

## CHAPTER 4

### RESULTS OF STUDY

This chapter refers to results of the analysis according to educational purpose which are :

- To analyze the patterns of budget allocation from MOPH to general and regional hospitals in Thailand in 1997.
- To apply the weight population which according to purpose equation of budget allocation from MOPH to general and regional hospitals in Thailand for population health needs in terms of budget allocation to hospitals needs.

4.1. Results of the patterns of budget allocation from MOPH to general and regional hospitals in Thailand in 1997.

The Office of the Permanent Secretary , Ministry of Public Health is responsible for the local public health service and it is a big office which is self administrated. Because of the public health administration system, it uses a plan system which is the central system and uses a top-down management system from in the same organization. The Office of the Permanent Secretary plays a part in determining the administration plan and dealing with local public health service at provincial level to control the service and evaluation including considering the budget allocation in their office.

This study has looked at the office budget allocation is under the Office of the Permanent Secretary. It responds to and supports the health service budget for general and regional hospitals from organizations such as : the Provincial Hospital Division and the Health Insurance Office. Both of them have standard guidelines for budget allocation to general and regional hospitals which are as follows :

#### 4.1.1 The Provincial Hospital Division

The Provincial Hospital Division is an office in the Ministry of Public Health which is under the Office of the Permanent Secretary. It is responsible for support and development in administration, service and academic research in the local public hospitals, such as the 92 general and regional hospitals. Their main plan is to develop the

quality of service in public health. They can help every hospital in health care, health promotion, health prevention, curative care, rehabilitation and keep in touch with everyone at every level.

Standard of budget allocation from The Provincial Hospital Division to general and regional hospitals

Line item1. Salary of civil servants and permanent employees in line with actual expenditure.

Line item 2. (Allowance, medical supplies, consumables)

2.1.This is allocated using relative weights of patients according to the system of Diagnosis Related Group (DRG), which is based on calculations of 43 hospitals expenditure.

2.2.Regional hospitals and the others (49 hospitals) which do not use DRG are considered using the lowest relative weight of the group i.e. :

- Regional hospitals, relative weight = 0.92
- General hospitals which have more than 400 beds, relative weight =0.52
- General hospitals which have less than 400 beds, relative weight = 0.50

Budget allocation formula in 1997

$$AB = (18 \cdot NVO) + (800 \cdot RW \cdot NIP)$$

AB = actual budget allocation form the Provincial Hospital Division to general and regional hospitals.

NVO = number of out patient visits

NIP = number of in patients

RW = relative weight from the pattern of DRG

Each out patient visit = 18 baht

Each in patient = 800 baht

2.3. Extra budget is to allocated some regional and general hospitals buy equipment and research.

Line item 3. Equipment, land and building, in line with actual expenditure.

Line item4. Public utility expenses such as : electricity, telephone, water etc, are in line with actual expenditure in 1996.

Line item 5. The special allowance subsidy for personnel is calculated in line with number of health personnel and the 1996 budget.

Budget allocation from the Provincial Hospital Division to general and regional hospitals consisted of line items, most of which follow actual expenditure but have to be adjusted according to budget expense last year and relative weight give by DRG in 43 hospitals out of the 92 hospitals. The other 49 hospitals have to be adjusted based the other 43 hospitals because of insufficient data or data which is inappropriate for DRG.

#### 4.1.2 The Health Insurance Office

Low income card holders and elderly person card holders come under the Health Insurance Office. Budget allocation of this part would be allocated to the public health office in each province. The public health office in each province considers allocated budget for health offices in every level of each province.

This analysis found that the standard of budget allocation has helped people on low incomes and the elderly people from 1981 to present. This is through allocating budget per poor person. In 1997, allocated budget to the poor was about 273 baht per person per year.

#### 4.2. Results of the 8 equations (To apply the weighted population to equation of budget allocation from MOPH to general and regional hospitals in Thailand.)

4.2.1. This step shows the result of accessing the equity of budget allocation from MOPH to general and regional hospitals in 1997. weight populations are show in Appendix 2. This presents the weight populations for equations 3.1 to 3.6 which show the pattern to improve budget allocation from MOPH to general and regional hospitals. All of them can access the equity regarding population health need in terms of budget allocation to hospitals needs and closely weight population value every equation (equation 3.1 to 3.6).

4.2.2. This is a comparison between actual and expected budget allocation from the basic 6 equation which are present in Appendix 3 – 7

This part presents the results of comparing actual budget and expected budget from 6 patterns (equation 3.1-3.6) obtained from weight population and also the results of two changing budgets which compare budget allocation per person in each hospital. The result being that if the hospital has high weight population, it has a high expected budget but if the hospital has low weight population, it will have a low expected budget.

The budget ratio measurement which compares actual budget and expected budget will show budget surplus and budget deficit. A budget ratio of 1 unit means that the actual budget is equal to the expected budget. This shows that budget allocation is done equitably. For this analysis Chonburi hospital and Suhaikolok hospital are the hospitals which have ratio between actual budget and expected budget closest to 1 unit.

If the budget ratio value is more or lower than 1 unit, it shows that budget allocation has inequity. If the budget ratio value is more than 1 unit it means that The hospital receives an actual budget less than the expected budget.

If the hospital has a budget ratio measurement of less than 1 unit, it means that actual budget was too much. It should be decreased or increased as described in table 4.1. It compares budget ratio values (RR) in equations 3.1-3.6. and found that some hospitals have RR value in equations 3.1-3.6. Example :

- RR values in equations 3.1-3.6 of Ratchaburi hospital are 0.29. It show that the variables in each equation of Ratchaburi hospital have equal influence budget allocation.

- RR value in equation 3.1, 3.2 and 3.4 of Saraburi hospital are 0.39. It shows that the variables in equation 3.1 (input factor), in equation 3.2 (output factor) and in equation 3.4 (output factor and adjusted referral rate ) of Ratchaburi hospital have equal influence for budget allocation.

Table 4.1 Comparison of the Ratio of Expected and Actual Budget in Equations 3.1 to 3.6

Number	Hospital	RR	RR	RR	RR	RR	RR	Total	Mean
		Eq 3.1	Eq 3.2	Eq 3.3	Eq 3.4	Eq 3.5	Eq 3.6		
<b>CENTRAL REGION</b>									
1	Phranungklaio Nonthaburi Hospital	1.42	1.44	1.40	1.42	1.41	1.42	8.50	1.42
2	Pathumthani Hospital	1.16	1.17	1.14	1.15	1.17	1.18	6.97	1.16
3	Phranakhonsriyuttaya Hospital	0.69	0.70	0.68	0.69	0.69	0.70	4.14	0.69
4	Sena Phranakhonsriyuttaya Hospital	1.31	1.32	1.28	1.30	1.31	1.32	7.84	1.31
5	Angthong Hospital	0.68	0.69	0.67	0.68	0.69	0.70	4.12	0.69
6	Sena Phranakhonsriyuttaya Hospital	1.76	1.78	1.73	1.76	1.76	1.78	10.57	1.76
7	Saraburi Hospital	0.39	0.39	0.38	0.39	0.37	0.38	2.30	0.38
8	Phraphuthabat Saraburi Hospital	0.55	0.56	0.54	0.55	0.55	0.56	3.30	0.55
9	Chaophrayayomrat Suphanburi hospital	0.75	0.76	0.75	0.76	0.75	0.76	4.53	0.76
10	Somdetphrasungkharat 17 Hospital	1.05	1.06	1.04	1.04	1.07	1.07	6.33	1.06
11	Singburi Hospital	0.27	0.27	0.27	0.27	0.27	0.28	1.63	0.27
12	Inburi Singburi Hospital	0.38	0.38	0.38	0.38	0.38	0.39	2.29	0.38
13	Lopburi Hospital	0.78	0.79	0.77	0.78	0.78	0.79	4.70	0.78
14	Banme Lopburi Hospital	0.79	0.80	0.78	0.79	0.80	0.80	4.75	0.79



(continued)

Number	Hospital	RR	RR	RR	RR	RR	RR	Total RR	Mean relative rate
		Eq 3.1	Eq 3.2	Eq 3.3	Eq 3.4	Eq 3.5	Eq 3.6	Eq 3.1-3.6	
15	Nakhonnayok Hospital	0.48	0.48	0.48	0.48	0.49	0.49	2.90	0.48
16	Chainat Hospital	0.75	0.75	0.74	0.74	0.75	0.76	4.49	0.75
17	Chonburi Hospital	1.01	1.01	1.00	1.00	0.98	0.98	5.98	1.00
18	Chaophrayaapaiphubet Hospital	0.75	0.76	0.74	0.75	0.75	0.76	4.51	0.75
19	Somdetphrayuparat Sakaew Hospital	1.79	1.82	1.77	1.79	1.81	1.83	10.80	1.80
20	Phrapokklao Chanthaburi Hospital	0.60	0.60	0.60	0.60	0.60	0.60	3.59	0.60
21	Muang Chachoengsao Hospital	1.07	1.08	1.06	1.07	1.05	1.07	6.39	1.07
22	Trat Hospital	0.52	0.53	0.52	0.52	0.52	0.53	3.14	0.52
23	Rayong Hospital	0.90	0.91	0.89	0.9	0.88	0.83	5.36	0.89
24	Ratchaburi Hospital	0.29	0.29	0.29	0.29	0.29	0.29	1.76	0.29
25	Banpong Ratchaburi Hospital	0.48	0.48	0.47	0.47	0.48	0.48	2.86	0.48
26	Potharam Ratchaburi Hospital	0.64	0.65	0.63	0.64	0.65	0.66	3.88	0.65
27	Dumnoensaduk Ratchaburi Hospital	0.70	0.71	0.69	0.7	0.71	0.72	4.25	0.71
28	Nakhonpathom Hospital	0.94	0.94	0.93	0.93	0.94	0.95	5.62	0.94
29	Phahonphonphayuhasena Kanchanaburi Hospital	0.75	0.76	0.74	0.75	0.76	0.77	4.55	0.76

(continued)

Number	Hospital	RR	RR	RR	RR	RR	RR	Total RR	Mean
		Eq 3.1	Eq 3.2	Eq 3.3	Eq 3.4	Eq 3.5	Eq 3.6	Eq 3.1-3.6	relative rate
30	Makaruk Kanchanaburi Hospital	1.19	1.20	1.17	1.19	1.20	1.21	7.16	1.19
31	Pharjomklao Phetchaburi Hospital	0.74	0.75	0.74	0.74	0.75	0.75	4.47	0.75
32	Prachuapkhirikhan Hospital	0.90	0.92	0.89	0.91	0.90	0.91	5.43	0.91
33	Samutsakhon Hospital	0.82	0.83	0.81	0.82	0.80	0.81	4.87	0.81
34	Somdetphraputhaloenla Samutsongkhram Hospital	0.52	0.53	0.51	0.52	0.52	0.53	3.13	0.52

Mean relative rate in central region = 0.82

NORTHEASTERN REGION

35	Chaiyaphum Hospital	0.15	0.15	0.15	0.15	0.15	0.15	0.89	0.15
36	Buriram Hospital	1.70	1.69	1.69	1.69	1.72	1.71	10.20	1.70
37	Surin Hospital	1.53	1.51	1.52	1.50	1.55	1.53	9.13	1.52
38	Maharat Nakhonratchasima Hospital	1.61	1.57	1.67	1.62	1.55	1.51	9.53	1.59
39	Sisaket Hospital	1.51	1.50	1.50	1.49	1.52	1.51	9.02	1.50
40	Loei Hospital	1.10	1.11	1.10	1.11	1.11	1.12	6.64	1.11
41	Nongkhai Hospital	1.38	1.39	1.37	1.37	1.39	1.40	8.30	1.38
42	Khonkaen Hospital	1.30	1.29	1.33	1.32	1.28	1.27	7.81	1.30

(continued)



Number	Hospital	RR	RR	RR	RR	RR	RR	Total RR	Mean
		Eq 3.1	Eq 3.2	Eq 3.3	Eq 3.4	Eq 3.5	Eq 3.6	Eq 3.1-3.6	
43	Udonthani Hospital	1.38	1.37	1.39	1.38	1.38	1.37	8.28	1.38
44	Nongbualamphu Hospital	1.80	1.81	1.78	1.80	1.82	1.84	10.85	1.81
45	Sakhonnakhon Hospital	1.36	1.35	1.35	1.34	1.37	1.36	8.15	1.36
46	Yasothon Hospital	0.97	0.98	0.97	0.98	0.98	0.99	5.87	0.98
47	Sanpasitprasong Hospital	1.26	1.25	1.29	1.27	1.26	1.24	7.57	1.26
48	Amnatcharoen Hospital	1.37	1.39	1.36	1.37	1.39	1.41	8.29	1.38
49	Nakhonphanom Hospital	1.04	1.04	1.05	1.05	1.05	1.05	6.29	1.05
50	Mukdahan Hospital	0.79	0.79	0.78	0.78	0.80	0.80	4.74	0.79
51	Kalasin Hospital	1.43	1.43	1.42	1.42	1.44	1.44	8.59	1.43
52	Roi Et Hospital	1.59	1.57	1.59	1.58	1.60	1.58	9.51	1.59
53	Mahasarakham Hospital	1.23	1.24	1.22	1.22	1.24	1.25	7.40	1.23

Mean relative rate in northeastern region = 1.29

NORTHERN REGION

54	Uthaithani Hospital	0.68	0.69	0.68	0.68	0.69	0.69	4.11	0.69
55	Sawanpracharuk Nakhonsawan Hospital	1.15	1.15	1.15	1.15	1.15	1.15	6.89	1.15

(continued)

Number	Hospital	RR Eq 3.1	RR Eq 3.2	RR Eq 3.3	RR Eq 3.4	RR Eq 3.5	RR Eq 3.6	Total RR Eq 3.1-3.6	Mean relative rate
56	Uthaithani Hospital	0.61	0.63	0.61	0.62	0.62	0.63	3.71	0.62
57	Uthaithani Hospital	0.66	0.67	0.65	0.66	0.67	0.68	3.99	0.67
58	Kamphaengphet Hospital	1.70	1.71	1.69	1.70	1.71	1.73	10.24	1.71
59	Sukhothai Hospital	0.81	0.82	0.8	0.81	0.82	0.83	4.90	0.82
60	Srisungwon Sukhothai Hospital	0.90	0.91	0.88	0.89	0.91	0.92	5.41	0.90
61	Phuthachinarat phetsanulok Hospital	0.78	0.77	0.77	0.76	0.77	0.77	4.62	0.77
62	Phetchabun Hospital	1.89	1.88	1.86	1.86	1.90	1.89	11.28	1.88
63	Phrae Hospital	0.76	0.76	0.75	0.75	0.77	0.77	4.57	0.76
64	Nan Hospital	0.74	0.74	0.75	0.75	0.75	0.75	4.48	0.75
65	Phichit Hospital	1.08	1.09	1.08	1.09	1.09	1.10	6.52	1.09
66	Uttaradit Hospital	0.68	0.69	0.68	0.69	0.68	0.69	4.10	0.68
67	Lampang Hospital	0.78	0.77	0.81	0.81	0.78	0.77	4.72	0.79
68	Chiangraiprachanukhrau Hospital	1.25	1.23	1.31	1.29	1.25	1.22	7.56	1.26
69	Nakhonping Chiangmai Hospital	1.95	1.89	1.95	1.89	1.95	1.89	11.53	1.92
70	Srisungwan Maehongson Hospital	0.65	0.65	0.64	0.64	0.65	0.66	3.90	0.65

(continued)

Number	Hospital	RR Eq 3.1	RR Eq 3.2	RR Eq 3.3	RR Eq 3.4	RR Eq 3.5	RR Eq 3.6	Total RR Eq 3.1-3.6	Mean relative rate
71	Lamphun Hospital	0.82	0.82	0.82	0.82	0.83	0.83	4.95	0.83
72	Phayao Hospital	0.50	0.50	0.49	0.50	0.50	0.50	3.00	0.50
73	Cheangkhum Phayao Hospital	0.74	0.74	0.73	0.74	0.75	0.75	4.44	0.74
Mean relative rate in northern region = 0.96									
SOUTHERN REGION									
74	Suratthani Hospital	0.54	0.55	0.54	0.54	0.53	0.53	3.23	0.54
75	Kao Samui Suratthani Hospital	1.41	1.42	1.38	1.39	1.42	1.43	8.45	1.41
76	Chumphon Hospital	0.87	0.87	0.86	0.87	0.87	0.88	5.21	0.87
77	Ranong Hospital	0.43	0.44	0.43	0.43	0.44	0.44	2.61	0.44
78	Maharat Nakhonsrithammarat Hospital	1.18	1.18	1.20	1.19	1.17	1.17	7.10	1.18
79	Phangnga Hospital	0.43	0.44	0.43	0.43	0.44	0.44	2.61	0.44
80	Takuapha Phangnga Hospital	0.38	0.39	0.38	0.38	0.39	0.39	2.31	0.39
81	WicharaPhuket Phuket Hospital	0.48	0.49	0.47	0.48	0.48	0.48	2.88	0.48
82	Krabi Hospital	0.92	0.93	0.91	0.92	0.92	0.93	5.53	0.92
83	Narathiwat Hospital	0.64	0.65	0.63	0.64	0.62	0.65	3.86	0.64

(continued)

Number	Hospital	RR	RR	RR	RR	RR	RR	Total RR	Mean
		Eq 3.1	Eq 3.2	Eq 3.3	Eq 3.4	Eq 3.5	Eq 3.6		
84	Suhaikolok Narathiwat Hospital	0.99	1.00	0.98	0.99	1.00	1.02	5.98	1.00
85	Pattani Hospital	1.19	1.19	1.17	1.18	1.20	1.21	7.15	1.19
86	Yala Hospital	0.38	0.39	0.38	0.38	0.38	0.39	2.29	0.38
87	Betong Yala Hospital	0.79	0.80	0.78	0.79	0.80	0.81	4.79	0.80
88	Trang Hospital	0.98	1.00	0.98	0.99	0.98	0.99	5.93	0.99
89	Phatthalung Hospital	0.98	0.98	0.97	0.98	0.98	0.99	5.88	0.98
90	Satun Hospital	0.75	0.76	0.74	0.76	0.76	0.77	4.54	0.76
91	Songkhla hospital	0.84	0.84	0.83	0.83	0.83	0.84	5.01	0.84
92	Hadyai Songkhla Hospital	0.75	0.75	0.74	0.75	0.73	0.83	4.46	0.74
Mean relative rate in southern region = 0.79									
	Mean of relative rate for each RR	0.94	0.94	0.93	0.93	0.94	0.94	5.64	0.94

This analysis shows that hospitals in the northeastern region should receive 84.21% more budget, hospitals in the northern region should receive 30% more budget, hospitals in the central region should receive 23.53% budget and the hospitals in the southern region should receive a budget increase of 15.79%, as shown in table 4.2.

Table 4.2 Regional Comparison of Budgetary Need

Region	Suggested budget increase (percent)
Northeastern	84.21
Northern	30.00
Central	23.53
Southern	15.79

The mean relative rate was compared between the four regions (Table4.3). The results of this analysis show that the budget allocation of hospitals in the central region has a mean relative rate 0.82. The hospitals which has an average mean of the ratio of budget allocation closest to 0.82 is Sanutprakan hospital, and the hospital which has the highest ratio of budget allocation is Somdetphrayuparat sakaew Hhospital (mean relative rate 0.18 and total mean relative rate in 6 equations 10.80). The hospital which has the lowest ratio of budget allocation is Rachaburi hospital ( mean relative rate 0.27 and total mean relative rate in 6 equations 1.63). It is presented in figure 4.1.

The Northeastern region has a mean relative rate of budget allocation of 1.29. The hospital which has mean relative rate closest to this is Sanpasitpasog hospital. The hospital which has the highest ratio of budget allocation is Nongbualamphu hospital (mean relative rate 1.81 and total mean relative rate in 6 equations 10.85) and the hospital which has the lowest ratio of budget allocation is Chaiyaphum hospital (mean relative rate 0.15 and total mean relative rate in 6 equations 0.89 ). It is presented in figure 4.2.

The Northern region has a mean relative rate of budget allocation of 0.96. The hospital which has the highest ratio of budget allocation is Nakhonping hospital (mean relative rate 1.92 and total mean relative rate in 6 equations 11.53) and the hospital which has the lowest ratio of budget allocation is Phayao hospital (mean relative rate 0.50 and total mean relative rate in 6 equations 3.00). It is presented in figure 4.3.

The Southern region has a mean relative rate of allocation of 0.79. The hospital which has the highest ratio of budget allocation is Kao samui suratthani hospital (mean relative rate 1.41 and total mean relative rate in 6 equations 8.45) and the hospital which has the lowest ratio of budget allocation is Takuapha phangnga hospital (mean relative rate 0.39 and total mean relative rate in 6 equations 2.31). It is presented in figure 4.4.

Table 4.3 Regional Comparison of Mean Relative Rate of Equations 3.1-3.6

Region	Mean relative rate
Northeastern	1.29
Northern	0.96
Central	0.82
Southern	0.79

The result of analysing the ratio of actual and expected budget allocation divided into regional and general hospitals is presented in table 4.4. This shows the regional hospitals have a mean relative rate of 0.93 and the hospital which has the highest ratio of budget allocation is Buriram hospital (mean relative rate 1.70 and total mean relative rate in 6 equations 10.20) and the hospital which has the lowest ratio of budget allocation is Ratchaburi hospital (mean relative rate 0.29 and total mean relative rate in 6 equations 1.76).

The general hospitals have a mean relative rate allocation of 0.98 and the hospital which has the highest ratio of budget allocation is Nakhonping hospital (mean relative rate 1.92 and total mean relative rate in 6 equations 11.53) and the hospital which has the lowest ratio of budget allocation is Chaiyahum hospital ( mean relative rate 0.15 and total mean relative rate in 6 equations 0.89).

Table 4.4 Comparison the Mean Relative Rate between Regional and General Hospitals

Hospital	Mean relative rate
Regional Hospital	0.93
General Hospital	0.94

FIGURE 4.1 Total Mean Relative Rate of Each Hospital in Central Region

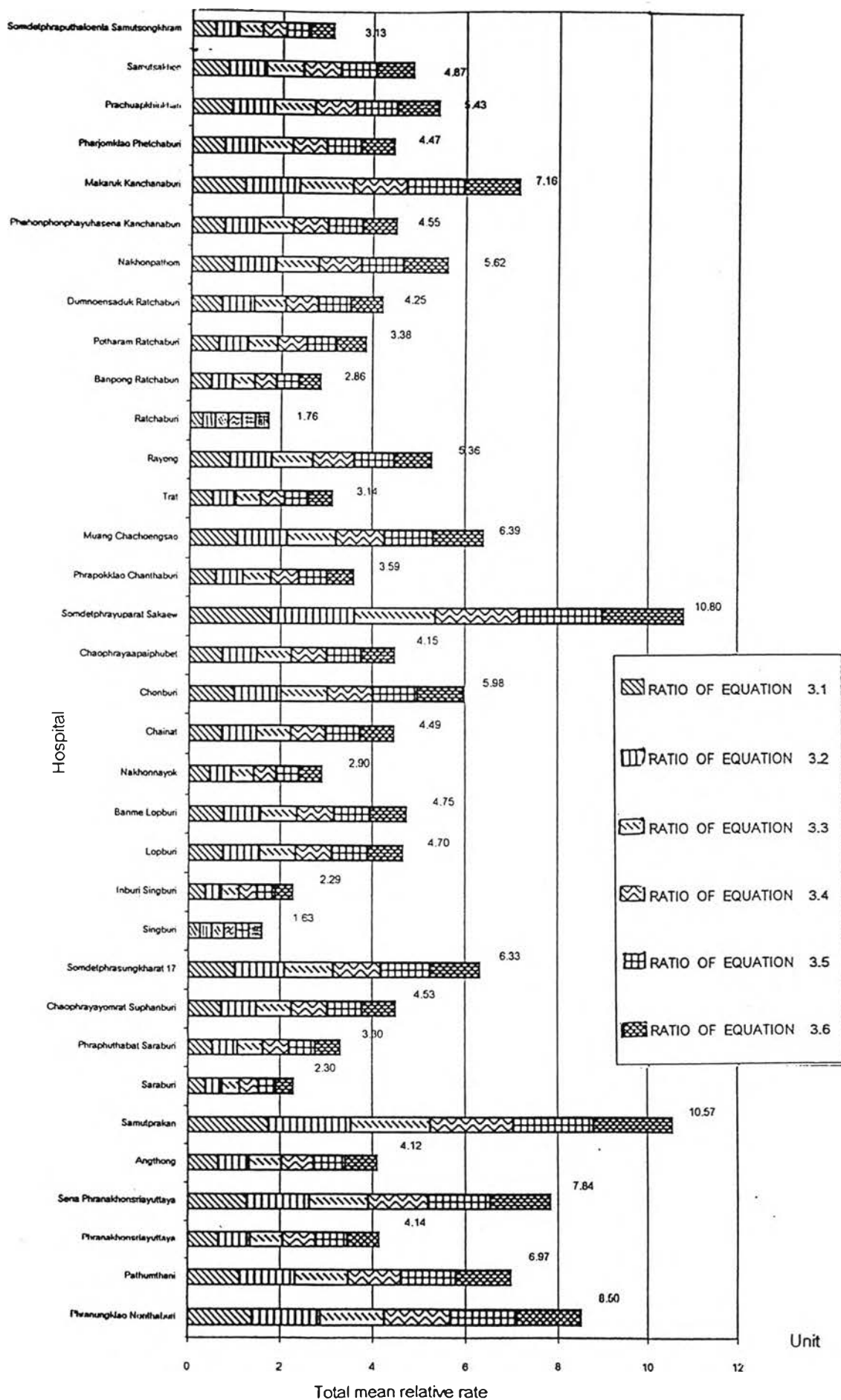




FIGURE 4.2 Total Mean Relative Rate of Each Hospital in Northeastern Region

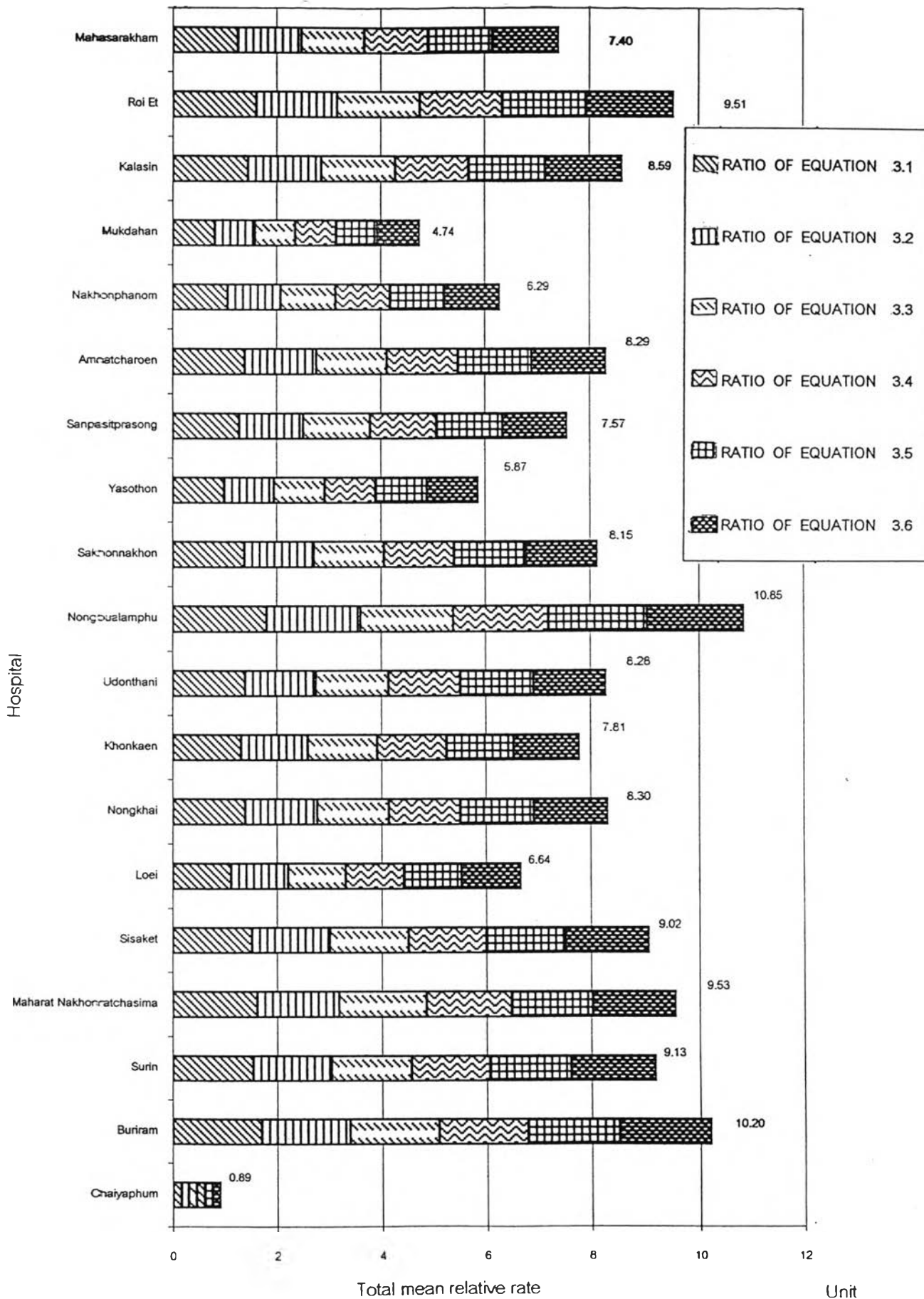


FIGURE 4.3 Total Mean Relative Rate of Each Hospital in Northern Region. 51

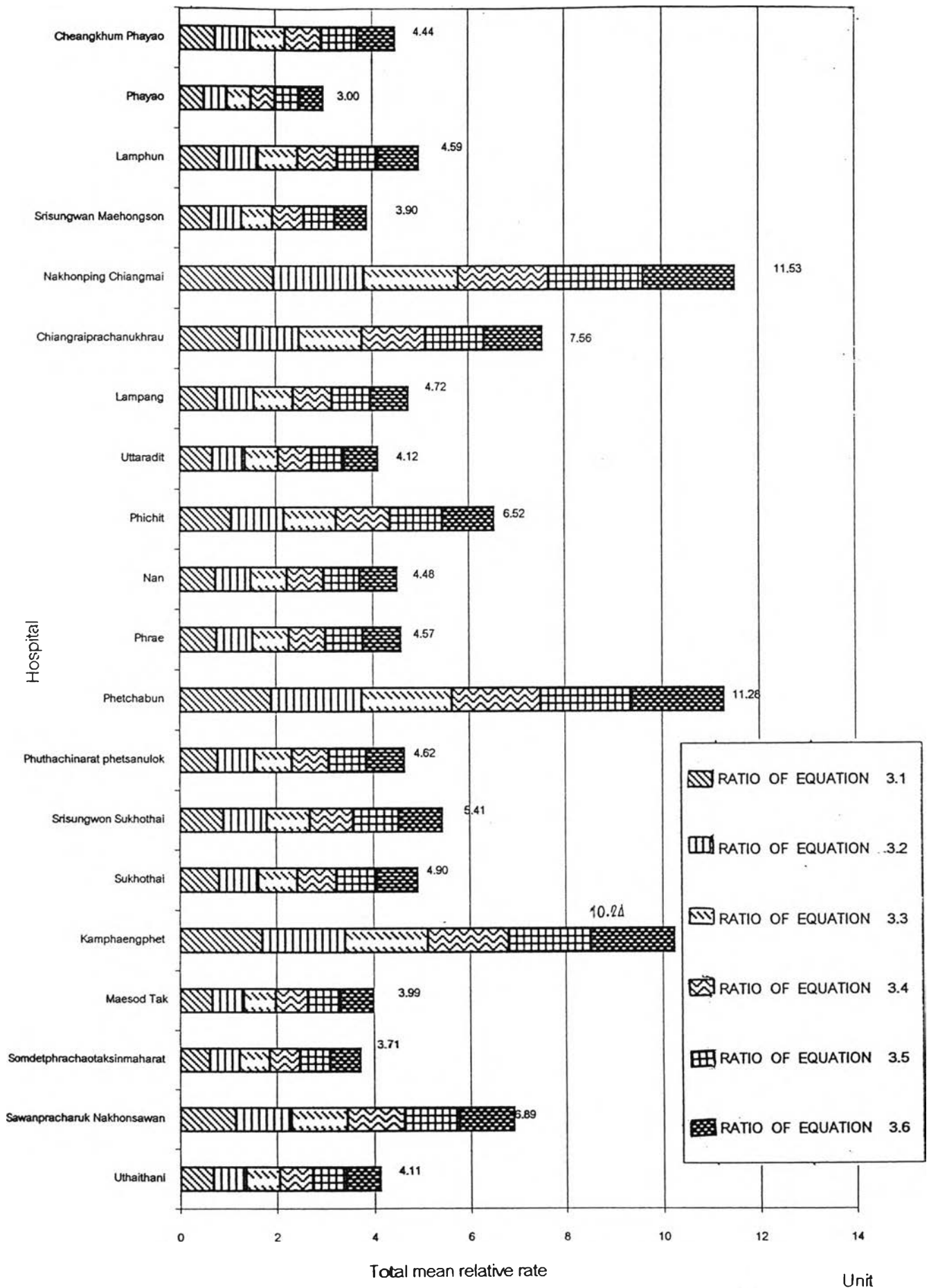


FIGURE 4.4 Total Mean Relative Rate of Each Hospital in Southern Region 52

