4

Income Distribution by Region

In the previous chapter we looked at income distribution in the rural and urban areas. In this chapter we will examine income distribution at the regional level. The income gap between rural and urban areas, one of the most important problems in Thailand, is reflected in this regional disparity because there exists a correspondence between the urban areas and Bangkok on the one hand and between the rural areas and all other regions on the other.

It is often argued that the income disparity between Bangkok and the Northeast is 8:1. This ratio seems to be based on the per capita GRP. But this ratio indicates the disparity of productivity rather than that of welfare of household. In order to compare the welfare levels of households between regions, household income is a better concept than the per capita GRP because the former directly measures the income level of the household. The conclusions of this chapter show that the disparity of household income is much smaller than that of per capita GRP. The disparity of household income still remains large, however, and the regional disparity is still a very serious problem in Thailand.

Here we have to mention a limitation of our analysis. In the study of regional income disparity it is desirable to take into account the difference in price levels between regions. Unfortunately, there is no data which measures the difference in price levels between regions in Thailand. Therefore, we will analyze the regional disparity of household incomes in nominal terms only. Generally speaking, not only the income level but also the consumer price level is lower in more rural regions; therefore, the income gap between regions will be smaller if measured in real terms rather than in nominal terms. Thus the income disparity in nominal terms usually exaggerates the real income disparity. This can be said as regards the case of the income disparity between rural and urban areas. We must try not to overlook this tendency.

In this section we will examine the income distribution of regions by

household income first and then by per capita GRP. The skewness of the Lorenz curve will be measured by the method proposed by Kakwani.

The Definition of Region

Thailand consists of seventy-three Changwats (provinces) which are divided into five regions: Bangkok, Center, South, North, and Northeast as shown
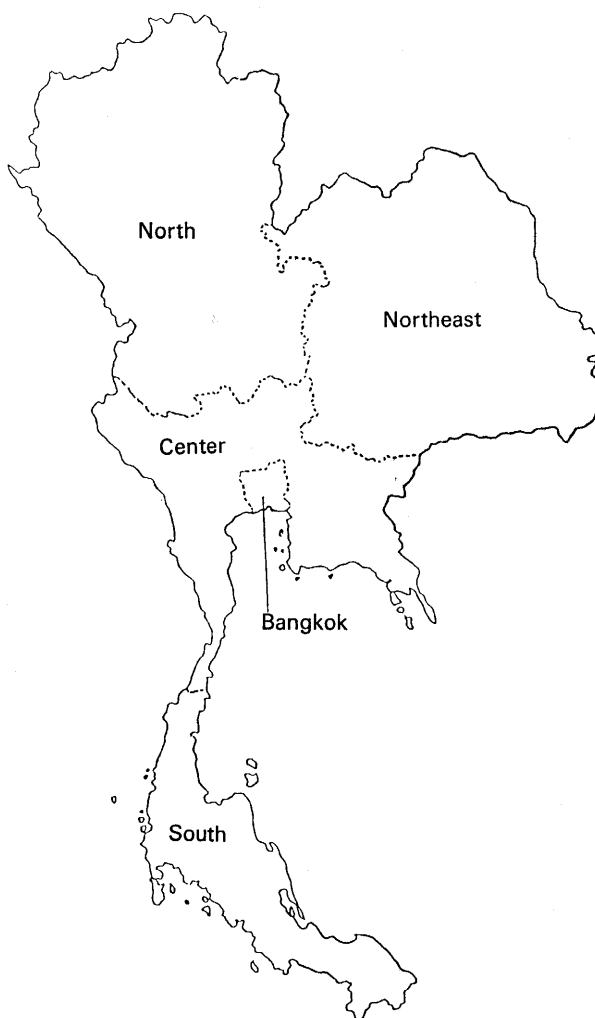

Figure 4–1
The Five Regions of Thailand

in Figure 4–1.[1] Different ministries use different definitions of these regions. We adopted the definition of NSO in this study. A problem is that the definition of Bangkok changed twice between 1962 and 1975. In the *Household Expenditure Survey of 1962/63* (HES 1962/63) Bangkok is defined as the " municipal areas of Bangkok and Thonburi " and the *Socio-Economic Survey of 1968/69* (SES 1968/69) defined Bangkok as " Bangkok and Thonburi " which includes not only municipal areas but also sanitary districts and villages. This means that although sanitary districts and villages in Bangkok and Thonburi were included as part of the Central region in HES 1962/63, that they were counted as part of Bangkok in SES 1968/69. After SES 1975/76 the definition of Bangkok was enlarged to include not only Bangkok and Thonburi but also three neighboring Chang-wats, namely, Samut Prakan, Nonthaburi, and Pathum Thani, which were counted as part of the Central region in the previous definitions. The share of sanitary districts and villages in Bangkok and Thonburi was so small that comparability between HES 1962/63 and SES 1968/69 would still be possible despite the change in definition of SES 1968/69. But the change in 1975 is so considerable that the results for the Bangkok region and the Central region in this definition cannot be compared with those in the previous definition.

Since the income levels of the three Changwats of Samut Prakan, Non-thaburi, and Pathum Thani are lower than those of Bangkok and Thonburi but higher than that of other Changwats of the Central region on average, the change in the definition in SES 1975/76 has had the effect of decreasing the average household income of the Bangkok region as well as that of the Central region. Accordingly, this change in definition seemingly de-creases the income disparity between Bangkok and the other regions except for the Center. Therefore, we must be very careful whenever we com-pare the results for Bangkok and the Center between 1969 and 1975.

Regional Disparity of Household Income

Table 4–1 shows the distribution of households among regions in the whole kingdom and also the distribution of households by community type in each region in 1981. In terms of the number of households the biggest region is the Northeast, whose share is 32.6 per cent, and the smallest are the South and Bangkok, whose shares are 13 per cent. In Bangkok 82 per cent of households live in municipal areas, but in all other regions at most 12.6 per cent live in municipal areas. Accordingly, the income dis-tribution in Bangkok reflects that of the urban areas, and the income dis-tribution in other regions reflects that of the rural areas. Therefore, we

Table 4–1
Distribution of Household by Region and Area, 1981   (%)

Region	Total	Municipal Area	Sanitary District	Village
Bangkok	13.1	82.1	6.2	11.7
Center	19.4	10.1	15.2	74.7
South	12.8	12.6	7.2	80.2
North	22.1	7.4	11.6	91.1
Northeast	32.6	4.5	7.8	87.7

Source: Estimated from NSO [64] and 1981 SES data tape.
Note: Figures for the column Total are the percentage share of the whole kingdom. Figures for the columns of the three community types are the percentage share of each region.

Table 4–2
Mean Household Income by Region

	1962	1969	1975	1981	1986
A. Mean income (baht)					
Bangkok	1,509.0	2,746.4	3,535.0	5,934.8	7,428.7
Center	780.1	1,409.6	2,211.9	3,878.1	3,974.9
South	718.2	929.9	1,729.6	3,362.4	3,820.5
North	438.7	916.9	1,460.2	3,018.3	3,158.1
Northeast	318.1	812.6	1,452.6	2,637.2	2,600.2
Whole kingdom	594.9	1,098.9	1,856.6	3,445.2	3,800.0
B. Relative income (whole kingdom=100)					
Bangkok	253.7	249.9	190.4	172.3	195.5
Center	131.1	128.3	119.1	112.6	104.6
South	120.7	84.6	93.2	97.6	100.5
North	73.7	83.4	78.6	87.6	83.1
Northeast	53.5	73.9	78.2	76.5	68.4
Whole kingdom	100.0	100.0	100.0	100.0	100.0
C. Income ratio between urban to rural areas					
	—	2.73	2.27	2.09	2.25

Source: Ikemoto and Limskul [21], p. 261, the author's estimate from NSO [65], and Table 3–8.
Note: Sanitary districts are included in rural areas.

can apply some conclusions as regards the rural and urban areas in the previous chapter to the following analysis of regional disparity.

The mean and relative household income by region is shown in Table 4–2 and Figure 4–2. The relative household income of Bangkok, which is measured as the income level of the whole kingdom equal to 100, was about two hundred and fifty in the 1960s but dropped to less than two
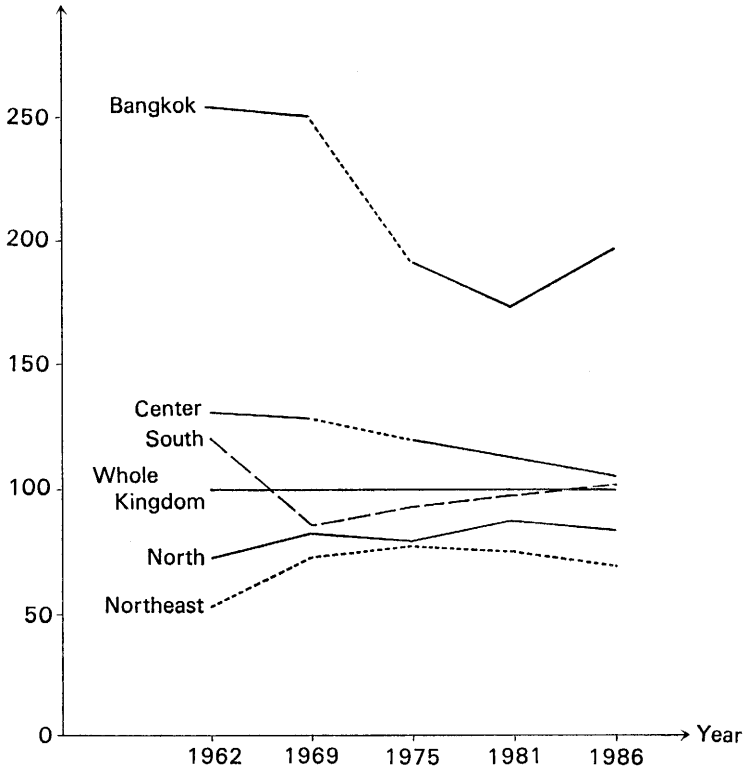
Figure 4–2
Mean Income by Region
  Source: Table 4–2.
  Note: Whole kingdom=100.

hundred in the 1970s. It seems that the income disparity between Bangkok and all other regions narrowed in the early 1970s. As mentioned above, however, this decrease in the income gap includes the effect of the change in the definition of Bangkok and we cannot make any conclusions directly from this. But still we can infer the trend of the regional gap from the conclusions concerning the rural and urban areas in the previous chapter. Comparing the relative income of Bangkok with the mean income ratio between rural and urban areas in Table 3–8 (see also Table 4–2), we can see that the relative income level of Bangkok is very close to the income ratio between rural and urban areas both in magnitude and in the direction of change. For the urban area in the narrow sense the income ratio was 2.73 in 1969 and decreased to 2.27 in 1975 and further to 2.09 in 1981 but increased to 2.25 in 1986. On the other hand, the relative income of Bang-

kok was 250 in 1969, decreased to 190 in 1975 and again to 172 in 1981, but increased to 196 in 1986. The direction of change is the same for the relative income of Bangkok and the income ratio between rural and urban areas. The magnitude is smaller for the relative income of Bangkok. But a part of this difference is caused by the fact that the relative income is calculated as a ratio to the mean income of the whole kingdom. If we measure it as a ratio of average income of Bangkok to the average income of the other regions excluding Bangkok, the ratio would be larger and closer to the ratio between the rural and urban areas. Therefore, we might be able to conclude that the relative income gap between Bangkok and the other regions narrowed between 1969 and 1975, though the figure in Table 4–2 exaggerates this change a bit because of the change in the definition of Bangkok.

On the other hand, the income level of the Northeast is the lowest among all regions, being only 54 per cent of the national average in 1962. However, it increased to 74 per cent in 1969 and further to 78 per cent in 1975, which contributed to a decrease in income inequality. Though the relative income of the Northeast decreased by 1.7 percentage points between 1975 and 1981, the relative income of the Northeast to that of Bangkok increased from 40 per cent in 1975 to 44 per cent in 1981 because the decrease in Bangkok was much larger than that in the Northeast. Thus the income gap between Bangkok and the Northeast narrowed until 1981, which contributed to the narrowing regional disparity as shown below.

This trend was reversed in the first half of the 1980s. The relative income of Bangkok recovered to its level of 1975, while the Northeast suffered a decrease by eight percentage points, dropping to 68.4 per cent of the national average, which is lower than the level it achieved in 1969 and is only 35 per cent of the sum achieved by Bangkok. Not only the Northeast but also the North and the Center suffered a loss in relative income. The relative income of the Center approached the national average. Thus the disparity between Bangkok and the other regions became clearer.

So far we have looked at the income disparity between regions. Now we will turn to income inequality within each region. Table 4–3 and Figure 4–3 show the Gini coefficient by region. In general, regional inequality is lower than the inequality of Thailand taken as a whole. The level of income inequality in the Northeast for 1962 was as low as that of the East Asian countries. Though this level increased thereafter, it still remains lower than the whole kingdom by about 0.05 points in terms of the Gini coefficient of the decile method. This level of regional inequality, which is lower than that of the whole kingdom, implies that the between-region component of income inequality aggravates the income inequality of

Table 4–3
Income Inequality by Region

	1962	1969	1975	1981	1986
A. Gini coefficient by decile method					
Bangkok	—	0.4257	0.3837	0.4217	0.4535
Center	—	0.4137	0.3861	0.4096	0.4330
South	0.4031	0.3947	0.4220	0.4230	0.4655
North	0.3586	0.3844	0.4005	0.4296	0.4384
Northeast	0.3412	0.3726	0.3823	0.4113	0.4217
Whole kingdom	0.4128	0.4263	0.4174	0.4410	0.4712
B. Gini coefficient by Kakwani's method					
Bangkok	—	0.4231	0.3833	0.4146	0.4409
Center	—	0.4130	0.3884	0.4205	0.4512
South	—	0.4015	0.4333	0.4400	0.4756
North	—	0.3861	0.4143	0.4360	0.4552
Northeast	—	0.3735	0.3988	0.4194	0.4332
Whole kingdom	—	0.4342	0.4306	0.4516	0.4880
C. Theil index					
Bangkok	—	0.3115	0.2442	0.2973	0.3594
Center	—	0.2938	0.2491	0.2803	0.3309
South	0.2821	0.2735	0.3044	0.3074	0.3843
North	0.2429	0.2614	0.2700	0.3137	0.3326
Northeast	0.2560	0.2344	0.2537	0.2920	0.3132
Whole kingdom	0.3082	0.3220	0.2976	0.3346	0.3970
D. Varlog					
Bangkok	—	0.7014	0.6033	0.7313	0.7831
Center	—	0.6539	0.5949	0.6727	0.6741
South	0.4821	0.5553	0.6887	0.6853	0.7985
North	0.3552	0.5212	0.6263	0.7129	0.7258
Northeast	0.3167	0.5329	0.5294	0.6322	0.6399
Whole kingdom	0.4801	0.6454	0.6639	0.7445	0.8053

Source : Ikemoto and Limskul [21], p. 256, 258 and the author's estimate from NSO
[65].
Note : Figures for Bangkok and Center are not comparable between 1969 and 1975.

the whole kingdom.   This point will be illustrated further below.

If the Kuznets inverted U-shaped curve hypothesis holds true at the regional level, regional inequality will increase and then decrease as the average household income increases.   Between 1962 and 1986 the inequality indices generally increased as the average household income increased, which may be consistent with the first phase of the Kuznets curve.[2]   The exception is 1975 when income inequality in Bangkok and the Center decreased sharply to the same level as the Northeast.   As mentioned above the definition of Bangkok changed in 1975, thus we cannot compare the inequality indices between 1969 and 1975.   But we can infer from the results of the urban
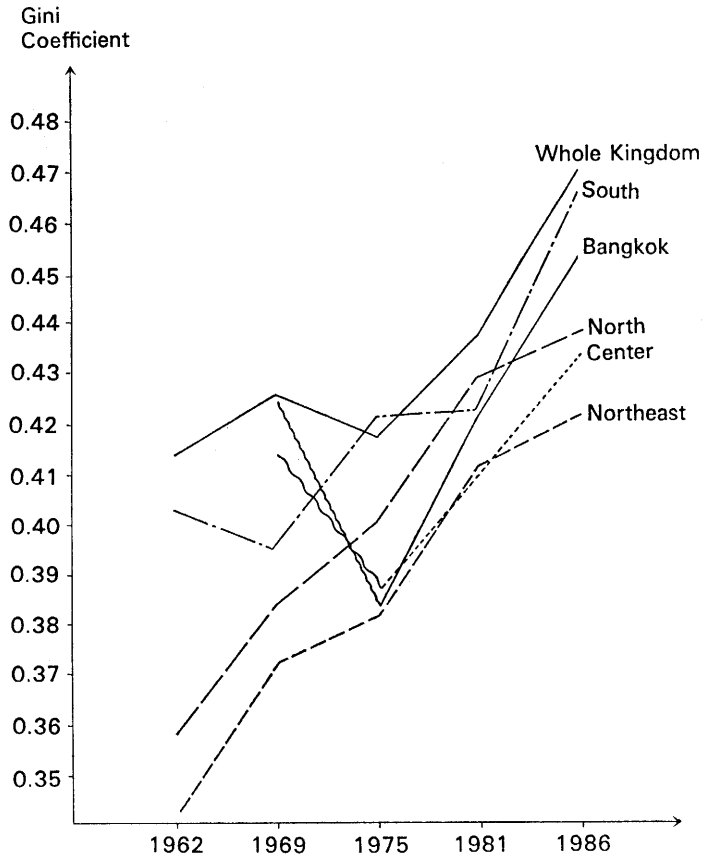
Gini
Coefficient

Figure 4-3
Gini Coefficients by Region
    Source: Table 4-3.
    Note: Decile method.

areas that income inequality in Bangkok and the Center might have de-
creased in this period.   If this is true, it might be said that Bangkok and
the Center passed the turning point of the Kuznets curve between 1969
and 1975.   However, it would probably be better to interpret this change
as temporary because after 1975 income inequality in both Bangkok and the
Center increased again.   In general, income inequality at the regional level
seems to be still on the upward trend.

    In the previous chapter we saw that in SES 1975/76 income inequality
decreased in the whole kingdom and we mentioned two factors of this equal-
ization.   One was the favorable agricultural conditions and the other was
the political situation which brought about a loss of income share for the

urban top decile and a gain to the lower income class in the early 1970s. These two factors affected regional inequality differently. Bangkok was affected by the latter factor. The share of urban households in Bangkok is so large that the decrease in income share of the urban top decile shown in the previous chapter was directly reflected in the loss of income share of the top decile in Bangkok. Accordingly, income inequality in Bangkok would also have decreased in 1975, but unfortunately we cannot know how much it decreased because of the change in the definition of Bangkok.

The other factor of the favorable agricultural conditions affected the other regions where agriculture still accounts for a large part of GDP and employment in such a way as to increase income inequality. The way in which it did affect income distribution is different among regions. Table 4–4 shows that those who gained most are the 60–80 and 80–90 per cent groups in the North, the top 10 per cent in the Northeast and 60–80 per cent group in the South, and those who lost most are the lowest 40 per cent and the top 10 per cent in the North, the 60–80 per cent group in the Northeast and the lowest 40 per cent of the South. Therefore, it seems to be very difficult to identify the way in which the favorable agricultural conditions affected regional income distribution from our results.

Those favorable conditions to agriculture affected income inequality in two ways. One was to increase the inequality within each region where the agricultural share remained large. The other was to reduce the regional income disparity by raising the low income level of the regions that had the low productivity in the agricultural sector.

Now we will measure the contribution of income inequality between regions to the inequality of the whole kingdom by decomposing the inequality measures. The decomposable measures used are the Theil index and varlog. The results are shown in Table 4–5. The between-component shows the income inequality between regions which is equal to the income inequality when there is no inequality within each region and every household has the same income level as the mean household income of the region. The between-component of the Theil index decreased from 0.072 in 1969 to 0.054 in 1975, and the decrease of the variance of income logarithm was negligible. The decrease in the between-region component of the Theil index includes the effect of the change in the definition of Bangkok; therefore, it exaggerates the decrease. Between 1975 and 1981 the between-component of both indices indicates a decrease in income inequality between regions. This decrease can be expected from the decrease in the income gap between Bangkok and the Northeast due to the decrease in the relative income of Bangkok.

After 1981 the between-region component increased rapidly. The be-

Table 4–4
Income Share by Household Group

Household	1962	1969	1975	1981	1986
A. Bangkok					
Lowest 40 per cent	—	14.5	16.0	14.1	13.3
40–60 per cent	—	14.7	16.0	14.9	13.9
60–80 per cent	—	22.2	23.7	23.3	21.4
80–90 per cent	—	15.5	16.0	16.7	15.5
Top 10 per cent	—	33.1	28.3	31.0	35.9
B. Center					
Lowest 40 percent	—	15.2	16.2	14.9	14.8
40–60 per cent	—	15.0	15.8	15.1	14.2
60–80 per cent	—	22.1	23.1	22.8	20.5
80–90 per cent	—	15.5	16.0	16.8	15.4
Top 10 per cent	—	32.3	29.0	30.3	35.1
C. South					
Lowest 40 per cent	16.1	16.8	14.7	14.7	13.1
40–60 per cent	13.6	15.1	14.8	14.7	13.4
60–80 per cent	22.3	20.8	22.2	21.9	20.4
80–90 per cent	15.3	15.1	15.8	15.7	15.5
Top 10 per cent	32.7	32.2	32.6	32.9	37.5
D. North					
Lowest 40 per cent	20.7	17.4	15.6	14.2	14.1
40–60 per cent	11.2	15.3	15.3	14.5	14.2
60–80 per cent	19.8	20.7	22.5	22.0	21.3
80–90 per cent	17.4	14.7	16.2	16.6	16.0
Top 10 per cent	31.0	31.9	30.3	32.6	34.3
E. Northeast					
Lowest 40 per cent	23.1	17.2	17.3	15.5	15.3
40–60 per cent	12.2	15.9	15.4	14.9	14.5
60–80 per cent	15.5	22.4	21.2	21.6	20.7
80–90 per cent	15.2	15.6	15.2	15.5	15.2
Top 10 per cent	34.0	28.8	30.9	32.5	34.2

Source: Ikemoto and Limskul [21] Table II and the author's estimate from NSO [65].

tween-component of the Theil index increased from 0.045 to 0.070 in 1986, which is nearly the same level as that of 1969, and that of the varlog increased from 0.070 to 0.109, which is the highest since 1962. Thus regional inequality, rural-urban inequality, and income inequality for the whole kingdom increased rapidly in the first half of the 1980s.

The percentage contribution of the between-region component also shows the same pattern as the between-component because the change in the within-component was not large enough to offset the changes in the between-component. For the Theil index the contribution decreased

Table 4–5

Decomposition of Inequality between Regions

Household	1969	1975	1981	1986
A. Theil index				
Total[a]	0.3674	0.3241	0.3495	0.4128
Within-component	0.2953	0.2702	0.3041	0.3422
	(80.4)	(83.4)	(87.0)	(82.9)
Between-component	0.0721	0.0540	0.0454	0.0706
	(19.6)	(16.7)	(13.0)	(17.1)
B. Variance of income logarithm				
Total[a]	0.6563	0.6854	0.7478	0.8162
Within-component	0.5681	0.5973	0.6777	0.7068
	(86.6)	(87.1)	(90.6)	(86.6)
Between-component	0.0882	0.0881	0.0701	0.1094
	(13.4)	(12.9)	(9.4)	(13.4)

Source: Ikemoto and Limskul [21] Tables III and IV and the author's estimate from NSO [65].

Note: Figures in parentheses indicate percentage contribution.

Figures of within- and between-component are not comparable between 1969 and 1975.

[a] Total was calculated by aggregating between- and within-components. Therefore, these values do not coincide with values of Table 2-2.

from 19.6 per cent in 1969 to 13.0 per cent in 1981 and then increased to 17.1 per cent. Varlog decreased from 13.4 per cent in 1969 to 9.4 per cent in 1981 and then increased to 13.4 per cent in 1986, the same level as in 1969. Because of the change in the definition of Bangkok this means that the regional disparity in 1986 was larger than in 1969. As for the relationship between income inequality and regional disparity it can be said that the relatively stable income inequality of the 1970s accompanied a decreasing regional disparity and that the rapid increase in inequality in the early 1980s accompanied a increasing regional disparity.

What explains better the income inequality in Thailand, the rural-urban gap or regional disparity? In general if we divide the whole kingdom into a larger number of sub-groups, these can explain a larger part of income inequality. In this sense the region is a better sub-group. On the other hand if we divide the whole kingdom into more homogeneous groups, these can explain inequality better than the less homogeneous division. In this sense the rural and urban areas are better than the concept of region because the latter includes rather heterogeneous areas such as rural and urban areas. As a result, both of the sub-groups explain almost as well as one another. The percentage contribution of the between-region component reaches nearly the same level as that of the rural and urban gap.

Sometimes the former is bigger than the latter and sometimes the latter is bigger than the former (see Tables 3–10 and 4–5).   Therefore, we cannot conclude which is the better sub-group from our results.

Not only is the percentage contribution about the same but also its meaning is similar.   As mentioned at the beginning of this chapter, Bangkok largely consists of the urban area while other regions are mainly rural areas, and so the rural-urban gap is reflected in the gap between Bangkok and all other regions.

Regional Disparity in GRP

The large income gap between regions is attributable to the industrial structure of the region.   That is, modern sectors such as manufacturing are concentrated in Bangkok, and traditional sectors such as agriculture are concentrated in the other regions, especially in the North, the Northeast, and the South.   The Central region is between them.   This is the reason the decentralization of the industrial sector to other regions apart from Bangkok has been one of the most important targets of the economic and social development plans of Thailand since the 1970s.

In this section we will examine the regional disparity in terms of GRP. The GRP is estimated by NESDB but unfortunately it is available only after 1975.   Therefore, our analysis is limited to the period of increasing income inequality.

NESDB publishes the estimates of GRP and the gross provincial product (GPP).   The definition of region that NESDB makes is a bit different from that of the socio-economic surveys of NSO.   The definition of Bangkok by NESDB includes Samut Sakhon and Pathum Thani as well as those Changwats that are defined as Bangkok in the definition of NSO.   In order to preserve comparability we adopted the definition of NSO and recalculated the GRP according to that definition.

Figure 4–4 shows the per capita GRP as a percentage of the national average (or per capita GDP) at current prices since 1975.   The per capita GRP of Bangkok is the highest and nearly three times as high as that of the national average.   The second highest is the Center.   Its per capita GRP, however, is only one-third that of Bangkok and only slightly higher than the national average.   Next comes the South and then the North.   The lowest is the Northeast whose per capita GRP is less than half of the national average and only one-seventh of that of Bangkok.   The order of region by per capita GRP has not changed since 1975.

Comparing this result with the disparity of household income, the disparity of per capita GRP is much bigger than that of household income.
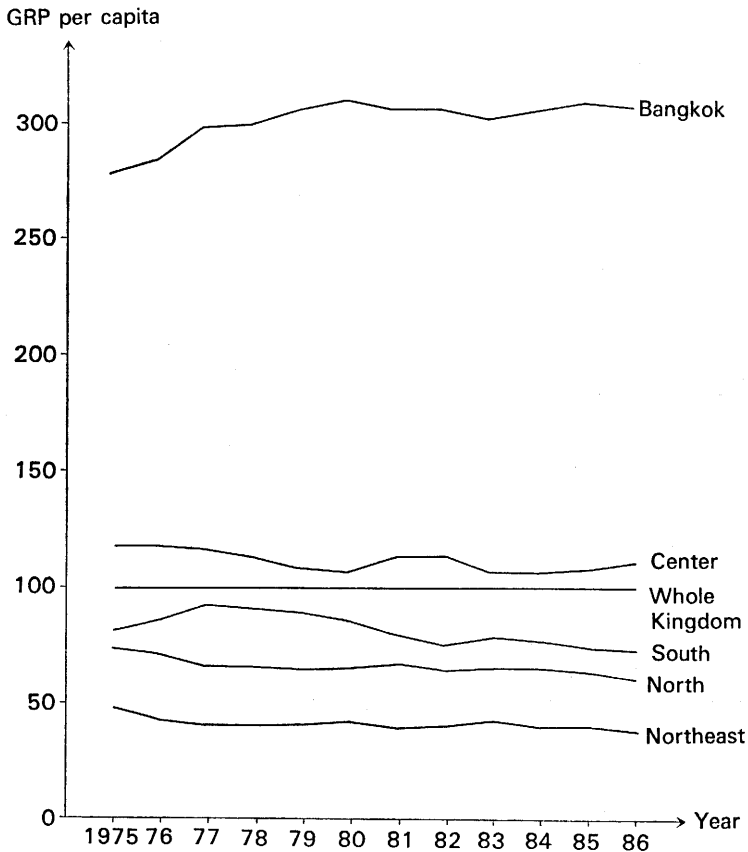
GRP per capita

Figure 4–4
Per Capita GRP
Source: Calculated from NESDB [61].
Note: At current prices. Whole kingdom=100.

The average household income of Bangkok is at most three times as high as that of the Northeast after 1975.[3] This discrepancy can be examined by comparing GRP to the total household income of each region, which is estimated by multiplying the average household income by the number of households of each region. The result is shown in Table 4–6. In Bangkok the estimated total household income is only 26.5 per cent of the GRP of Bangkok. This ratio increases as the regional average household income decreases. The ratio is 68 per cent for the North and 84 per cent for the Northeast. This is the reason the disparity of household income is smaller than the GRP. The difference between GRP and total household income occurred because a part of GRP is distributed to the non-household sector.[4]

Table 4–6
Comparison between Per Capita GRP and Household Income, 1981

(million baht)

	GRP (1)	Total House-hold Income (2)	(2)/(1) (%)
Bangkok	317,713	84,179	26.5
Center	171,206	92,059	53.8
South	80,532	46,469	57.7
North	106,226	71,650	67.5
Northeast	110,489	92,866	84.0
Whole kingdom	786,167	372,271	47.4

Source: NESDB [61] and Ikemoto and Limskul [21, p. 261] and the author's estimate.

A part of GRP is retained by the corporate sector and a part is redistributed to the government sector. A part of personal income is transferred to other regions, for example, by migrants. A transfer of income from Bangkok to the Northeast would decrease the total household income in Bangkok and increase that of the Northeast. The figures in Table 4–6 imply that in Bangkok the share of the income that is not distributed to the household sector as well as the share of income transferred to other regions is much larger than that of other regions. Thus it might be that the large disparity of per capita GRP exaggerates the disparity of regional household income.

Trend of Regional Disparity

The disparity of GRP seems to be rather stable, especially since 1977 (see Figure 4–4). But in 1975 the gap between Bangkok and the Northeast was smaller (about 5.8 times, compared with 7.5 times in 1977). As shown in the previous chapter, the year 1975 indicates a relatively low income inequality, which is partly attributable to the decrease in the income share of the urban top decile. Since Bangkok's share in the urban area is very high, this loss of the urban top decile also corresponds to the relatively lower per capita GRP of Bangkok in 1975.

Now we will apply inequality indices to the per capita GRP in order to measure the regional disparity. Here we apply two inequality indices: the Gini coefficient and the Theil index. Because at present we are concerned only with inequality between regions and not with inequality within regions, we will ignore inequality within each region and will assume that every person has the same level of income as the per capita GRP and then apply the two inequality indices. The results are shown in Table 4–7 and Figure 4–5. The Gini coefficient at current prices increased from 0.329

Table 4–7
Inequality between Regions

Year	Gini Coefficient		Theil Index	
	Current Price	Constant Price	Current Price	Constant Price
1975	0.3291	0.3416	0.2023	0.2210
1976	0.3508	0.3592	0.2243	0.2412
1977	0.3770	0.3865	0.2569	0.2740
1978	0.3721	0.3779	0.2533	0.2654
1979	0.3765	0.3842	0.2653	0.2841
1980	0.3795	0.3887	0.2731	0.2957
1981	0.3890	0.3861	0.2785	0.2825
1982	0.3879	0.3841	0.2799	0.2799
1983	0.3744	0.3742	0.2658	0.2721
1984	0.3846	0.3763	0.2792	0.2716
1985	0.3935	0.3773	0.2916	0.2698
1986	0.4004	0.3855	0.2976	0.2792

Source: The author's estimate from NESDB [61].
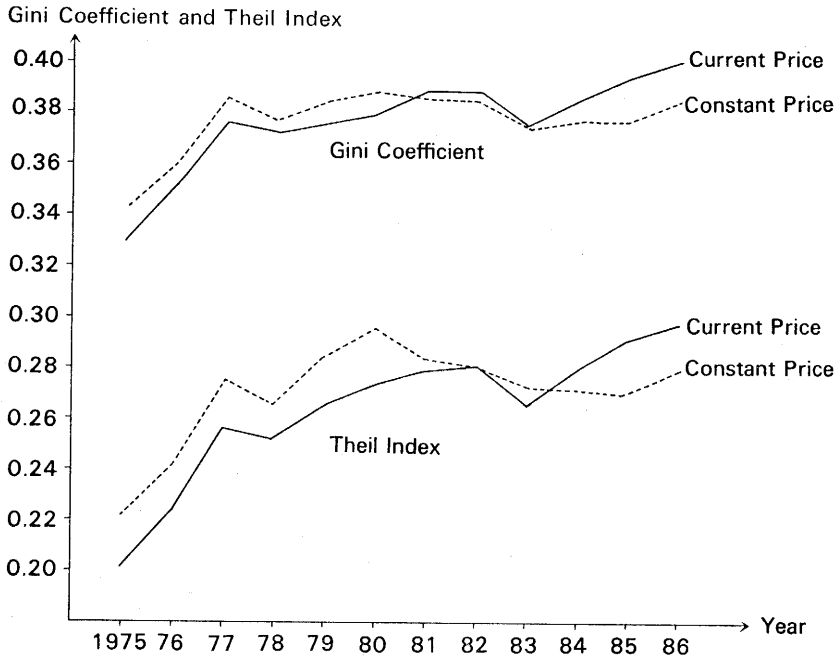
Figure 4–5
Inequality of Per Capita GRP
Source: Table 4–7.

in 1975 to 0.377 in 1977 and are stable within the range of 0.37 and 0.38 until 1983 and then again began to increase, reaching 0.4 in 1986. The Theil index at current prices also shows the same trend. The relatively low inequality in 1983 is attributable to favorable agricultural prices. This trend is somewhat different from the change in income inequality of the regional household income (see the between-component of Table 4–5). The regional inequality of household income decreased until 1981 and then increased in 1986. This difference shows the problem in using per capita GRP rather than household income.

The level of regional inequality is very high compared not only with the between-region component of the Theil index but also compared with even the income inequality of the whole kingdom. The between-region component of the Theil index is only 0.07, much smaller than that of GRP. This is partly because per capita GRP exaggerates income disparity between regions as noted in Table 4–6. What is surprising is the fact that the inequality in GRP is only a bit lower than the income inequality of household income in the whole kingdom. At current prices the Gini coefficient and the Theil index of GRP are 0.400 and 0.298, respectively, in 1986 while those of household income are 0.488 and 0.397, respectively, in the same year. The inequality indices of GRP are only 0.1 points lower than the income inequality of the whole kingdom. Generally speaking, regional inequality is much lower than household income inequality because the former neglects the inequality within the region. The high regional disparity of GRP in Thailand hints at the size of the disparity of productivity among regions and at the same time implies that the per capita GRP exaggerates income inequality compared with household income.

In order to examine the price effect on regional disparity we will compare the inequality indices at current prices and at 1972 constant prices. The inequality indices of constant prices indicate the level of regional inequality that would have been reached if there had been no change in prices since 1972. Before 1980 inequality at current prices is lower than that at constant prices (see Figure 4–5). This means that price changes since 1972 reduced regional disparity. This result is consistent with our conclusion that income inequality was reduced in the early 1970s partly due to favorable commodity prices. But after 1981 inequality at current prices becomes higher than that at constant prices, indicating that the price level changed after 1980 in such a way as to increase regional disparity. These changes are consistent with the changes in agricultural prices which became more and more unfavorable for each year after 1980 except 1983. This affected those regions with a high agricultural share negatively and accordingly increased regional inequality.

Industrial Structure of Regions

As mentioned above the disparity of per capita GRP is caused by the con-
centration of modern sectors in Bangkok and traditional sectors in other
regions.   In this section we will take up the share of the manufacturing
sector as a modern sector and agriculture as a traditional sector.   Figure
4–6 shows the share of manufacturing sector in GRP.   The highest share
is about 35 per cent for Bangkok and the lowest is less than 8 per cent for
the Northeast, the North, and the South.   The Central region is between
them and shows a share of about 20 per cent, which is slightly lower than
the national average except for 1986.

   Between 1975 and 1986 the share of manufacturing was rather stable for
each region.   In Bangkok the share decreased by a few percentage points
in the 1980s.   Bangkok may have reached the saturation point in the manu-
facturing sector.   Thus the manufacturing sector began to expand to the
Center, the outer region of Bangkok, in the latter half of the 1980s, and in
1986 the share of manufacturing in the Center exceeded that of the whole
kingdom.   In other regions, however, the share remained stable, and was
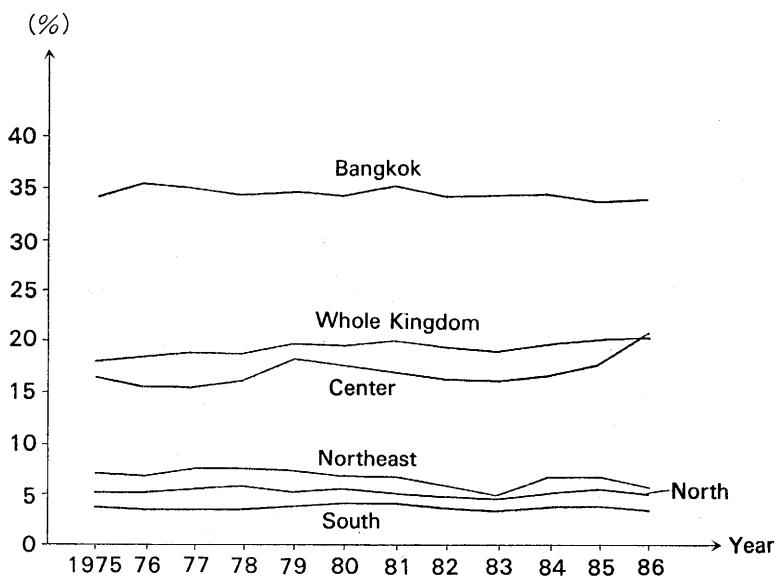still less than 6 per cent even in 1986.

Figure 4–6
Share of Manufacturing in GRP
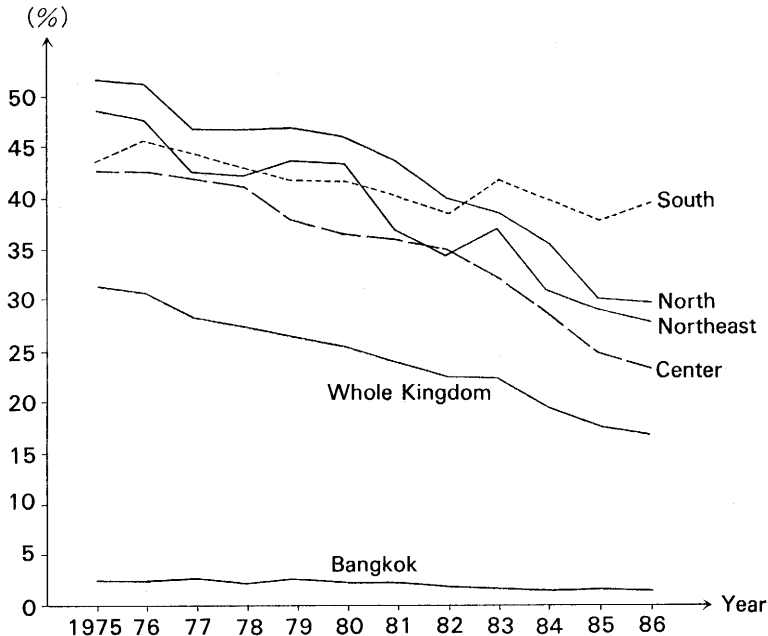   Source: Estimated from NESDB [61].
   Note: At current prices.

Figure 4-7
Share of Agriculture in GRP
   Source: Estimated from NESDB [61].
   Note: At current prices.

Contrary to the manufacturing sector whose share remained stable, the share of agriculture considerably decreased in every region. Figure 4-7 shows the share of agriculture in GRP. The share in Bangkok is negligible. In other regions the share was higher than 40 per cent in 1975 but has been decreasing since then. As mentioned in the previous chapter, in 1975 income inequality was reduced because of conditions favorable to the agricultural sector. This is reflected in the high agricultural share. These favorable conditions increased not only the agricultural share in GRP but also per capita GRP. For the North and the Northeast, the agricultural share rapidly decreased until 1986 when the share became lower than 30 per cent, a decrease by about twenty percentage points. Similarly, for the Center the agricultural share decreased by twenty percentage points from 43 per cent in 1975 to 23 per cent in 1986. But for the South the decrease was small, being one of only about five percentage points between 1975 and 1986. As a whole the agricultural share of the whole kingdom decreased from 32 per cent in 1975 to 16 per cent in 1986 which is lower than the share of the manufacturing sector. While the decreasing share of agricul-

ture did not affect Bangkok, where agriculture is negligible, it affected other regions adversely. Thus it aggravated the regional disparity between Bangkok and other regions.

Skewness of the Lorenz Curve

In this section we will examine the change in the shape of the Lorenz curve. Kakwani [24] showed that the skewness of the Lorenz curve changes as economic development proceeds so that the share of the middle income class increases and both high and low income classes lose their share. Figure 4–8 shows this change. The Lorenz curves I and II show those of developing and developed countries. These curves show that the income share of the middle income group, for example, those households between a and b on the horizontal axis, have a larger share for II (cf) than for I (de). Lorenz curve I is said to be " skewed toward (0, 0) " and Lorenz curve II is said to be "skewed toward (100, 100)." Kakwani proposed a value (α/β) as a measure of this skewness.[5] This value decreases as a country develops or, more strictly, the income share of the middle-income classes increases. Kakwani's result is cited in Table 4–8. This table clearly shows that the ratio for developed countries is greater than unity and that the ratio for Asian countries is less than unity. Our result of the skewness of the Lorenz curve for Thailand is shown in Table 4–9.

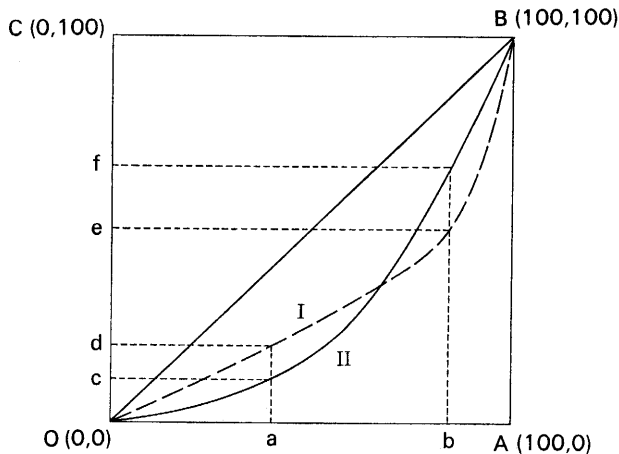For the whole kingdom the value ranges between 1.047 and 1.114 which

Figure 4–8
Skewness of the Lorenz Curve
  Note: I=developing countries and II=developed countries.

Table 4–8
Skewness of the Lorenz Curve

Country	Year	α/β	Country	Year	α/β
Asia :			Developed countries :		
Indonesia	1971	1.725	Netherlands	1967	0.987
India	1964/65	1.352	France	1962	0.939
Pakistan	1970/71	1.152	Australia	1967/68	0.933
Malaysia	1970	1.123	Denmark	1963	0.932
Sri Lanka	1969/70	1.121	West Germany	1969	0.930
Hong Kong	1971	1.118	Canada	1965	0.924
Korea	1971	1.088	Japan	1968	0.921
Taiwan	1964	1.084	Sweden	1963	0.918
Philippines	1971	1.020	Finland	1962	0.899
			New Zealand	1970/71	0.867
			Norway	1963	0.838

Source : Kakwani [24] Tables 17.1 and 17.2.

Table 4–9
Skewness of the Lorenz Curve for Thailand

	1968/69	1975/76	1981	1986
Whole kingdom	1.1137	1.0474	1.0652	1.1077
Rural areas	1.0899	1.0347	1.0682	1.0926
Urban areas	1.1234	1.0843	1.0418	1.0802
Bangkok	1.1267	1.0691	1.0306	1.1081
Center	1.1058	1.0530	1.0199	1.0979
South	1.1156	1.0626	1.1141	1.1196
North	1.1389	1.0259	1.0516	1.0603
Northeast	1.0693	1.0703	1.1070	1.1382

Source : Ikemoto and Limskul [21] Table XIII and the author's estimate from NSO [65].

are comparable with the figures for Sri Lanka, Hong Kong, the Republic of Korea, and Taiwan as shown in Table 4–8. As for the changes over the period 1962–86 the value for the whole kingdom first decreased between 1969 and 1975 but then increased again to reach the same level as 1969 in 1986 (see Figure 4–9). This change resembles that of income inequality which first decreased in 1975 and then increased gradually until 1981 and rapidly from then to 1986. This means that when income inequality decreases the income share of the middle class increases and vice versa. In other words, as development proceeds in the sense of the skewness of the Lorenz curve, income inequality decreases and vice versa. If we measure
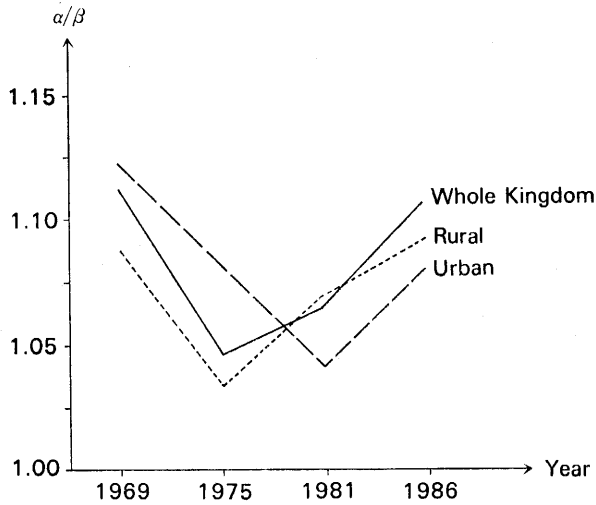
Figure 4–9
Skewness of the Lorenz Curve for Thailand
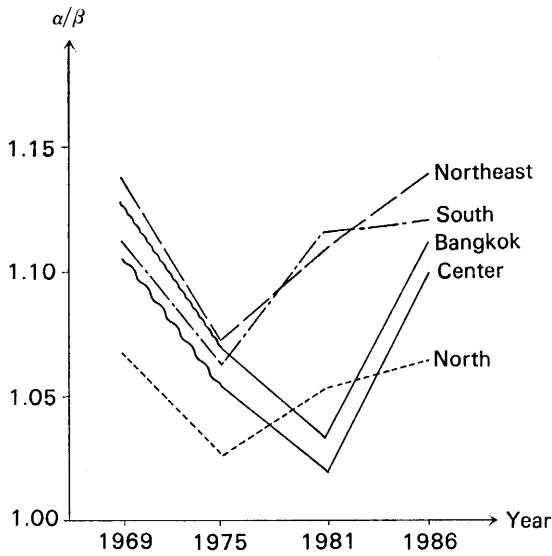 Source: Table 4-9.

Figure 4–10
Skewness of the Lorenz Curve by Region
  Source: Table 4-9.

the level of development by per capita GDP, however, we would not be able to see this relationship suggested by Kakwani.

It seems that income distribution in rural and urban areas resembles that of developing and developed countries, respectively, and that the ratio (α/β) would be smaller for the urban areas than for rural ones. But this is not the case before 1975.

For rural areas the value moves in the same way as that for the whole kingdom but for the urban area the change is a bit different (see Figure 4–9). The value for the urban area decreased until 1981 and then increased. Thus there are two types of change. These two types can be applied to region. Figure 4–10 shows the skewness of the Lorenz curve by region. The skewness of the Lorenz curve in Bangkok and the Center changed in the same way as in the urban area while that in the North, Northeast, and South changed in the same way as that in the rural areas did.[6] This result is understandable because the former regions are more urbanized and the latter are less urbanized. However, the relationship between the skewness and income inequality observed for the whole kingdom cannot be seen at the regional level. The relationship between the skewness and the per capita GRP is not observed either.