Appendix B : Data

I. Data Source of Income Distribution

This study mainly used the data on household income compiled by the National Statistical Office (NSO).   NSO has conducted several surveys on household expenditure and income since 1958/59.   These surveys are the *Household Expenditure Survey* (HES) of 1958/59 and 1962/63 and the *Socio-Economic Survey* (SES) of 1968/69, 1971–73, 1975/76, 1981, and 1986.   HES 1958/59 was a preliminary one so it was not used in this study. SES 1971–73 was also not used in this study because of the problem that it employed a regional rotation system, which means that different regions were surveyed each different year.   If we use it to examine the income distribution of the whole kingdom, we must adjust the difference between years.   Wattanavitukul [68] did this by deflating household income by regional price indices.   But her results seem to indicate that such an adjustment is very difficult.

Thus this study used the remaining five surveys, that is, HES of 1962/63 and SES of 1968/69, 1975/76, 1981, and 1986.   For HES 1962/63 we used the estimates given in Wattanavitukul [68], which were originally estimated by Chantaworn [8].   For SES 1968/69 we used the estimates in Meesook [36].   For SES 1975/76 and 1981 we used the data tape.   And for SES 1986 we used NSO [65].   In the following sections we will explain the details of these data to the extent that it is necessary to understand this study.

II. Comparability between Income Distribution Data

A problem of comparability between income distribution data is that the definition of the more-than-two-person household in SES changed between 1975 and 1981.   SES 1981 defines a household as:

> A group of two or more persons who make common provision for food and other living essentials.   Members of a household may pool their income and have a common budget to a greater or lesser extent.   They may be related by blood, marriage or adoption or unrelated or a combination of both.   Unrelated

171

boarders or lodgers living with a household but never paying for living quarters and/or meals, servants without their families, living with a household and receiving food, clothing and housing as part of wages or free, were counted as household members. Married children . . . or their spouses [who] have their own income [and] eat with a household whether they pay for meals or not were treated as separate households. Unrelated boarders or lodgers with or without their families, living with a household but paying for living quarters and/or meals were treated as separate households. (NSO [64], p. 3)

The difference in the definition of household in SES between 1975 and 1981 is the treatment of married children. In SES 1981 married children who eat with a household are treated as separate households if they or their spouses have their own income. But in SES 1975/76 married children with their own income were not counted as separate households. They were identified as sub-family but not as household.

This change in the definition brings about an increase in the number of households and a decrease in the average household size. The comparison of average household size between SES 1975/76 and SES 1981 and the Population Census of 1980 is shown in Table B–1. Three of these statistics depend on different definitions of the household. The data of the Population Census, 1980, was cited for reference. This table seemingly suggests that the average household size decreased gradually from SES 1975/76 to SES 1981, but as we have mentioned above this decrease is largely due to the change in the definition. It seems impossible that the average household size could have decreased from 5.47 to 4.49 for the whole kingdom in only five or six years.

Table B–1
Comparison of Average Household Size

	SES 1975/76	Census 1980[a]	SES 1981
Whole kingdom	5.47	5.25	4.49
Municipal areas	5.15	5.00	4.14
Sanitary districts	5.18	4.98	4.22
Villages	5.52	5.34	4.63
Bangkok	5.7	5.07	4.19
Center	5.2	5.05	4.28
North	5.0	4.81	4.13
Northeast	5.9	5.74	5.06
South	5.2	5.24	4.40

Source: NSO [63] for SES 1975/76, NSO [66] for census 1980 and data tape for SES 1981.
Note: [a] Private household excluding collective household.

Other influences in this change in definition are the reduction of average household income and income inequality. At the higher income class the household size is bigger and would be affected more by the change in the definition of household than the lower income class. Therefore, the average income of the higher income class would decrease, and at the same time this would create more lower income households. Therefore, it seems that this change of definition of household would somewhat lower the income inequality in 1981.

Another effect is on the income disparity between regions. The household size decreased from 5.7 to 4.2 by 1.5 persons in Bangkok, which is larger than the decrease by one person for the whole kingdom. This implies that the change in the definition would have decreased the average household income in Bangkok more than in other regions and therefore overestimated the decrease in regional disparity. But this overestimation would not be so large as to warrant a reversal in our conclusions.

III. Sampling Fraction

The sampling fraction is very important when using a data tape. Therefore, we shall explain the sampling fraction of SES 1981 that we used in this study.

A stratified-three stage sampling method was adopted for the SES 1981. The whole kingdom was divided into four regions according to geographical area. Each region was then divided into two to four sub-regions so that the whole kingdom was divided into ten strata. From each strata a number of sample *amphoe*s (districts) were selected with probability proportional to size. The number of the sample *amphoe* was 135 of 63 *changwat*s.

Each sample *amphoe* was divided into three parts according to the type of local administration, the types being municipal areas, sanitary districts, and villages areas.[1] From each type of community, sample blocks, and sample villages were selected systematically with probability proportional to size. The number of sample blocks and sample villages was 368 blocks for municipal areas, 245 villages for sanitary districts, and 979 villages for village areas.

From these blocks and villages, sample households were selected. Twelve households were selected from each sample block and eight and six sample households were selected from each sample village in sanitary districts and village areas. The total number of sample households was 12,250 households (0.14 per cent of total households): 4,416 households in the municipal areas, 1,960 households in the sanitary districts, and 5,874

Table B–2
Overall Sampling Fraction

Community Type	Overall Sampling Fraction
Central region-special	1/300
Municipal areas	1/250
Sanitary districts	1/500
Rural areas	1/1,000

Source: NSO [64].

Table B–3
Distribution of Households

Region	Total	Municipal Areas	Sanitary Districts	Villages
North	1,978,200	147,250	229,720	1,610,230
Northeast	2,934,500	131,170	229,190	2,574,140
Central	1,749,200	177,190	264,480	1,307,530
South	1,151,700	145,000	82,920	923,780
	Total	City Core	Suburbs	Fringe Areas
Bangkok	1,182,000	594,310	461,920	125,770

Source: NSO [64].

households in the rural areas.

The overall sampling fraction used by NSO [64] was as shown in Table B–2. But this fraction is so rough that we estimated the actual fraction. The fraction was derived as shown below.

In NSO [64] the data on distribution of household by region and community type was provided as shown in Table B–3. The total number of households is 90,046,000. As we have already mentioned above, the average household size is 4.49. By multiplying 90,046,000 by 4.49 we have an estimate of total population, about 40.5 million people. This figure excludes those people living in transient hotels and rooming houses, boarding schools, military barracks, wats (temples), hospitals, prisons, and other such institutions, as well as the households of foreign diplomats and other temporary residents. The population estimate for 1981 is available in *The Fifth Socio-Economic Development Plan (1981–1986)*. This is 47.5 million. The population census provides the estimates of population in 1980: the total population is 44.8 million, and the population of private households is 44.2 million. By multiplying the 2 per cent annual growth rate of population, the population of private households in 1981 would be about 45.1 million. Thus the estimate from SES 1981 is only 90 per cent of

the census data. This value seems to be rather small. Therefore, we estimate the number of households as follows:

(1)   From the Population Census of 1980 we calculated the distribution of population by region and community type according to the same classification as SES 1981;

(2)   These figures were multiplied by the population growth rate, 2.18 per cent (calculated from the figures in the Fifth Development Plan) to estimate the figure for 1981; and

(3)   These figures were then divided by the average household size estimated from the data tape of SES 1981, which is independent of the sampling fraction.

The result is shown in Table B-4, and the ratio of this estimate to the estimates of NSO [64] is shown in Table B-5. These ratios show that the figure in NSO [64] is smaller by about ten percentage points. Though the ratio for Northeast is relatively small, these ratios do not vary too much

Table B-4
Estimates of Number of Households   (1,000)

Region	Total	Municipal Areas	Sanitary Districts	Villages
Bangkok	1,389	1,140	86	163
North	2,218	173	254	1,792
Northeast	3,139	149	248	2,742
Central	2,000	205	308	1,487
South	1,284	165	102	1,029
Whole kingdom	10,041	1,831	998	7,213

Source: The author's estimates.

Table B-5
Ratio of Author's Estimates to SES 1981

Region	Total	Municipal Areas	Sanitary Districts	Villages
Bangkok	1.175	—	—	—
North	1.116	1.174	1.107	1.113
Northeast	1.070	1.136	1.083	1.065
Central	1.143	1.155	1.163	1.137
South	1.124	1.137	1.233	1.114
Whole kingdom	1.115	—	—	—

Source: Tables B-3 and B-4.
Note: Figures for community type in Bangkok and the whole kingdom are not comparable.
    See NSO [64] for SES 1981.

Table B-6
Estimates of Number of Households

Region	Total	Municipal Areas	Sanitary Districts	Villages
Bangkok	1,182,000	970,000	73,000	139,000
North	1,978,200	147,250	229,720	1,610,230
Northeast	2,934,500	131,170	229,190	2,574,140
Central	1,749,200	177,190	264,480	1,307,530
South	1,151,700	145,000	82,920	923,780
Whole kingdom	9,004,600	1,570,610	879,310	6,554,680

Source: Author's estimates for each community type in Bangkok and the whole king-
dom. Others are from NSO [64].

Table B-7
Estimates of Sampling Fraction

Region	Total	Municipal Areas	Sanitary Districts	Villages
Bangkok	1/390	1/490	1/311	1/170
North	1/879	1/257	1/496	1/1,313
Northeast	1/941	1/229	1/414	1/1,292
Central	1/844	1/408	1/555	1/1,126
South	1/817	1/242	1/491	1/1,443

Source: Table B-6 and SES 81 data tape.

among regions and community types. This means that the proportion by
region and community type do not differ so much between these two es-
timates. Since we are interested in the proportion rather than the total
size, we used the data of NSO [64], excepting Bangkok where community
types were divided into city core, suburbs, and fringe areas. For Bangkok,
the estimates by community type were obtained by dividing the total num-
ber of households in Bangkok given by NSO [64] proportionately to our
estimates. The final result is shown in Table B-6. By dividing the num-
ber of sample households by these figures we obtained the sampling frac-
tion. The results are shown in Table B-7.

IV. Decile Data

As mentioned in Appendix A, use of decile data is desirable, and we used
this data fully in this study. But we must be careful not to overlook the
difference in the income range of the same decile group in different com-
munity types or regions. For example, in 1981 a household with a monthly

Table B-8
Upper Limit of Household Income by Decile Group (baht)

Decile	Whole Kingdom	Municipal Areas	Sanitary Districts	Villages
Bottom	928	1,788	1,039	864
2nd	1,283	2,568	1,437	1,166
3rd	1,610	3,256	1,813	1,435
4th	1,954	3,935	2,219	1,727
5th	2,349	4,697	2,667	2,032
6th	2,865	5,565	3,234	2,399
7th	3,575	6,833	2,954	2,898
8th	4,664	8,785	4,938	2,666
9th	6,676	12,772	6,779	5,067

Source: Estimated from data tape of SES 1981.

income of 1,700 bahts belongs to the bottom decile in municipal areas but a household with the same income level belongs to the fourth decile in villages. Table B-9 shows the upper limit of household income for each decile group.

V. Disbursements and Receipts

One of the ways to check the accuracy of the SES 1981 is to compare total disbursements with total receipts. Ideally these two must be equal to each other. These items are defined as follows:
  A. Total Disbursements
        1. Total Consumption Expenditure
        2. Non-consumption Expenditure
             a. Direct Tax
             b. Occupational Expenses
             c. Others
        3. Change in Liabilities (Paid Back)
        4. Goods Purchased on Credit (Paid)
        5. Land Property, Gold, etc. (Bought or Redeemed)
        6. Change in Assets (Deposited)
  B. Total Receipts
        1. Money Income
        2. Income-in-Kind
        3. Other Money Receipts
        4. Change in Liabilities (Borrowed)
        5. Goods Purchased on Credit (Purchased)

Table B-9
Ratio of Disbursements to Receipts

Decile	Whole Kingdom	Municipal Areas	Sanitary Districts	Villages
Bottom	1.21	1.25	1.10	1.24
2nd	1.08	1.09	1.17	1.09
3rd	1.08	0.98	1.08	1.06
4th	1.01	1.09	1.05	1.02
5th	1.02	1.04	1.12	1.01
6th	1.00	1.00	1.03	1.00
7th	1.00	0.98	1.02	0.98
8th	0.99	0.85	0.93	1.00
9th	0.96	0.94	0.85	0.96
Top	0.82	0.75	0.86	0.85

Source: Estimated from data tape of SES 1981.

6.   Land Property, Gold, etc.   (Sold or Pawned)
7.   Change in Assets   (Withdrawn)

Regarding the ratio of the total disbursements to the total receipts by community type and household decile, the lower income class the ratio exceeds one and that at the higher income class the ratio is below one (see Table B-9).   This means that those households of the lower income class reported total receipts lower than disbursements and that those households of the higher income class reported total disbursements lower than total receipts.   We do not know which factor, income, expenditure, high savings, or low savings, accounts for this discrepancy.   If this is due to an error in income, then the true income would be bigger at the lower income class and would be smaller at the higher income class.   In this case, true income inequality would be smaller.   If this is due to an error in savings and low saving, this would mean that at the lower income class low savings is much higher and that at the higher income class savings are much lower.

Table B-9 shows that at the bottom and top deciles the discrepancy is biggest, being nearly 20 per cent.   In most other cases it is less than 10 per cent.   By community type, the highest discrepancy can be found in municipal areas.   In the municipal areas the discrepancy is about 25 per cent between the top and bottom decile.

VI.   Comparison with the National Income Statistics

Another way to check the accuracy of SES 1981 is to compare it with the national income statistics.   The items corresponding to the total household income in SES 1981 are as follows:

(1)   compensation of employees;

(2)   income from farm, professions and other unincorporated enterprises received by households and private non-profit institutions; and

(3)   income from property received by households and private non-profit institutions.

These items do not necessarily correspond to the concept of total household income. Items (2) and (3) include the income of non-profit institutions while SES 1981 does not include them. We, however, used these items since we could not disaggregate data between households and non-profit institutions. The total value for these items in 1981 was 593,222 million baht.

On the other hand, total household income can be estimated from SES 1981 by multiplying the annual household income (40,536 baht) by the number of households (9 million). The result is 364,500 million baht, which is only 61 per cent of the estimate from the national income statistics shown above.[2]

As we have shown, the total number of households of NSO [64] is smaller than that estimated from the population data, which means that the above calculation may include some underestimation. Therefore, we could estimate the total household income in a different way by multiplying the per capita annual income (9,008 baht) of SES 1981 by the population (47,488,000 persons) of the Fifth National Economic and Social Development Plan. The result from this is 427,771 million baht which is 72 per cent of the estimate of the national income statistics.

Though this discrepancy seems to be quite big, by international standards it is not so large. This ratio is 70.5 per cent for France in 1970, 81.7 per cent for Germany in 1969, and 83.9 per cent for the United Kingdom in 1973 (Anand [5], p. 39). Therefore, this discrepancy is not large enough to warrant the rejection of SES 1981.

VII.   Expenditure and Income

In this section we will compare expenditure to income. SES 1981 reports that the average annual household income is 40,536 baht and the average annual household expenditure is 40,488 baht. Thus income and expenditure are almost the same. This implies that at the lower income classes expenditure exceeds income whereas at the higher income classes income exceeds expenditure. The former is a case of low savings and the latter is a case of high savings. Table B–10 shows the percentage of expenditure to income. For the whole kingdom the ratio exceeds 100 per cent up to the seventh decile, which means that income is not enough for expenditure for

Table B-10
Ratio of Disbursements to Receipts   (%)

Decile	Whole Kingdom	Municipal Areas	Sanitary Districts	Villages
Bottom	189	165	208	190
2nd	148	127	151	151
3rd	136	112	133	139
4th	124	116	127	130
5th	118	109	122	121
6th	116	109	112	114
7th	106	102	104	114
8th	99	97	100	103
9th	93	90	92	91
Top	76	67	86	74

Source: Estimated from data tape of SES 1981.

people who belong to these deciles. By community type the situation is a bit better in municipal areas but it is not better in sanitary districts and villages.