage of the bill, regional earnings gaps were expected to decline. Farm wages were supposed to rise and thereby attract labour. It was anticipated that this would have a favourable long-term effect on income distribution.

Nonetheless, the bill has also put more pressure on income distribution. Since the minimum wage is supposed to be higher than the market wage rate, it has created an unemployment problem. One group of workers is receiving higher wages at the expense of another group of workers who are unemployed. Moreover, the minimum wage rates in Bangkok and the surrounding provinces

---

6 Approximately $0.50 at the time.

7 Chutipongse (1996) has found that the various changes in the minimum wage rate have effectively outpaced the inflation rate.

are approximately 15-25 per cent higher than those in other provinces. This has induced migration into Bangkok and the surrounding areas as people from the other provinces search for higher income. In turn, this has aggravated many urban problems such as the expansion of slums and traffic congestion. Since some workers, such as the uneducated and ageing workers, are regionally and sectorally immobile and since farm and government workers are not covered by the bill, some regional and sectoral income disparities are being widened by the minimum wage rate. Saowalak (2000) also points out that, according to the 1996 labour force survey of the National Statistical Office, only 26 per cent of all workers are protected by the bill and of these around 65 per cent are unskilled workers.

In sum, the overall income-distributional impact of the minimum wage bill is ambiguous. Moreover, during economic recession, when many workers are laid off, the disequalizing impact of the bill could be more severe and outweigh the equalizing impact.

V ANALYSIS OF INCOME INEQUALITY IN 1988, 1992 AND 1996

This section reviews the decomposition analysis of income inequality contained in previous studies and examines changes in income inequality between 1988 and 1996. The decomposition is based on retirement benefits and gross income, including income transferred from other households and government. The aim of the review is to understand how previous studies have explained the trend in income inequality prior to 1988 and to use this to analyse the causes of changes in inequality that occurred subsequently up to 1996.

5.1 Methodology

Many indices of inequality have been employed in the literature. These indices possess many strengths and weaknesses. Among the indices, the most widely used is the Gini index, in which the value lies between '0' (perfect equality) and '1' (perfect inequality). Perfect equality is the situation in which everybody has equal income. Perfect inequality is the situation in which one person receives all income. The use of the Gini index is limited to the case of intersecting Lorenz curves and the index's non-aggregate decomposable.

This paper employs the Shorrocks index of order 2 (Shorrocks 1980). The index satisfies most of the important properties of an inequality index such as

scale independence, variant to equal addition (subtraction), invariant to proportionate growth, transfer sensitivity, and aggregate decomposability. The aggregate decomposable property allows a detailed analysis of changes in inequality as follows.

Let $Y = (Y_1, Y_2, Y_3, \ldots, Y_N)$ be a set of an income distribution among N individuals whose mean income is M. The Shorrocks index of order 2 (I_2) is defined as in equation 1. In order to analyse the importance of income from various sources in the distribution of overall income, equation 2 decomposes equation 1 by source of income.

(1) $$I_2 = (1/2N)\sum_i [(Yi/M) - 1]^2$$

(2) $$I_2 = \sum_k (M_k/M)^2 I_{2k} + (1/M)^2 \sum_j \sum_k Cov(Y_j, Y_k)$$

Where M_k = mean income from source k, I_{2k} = inequality in income from source k, and $Cov(Y_j,Y_k)$ = the covariance effect between income from different sources, $j \neq k$.

(3) $$I_2 = \sum_g V_g \lambda_g^2 I_{2g} + (1/2) \sum_g V_g \left[\lambda_g - 1\right]^2$$

(4) $$dI_2 = \sum_k \overline{\left(\frac{M_k}{M}\right)^2} dI_{2k} + \sum_k \left[\overline{I_{2k}}\, d\left(\frac{M_k}{M}\right)^2\right] + \left[\sum_j \sum_k \overline{Cov(Y_j, Y_k)}\right] d\left(\frac{1}{M^2}\right) + \overline{\left(\frac{1}{M^2}\right)} \sum_j \sum_k dCov(Y_j, Y_k)$$

Equation 3 demonstrates how previous studies have decomposed income inequality into two parts: inequality among people in the same subgroup and inequality among people in different subgroups. Equation 4 can be used to analyse a change in income inequality that occurred during a period. It consists of four terms. The first term represents the impact of a change in inequality in income from source k. The second term is the impact of a change in income shares from various sources. The third term is solely the impact of a change in the overall mean income, that is, economic growth. The fourth term is the impact of a change in the covariation effect among income from different sources, that is, an error term.

5.2 Subgroup decomposition analysis

The decomposition of income inequality in this paper relies on two studies, Suganya and Somchai (1988) and Orakoch (1999). The first study analyses the important features of changes in inequality and decomposed inequality in per capita household income in 1975/76, 1980/81 and 1988. The second study decomposes inequality in individual income in 1988, 1992 and 1996. Despite the difference in units of measurement, the results of the two studies are very important for policy analysis.

The analysis of Suganya and Somchai (1988) can be summarized as follows. First, by using multiple regression, Suganya and Somchai conclude that employment-related factors are the major causes of income inequality. Locational (community and region) and personal (human capital) variables are other important factors.

Second, Suganya and Somchai (1988) disaggregate income inequality, as measured by the Shorrocks index, by various subgroups. Their results show that the benefits of development have been increasingly unbalanced. The relative inequality among people living in different locations, different communities and different regions has been increasing compared to the inequality among people living in the same location, the same community and the same region. The relative inequality among people in different socioeconomic classes, different occupations and different sectors of production and with different education levels has also risen.

TABLE 10
SUBGROUP DECOMPOSITION OF INCOME INEQUALITY, 1975/76, 1980/81 AND 1985/86 (%)

Factor disaggregation	1975/76	1980/81	1985/86
Inequality (Shorrocks index)	0.304	0.347	0.427
Region			
Between group	16.18	19.87	24.90
Within group	83.82	80.13	75.10
Community			
Between group	20.20	21.77	28.15
Within group	79.80	78.23	71.85
Sector of production			
Between group	21.19	23.94	28.53
Within group	78.81	76.06	71.47

Source: Suganya and Somchai (1988: Table 2.7).

The regional, community and sectoral inequality disaggregations point to the widening income disparities among regions, urban and rural settings, and

sectors of production (Table 10). For example, in 1975/76, 78.8 per cent of the national inequality was accounted for by inequality among people working in the same sector of production, while the remaining 21.2 per cent was linked to inequality among people working in different sectors of production. In 1980/81 and 1985/86, the contribution of inequality among people working in the same sector declined to 76.1 per cent and 71.5 per cent, respectively. At the same time, the contribution of inequality among people working in different sectors increased to 23.9 per cent and 28.5 per cent. This reflects the unfavourable distributional impact of the industrialization policies during the periods.

Based on individual income, Orakoch (1999) analyses inequality in 1988, 1992 and 1996 (Table 11).[8] According to the study, the Shorrocks index of order 2 shows that inequality, which was 1.4626 in 1988, jumped to 2.8055 in 1992 and fell to 2.2837 in 1996. By subgroup decomposition, around 95 per cent of the overall inequality can be explained by inequality among individuals living in the same region or community, or working in the same sector of production. But this within-group inequality contribution rose slightly over the periods. At the same time, the contribution of income disparities among regions, communities and sectors of production, which explained only around 5 per cent of the overall inequality, tended to decline over the period.

TABLE 11
SUBGROUP DECOMPOSITION OF INCOME INEQUALITY, 1988, 1992 AND 1996
(%)

Factor disaggregation	1988	1992	1996
Inequality (Shorrocks index)	1.4626	2.8055	2.2837
Region			
Between group	4.31	4.05	3.50
Within group	95.69	95.96	96.50
Community			
Between group	5.61	5.09	4.57
Within group	94.39	94.91	95.43
Sector of production			
Between group	6.85	4.65	4.53
Within group	93.15	95.35	95.47

Source: Orakoch (1999: Tables 5.2.5, 5.2.7, 5.2.11).

Her results show that the distribution of the benefits of development became more balanced between 1988 and 1996. The relative inequality among people living in different communities and different regions and working in different

[8] This is different from the inequality in Tables 6 and 7, which are based on per capita household income. However, the changes in inequality observed over the period are similar.

sectors was falling compared to the inequality among people living in the same community and the same region and working in the same sector. This seems to suggest that the sixth and seventh development plans were quite successful in achieving their income-distributional objectives.

5.3 Decomposition analysis by income source

This subsection attempts to explore further the causes of changes in income inequality between 1988 and 1996. The analysis is based on the decomposition and the intertemporal decomposition of individual income by source. A comparison between 1988 data and 1992 data can be used to evaluate the sixth development plan (1987-91), which aimed at raising income among the rural poor through a focus on agriculture-based industries and small-scale industries. A comparison between 1992 data and 1996 data can be used to evaluate the seventh development plan (1992-6), which was expected to decrease regional income gaps through industrial reallocation from Bangkok and the surrounding provinces to regional growth poles. Although available, 1998 data are excluded in order to avoid the short-run distributional impact of various government measures and international assistance that were designed to relieve the hardship caused by the 1997 economic crisis.

TABLE 12
AVERAGE INDIVIDUAL INCOME, BY SOURCE, 1988, 1992 AND 1996

	1988	1992	1996
Wages and salaries	41.27	48.48	48.21
Non-farm profit	17.78	22.20	22.58
Farm profit	28.44	17.98	16.40
Transfer payments	9.05	7.01	8.69
Property income	1.71	2.50	2.31
Other money receipts	1.74	1.82	1.80

Note: Based on income earners.
Sources: Isra (1997: Table 7); Orakoch (1999: Table 5.2.1).

There are six sources of individual income: wages and salaries, non-farm profit, farm profit, property income, transfer income, and other money receipts. (These income categories are further described in the appendix.) The importance of each source in the distribution of income is indicated by the relative share in total income (Table 12). Wages and salaries increasingly became the main source of income, representing approximately 41 per cent of total income in 1988 and 48 per cent in 1992 and 1996. During the same years, the share of farm profit in total income fell from 28.4 per cent to 18 per cent and 16.4 per cent, while that of non-farm profit increased from 17.8 per cent to 22.2 per cent and 22.6 per cent. These are the consequences of structural changes in the Thai

economy. During the period, millions of rural people moved to non-agricultural sectors and became labour wage earners. The shares of income from other sources, that is, transfer payments, property income and other money receipts, changed only slightly.

TABLE 13
INDIVIDUAL INCOME INEQUALITY AND DECOMPOSITION BY SOURCE OF INCOME, 1988, 1992 AND 1996

Source of income	1988	1992	1996
Total	1.4754	2.9285	2.2837
	(100.00)	(100.00)	(100.00)
Wages and salaries	2.8769	2.8279	3.7108
	(33.22)	(22.70)	(37.77)
Non-farm profit	21.7740	38.3623	20.2804
	(46.65)	(64.58)	(45.30)
Farm profit	3.6251	8.8082	13.6768
	(19.87)	(8.93)	(16.11)
Transfer payments	13.9804	14.3257	8.8656
	(7.77)	(2.40)	(2.93)
Property income	107.0192	163.3968	102.5689
	(2.12)	(3.48)	(2.41)
Other money receipts	101.5663	217.9138	107.0148
	(2.09)	(2.48)	(1.52)
Covariance effect	(-11.72)	(-4.58)	(-6.02)

Notes: Based on individual income. Figures in parentheses are percentage contributions to overall individual income inequality.
Sources: Isra (1997: Table 8); Orakoch (1999: Table 5.2.2).

Table 13 shows overall income inequality, the inequality in income from each source and the contribution of income from each source to overall income inequality. Since the figures in this table are based on income earners, they are different from the ones presented in Table 11. As measured by the Shorrocks index, overall inequality increased from 1.4754 in 1988 to 2.9285 in 1992 and then decreased to 2.2837 in 1996. Inequality in wages and salaries tended to fall insignificantly, from 2.8769 to 2.8279, between 1988 and 1992 and then rose significantly, to 3.7108, in 1996. The increase was the effect of resource allocations in response to the rapid expansion of the FIRE sector. Although the growth of the FIRE sector had been brisk during the first half of the 1990s, but had been slow since 1995, the contractionary effect of the slowdown was not fully realized before 1996. The earnings of many professionals working in the FIRE sector were still relatively high and were far above the earnings of similar professional workers in other sectors. The trend in inequality in non-farm profit, which had jumped from 21.7740 in 1988 to 38.3623 in 1992 and then dropped to 20.2804 in 1996, partly reflected the peak and the saturation of

investment in the FIRE sector. The inequality in farm profit rose steadily over the period, from 3.6251 to 8.8082 and 13.6768. This points to the widening gap among farmers in different agricultural subsectors and between traditional farmers and modern farmers. The production of traditional agriculture was constrained by labour supply because of out-migration towards the manufacturing sector. It is widely known that, during the boom period, millions of young and low-skilled rural labourers moved to non-agricultural sectors. Children and ageing farmers were left behind to work the farms.

As a result, the contribution of the incomes from different sources to overall inequality changed significantly during the period. The respective contributions of wages and salaries and of farm profit, which had been 33.2 per cent and 19.9 per cent in 1988, fell to 22.7 per cent and 8.9 per cent in 1992 and then increased to 37.8 per cent and 16.1 per cent in 1996. Thus, from 1988 to 1992, the importance of wages and salaries and of farm profit in explaining overall inequality was reduced, but, from 1992 to 1996, it increased. On the other hand, the contribution of non-farm profit, which had been 46.7 per cent in 1988, rose to 64.6 per cent in 1992 and then fell to 45.3 per cent in 1996. The changes in the contribution of income from other sources to overall income inequality were minor.

5.4 Decomposition of changes in income inequality by income source

This section traces the dynamics of the effect of incomes from different sources on changes in overall inequality. Changes in inequality are decomposed into four components: the impact of a change in the shares of incomes from various sources, the impact of a change in the inequality in income from each source, the impact of a change in overall mean income, that is, economic growth, and the impact of a change in the covariation effect among incomes from different sources. Mathematically, an increase (decrease) in the inequality in income from a source will increase (decrease) overall inequality. A change in the share of income from a source will also lead to a change in overall inequality in the same direction. While the interpretation of other components is straightforward, that of a change in overall mean income requires further explanation. If it has a positive sign, an increase (decrease) in overall mean income will lead to a decrease (increase) in income inequality. If it has a negative sign, an increase (decrease) in overall mean income will lead to an increase (decrease) in income inequality.

Table 14 breaks down the changes in income inequality that occurred during 1988-92 and during 1992-6. The intertemporal decomposition reveals many important features of the changes in inequality during the two periods.

TABLE 14
DECOMPOSITION OF CHANGES IN INDIVIDUAL INCOME INEQUALITY BY INCOME SOURCE, 1988-92 AND 1992-6

	1988-92		1992-96	
	Share	**Inequality**	Share	**Inequality**
Total	29.05	70.95	-0.36	-99.64
Wages and salaries	12.84	-0.69	-1.29	31.07
Non-farm profit	37.01	46.69	7.53	-136.50
Farm profit	-21.00	20.41	-9.21	21.70
Transfers	-3.24	0.16	4.61	-5.12
Property income	3.12	1.80	-1.76	-5.31
Other money receipts	0.32	2.57	-0.23	-5.48

Source: Calculated from Tables 12 and 13.

First, the shares of the FIRE sector and of the manufacturing sector played a significant role in the distribution of income. In the 1988-92 period, the total contribution of changes in the shares of the incomes from various sources to the increase in overall inequality was around 29 per cent. The major contributors were the increases in the shares of wages and salaries and of non-farm profit. This coincided with the rapid expansion in the FIRE sector and in the manufacturing sector that occurred during these periods. The boom in these sectors raised the return to capital and wages, caused an upward shift in the costs of agriculture and squeezed the agricultural sector. When the shares of the FIRE sector and of the manufacturing sector remained almost constant during the 1992-96 period, the contribution of changes in the shares of the incomes from various sources to the decrease in overall inequality was almost zero.

Second, the positive correlation of the changes in inequality in the income from non-farm profit to the changes in overall inequality is crucial. Between 1988 and 1992, the contribution of the increase in inequality in the income from non-farm profit to the increase in overall inequality was nearly 47 per cent. In the 1992-96 period, the decrease in inequality in the income from non-farm profit had the potential to decrease overall inequality by 137 per cent. Based on the fact that there was more expansion in manufacturing in the Central region during the first period than during the second period, this indicates that, after a few years, industrial decentralization tends to improve the distribution of non-farm profit and equalize income.

Third, the increases in inequality in farm profit also raised overall inequality by more than 20 per cent in 1992 with respect to 1988 and in 1996 with respect to 1992. This points to the unfavourable impact of unbalanced agricultural development. The advances in agricultural commercialization and in agro-technology that led the growth in agriculture during these two periods were not

well shared among farmers across regions and agricultural subsectors. Some groups of farmers were left behind along the path to agricultural development.

In addition, the impact of changes in overall mean income and of changes in the covariation among the incomes from different sources were insignificant. However, the impact of the change in overall mean income was positive during both periods. This positive impact indicates that, exclusive of changes in inequality among incomes from the same source and of changes in the share of the income from each source, higher overall mean income—economic growth—tends to equalize income. Thus, the analysis from these two periods indicates that rapid economic growth is still an alternative path to the reduction of income inequality.

VI CONCLUSION

The income distribution problem in Thailand has attracted considerable interest among economists and policy-makers. When the trend was towards an increase in national income, income inequality deteriorated. However, when economic growth began to slow down in the middle of the 1990s, there was a shift in the trend in income inequality. This phenomenon is very important for policy analysis and requires further explanation.

This paper has examined the changing structure of the Thai economy and the relevant government development policies during the four decades from the 1960s to the 1990s. The industrial protection system tended to discourage agriculture and export-producing industries, while import-competing industries were promoted. This policy led to the rapid expansion of the highly protected industries which came to dominate the industrial sector of the economy. Most of these protected industries were capital intensive and were not the most important sources of employment.

The impact of industrial protection on resource allocation is clear. While agriculture contracted, manufacturing and other sectors expanded. Because the manufacturing sector is concentrated in Bangkok and the surrounding provinces in the Central region, the protection of industry favoured Bangkok and these provinces. Income disparities widened. However, beginning with the sixth development plan, industrial decentralization has been encouraged. Industrialization was shifted more towards the Central region, and the region began to share more in the benefits of industrial protection. Small-scale industries and agro-industries were also promoted. The favourable

distributional impact of regional industrialization is indicated by a decline in the contribution of the inequality among individuals living in different communities and regions and working in different sectors of production.

Thus, without a mechanism to ensure that the distribution of non-farm profit is more favourable, industrialization can raise income inequality. Such a mechanism could be industrial decentralization and the promotion of small-scale industries or agro-industries as proposed in the sixth and seventh development plans.

The expansion of other sectors, led by the rapid increase in the share of the FIRE sector, also had a significant unfavourable impact on overall income distribution. During the boom period, resources were allocated to the FIRE sector at the expense of other sectors, which contracted. The expansion of the FIRE sector raised the return to capital and labour in the sector and squeezed the output of and the return to agriculture. Subsequently, when the share of the FIRE sector remained almost constant, the contribution of the changes in the shares of the incomes from various sources to overall changes in inequality was almost zero.

Thus, the expansion of a non-agricultural sector can be viewed as a disequalizing factor for income distribution. Since it is widely believed that the rapid expansion of the FIRE sector was caused by the inflow of foreign capital, more research on the distributional effect of foreign investment is needed.

It should also be noted that, as the manufacturing and FIRE sectors expanded, more Thais became earners of wages and salaries. However, their earnings grew increasingly unequal. The cause could be the ineffectiveness of the personal income tax, the imperfectly competitive skilled labour market and the disequalizing impact of education expansions, which undermined the favourable impact of industrial and financial development. Studies to clarify these points are needed and would be of paramount importance.

The contribution of inequality in farm profit to overall inequality also points to the crucial role of agricultural development in the actual income distribution. There are many possible explanations for this. The advances in agricultural commercialization and agro-technology that led the growth in agriculture during these years were not well shared among the farmers in different regions and different agricultural subsectors. Policies to diversify agricultural production did not show any substantial favourable impact on income distribution. The low productivity of the children and ageing farmers who were left behind to work the farmlands is also an explanation. Consequently, some

groups of farmers were disadvantaged along the path to agricultural development. The income gaps between traditional farmers and modern farmers widened.

Finally, although the impact of changes in overall mean income on overall inequality was insignificant, the impact was positive during these years. This indicates that, exclusive of all other changes, economic growth remains an alternative for the improvement of the distribution of income in Thailand.

APPENDIX: DATA SOURCES

The household socioeconomic survey (SES) of the National Statistical Office is the main source of the data used in this paper and in previous studies on income distribution in Thailand. The survey was first undertaken in 1957. A subsequent survey was carried out in 1968/69 and continued every five years. Since 1988, the survey has been conducted every two years. Because of an urgent need to monitor the socioeconomic impact of the 1997 crisis, an extra survey was carried out in the second and third quarters of 1999. The next survey will take place in 2000.

In the SES, a household is defined as a person or a group of persons who, together, make provision for food and other essentials for living. The SES provides detailed information on household income and expenditure, the community and various demographic variables such as age, sex, education background, occupation, and household size. A weight is attached to each observation obtained from a stratified two-stage sampling. Groups of provinces in each region and the greater Bangkok area constitute strata. Each stratum is divided into three parts: municipal areas, sanitary districts and villages.

Three SES datasets are used in this paper: those for 1988, 1992 and 1996. In this study, selected household characteristics are defined as follows. 'Urban-rural setting' is based on a local administrative definition. 'Urban areas' are defined as municipal areas and sanitary districts, while 'rural areas' are villages. The six geographic regions are: 1. Bangkok, 2. the vicinity of Bangkok, including three provinces surrounding Bangkok (Nonthaburi, Pathum Thani and Samut Prakarn), 3. the Central region (including the eastern and the western provinces), 4. the Northeast, 5. the North, and 6. the South.

There are six sources of individual income: wages and salaries, non-farm profit, farm profit, property income, transfer income, and other money receipts. Wages

and salaries include tips and bonuses. Non-farm profit and farm profit are net profit from non-farming and farming activities, respectively. Property income includes land rent, royalties, interest, and dividends. Transfer income is current transfers such as interhousehold assistance payments, pensions, scholarships, and grants. Income from insurance proceeds, lottery winnings and other windfall receipts are included in other money receipts.

REFERENCES

Chaiyuth, Pilun-Owat (1978) 'The impact of Thailand's economic development plans on foreign trade performance, 1958-71: a case study' (Ph.D. thesis), New York University: New York.

Chalongphob, Sussangkarn *et al.* (1999) *The incidence of government spending and taxation in Thailand, 1986-1996* (in Thai), Thailand Development Research Institute Foundation: Bangkok.

Chalongphob, Sussangkarn, Pranee Tinakorn and Tienchai Chongpeerapien (1988) 'The tax structure in Thailand and its distributional implications', paper presented at the 1988 TDRI year-end conference on income distribution and long-term development, Thailand Development Research Institute Foundation: Bangkok.

Chutipongse, Boonsiprapha (1996) 'The concurrence between minimum wage rates and economic conditions in Thailand' (master's thesis, in Thai), Kasetsart University: Bangkok.

Coxhead, I. and Jiraporn Plangpraphan (1999) 'Economic boom, financial bust and the decline of Thai agriculture: was growth in the 1990's too fast?', *Chulalongkorn Journal of Economics* 11 (1): 76-96.

Ikemoto, Yukio (1991) *Income Distribution in Thailand: Its Changes, Causes and Structure,* Institute of Developing Economies: Tokyo.

Ingram, J. C. (1971) *Economic Changes in Thailand, 1850-1970,* Stanford University Press: Stanford, CA.

Isra, Sarntisart (1994) 'Trade liberalization in Thailand: income distributional impact and financing problems', *Asian Economic Journal*, 9 (3): 261-91.

Isra, Sarntisart (1997) 'Educational expansions and labour earnings inequality: the case of Thailand between 1988 and 1992', *Chulalongkorn Journal of Economics*, 9 (2): 127-74.

Isra, Sarntisart (1999) 'The distributive welfare impact of value-added tax' (in Thai), paper presented at the conference in celebration of the King's 72nd birthday, Chulalongkorn University: Bangkok.

Jansen, K. (1990) 'Thailand: the next newly industrialized country?' (in Thai), *Chulalongkorn Journal of Economics*, 2 (1): 30-57.

Medhi, Krongkaew (1977) 'Income distribution among Thai households in 1972' (in Thai), *Thammasart Economic Journal*, 10 (1): 61-99.

Medhi, Krongkaew, Pranee Tinakorn and Suphat Suphachalasai (1991) *Priority Issues and Policy Measures to Alleviate Rural Poverty: The Case of Thailand*, Asian Development Bank: Manila.

Narongchai Akrasanee (1973) 'The manufacturing sector in Thailand: a study of growth, import substitution and effective protection, 1960-69' (Ph.D. thesis), John Hopkins University: Baltimore.

Narongchai Akrasanee and Juanjai Ajanant (1976) 'Industrialization and trade policies, and employment effects in Thailand', in Narongchai Akrasanee, S. Naya and Vinyu Vichit-Vadakarn (eds.) *Trade and Employment in Asia and Pacific: The 8th Pacific Trade and Development Conference, Pattaya, Thailand,* University of Hawaii Press: Honolulu.

NESDB (various) *National Income Account of Thailand,* Office of the National Economic and Social Development Board: Bangkok.

NESDB (1960) *The First National Economic Development Plan*, Office of the National Economic and Social Development Board: Bangkok.

NESDB (1966) *The Second National Economic Development Plan*, Office of the National Economic and Social Development Board: Bangkok.

NESDB (1971) *The Third National Economic Development Plan*, Office of the National Economic and Social Development Board: Bangkok.

NESDB (1976) *The Fourth National Economic Development Plan,* Office of the National Economic and Social Development Board: Bangkok.

NESDB (1981) *The Fifth National Economic Development Plan*, Office of the National Economic and Social Development Board: Bangkok.

NESDB (1986) *The Sixth National Economic Development Plan*, Office of the National Economic and Social Development Board: Bangkok.

NESDB (1991) *The Seventh National Economic Development Plan*, Office of the National Economic and Social Development Board: Bangkok.

NESDB (1996) *The Eighth National Economic Development Plan*, Office of the National Economic and Social Development Board: Bangkok.

NESDB (1998) *Capital Stock of Thailand, 1970-96*, Office of the National Economic and Social Development Board: Bangkok.

Nishimizu, M. and J. M. Page, Jr. (1986) 'Productivity change and dynamic comparative advantage', *Review of Economics and Statistics*, LXVII (2): 241-7.

NSO (1960) *Report of the 1960 Population and Housing Census*, National Statistical Office: Bangkok.

NSO (1970) *Report of the 1970 Population and Housing Census*, National Statistical Office: Bangkok.

NSO (1980) *Report of the 1980 Population and Housing Census*, National Statistical Office: Bangkok.

NSO (1990) *Report of the 1990 Population and Housing Census*, National Statistical Office: Bangkok.

NSO (2000) *Report of the Labour Force Survey, 1990-1999*, National Statistical Office: Bangkok.

O'Mara, G. and V. Le-Si (1985) 'The supply and welfare effect of rice pricing policies in Thailand', *World Bank Staff Working Papers* No. 714, World Bank: Washington, DC.

Orakoch Ketpirune (1999) 'Industrialization and income inequality' (Master's thesis, in Thai), Chulalongkorn University: Bangkok.

Overbusch *et al.* (1988) 'Income distribution and government interventions: Thailand agricultural model-2', paper presented at the workshop 29-30 October on modelling Thai agriculture, Huahin, Thailand.

Pairote Wongwuttiwat (1975) 'The structure of differential incentives in the manufacturing sectors: a study of the Thailand experience during 1945-74' (Master's thesis), Thammasart University: Bangkok.

Paitoon Wiboonchutikul, Rachain Chintayarangsan and Nattapong Thongpakde (1989) 'Trade in manufactured goods and mineral products', paper presented at the 1989 TDRI year-end conference on Thailand in the international economic community, Thailand Development Research Institute Foundation: Bangkok.

Pranee Tinnakorn (1992) 'Industrialization and welfare: how poverty and income distribution are affected', paper presented at the conference, The Making of a Fifth Tiger?, 7-9 December, Canberra.

Saowalak Witsawawigran (2000) 'The impact of minimum wages on unskilled labour in Thailand' (Master's thesis, in Thai), Chulalongkorn University: Bangkok.

Shorrocks, A. F. (1980) 'The class of additive decomposable inequality measures', *Economica*, 48 (3): 613-25.

Somchai Ratanakomut (1999) 'Thailand's economic crisis: some unexpected experiences', *Chulalongkorn Journal of Economics*, 11 (1): 43-55.

Somsak Taembunlertchai (1985) 'Thai import demand analysis', in D. Lim (ed.) *ASEAN-Australia Trend in Manufactures*, Longman Cheshire: Melbourne.

Suganya Hutaseranee and Somchai Jitsuchon (1988) 'Thailand income distribution and poverty profile and their current situations', paper presented at the 1988 TDRI year-end conference on income distribution and long-term development, Thailand Development Research Institute Foundation: Bangkok.

Sunee Bussayavit and Sombat Sae-Hae (1996) *Tariff reduction and its impact on Thailand's competitiveness in the world market* (in Thai), Office of the National Economic and Social Development Board: Bangkok.

Suphanee Chaodee (1995) 'The burden of taxation on urban households by income class, 1990' (Master's thesis, in Thai), Chieng Mai University: Bangkok.

Teerana Bhongmakapat (1993) 'Income distribution in the rapidly growing economy of Thailand', *Chulalongkorn Journal of Economics* (in Thai), 5 (2): 109-35.

Usarsee Khieorayab (1996) 'The impact of direct tax on income distribution in Thailand' (Master's thesis, in Thai), Kasetsart University: Bangkok.