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FINANCING HEALTH SERVICES
AND
MEDICAL CARE IN THAILAND

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EXCHANGE RATE

1 US\$ = 23 Baht (1983)

CHAPTER 1

INTRODUCTION

This study analyzes the financing of health services and medical care in Thailand. The focus is on current and projected patterns of expenditure and on priorities for government policy. The study addresses three basic questions:

- How much is being spent for health, by whom and for what?
- What are the trends?
- What are the implications for policy?

The most important finding of the study is that health services are financed overwhelmingly by direct expenditures of households and that these expenditures are increasing faster than household incomes. Thus the study is based, above all, on intensive analysis, modeling and projection of household expenditures using household survey data collected by the National Statistics Office (NSO) in 1975-1976 and 1981-1982 and by the Ministry of Public Health (MOPH) and the Institute for Population and Social Research, Mahidol University, in 1979-1981. The study also draws on numerous secondary sources and on primary data collected by the MOPH, the NSO, the Ministry of Finance, the Ministry of the Interior and the National Economic and Social Development Board.

The Study is divided into seven chapters. The remainder of this chapter presents an overview of health care resources, including health personnel, hospitals and health centers, and geographic distribution. Chapter 2 analyzes the sources of health sector finance, focusing on trends, and projections of MOPH and other government expenditures. Chapter 3 reviews costs and cost recovery in government health centers and hospitals. Chapter 4 analyzes household expenditures for health services and medical care, and concludes with an analysis of the problems of the urban poor. Chapter 5 reviews the extensive efforts to mobilizing community finance of primary health care in rural areas. Chapter 6 analyzes health card funds -- a new MOPH initiative to develop a prepaid rural health system that will encourage the use of preventive services, rationalize the use of curative services and increase cost recovery. Chapter 7 summarizes the overall findings, conclusions, and recommendations.

1. Health Care Resources: Overview

Health care resources, including health personnel and hospitals are concentrated in Bangkok, and a few other urban areas. In Bangkok in 1981, there was one physician for every 1,362 people, while residents of other provinces, who rely largely on MOPH facilities when they seek professional health care, were served by one doctor for every 14,027 people. (See Table 1.1.) MOPH health centers and district hospitals are major sources of both primary and secondary care in rural areas; MOPH provincial hospitals play a major role in non-Bangkok urban areas. In Bangkok, the university hospitals, other non-MOPH public hospitals, and private hospitals and clinics are the most prominent providers of professional health care. The availability of pharmaceuticals is a noteworthy similarity between Bangkok and the rest of Thailand : over 15 thousand drug outlets are dispersed throughout the nation. Bangkok, with one-tenth of the population, contains about one-fourth of the nation's drug stores but most of its trained pharmacists. (See Table 1.1.)

Table 1.1
Population to Health Personnel Ratios, 1981

Health Personnel Intensity	Bangkok	Other Provinces	Whole Kingdom
Population per Physician	1,362.3	14,027.3	6,851.5
Population per Dentist	7,914.2	110,598.4	44,927.1
Population per Pharmacist	2,331.1	109,449.3	17,719.4
Population per Nurse	494.2	4,803.1	2,422.9
Population per Midwifery Nurse	7,708.9	5,345.4	5,536.6

Source: Division of Health Statistics, MOPH. "Public Health Statistics, 1977-1981"

2. Bangkok

In the Bangkok area in 1983 there were 78 private hospitals (55 general and 23 specialized) and 22 private inpatient clinics (17 midwifery, 4 traditional general and 1 traditional midwifery), having a total of over 5,500 beds, more than half the private hospital beds in Thailand's (See Tables 1.2). The Bangkok Metropolitan Administration of the Ministry of Interior's Department of Medicine ran four hospitals totalling 1,484 beds. Other Bangkok public hospitals include the Police hospital, hospitals run by the Ministry of Defense, university hospitals, and Ministry of Communications hospitals. Although some have the ostensible mission of serving a particular group - the military, police, prisoners, a ministry's employees -- these institutions serve the general public as well. The Ministry of Public Health estimates that other ministries' hospitals and those of state enterprises constitute over 20 percent of the hospital beds in Thailand, and a majority of these facilities are in the Bangkok area. (See Table 1.3.)

Although the size of some of these hospitals is not published, it is reasonable to estimate that government and state enterprises provide at least three-fourth of the hospital beds in the Bangkok area.

The largest private hospitals in Bangkok, as measured by number of beds, are not-for-profit hospitals. These hospitals do not charge patients who cannot afford to pay. These hospitals, and some smaller other private hospitals and private clinics, at least partially offset these subsidies by charging prices greater than cost for more luxurious rooms, private nursing, and other special services. Prices at private facilities are generally higher than for equivalent services at public facilities, but many people are willing to pay for less waiting time and a greater choice of doctors. Relative to per capita income, prices for private medical care in Bangkok are lower than in other parts of the country.

Services by medical specialists from the universities are also available at private hospitals and clinics because most physicians working at public facilities have private practices as well. Most physicians in Bangkok are based at public facilities; few physicians work only at private hospitals or clinics (Table 1.4 counts only those working full time at private facilities). Not only are there many more physicians per capita in Bangkok, but the Bangkok area has almost ten times as many nurses per capita as do the other provinces on average, with a nurse for every 494 people in Bangkok. (See Table 1.1.)

Table 1.2
Distribution of Health Resources: Private Sector, 1983

Resources	Bangkok	Central	North	Northeast	South	Whole Kingdom
Medical Institutions						
No. of General Hospitals	55 (4,918)	52 (1,177)	29 (1,025)	23 (547)	28 (769)	187 (8,435)
No. of Specialized Hospitals	23 (246)	5 (50)	-	4 (70)	-	32 (366)
No. of Midwifery Clinics	17 (229)	70 (357)	4 (23)	4 (24)	18 (122)	113 (755)
No. of Traditional General Clinics	4 (125)	2 (20)	4 (35)	-	-	10 (180)
No. of Traditional Midwifer Clinics	1 (4)	-	-	-	-	1 (4)
Total	100 (5,522)	129 (1,604)	37 (1,083)	31 (641)	46 (891)	343 (9,741)
Outpatient Clinics						
No. of First-Class Clinics	2,026	900	533	456	340	4,255
No. of Second-Class Clinics	19	19	11	9	28	86
No. of First-Class Dental Clinics	491	190	116	74	73	944
No. of Second-Class Dental Clinics	222	167	47	29	60	525
No. of First-Class Midwifery Clinics	19	137	176	143	39	514
No. of Second-Class Midwifery Clinics	8	37	75	42	10	172
No. of Traditional Clinics	469	129	36	27	37	698
No. of Traditional Midwifery Clinics	3	1	-	-	2	6
Total	3,257	1,580	994	780	589	7,200
Drug Stores						
No. of Drug Stores	2,114	2,478	1,429	1,447	826	8,294
No. of Traditional Drug Stores	1,693	2,015	1,204	1,372	546	6,830
Total	3,807	4,493	2,633	2,819	1,372	15,124

Source: Office of the Permanent Secretary and the Office of the Food and Drug Committee, MOPH.

Note: (1) In parentheses are the number of beds.

(2) Medical personnel in the private sector are normally underreported. Reporting to the MOPH according to minimum requirements set by the MOPH.

Table 1.3
Health Resources by Administration/Sector, 1981

Resource	MOPH	Other Minis- tries	State Enter- prises	Muni- cipali- ties	Private Sector	Total
<u>Sources of Medical & Health Services</u>						
No. of Hospitals	438 (64.13%)	64 (9.37%)	23 (3.37%)	6 (0.88%)	152 (22.25%)	683 (100%)
No. of Beds	47,780 (67.11%)	13,912 (19.54%)	956 (1.34%)	1,558 (2.19%)	6,990 (9.82%)	71,196 (100%)
No. of Clinics	-	-	-	-	6,730 (100%)	6,730 (100%)
No. of Health Centers ^{a/}	4,728 (98.97%)	49 (1.03%)	n/a	n/a	-	4,777 (100%)
No. of Midwifery Centers ^{b/}	1,498 (96.27%)	-	-	-	58 (3.73%)	1,556 (100%)
No. of Community Health Centers	100 (100%)					100 (100%)
<u>Health Personnel</u>						
No. of Physicians	2,987 (43.10%)	2,667 (38.48%)	175 (2.52%)	371 (5.35%)	731 (10.55%)	6,931 (100%)
No. of Dentists	401 (37.94%)	420 (39.73%)	41 (3.88%)	97 (9.18%)	98 (9.27%)	1,057 (100%)
No. of Pharmacists	616 (22.99%)	419 (15.63%)	153 (5.71%)	68 (2.54%)	1,424 (53.13%)	2,680 (100%)
No. of Nurses	8,526 (43.50%)	6,370 (32.50%)	680 (3.47%)	1,525 (7.78%)	2,498 (12.75%)	19,599 (100%)
No. of Midwifery Nurses	7,832 (91.32%)	65 (0.76%)	21 (0.24%)	116 (1.35%)	543 (6.33%)	8,577 (100%)

Note: a/ MOPH administers 4,728 health centers which are located in districts and subdistricts in provinces outside of Bangkok. The Department of Health, Bangkok Metropolitan Administration Office runs 49 public health services centers located in Bangkok.

b/ After the implementation of the Fifth Five-Year Health Development Plan (1982-1986), in 1982, all midwifery centers became health centers, and in January 1984, there were 7,072 health centers nationwide (Source: Rural Health Division, MOPH).

Source: Division of Health Statistics; MOPH, "Public Health Statistics, 1977-1981"

Table 1.4

Health Resources: Bangkok Metropolitan Administration
1978-1984

Resources & Patients	1978	1979	1980	1981	1982	1983	1984
<u>Department of Medical Services</u>							
No. of Beds ^{1/}	1,658	1,681	1,210	1,428	1,448	1,484	n/a
No. of Physicians	198	255	253	237	241	271	287
No. of Nurses	718	718	939	1,022	995	1,150	1,418
No. of Assistant Nurses	203	201	209	179	194	178	231
No. of Outpatients/Month	59,575	60,298	58,981	66,199	65,359	70,766	n/a
No. of Inpatients/Month	3,878	3,982	4,182	4,066	4,291	4,463	n/a
<u>Department of Health</u>							
No. of Health Centers	39	45	45	46	48	51	53 ^{1/}
No. of Physicians	n/a	n/a	n/a	71	70	65	64 ^{1/}
No. of Nursing Staff	n/a	n/a	n/a	449	407	455	478 ^{1/}
No. of Outpatients/Month	607,878	702,556	716,232	693,175	715,729	748,370	n/a

Note: ^{1/} Data up to July, 1984^{2/} The number of beds for infants (1-28 days) is excluded.Source: Department of Medical Services and Department of Health,
Bangkok Metropolitan Administration

While inpatient care in Bangkok is predominantly provided by public facilities, private clinics contribute the bulk of outpatient clinics. Bangkok contains almost half the nation's private clinics. Many are quite small, the equivalent of a doctor's office, with one or two physicians on duty at a time. About one-third of these clinics are dental or midwifery centers.

3. Other Provinces

Outside Bangkok, the provincial and regional hospitals are major sources of secondary care. MOPH health centers and district hospitals are designed to offer routine care and to refer more complicated cases to the provincial and regional hospitals. Many people regard the regional and provincial hospitals as offering superior care, and some bypass the health centers and district hospitals, even when these smaller facilities could adequately meet their needs. Thus the regional and provincial hospitals tend to be over-utilized, and some local facilities to be under-utilized.

District hospitals tend to be small: most have 10 to 30 beds, the larger ones have around 60 beds. These hospitals have an average of one physician for every 20 beds. There are 460 district hospitals spread throughout the country, 39 percent of them in the Northeast. (See Table 1.5.)

The Central Region, with 23 percent of both district hospital beds and district hospitals, has 22 percent of the non-Bangkok population. The North and South are served by 22 percent and 13 percent of district hospital beds respectively, and the Northeast with 42 percent. The distribution of beds corresponds very closely to the distribution of population.

Provincial hospitals, larger than district hospitals, average around 14 physicians and 59 nurses. Thirty-nine percent of the 74 provincial hospitals are located in the Central Region, accounting for 40 percent of the physician and nursing staff of all provincial hospitals. (See Table 1.5.)

Regional hospitals are more evenly distributed among the regions: the Central, Northeast and South each have four; there are three regional hospitals in the North. The professional staff in proportion to population is weighted slightly in favor of the Central Region, and against the Northeast.

Table 1.5
Distribution of MOPH Health Resources by Region (Excluding Bangkok), 1983

Resources	Central	North	Northeast	South	Whole Kingdom
<u>Health Centers</u>					
No. of Health Centers ^{1/}	2,004 (28.23)	1,494 (21.04)	2,362 (33.27)	1,240 (17.46)	7,100 (100.00)
No. of Health Personnel	4,047 (29.85)	2,608 (19.23)	4,473 (33.00)	2,431 (17.93)	13,559 (100.00)
<u>District Hospitals</u>					
No. of Hospitals ^{1/}					
10 beds	72	73	118	61	324
30 beds	25	25	43	10	103
60 beds	7	6	17	2	32
Total	104 (22.66)	104 (22.66)	178 (38.78)	73 (15.90)	459 (100.00)
No. of Physicians	113 (28.54)	79 (19.95)	155 (39.14)	49 (12.37)	396 (100.00)
No. of Nurses	1,385 (27.45)	1,093 (21.66)	1,688 (33.45)	880 (17.44)	5,046 (100.00)
No. of Health Personnel	548 (28.48)	464 (24.12)	640 (33.26)	272 (14.14)	1,924 (100.00)
<u>Provincial Hospitals</u>					
No. of Hospitals	29 (39.19)	17 (22.97)	13 (17.57)	15 (20.27)	74 (100.00)
No. of Physicians	430 (42.11)	237 (23.21)	182 (17.83)	172 (16.85)	1,021 (100.00)
No. of Nurses	1,684 (38.63)	967 (22.18)	824 (18.90)	884 (20.28)	4,359 (100.00)
No. of Health Personnel	3,066 (40.32)	1,744 (22.93)	1,409 (18.53)	1,386 (18.22)	7,605 (100.00)
<u>Regional Hospitals</u>					
No. of Hospitals	4 (26.67)	3 (20.00)	4 (26.67)	4 (26.67)	15 (100.00)
No. of Physicians	215 (31.48)	172 (25.18)	190 (27.82)	106 (15.52)	683 (100.00)
No. of Nurses	563 (26.72)	496 (23.54)	661 (31.37)	387 (18.37)	2,107 (100.00)
No. of Health Personnel	814 (24.95)	696 (21.34)	1,089 (33.38)	663 (20.32)	3,262 (100.00)

^{1/} The figure includes health centers and 10-bed hospitals under construction and those not yet offering services

Source: Health Planning Division, MOPH

The main source of professional primary health care in rural Thailand, the Tambon health center, is the most diffused of the MOPH health posts, with 7,100 spread throughout the nation. One-third of the health centers are in the Northeast, 20 percent in the North, and 28 and 17 percent are in the Central and South respectively. Health personnel are distributed in similar proportions; there is an average of 1.9 health workers for every health center. These workers are trained to offer routine primary health care, and to refer cases beyond their expertise to district or provincial hospitals. Frequently the health center is also a drug store, or is close to one.

Results of a 1981 survey by the National Statistical Office indicate that those in urban areas are more likely to seek care at a hospital than a health center. In urban areas, 83 percent of those who sought health services went to government or private hospitals, or to a clinic, while 12 percent went to health centers. (This urban sample includes Bangkok, and visits to health centers include referrals to other sources of care.) In rural areas, 52 percent of health care visits were to government or private hospitals, while 36 percent were to health centers. This is due to availability and hence easier access to health centers in rural than in urban areas. In rural areas, where travel to a hospital can be expected to be a greater burden than it is for city dwellers, a preference for government hospitals and for clinics is markedly greater among the unemployed, who choose them 86 percent of the time, and go to health centers only 12 percent of the time. In contrast, the rural employed, for whom travel and waiting time represents forgone earnings, choose health centers one-third of the time, and go to hospitals or clinics 58 percent of the time. (Another plausible interpretation is that the employed are healthier, and people look to health centers for treatment of less severe health problems).

Private clinics and hospitals, although over-shadowed by MOPH facilities, do exist outside Bangkok. (See Table 1.2.) The private clinics and hospitals are located primarily in urban areas. A 1979 survey of households outside of Bangkok indicated that urban households utilized private clinics almost twice as often as government health posts, whereas rural households turned to government health posts roughly twice as often as to private clinics. The rural dependence on government health posts is most pronounced in the Northeast, where rural households turn to the posts more than three-and one-third times as often as they do to private clinics.

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CHAPTER 2

SOURCES OF REVENUE: WHO PAYS FOR HEALTH CARE

1. Introduction

Approximately two-thirds of health care expenditures are funded directly by households or other private concerns. (See Table 2.1.) This chapter first offers an overview of total health finance in recent years and projected into the future. Next it explains in some detail what public funding goes to which health care facilities and programs. Public funding is easier to describe, in that it is more clearly channelled, and less diffuse, than household spending. Yet public spending constitutes a mere third, and the MOPH budget a fifth, of health care spending in Thailand. This perspective is key to understanding health care finance in Thailand. The chapter closes with a brief survey of private health care expenditure, to be explored further in Chapter 4.

2. An Overview of Health Care Finance in Thailand

Total expenditures for health services and medical care have grown rapidly in real terms in recent years: from 29,183 million Baht in 1979 to 41,771 million Baht in 1983.^{1/} (See Table 2.2). They have grown from 3.5 percent of GNP to 4.6 percent, and from 633 Baht per capita to 845 Baht in the years 1979 to 1983. This rate of increase per capita, 7.5 percent per year, is higher than any industrialized country. If the trend continues through 1991, expenditures will reach 6.4 to 7.9 percent of GNP (depending on assumptions about growth of the economy), or about 1,660 Baht per capita.

In the years 1979 to 1983, public sources have been a slightly declining proportion of health care finance. (See Table 2.3.) By 1983, households and other private sources accounted for 69 percent of health sector finance, MOPH accounted for 19 percent, and other government sources for 12 percent. Were these trends to continue through 1991, the MOPH budget would have to more than double in real terms to remain a constant proportion of total health care finance. If MOPH expenditures remain a constant proportion of the government budget, MOPH expenditures will be a decreasing proportion of the total.

^{1/} These and all other Baht figures presented in this chapter have been converted to 1983 Baht unless otherwise noted.

Table 2.1
Sources of Health Expenditure Contribution (1983 Prices)

	(Unit: Million Baht)							
	1976	1977	1978	1979	1980	1981	1982	1983
Ministry of Public Health's Budget ^{1/}	4,979.72	6,114.20	5,463.03 (20.04)	6,009.77 (20.59)	5,370.57 (17.30)	6,136.02 (17.88)	6,897.72 (18.16)	7,902.41 (18.92)
Other Ministries' Budget ^{1/}	2,038.02	2,203.34	2,327.78 (8.54)	2,582.11 (8.85)	2,722.05 (8.77)	2,770.37 (8.07)	2,947.49 (7.76)	3,133.80 (7.50)
State Enterprises' Budget ^{1/b/}	88.06	88.40	95.12 (0.35)	83.02 (0.28)	83.96 (0.27)	90.37 (0.26)	149.56 (0.40)	92.55 (0.22)
Government Medical Expense for Government Official and Workers ^{2/}	n/a	n/a	542.36 (2.00)	693.72 (2.38)	782.06 (2.52)	1,088.57 (3.18)	1,257.77 (3.31)	1,482.27 (3.55)
Workmen's Compensation Fund ^{3/}	-	-	99.72 (0.36)	113.67 (0.39)	117.42 (0.38)	163.17 (0.47)	156.86 (0.41)	205.44 (0.49)
Private Insurance Companies ^{4/}	199.14	357.76	340.06 (1.25)	317.34 (1.09)	276.02 (0.89)	310.56 (0.90)	330.77 (0.87)	349.55 (0.84)
Private Companies, Other State Enterprises and Consumers' Contribution ^{5/}	n/a	n/a	18,118.86 (66.48)	18,976.80 (65.03)	21,236.02 (68.42)	22,850.47 (66.61)	25,852.46 (68.05)	28,213.74 (67.54)
Foreign Aids	263.71	239.60	268.39 (0.98)	406.53 (1.39)	449.14 (1.45)	901.18 (2.63)	394.98 ^{a/} (1.04)	391.38 ^{a/} (0.94)
Total	17,800.94	26,352.84	27,255.32 (100.00)	29,182.96 (100.00)	31,037.24 (100.00)	34,320.71 (100.00)	37,987.61 (100.00)	41,771.14 (100.00)

NOTE: a/ Aid from WHO is included while it is not included in the other years.
 b/ Include only 3 State Enterprises where data are available.
 c/ The figure is a residual amount obtained by subtracting government medical expenses for government officials and workers, workmen's compensation fund expenses and private insurance companies' expenses for personal and health from total private health expenditures

SOURCE 1/ Health Planning Division, MOPH
 2/ Comptroller General Department, Ministry of Finance
 3/ Workmen's Compensation Fund, Department of Labor, Ministry of Interior
 4/ National Economic and Social Development Board, Office of the Prime Minister
 5/ Department of Technical and Economic Cooperation, Office of the Prime Minister

Table 2.2
 Total Health Care Expenditures,
 Actual and Projected
 1979 - 1991
 (1983 Baht)

Year	Total Expenditures (million Baht)	Percent GNP		Per capita (Baht)
		projections assume low growth rate	projections assume high growth rate	
1979	29,183	3.5	3.5	633
1980	31,037	3.8	3.8	668
1981	34,321	4.1	4.1	723
1982	37,988	4.5	4.5	794
1983	41,771	4.6	4.6	845
Projections:				
1984	46,186	4.9	4.8	919
1985	51,068	5.3	5.0	1,001
1986	56,466	5.6	5.2	1,089
1987	62,434	6.0	5.5	1,185
1988	69,034	6.4	5.7	1,290
1989	76,331	6.9	5.9	1,403
1990	84,399	7.3	6.2	1,528
1991	93,320	7.9	6.4	1,662

Source: 1979-1983, from; NESDB National Income of Thailand, 1983.

Note: Expenditure projections are computed by applying the weighted average annual growth rate for the years 1979 to 1983 as a constant growth rate for the years 1984 through 1991. The weights used were 0.1, 0.2, 0.3, and 0.4 for the years 1979-80, 1980-81, 1981-82, and 1982-83 respectively.

Table 2.3

Sources of Health Care Expenditures
(1983 Baht)

Year	Household and Other Private		MOPH		Other Government	
	million Baht	row percent	million Baht	row percent	million Baht	row percent
1979	19,408	66.5	6,010	20.6	3,765	12.9
1980	21,629	69.7	5,371	17.3	4,037	13.0
1981	23,334	68.0	6,136	17.9	4,849	14.1
1982	26,340	69.3	6,898	18.2	4,749	12.5
1983	28,768	68.9	7,902	18.9	5,099	12.2
Projections:						
1984	31,866	68.8	8,870	19.1	5,583	12.1
1985	35,298	68.7	9,956	19.4	6,114	11.9
1986	39,100	68.6	11,174	19.6	6,695	11.8
1987	43,311	68.5	12,543	19.9	7,331	11.6
1988	47,976	68.5	14,079	20.1	8,027	11.4
1989	53,143	68.4	15,803	20.3	8,790	11.3
1990	58,866	68.3	17,738	20.6	9,625	11.1
1991	65,206	68.2	19,910	20.8	10,539	11.0

Note: Method of projection same as Table 2.2

3. The MOPH Budget

The total budget of MOPH increased from 6,897 million Baht in 1982 to 8,623 million Baht in 1985 (at 1983 constant prices). (See Table 2.4) This represents 4.13 percent of the total government budget in 1982 and 4.44 percent in 1985. We examine it by program, by level of care, by department, and geographic area.

3.1 Budget by Program

The MOPH budget is allocated to 10 programs. As shown in Table 2.4, the three largest programs are physical medical care, health promotion and communicable disease control. These three programs together account for about 87.5 percent of total MOPH budget during 1982-85.

From 1982 to 1985, there has been a slight increase in percentage of MOPH budget allocation to health promotion (from 16.86 percent to 18.75 percent), and communicable disease control (from 17.72 percent to 18.64 percent). A slight decline, on the other hand, is found in allocations to physical medical care (from 53.39 percent in 1983 to 50.78 percent in 1985); mental medical care (3.64 percent in 1982 to 3.20 percent in 1985), general administration (from 1.94 percent to 1.52 percent), and the drug addiction program (from 0.53 to 0.42 percent). Allocations to other programs have been almost constant in their proportions.

It is noted that the increases in percentage allocations are found in programs which are generally classified as preventive measures and are largely considered as primary health care. Although the changes in these proportions have been small, a slight trend can be seen over the 5th plan period to suggest a greater emphasis on preventive and primary health care by the MOPH.

3.2 Budget by Level of Care

Table 2.5 shows that in very broad terms, primary health care including such activities as nutrition, sanitation, provision of essential drugs, immunization, health education, communicable disease control, family planning, and curative care at health centers, received budget allocation of 1,872 million Baht (at 1983 price) in 1981, while secondary and tertiary health care received 3,729 million Baht. These represent 30.5 and 60.8 percent respectively of total MOPH budget in 1981. These proportions, however, have changed over time in the direction of more emphasis on primary health care and less on secondary and tertiary health care. By 1985, the MOPH budget allocated to primary health care reached 38.77 percent while that allocated to secondary and tertiary health care had been reduced to 52.95 percent.

Table 2.4
MOPH Program Budget: 1982-1985 (1983 Price)

: Million Baht				
Program:	1982	1983	1984	1985
General Administration	133.5 (1.94%)	134.2 (1.70%)	135.1 (1.62%)	134.2 (1.52%)
Medical Care (Physical)	3,594.3 (52.11%)	4,220.0 (53.39%)	4,303.2 (51.71%)	4,480.3 (50.78%)
Medical Care (Mental)	251.0 (3.64%)	270.7 (3.43%)	274.9 (3.30%)	282.6 (3.20%)
Communicable Disease Cont.	1,222.4 (17.72%)	1,389.5 (17.58%)	1,487.0 (17.87%)	1,644.8 (18.64%)
Drug Addiction	36.9 (0.53%)	35.9 (0.46%)	35.5 (0.43%)	37.0 (0.42%)
Health Promotion	1,162.8 (16.86%)	1,320.0 (16.70%)	1,491.0 (17.92%)	1,654.3 (18.75%)
Training & Manpower Dev.	366.8 (5.32%)	374.6 (4.74%)	434.7 (5.22%)	418.8 (4.75%)
Research & Lab. Dev.	35.7 (0.52%)	43.3 (0.55%)	44.6 (0.54%)	45.8 (0.52%)
Food & Drug Control	49.3 (0.71%)	49.7 (0.63%)	47.0 (0.56%)	57.1 (0.65%)
Supplementary Program	44.7 (0.65%)	64.6 (0.82%)	68.7 (0.83%)	68.3 (0.77%)
TOTAL	6,897.4 (100.0)	7,902.5 (100.0)	8,321.7 (100.0)	8,823.2 (100.0)

Note: Price index for 1984 and 1985 is assumed to represent the same rate of increase as from 1982 to 1983.

Source: Health Planning Division, MOPH

Table 2.5
MOPII Budget by Level of Care

Level of Care	(Million Baht)				
	1981	1982	1983	1984	1985
Primary Health Care	1,872 (30.51%)	2,334 (33.84%)	2,670 (33.79%)	2,990 (35.93%)	3,421 (38.77%)
- Bangkok	-	-	-	-	-
- Other Urban	340 (18.16%)	378 (16.19%)	427 (15.99%)	448 (14.98%)	475 (13.88%)
- Rural	1,421 (75.91%)	1,647 (70.57%)	1,924 (72.06%)	2,294 (76.72%)	2,678 (78.28%)
- Unclassified	111 (5.93%)	309 (13.24%)	319 (11.95%)	248 (8.29%)	268 (7.83%)
Secondary & Tertiary Health Care	3,729 (60.77%)	3,931 (58.99%)	4,563 (57.74%)	4,592 (55.18%)	4,672 (52.95%)
- Bangkok	665 (17.83%)	610 (15.52%)	578 (12.67%)	553 (12.04%)	547 (11.71%)
- Other Urban	2,106 (56.48%)	2,175 (55.33%)	2,280 (49.97%)	2,322 (50.57%)	2,415 (51.69%)
- Rural	958 (25.69%)	1,146 (29.15%)	1,706 (37.36%)	1,717 (37.39%)	1,710 (36.60%)
Non-Allocated by Level of Care	535 (8.72%)	633 (9.17%)	669 (8.47%)	740 (8.89%)	730 (8.27%)
Total	6,136 (100.0%)	6,898 (100.0%)	7,902 (100.0%)	8,322 (100.0%)	8,823 (100.0%)

Source: Health Planning Division, MOPII.

Note: 1984-85 data are converted to 1983 prices by using estimated index under an assumption that medical price index (whole Kingdom) increases at the same percentage as those of 1982 to 1983 (latest year).

This trend reflects the change in policy direction in the 5th Five-Year Plan toward the rural poor, where basic health services such as primary health care, communicable disease control and health promotion programs are emphasized.

3.3 Budget by Department

The Ministry of Public Health allocates its budget to four departments and two offices: the Departments of Medical Services, Health, Medical Sciences, and Communicable Disease Control, and the Offices of Food and Drugs, and of the Permanent Secretary for Public Health. A brief description of the function and the budget of each of these is presented here.

The Office of the Permanent Secretary for Public Health, under the Permanent Secretary for Health, receives three-fourths of MOPH's budget. (See Table 2.6.) Its expenditures account for 15 percent of all health care expenditures in Thailand. Most of this budget goes to the Superintendent's Office, which oversees the health care delivery network throughout the Kingdom: regional and provincial general hospitals, community district hospitals, and health centers at sub-district levels.

The Department of Medical Services runs Rajavithi, Buddhist Monks, Lerdsin and Nopparat Ratchathani Hospitals, the Institute of Pathology, the National Cancer Institute, the Institute of Dermatology, and Children's Hospital, all located in Bangkok, and mental health care institutes and hospitals located throughout the country but concentrated in Bangkok. This department receives less than nine percent of the MOPH budget, and the trend is for its budget share to decrease by about a percentage point per year.

The Department of Health provides promotive health care throughout the provinces, in the form of programs for nutrition, sanitation, school health, rural water supply, dental health, family planning, environmental health, and occupational health. This department also runs 6 regional maternal and child health centers throughout the country. It gets less than eight percent of the MOPH budget, a figure which has been decreasing slowly in recent years.

The Department of Communicable Disease Control provides technical and practical information and services to other MOPH personnel in the provinces. It runs disease control centers in some provinces for the control of venereal disease, malaria, leprosy, tuberculosis and filariasis, and operates three specialized hospitals. This department gets a nearly constant 7.5 percent of the MOPH budget.

Table 2.6
MOPH Budget by Department, 1982-1985
(1983 Prices)

Department	Million Baht			
	1982	1983	1984	1985
Office of Permanent Secretary	5,014.07 (72.69%)	5,962.98 (75.46%)	6,235.55 (74.93%)	6,657.70 (75.46%)
Department of Medical Services	694.40 (10.07%)	691.55 (8.75%)	702.64 (8.45%)	704.83 (8.00%)
Department of Medical Sciences	65.57 (0.95%)	69.92 (0.88%)	73.60 (0.88%)	80.53 (0.91%)
Department of Health	556.15 (8.06%)	593.86 (7.51%)	652.48 (7.84%)	688.35 (7.80%)
Department of Communicable Disease Control	523.57 (7.59%)	553.60 (7.01%)	628.16 (7.55%)	659.06 (7.47%)
Office of Food and Drug Committee	43.96 (0.64%)	30.51 (0.39%)	29.11 (0.35%)	32.20 (0.36%)
Total	6,897.72 (100%)	7,902.42 (100%)	8,321.54 (100%)	8,822.67 (100%)

Source: Health Planning Division, MOPH

The Department of Medical Sciences conducts medical research and provides laboratory tests to support preventive and curative care for all health institutions in the country. It receives less than one percent of the MOPH budget.

3.4 Budget by Area

Budget for major programs, namely, medical care, disease control and health promotion, were allocated to rural areas in increasing proportion, i.e., 43 percent in 1981 and 56 percent in 1985. Urban areas, on the other hand, received 45 percent of the budget in 1981 and 37 percent in 1985, while Bangkok was allocated only 7 percent of the budget.

3.4.1 Medical Care

The allocation of the MOPH budget to medical care has been mainly concentrated in provinces other than Bangkok. Areas other than Bangkok received 82 percent of this budget in 1981, increasing to 89 percent in 1985. Bangkok received a declining proportion, from 18 percent in 1981 to 11 percent in 1985. (See Table 2.7). In the areas outside of Bangkok, a large percentage of medical care budget went to urban areas but this proportion declined from 56 percent in 1981 to 49 percent in 1985, while rural areas received an increasing share from 26 percent to 40 percent. It should be noted, however, that although regional and provincial hospitals are located in urban areas, a great number of patients at these hospitals come from the rural areas. Hence, it is likely that the percentage of benefits received by rural people is greater than what is shown in the table.

3.4.2 Disease Control and Preventive Care

Expenditures under this item went almost entirely to provinces other than Bangkok and the percentage remained rather constant at about 98 percent throughout the 1981-85 period. The 2 percent of the budget allocated to Bangkok was mainly for drug addiction activities. The distribution of this budget to other provinces, unlike the medical care budget, is concentrated in rural areas. This percentage increased from 74 percent in 1981 to 78 percent in 1985.

3.4.3 Health Promotion

All of this expenditure has been allocated to provinces other than Bangkok. The rural areas received about 80 percent in 1981 and the proportion increased to 85 percent in 1985.

Table 2.7
MOPH Budget by Program and Area
(At 1983 Constant Price)

Program	(Million Baht)				
	1981	1982	1983	1984	1985
GENERAL SERVICE	589	891	939	937	943
MEDICAL CARE	3,632	3,846	4,490	4,580	4,764
- Bangkok	639 (17.59%)	583 (15.16%)	552 (12.29%)	529 (11.55%)	521 (10.94%)
- Other Urban	2,038 (55.97%)	2,104 (54.71%)	2,204 (49.09%)	2,254 (49.21%)	2,354 (49.41%)
- Rural	960 (26.44%)	1,159 (30.13%)	1,734 (38.62%)	1,797 (39.24%)	1,889 (39.65%)
DISEASE CONTROL AND PREVENTIVE CARE	1,096	1,188	1,406	1,505	1,660
- Bangkok	25 (2.28%)	28 (2.35%)	25 (1.78%)	25 (1.66%)	27 (1.63%)
- Other Urban	260 (23.72%)	272 (22.88%)	305 (21.69%)	315 (20.93%)	330 (19.88%)
- Rural	811 (74.00%)	889 (74.77%)	1,076 (76.53%)	1,165 (77.41%)	1,303 (78.49%)
HEALTH PROMOTION	763	923	1,018	1,252	1,399
- Urban	153 (20.05%)	178 (19.28%)	198 (19.45%)	202 (16.13%)	203 (14.51%)
- Rural	610 (79.95%)	745 (80.72%)	820 (80.55%)	1,050 (83.87%)	1,196 (85.49%)
DRUG AND FOOD CONTROL	56	50	49	47	57
TOTAL	6,136	6,898	7,902	8,321	8,823

Source: Health Planning Division, MOPH.

Table 2.8

MOPH Budget by Program and Area
(At 1983 Constant Price)

(Million Baht)					
Program	1981	1982	1983	1984	1985
Medical Care + Disease Control and Preventive Care + Health Promotion	5,491	5,958	6,914	7,337	7,823
- Bangkok	664 (12.09%)	611 (10.26%)	577 (8.35%)	554 (7.56%)	569 (7.00%)
- Other Urban	2,446 (44.55%)	2,554 (42.87%)	2,707 (39.15%)	2,771 (37.77%)	2,887 (36.90%)
- Rural	2,381 (43.36%)	2,793 (46.88%)	3,630 (52.50%)	4,012 (54.68%)	4,388 (56.09%)

Source: Health Planning Division, MOPH

3.4.4 Level of Care by Area

In terms of level of health care, Table 2.5 shows that no budget is allocated by the MOPH to Bangkok for primary health care, but about 18 percent went to Bangkok in 1981 for secondary and tertiary health care. This percentage, however, has fallen to 12 percent in 1985. Rural areas received about 75 percent of the primary health care budget and about one-third of the secondary and tertiary health care budget of MOPH (26 percent in 1981 and 37 percent in 1985). Thus, there is a clear trend between 1981-85 of increasing allocations to primary health care and to rural areas, in accordance with the policy direction of the Fifth Plan.

3.5 MOPH Budget Summary

Altogether about one-half of the MOPH budget goes to physical medical care (See Table 2.9.) Another third goes to communicable disease control and to health promotion. The vast majority of MOPH expenditures go toward health care and promotion, and disease control outside of Bangkok, especially to rural areas, and this is increasingly so over the last several years. Secondary and tertiary health care receive a declining percentage of the MOPH budget, but still over half. Relative to rural areas, Bangkok and other urban areas have in recent years received a declining percentage of the budget for secondary and tertiary care, and for primary care.

4. Other Ministries

Thai government ministries other than the MOPH finance between 7 and 8 percent of all health care expenditures. Table 2.10 shows the health budget of other ministries between 1976 and 1983. This amounted to 2,038 million Baht (at 1983 constant price) in 1976 and 3,134 million Baht in 1983. Among these ministries, the State University Bureau obtained the largest share, about 75-80 percent during the 1976-83 period. A large part of this went to training of medical personnel.

The second largest share went to the Ministry of Interior which received about 20 percent of the total budget, and allocated most of this to the BMA to provide health services in Bangkok. All other ministries together contribute only about 2.3 percent of the total non-MOPH budget for health services and medical care. There is no clear trend in proportions of budget allocated to each ministry. As far as the distribution of the budget among areas is concerned, it is clear that a large percentage of the total budget is allocated to provide health services mainly in Bangkok area.

Table 2.9
MOPH Budget by Department and Programs, 1984
(1983 Prices)

Program	(Million Baht)						Total
	Office of Permanent Secretary	Dept. of Medical Services	Dept. of Medical Sciences	Dept. of Health	Dept. of CDC	Office of Food and Drugs	
General Administration	95.29 (1.53%)	8.68 (1.24%)	7.46 (10.14%)	9.90 (1.52%)	8.94 (1.42%)	4.84 (16.63%)	135.12 (1.62%)
Medical Care (Physical)	3,891.31 (62.41%)	315.27 (44.87%)	-	-	96.62 (15.38%)	-	4,303.20 (51.71%)
Medical Care (Mental)	-	274.75 (39.10%)	-	-	-	-	274.75 (3.30%)
Communicable Disease Control	966.07 (15.49%)	-	2.62 (3.56%)	-	518.28 (82.51%)	-	1,486.97 (17.87%)
Drug Addiction	-	35.47 (5.05%)	-	-	-	-	35.47 (0.43%)
Health Promotion	964.02 (15.46%)	-	-	526.97 (80.76%)	-	-	1,491.0 (17.92%)
Training and Manpower Development	254.45 (4.08%)	64.22 (9.14%)	-	111.73 (17.12%)	4.32 (0.69%)	-	434.72 (5.22%)
Research and Laboratory Development	-	-	44.61 (60.63%)	-	-	-	44.61 (0.54%)
Food and Drug Control	-	-	18.90 (25.67%)	3.88 (0.60%)	-	24.27 (83.37%)	47.05 (0.57%)
Supplementary Program	64.42 (1.03%)	4.25 (0.60%)	-	-	-	-	68.67 (0.82%)
Total	6,235.56 (100%)	702.64 (100%)	73.59 (100%)	652.48 (100%)	628.16 (100%)	29.11 (100%)	8,321.54 (100%)

Source: Health Planning Division, MOPH

Table 2.10

Health Budget of Other Ministries, FY 1976-1983
(1983 Price)

(Unit: Million Baht)

Ministry	1976	1977	1978	1979	1980	1981	1982	1983
Other Ministries	2,038.0 (100%)	2,203.3 (100%)	2,327.7 (100%)	2,582.1 (100%)	2,722.0 (100%)	2,770.3 (100%)	2,947.5 (100%)	3,133.8 (100%)
1. State University Bureau	1,541.8 (75.65%)	1,648.1 (74.80%)	1,812.9 (77.88%)	1,969.5 (76.27%)	2,192.0 (80.53%)	2,171.9 (78.41%)	2,372.6 (80.50%)	2,470.6 (78.84%)
2. Ministry of Interior	444.3 (21.80%)	478.6 (21.72%)	451.5 (19.40%)	537.1 (20.80%)	461.6 (16.96%)	529.0 (19.09%)	515.3 (17.50%)	610.7 (19.49%)
3. Ministry of Defense	35.0 (1.72%)	59.6 (2.71%)	47.5 (2.04%)	64.2 (2.49%)	59.6 (2.19%)	60.2 (2.17%)	37.8 (1.28%)	36.6 (1.17%)
4. Ministry of Justice	-	-	-	-	-	-	4.6 (0.16%)	4.8 (0.15%)
5. Ministry of Communication	7.8 (0.38%)	7.5 (0.34%)	7.5 (0.32%)	5.0 (0.20%)	4.3 (0.16%)	4.5 (0.16%)	7.7 (0.26%)	4.7 (0.15%)
6. Ministry of Agriculture and Cooperatives	9.1 (0.45%)	9.5 (0.43%)	8.3 (0.36%)	6.3 (0.24%)	4.5 (0.16%)	4.7 (0.17%)	8.9 (0.30%)	6.4 (0.20%)

Source: Health Planning Division, MOPII

The Ministry of Interior allocates a small amount of its budget to municipal and sanitary offices at provincial and district levels which mainly serve urban areas outside Bangkok and runs primary health care and health promotion programs in other provinces.

The other ministries that provide substantial health care services are the Ministries of Defense, Agriculture and Cooperatives, Communications, Justice, and Interior. These services are concentrated in the Bangkok area. While most are primarily intended for employees of or special populations under the responsibility of the ministries, these services are generally also open to the public. The State University Bureau provides health care to the public through its university hospitals. The Department of Medicine of the Bangkok Metropolitan Administration runs four general hospitals, some health centers and a nursing school in Bangkok, while the Department of Health sponsors primary health care, disease control, family health promotion programs in Bangkok. These two departments account for about 15 percent of non-MOPH ministries' contributions to health care. (See Table 2.11). The Ministry of Interior also runs the Police Hospital for police and prisoners in Bangkok.

5. Free Medical Care by Government Health Units

A program that covers many areas of the Kingdom, levels of care, and units of government is the Free Medical Care program of the Free Medical Care Project. The budget is distributed to all government health units throughout the various ministries involved in health care, and to municipalities throughout the Kingdom. In 1979, this program received a 300 billion Baht budget allocation. Its purpose is to provide care to people who could not otherwise afford it.

The program may be meeting this objective. A recent MOPH/Mahidol University survey^{1/} indicates very little average income difference between families seeking care and those not seeking care when a family member is ill; and indicates that it is the government facilities that the poor predominantly use. (The results of this survey, and also a more detailed analysis of free card utilization are presented in Chapter 4 on consumer behavior.) The program, however, is unevenly distributed throughout the Kingdom. Per capita allocations by region are skewed, ranging from 4.7 Baht in the Northeast to 8.4 in Bangkok (See Table 2.12). When MOPH poverty criteria are applied, the per capita

1/ MOPH and Mahidol University, Community Household Survey, 1981.

Table 2.11

BMA Budget for Health Activities
(1983 Price)

Unit: Million Baht

Department	1979	1980	1981	1982	1983	1984
Department of Health	123.61 (30.93%)	135.62 (39.07%)	159.53 (38.27%)	149.90 (36.24%)	179.24 (37.60%)	188.40 (32.67%)
Department of Medical Services	276.04 (69.07%)	211.51 (60.93%)	257.31 (61.73%)	263.77 (63.76%)	297.40 (62.40%)	388.23 (67.33%)
Total BMA Budget	399.66 (100%)	347.13 (100%)	416.84 (100%)	413.67 (100%)	476.64 (100%)	576.62 (100%)
Other Ministries' Budget	2,582.11	2,722.05	2,770.37	2,947.49	3,133.80	n/a
BMA's Budget as % of Non-MOPH Ministries' Budget	15.48	12.75	15.05	14.03	15.21	-

Source: Bangkok Metropolitan Administration and Table 2.10

Table 2.12

Distribution of Free Medical Care Budget^{a/} by Region ^{b/}

Unit: Baht

REGIONS	Provincial Hospital Allocation ^{c/} Per Capita	Allocation Per Health/ Midwifery Centre	Total Allocation Per Capita	Per Capita Gross Provincial Product (1976)
Northern	4.2	6,246	6.6	5,530
Northeastern	2.5	6,439	4.7	3,220
Central ^{d/}	4.6	6,407	7.1	13,450
Southern	4.5	6,101	7.2	7,230
Bangkok	-	-	8.4	19,150
Kingdom	3.7	6,015	6.3	7,520

Source: Report of the Free Medical Care Project; Population Statistics from Planning Division, MOPH; Gross Provincial Product figures from NESDB National Accounts Division and World Bank Mission estimates, as presented in Anne Mills, "Health Services for Low Income Groups: Access to Free Medical Care," World Bank.

- ^{a/} Includes all allocations which can be clearly identified with Changwats (provinces).
- ^{b/} Financial data for FY 1980; population and health facility data for 1978.
- ^{c/} Includes allocations to Khon Kaen and Chiang Mai Universities.
- ^{d/} Excluding Bangkok.

allocation to the poor population is strikingly skewed in favor of Bangkok, with Bangkok receiving 28 Baht per poor person, while the Northeast receives only 6 Baht. The North, non-Bangkok Central, and South Regions receive 9, 13, and 11 Baht per capita poor respectively. This comparison is based on the MOPH criterion of poverty, defined as households with income less than 2,000 Baht per month.

A different definition of poverty, used by the World Bank,^{1/} draws the poverty line at 200 Baht in urban areas and 150 Baht in rural areas. This definition finds a smaller portion of the urban population below the poverty line, and by this criteria free card allocations are even more strikingly skewed, with the Northeast receiving 13 Baht per capita poor, while the Bangkok area receives 95 Baht more. The North, non-Bangkok Central, and South region receive 25, 63, and 31 Baht per capita poor, respectively.

Two reasons offered by the World Bank^{2/} for the large differences in allocation are a) utilization patterns and b) strictness of application of poverty criteria. The first of these is treated in more detail in Chapter 4 on consumer behavior. For purposes of analyzing equity of appropriations, suffice it to say that the Northeast shows relatively high rates of utilization of free care compared to other regions, but Bangkok and the Central Region are also relatively high. Thus it must be that Bangkok and the Central Region have offered free care to persons not below the poverty line. Since no other explanation fully explains the discrepancies, it is clear that Free Card allocations favor the better-off regions.

^{1/} The World Bank, Thailand. Towards a Development Strategy of Full Participation, September 1978

^{2/} Anne Mills, Health Services for Low Income Groups: Access to Free Medical Care, World Bank, 1984, from which this section draws heavily.

6. State Enterprises and Government Employees Health Coverage

The Thai Tobacco Monopoly, the Royal Railway of Thailand and the Port Authority provide care at medical posts and hospitals as a fringe benefit to their employees. Some reimburse employees for care at other facilities. This, and the medical coverage provided to government workers and their families, amounts to four percent of health expenditures in Thailand. (See Tables 2.1 and 2.13.) This is an under-estimate of health care funding provided to public employees, because it includes only the benefits of only these three state enterprises.

7. Foreign Aid

Various foreign governments and international organizations contribute health care aid to Thailand. Table 2.14 shows a detailed breakdown of sources. In recent years, foreign assistance has contributed between one and three percent of Thai health care expenditures; in 1983 the contribution fell below one percent. (See Table 2.1.) The United Nations and the Colombo Plan have been the largest contributors in recent years.

8. Private Health Care Expenditures

The non-household, private contribution to health care finance consists of the workmen's Compensation Fund benefits paid, private insurance companies' benefits paid, and health care provided or reimbursed by, private companies for their employees. The first two of these - Workmen's Compensation and private insurance - represent a very small portion of total health expenditure in Thailand: each under one percent. (See Tables 2.1 and 2.13.) Very few workers have health care insurance as a fringe benefit; most employers prefer to reimburse employee's health care expenses, or to provide health services directly. Employers say that by paying employees health care expenses they incur more loyalty from employees than they would by providing health insurance. The employee health care paid for by private firms is a common arrangement particularly in large firms, but no clear figure is available. These expenditures by firms for their employees, combined with household expenditures for health care, as shown in Table 2.1, constitute two-thirds of health care expenditures for the entire nation. (This figure includes health care paid for by those state enterprises that do not make data available on their employee health care benefits; the distortion is probably less than one-half of one percent of total health care expenditures.)

Table 2.13

Government Medical Expenses Provided to Government Officials
by Fiscal Year at 1983 Constant Price

	(Thousand Baht)					
	1978	1979	1980	1981	1982	1983
1. To Government Officials and Salaried Employees	532,081 (92.41%)	695,439 (94.17%)	699,915 (94.19%)	980,500 (95.21%)	1,174,044 (95.23%)	1,409,422 (95.09%)
- Outpatient	175,400	261,283	236,848	341,639	424,286	530,587
- Inpatient	356,681	434,206	463,067	638,861	749,758	878,835
2. To Government Pensioners	43,686 (7.59%)	43,004 (5.82%)	42,077 (5.67%)	49,383 (4.79%)	58,868 (4.77%)	72,839 (4.91%)
- Outpatient	16,168	20,320	18,191	20,993	26,127	33,378
- Inpatient	25,518	22,684	23,886	28,390	32,741	39,461
3. To Government Workers	18 (0.00%)	9 (0.00%)	-	-	-	-
4. To People Assisting Government Activities	-	90 (0.01%)	1,058 (0.14%)	-	-	5 (0.0%)
Total	575,785 (100.00%)	738,542 (100.00%)	743,050 (100.00%)	1,029,833 (100.00%)	1,232,912 (100.00%)	1,482,265 (100.00%)

Source: Comptroller General Department, Ministry of Finance

Table 2.14

Technical Assistance to Thailand's Health Sector by Source of Expenditure, 1967-1983

(Thousand U.S. Dollars)

Technical Assistance Source	Year																
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
United Nations	1,160.2 (17.26%)	1,202.1 (7.15%)	1,231.1 (15.76%)	1,189.5 (20.76%)	954.6 (23.03%)	1.1 (0.27%)	2,633.0 (46.56%)	2,145.1 (41.15%)	1,800.1 (49.73%)	1,513.2 (21.38%)	3,071.3 (45.42%)	3,071.3 (37.43%)	6,631.9 (50.35%)	6,327.0 (34.73%)	5,875.2 (16.51%)	3,747.5 (22.64%)	3,094.0 (25.85%)
USAID	4,394.5 (65.36%)	4,726.0 (67.44%)	5,295.3 (67.80%)	3,496.3 (61.01%)	2,242.3 (54.10%)	2.2 (0.54%)	2,176.0 (38.48%)	2,396.6 (45.97%)	751.0 (20.75%)	4,809.0 (69.97%)	2,705.3 (40.00%)	2,171.4 (26.45%)	3,555.2 (26.99%)	2,694.9 (14.79%)	1,900.0 (5.34%)	1,800.0 (12.18%)	- (0.0%)
Colonial	372.3 (4.94%)	484.6 (6.92%)	384.6 (4.93%)	354.4 (6.03%)	468.0 (11.29%)	285.0 (70.10%)	401.3 (7.09%)	232.7 (4.46%)	751.7 (20.77%)	488.9 (6.91%)	734.0 (10.85%)	2,540.4 (31.05%)	2,622.3 (19.91%)	8,822.4 (48.42%)	27,766.9 (76.64%)	5,440.5 (26.80%)	8,319.9 (53.84%)
*Other Countries	296.3 (4.41%)	151.8 (2.17%)	317.9 (4.07%)	167.0 (2.91%)	124.6 (3.01%)	118.0 (29.02%)	487.8 (4.31%)	326.0 (6.25%)	210.5 (5.82%)	183.0 (2.60%)	200.3 (2.96%)	271.6 (3.31%)	95.6 (0.73%)	47.2 (0.26%)	233.6 (0.66%)	3,885.3 (26.28%)	2,711.5 (17.55%)
Voluntary Services	539.8 (8.03%)	443.0 (6.32%)	580.8 (7.44%)	532.5 (9.29%)	355.3 (8.57%)	0.3 (0.07%)	201.2 (3.56%)	113.1 (2.17%)	106.0 (2.93%)	80.7 (1.14%)	52.0 (0.77%)	143.3 (1.75%)	266.4 (2.02%)	328.5 (1.80%)	303.2 (0.85%)	310.9 (2.10%)	427.5 (2.76%)
All Sources	6,723.3 (100%)	7,007.6 (100%)	7,809.8 (100%)	5,730.9 (100%)	4,144.9 (100%)	406.6 (100%)	5,655.4 (100%)	5,213.5 (100%)	3,619.3 (100%)	7,075.6 (100%)	6,762.9 (100%)	8,206.0 (100%)	13,171.2 (100%)	18,220.0 (100%)	35,578.9 (100%)	14,784.2 (100%)	15,452.8 (100%)

Note: Aids from World Health Organization are not included.

Source: Base-year data and background information for planning, HOPH, February 1985.

* Other countries include third countries and ASEAN

Table 2.15

Contributions to and Compensation From
Workmen's Compensation Fund (WCF)
(1983 Prices)

Contribution and Compensation	1978	1979	1980	1981	1982	1983
Employer's Contribution to WCF (million Baht)	145.50	173.21	181.80	205.72	211.06	224.06
No. of Employers who Contribute to WCF	5,403	6,101	7,337	5,465	9,286	10,047
No. of Covered Employees in WCF	590,640	659,041	745,513	797,270	824,565	873,059
No. of Covered Provinces	17	22	25	30	33	33
No. of Employees Injured	20,135	24,366	26,034	28,374	29,974	34,252
Compensation from WCF (million Baht)	99.72	113.67	117.42	163.17	156.86	205.44
- Medical Expenses	n/a	n/a	33.34	39.12	41.17	46.66
- Compensation to Employees and Funeral Expenses	n/a	n/a	84.08	124.05	115.69	158.78

Source: The Women's Compensation Fund, Department of Labor, Ministry of Interior.

Summary:

Two-thirds of health care expenditure are by households or, in small part, other private sources. Households generally finance these expenditures directly. Third party payments represent a miniscule portion of Thai health care finance.

Most non-private health care finance is by the Ministry of Public Health which finances one-fifth of total health care expenditures. An increasing proportion of Ministry of Public Health finance goes to rural areas, poor urban areas, and primary health care.

The remaining 13 percent of health care expenditures, that of non-MOPH government agencies, is focused primarily in Bangkok, and goes largely for training of health personnel, and to university hospitals. Most of the remainder goes to the Ministry of Interior for public health services in Bangkok.

The main conclusions to be drawn from this survey of health care revenue sources are:

- The Ministry of Public Health is effectively distributing its resources where they are needed most: outside Bangkok and to the rural population.
- The Ministry of Public Health has been successful in increasingly directing its resources toward the support of primary health care.
- The Ministry of Public Health budget, and public expenditures in general, represent a steady or slightly declining portion of health care finance in recent years.
- Most health care expenditures are by households.
- It is by influencing household expenditures that MOPH policy and resources can be most effective in enhancing the efficacy and equity of health care in Thailand.

CHAPTER 3

COST RECOVERY IN MOPH HOSPITALS AND GOVERNMENT HEALTH CENTERS

1. Introduction

Public expenditures, as presented in Chapter 2, do not account for all the revenue necessary to operate government hospitals or health centers. A significant portion comes from fees for services, and from charges for pharmaceuticals and other medical supplies. This chapter is about these sources of revenue, and the extent to which they defray operating costs.

2. MOPH Hospitals

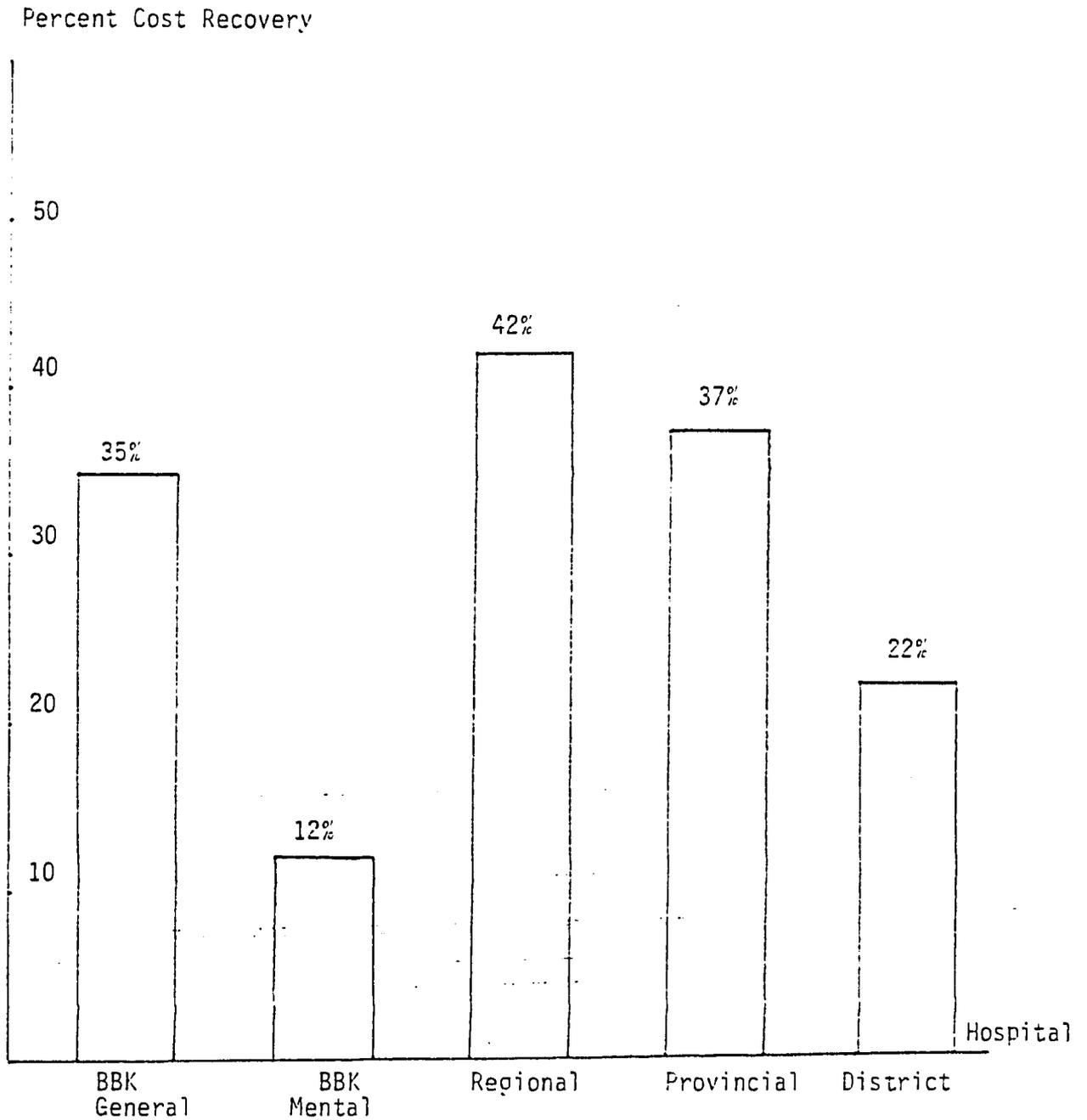
Two striking features of MOPH hospitals accounts are that cost recovery from patients as a percentage of combined capital and recurrent costs appears to be declining; and that charges for pharmaceuticals are by far the largest source of cost recovery from patients. These observations, coupled with increasing demand for services and increasing availability of alternative sources of pharmaceuticals, suggest increasing reliance on government subsidy. Yet if MOPH budgets follow the trends of recent years, that of little or no increase as a percentage of total health expenditures and of a rather constant portion of total government expenditures, larger subsidies to acute care facilities will begin to compete for the share of MOPH funds that has in recent years gone increasingly to primary health care. (See Chapter 2.)

In 1979 district hospitals' cost recovery ranged from 40 to 50 percent. By 1983, district hospitals' cost recovery had dropped to 22 percent^{1/}. Regional and provincial hospitals in 1983 respectively recovered 42 and 37 percent of costs by charging patients. (See Table 3.1.) The BMA hospitals' cost recovery is on the order of 11 to 12 percent, suggesting that BMA is highly subsidized compared to other government hospitals.

^{1/} MOPH doctors who have worked in district hospitals suggest that decreased cost recovery might be an indicator of higher quality of care, and less reliance on pharmaceuticals.

Table 3.1

COST RECOVERY BY MOPH HOSPITALS (1983)



Note: In 1979, district hospitals' cost recovery ranged from 40 to 52 percent.

In 1983 regional, provincial and district hospitals, especially those in the Central and Northeast Regions, relied heavily on sales of pharmaceuticals for cost recovery from patients.^{1/} (See Table 3.2.) Most hospitals took in over 80 percent of the revenues from patients in the form of drug fees; many over 90 percent; some only charged patients for drugs, nothing else.

Two studies of health care cost were conducted several years ago. (See Table 3.3.) One study found district hospital costs to be 286 to 302 Baht^{2/} per district hospital in-patient day in the years 1979 and 1980; the second study estimated 355 Baht in 1979 for in-patient and out-patient combined. Provincial hospital costs were generally a bit higher depending on type of care; the second study estimated 404 Baht per patient day for in-patient and out-patient combined. This is easily attributed to differences in case mix: non-obstetrical/gynecological surgical cases cost 1.6 to 1.8 times as much as obstetrical/gynecological and non-surgical cases per day, and provincial hospitals can be expected to treat more complicated surgical patients. This is reflected in the much higher cost per patient in provincial hospitals reported by the second study: 92 Baht for district hospitals compared to 323 Baht for provincial hospitals. In other words, provincial hospital patients probably tend to be more seriously ill than district hospital patients and they tend to stay in the hospital longer.

While unit costs rose slightly faster than medical care prices did from 1979 to 1980, costs may not continue to rise this fast. The Mahidol study, on which the second part of Table 3.3 is based, broke costs down into building, equipment and current costs for selected hospitals. One hospital showed building costs as about 40 percent of its total cost; another district hospital showed over half of its total costs to be building costs.^{3/} (These high capital costs are further substantiated by the study "Costs of Rural Health Facilities in Thailand", Table 3.1.) As the required number of hospitals is completed, building costs might be

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- ^{1/} The sample of hospitals on which this cost recovery information is based represented some types of hospitals in some regions more heavily than others. Number of hospitals is given in the columns labelled "N" in Table 3.2....
 - ^{2/} All Baht amounts discussed here are converted to a 1983 price level. The combined 1979 and 1980 figures ~~are probably~~ slightly lower than they should be because a 1980 adjustment factor was applied.
 - ^{3/} Ronyoot Chitradon and Kusol Soonthorndhada, "A Study on Cost-Effectiveness of Family Planning Programme in 20 AFBP Provinces", ISPR Report No. 79, p. 39.

Table 3.2

MOH HOSPITALS AVERAGE REVENUE FROM PATIENT FEES (1983)

Total unit: 1283 1,000 beds
per patient unit: 1283 beds

Type of hospital	Central Region					Northeastern Region					Northern Region					Southern Region				
	average drug fee per patient	total* (92)	average all fees per patient	total	N	average drug fee per patient	total (100)	average all fees per patient	total	N	average drug fee per patient	total (61)	average all fees per patient	total	N	average drug fee per patient	total (81)	average all fees per patient	total	N
Regional	155	302 (92)	169	330	2	159	310 (100)	159	310	1	79	211 (61)	126	33	2	75	77 (81)	83	21	1
Provincial	95	103 (85)	111	121	4	58	75 (76)	76	98	3	83	66 (80)	104	82	3	58	53 (41)	111	111	1
District (60 beds)	105	29 (95)	110	31	3	51	27 (84)	61	32	2	68	39 (90)	76	43	1	-	-	-	-	1
District (30 beds)	57	19 (72)	82	26	4	50	18 (86)	59	21	7	60	17 (92)	35	18	6	38	7 (76)	50	2	1
District (10 beds)	33	7 (95)	35	7	7	39	7 (92)	43	7	8	36	9 (93)	38	9	7	33	4 (88)	38	5	6

*Figure in parentheses is total fees from drugs as a percent of total revenue from patient fees.

SOURCE: Cost of Rural Health Facilities in Thailand.

Table 3.3a

Estimated MOPH Capital and Recurrent Unit Costs, 1979-80

Unit : 1983 Baht

Type of Facility	Type of Care	Outpatient Costs per Patient	Inpatient Costs per Day
Health Center	all	37	-
District Hospital (10 bed)	all	68	286
District Hospital (30 be)	all	101	302
District Hospital (60 bed)	all	80	302
Provincial Hospital	all outpatient	101	
	internal		272
	pediatric		307
	surgery		497
	ob./gyn.		310

SOURCE: MOPH/WHO Cost Study, 1980

Table 3.3b

Hospital Cost Estimates, 1979..
(1983 Baht)

Hospital	Per Patient	Per Patient Day
District Hospital	92	355
Provincial Hospital	323	404

Source: Mahidol University, IPSR
Report No. 79, July 1983, Table 3-9, p. 54

expected to decline as a portion of MOPH hospital budgets. On the other hand, political momentum may be such that construction continues at the same rate even though there is under-utilized in-patient hospital facilities. The Mahidol study suggests this is the case.^{1/} Anecdotal evidence indicates that out-patient facilities are not under-utilized: MOPH officials report an average waiting time for treatment of two to four hours, and patients consider the "Green Channel" to be an attractive feature of health cards. (See Chapter 6.) One aspect of continued construction that must be taken into account is building of housing for staff, which may be necessary independently of utilization issues.

Table 2.3 in Chapter 2 depicts total appropriations of MOPH since 1979, and shows the proportions going to operations and capital costs. Capital costs have generally been a decreasing percentage of total appropriations over the years, peaking absolutely in 1977. After decreasing by about 10 percent nominally through 1977 and 1978 to just under a billion Baht (current values), capital costs have held rather steady in nominal terms, occupying a decreasing portion of total MOPH appropriations.

A 1983 study estimates capital costs in district hospitals to be in range of 12 to 23 percent of total operating costs, averaging about 18 percent.^{2/} (Health center proportions are similar, ranging from 11 to 28 percent, averaging about 17 percent.)

In addition to a slow-down in the building of new hospitals, an opportunity for capital cost control lies in the thoughtful acquisition, distribution and use of new technologies in health care. Just as new building is done after consideration of where it is most needed, so should major equipment acquisition be deliberate. There is evidence of an abundance of CAT scanners in the Bangkok area, some at public hospitals. These machines are expensive, and it is possible that those owned by private institutions might have met the needs of all-Bangkok, were there coordination among hospitals. It is also possible that there are more cost-effective uses of public funds than purchase of newer technology equipment for Bangkok. These considerations are complicated--not only must short-term curative and preventative health care issues be taken into account, but the education of medical personnel in modern methods of care, which may require such equipment, is an important longer-term issue. The use and finance of private equipment may call for government intervention aside from that of coordinating resources. Consumers, willing to pay heavily for health, may be incapable of making an informed choice when a provider recommends an expensive procedure. These issues call for further research and planning beyond the scope of this study.

1/ Ibid, p. 53.

2/ Ibid, p. 43 and 46-7.

3. Costs of Rural Health Centers:

Table 3.4 shows health center costs per visit to be 37 Baht in 1979 (adjusted to 1983 Baht), slightly over half the cost per visit to a ten-bed district hospital. This difference may reflect a difference in caseload: the average patient at a district hospital is likely to be more ill than at a health center. The unit costs reported in Table 3.4 allow comparison of costs of similar services in different settings of care. Of the various unit costs reported, the vaccination costs probably provide the fairest comparisons across types of facilities in that this service is discrete, routine and varies little in intensity of care. In contrast, postnatal visits are less valid for this comparison. Mothers who anticipate a routine check-up are more likely to turn to health centers than are those who anticipate a need for more complicated care. Thus, the average case in a hospital is likely to be more complicated.

For these reasons, the 50 percent savings in going to health center for vaccinations instead of to a hospital is probably representative of cost-savings available when a health center is able to meet a patient's medical needs as well as a hospital could.

Well-baby clinic visits are another example of routine, and discrete, health care, and health centers are able to provide it at one-fifth the cost of hospital care. These two types of care indicate that there may be 50 to 80 percent potential savings when care can be shifted from hospitals to health centers. (Travel costs for patients are much lower as well; see Chapter 4.)

It is surprising that district hospital family planning costs, 26 Baht per visit, are almost half of the health and maternal center costs: this is the only type of care found by the WHO study to cost less at a hospital than at a health center, and this runs contrary to expectations. It is possible that this is an artifact of the data, for example, possibly some post-natal visits to health centers are being counted among the family planning visits.

It is noteworthy that the antenatal cost figures for health centers and ten-bed district hospitals, 48 Baht and 55 Baht respectively, are so similar. This may be an indication that maternal health centers are not perceived as inferior to hospitals for antenatal care, so that the phenomenon of hospitals treating a disproportionate share of other types of complicated cases does not apply here.

Table 3.4

1979 Unit Costs of Rural Health Facilities

unit: 1983 Baht

type of care	Unit	health centers, maternal care facilities	district hospital (10 beds)	district hospital (30 beds)	district hospital (50 beds)
Curative care	per visit	37	68	101	80
	per patient day	-	286	302	302
Preventative care	per person vaccinated	6	13	14	26
	per family planning visit	48	26	40	37
	per case per school health visit	16	18	26	49
	per environmental health field visit	85	867	3927	1710
	per home visit	42	552	143	801
Health Promotion	per ante-natal visit	48	55	220	111
	per post-natal visit	37	296	287	397
	per nutrition visit	61	264	153	248
	per well baby clinic visit	11	56	56	97

Source: W.H.O.

One study reported that of twelve health centers and midwifery centers (all in Khon Kaen, which had the highest number of patients per 1,000 population necessary care in the Northeast in the year of study, 1978), local income ranged between 500 and 6,000 Baht a year, with 25 to 80 percent coming from donations.^{1/} Locally, income per center was 2,500 Baht per month, on average, and on average 70 percent came from donations and 30 percent came from drug sales. The overall income of the health centers was on average 80 percent government, 14 percent donations and 6 percent drug sales. The income from drugs and donations went mainly for minor construction, maintenance and electricity.

Summary:

The primary conclusion to be drawn from this brief survey of cost and cost recovery data that are available is that there is a shortage of this sort of data. Since cost information is critical for control of large financial systems, it is important that further studies of costs and patient fees be done in the near future.

From the available data, it is clear that cost recovery at MOPH hospitals comes mainly from pharmaceuticals, and that cost recovery as a percentage of total costs is declining. This may be attributable to improvements in quality without concurrent increases in fees, and in part to the success of drug funds--low cost alternative sources of pharmaceuticals.

Although MOPH hospitals show a zero balance at the end of each year, doctors who have worked in these hospitals report that this does not mean that operating costs have been covered by the previous year's subsidy, donations, and patient fees. Rather they report that part of the next year's subsidy goes to meet the previous year's cost, so that each year less of the subsidy is left to cover the coming year's costs.

This situation is only going to get worse with increases in demand for health care. Two recommendations are warranted:

The MOPH and other public sector hospitals should endeavor to recover full costs from all patients who can afford to pay. Currently, all patients at MOPH and other government hospitals receive subsidized care.

Better data should be gathered about how much it costs to provide care, so that pricing of services in pursuit of the first recommendation is possible.

^{1/} Anne Mills, "Health Services for Low Income Groups: Access to Free Medical Care", op. cit.

A recommendation has been made by Anne Mills^{1/} that health center care should be free. She argues that this would remove accounting problems and standardize financial practices across the Kingdom, and that it would encourage greater utilization by the poor. Her recommendation is tentative, largely because of poor data on health center costs. But it is probably worth trying on a limited scale to see what would happen to demand for health center care if it were free. Her point that much of the care at health center is already free is well taken. It could easily turn out that the average cost per patient if care were free would be less than the 37 Baht that is the best current cost estimate available. Since 80 percent or more of that comes from the Government, and 14 percent from donations, there would be little increase in required subsidy.

^{1/} Anne Mills, op. cit

CHAPTER 4

CONSUMER BEHAVIOR WHO GETS SICK, WHERE THEY SEEK CARE, AND HOW MUCH THEY PAY FOR IT

Introduction

We have examined the aggregate budgets, both public and private, for health care in Thailand. We have looked at what types of facilities exist and what they cost. We have found that funding for these facilities comes in large part from the pockets of consumers. In this chapter we focus on the likelihood of consumers' seeking care when they are sick, what type of facility they are likely to choose and how much they spend.

We are particularly concerned with the extent to which income level influences these choices, with the portion of family income that is spent on health care, and with total monthly expenditures on health care. These factors are important in determining appropriate health care finance policy in several ways. An obvious consideration is equity: that very poor families pay a high percentage of their income for health care is a problem the government is attempting to solve. Also of concern is the future demand for health care services: if demand is increasing, will there be enough facilities to meet the needs of all who seek care? Another important policy problem is how to price public health care services in order to channel demand efficiently and equitably.

In essence, our findings are that income has an influence on where households seek care; that there is a trend away from self-treatment with drugs purchased at drug stores, and a trend to seek care at private rather than public facilities; and that household health expenditures are increasing rapidly -- in recent years more rapidly than income.

The sources of data for this Chapter are the Community Household Survey (CHS) by the MOPH and the Institute for Population and Social Research of Mahidol University, and the Socio-Economic Survey by the National Statistics Office (NSO). The CHS studies contain information on illness, utilization of health services, health expenditures and household income of a sample of 3,000 households in 20 provinces in 1979 and again in 1981. The data -- with weightings -- are representatives of the urban and rural population of these provinces. Disaggregations by regions and by rural and urban population are possible but are limited by small cell sizes. Two other problems limit the comparability of the CHS surveys. First, the 1979 survey asked about illness of all household members; the 1981 survey asked only about illness of wife and husband. Second, health expenditures at public hospitals, private clinics and

private hospitals were recorded in radically different ranges in 1979 compared to 1981. The 1979 data understate these expenditures to the point of being unusable; the 1981 data may overstate these expenditures slightly but are reliable and usable.

The NSO surveys contain information on total household expenditures and expenditures for drugs and medical care by a sample of 12,000 households in one month in 1975-76 and 1981-82. The data are representatives of the rural and urban population in all regions of the Kingdom, including (unlike the CHS surveys) Bangkok.

The NSO surveys are particularly useful for following consumption over time because, unlike the CHS, both 1975-76 and 1981-82 expenditures statistics are collected for the entire household, and the health expenditure data are completely comparable.

2. Reporting Illness, Seeking Care, Choice of Facility and Household Income

In 1979, 76 percent of the urban families in the CHS sample and 81 percent of rural families reported that at least one household member had been ill in the last month. Of those reporting illness, 94 percent of the urban households, and 93 percent of the rural had some contacts with the health care system, if only a drug store, in the last month. In 1981, 45 percent of household heads and their spouses reported illness within the last month. Of these reporting illness, 96 percent of urban households and 94 percent of rural households sought care. Previous studies suggest that parents are more likely to seek care for their children than for themselves, especially where women tend to control family finances, as is the case in Thailand. Thus the number of households seeking care when a member is ill is understated by the exclusion of children from the 1981 CHS statistics.

The income levels of all the households reporting illness, and those making contact with the health care system are similar. While low income does not seem to prevent very many people from seeking care, those in rural areas who reported illness in 1981 but did not seek care had lower average incomes than those who reported illness and did seek care. In rural areas of the Northeast, over 8 percent of household heads or their spouses reported illness but did not seek care in 1981, and these households' average income was 52 percent below that of their counterparts who did seek care. Overall, rural households reporting illness in 1981 but not seeking care had average income 48 percent below those who reported illness and sought care. (See Tables 4.1 and 4.2.) Income does have great influence on the type of facility at which care is sought, and income is positively related to the amount spent on care, both cross-sectionally and over time.

Table 4.1

1979 Average Annual Income of Households Reporting Illness
by Category of Use of Health Care Services

Units:
Sum: Baht 100 (1983)
Mean: Baht

Region		Used Drug Store		Used Public Facilities		Used Private Facilities		No Contact		Contact		All Sick	
		Mean Income	n	Mean Income	n	Mean Income	n	Mean Income	n	Mean Income	n	Mean Income	n
Central	Urban	457	40	467	32	521	49	394	4	469	96	466	100
	Rural	275	162	348	144	300	138	305	27	305	337	305	364
	All	311	203	369	177	357	188	311	31	341	434	339	465
	All-weighted	283	214	352	189	314	186	313	34	313	447	313	481
North	Urban	335	87	413	44	434	104	500	6	401	191	404	197
	Rural	266	342	269	175	278	209	269	18	269	563	269	581
	All	280	429	298	220	330	313	334	24	302	755	303	779
	All-weighted	296	450	276	231	292	287	309	24	277	753	278	777
South	Urban	411	26	449	14	485	29	-	0	462	57	462	57
	Rural	246	51	242	67	290	57	481	5	267	148	274	153
	All	302	77	278	81	356	86	489	5	321	205	325	210
	All-weighted	261	70	250	87	307	79	458	7	281	199	287	206
Northeast	Urban	341	81	416	64	480	118	394	10	435	194	433	204
	Rural	175	350	172	312	172	141	237	54	165	596	171	650
	All	206	431	214	366	312	259	271	64	231	790	234	854
	All-weighted	182	458	182	406	216	206	244	70	182	794	187	864
Whole	Urban	366	234	429	154	471	300	432	20	432	538	432	558
	Rural	231	905	239	698	257	545	272	104	238	1644	240	1748
	All	259	1140	274	854	333	846	305	124	286	2184	287	2308
	All-weighted	283	1192	247	914	278	758	285	135	250	2194	252	2329

Source: Community Household Survey, MOPII and Mahidol University, 1979.

Table 4.2

1981 Average Annual Income of Households Reporting Illness
by Category of Use of Health Care Services

Units:
Sum: Baht 100 (1983)
Mean: Baht

Region		Used Drug Store		Used Public Facilities		Used Private Facilities		No Contact		Contact		All Sick	
		Mean Income	n	Mean Income	n	Mean Income	n	Mean Income	n	Mean Income	n	Mean Income	n
Central	Urban	611	22	735	13	861	11	339	2	672	35	654	37
	Rural	530	93	487	71	508	54	307	6	494	181	488	187
	All	546	115	499	84	568	65	271	8	523	216	514	224
	All-weighted	534	123	495	93	521	71	317	8	501	237	495	245
North	Urban	459	44	398	32	541	38	604	6	496	102	502	108
	Rural	287	149	294	111	349	82	261	23	331	301	326	324
	All	326	193	317	143	409	120	328	29	373	403	370	432
	All-weighted	296	199	300	148	366	113	283	30	341	406	337	436
South	Urban	490	7	396	4	697	7	634	3	592	15	599	18
	Rural	451	25	277	36	257	18	549	2	311	66	318	68
	All	460	32	288	40	380	25	604	5	363	81	377	86
	All-weighted	457	33	282	46	295	24	624	3	324	87	334	90
Northeast	Urban	561	54	564	32	521	63	695	4	541	119	546	123
	Rural	130	227	132	183	192	84	66	37	138	406	132	443
	All	213	281	197	215	333	147	120	41	230	525	222	566
	All-weighted	150	300	147	239	235	122	230	16	160	543	162	559
Whole	Urban	530	127	490	81	569	119	601	15	544	271	547	286
	Rural	269	494	253	401	323	238	173	68	278	954	271	1022
	All	322	621	293	482	405	357	228	83	338	1225	351	1308
	All-weighted	282	656	262	527	345	330	186	90	292	1273	285	1363

Source: Community Household Survey, MOPH and Mahidol University, 1981.

The 1981 survey is not directly comparable to the 1979 survey in terms of the decision to seek care because the 1981 survey asked only about the health care of the husband and wife, yet some inferences can be drawn. In fact, the difference offers insight into the difference between care-seeking behavior by parents for themselves and for their children. Income seems not to have been constraint in the earlier survey where illness of children was recorded, with the average income of those reporting illness but not seeking care equal to or higher than the income of those who sought care. (See Tables 4.1 and 4.2.)

While low income may not prevent a household from seeking health care, it can be a determinant of where care is sought. To analyze this, the CHS data were grouped in three categories: drug stores, public facilities and private facilities.

Traditional healers, monks and tambol doctors were grouped with private care, and family planning volunteers and military facilities with public facilities. While not very many people in urban areas availed themselves of such services in 1979, they make a noteworthy contribution to the total in rural areas.

Overall in 1979, 44.2 percent of the households sampled bought drugs for self-treatment, 28 percent used public facilities and 27.8 percent used private facilities. Of these using private facilities, three quarters used private clinics and private hospitals and the remainder traditional and other practitioners.^{1/}

Overall the average income of households seeking care at public facilities was 11 percent below that of households seeking care at private facilities in 1979 and 24 percent below in 1981. Regionally in 1981, the difference was greatest in the Northeast where households using public facilities had an average income 37 percent below that of households using private facilities.

In the Southern Region and in urban areas in the North, drug store patrons had strikingly higher average incomes in 1981 than did patrons of public and private facilities. This did not hold in 1979 in the Northern Region, and held to a much smaller extent in the Southern Region. These are unlikely to be changes over time, rather they are likely to be artifacts of the difference in the survey questionnaires. Employed adults are probably less likely to take time off to go to a health center or hospital for themselves than they are for their children. Unemployed and parents deciding where to seek care for children are probably less constrained by income foregone.

^{1/} Health Planning Division, MOPH, Community Household Survey on Environmental Health Conditions, Perceived Sickness and Utilization of Health Service Resources, (Bangkok, 1982) p.21.

Rural preferences particularly can be expected to bear some relationships to the distances travelled: travel costs are more burdensome in seeking care in rural areas than in cities. According to one survey^{1/}, travel costs to get to drug stores average 4 Baht; a high percentage of people walk there. The average cost of getting to public rural health centers is 12 to 14 Baht; to public hospitals, 20 to 44 Baht; and to private clinics and hospitals, 40 to 88 Baht. In contrast, in Bangkok it costs an average 11 Baht to get to government hospitals; in other urban areas only 6 Baht. These costs get multiplied when the ill household member is accompanied by a family member or friend.

3. Health Expenditures of Households Reporting Illness

In 1981, the average monthly household health care expenditures among all households reporting illness in the CHS survey was 412 Baht^{2/}. (See Table 4.3.) Five percent of monthly health care expenditures were for drugs at drug stores, 41 percent for care at public facilities, and 55 percent for care at private facilities.^{3/} (The figures for public and private facilities include drugs and other supplies purchased from these facilities. They do not take into account differences in unit costs between facility types -- a greater amount spent at one type of facility could represent few visits. The expenditure amounts are merely in terms of Baht spent.)

The distribution of expenditures by type of facility varies greatly by region. In 1981, expenditures at drug stores accounted for five, four, three and seven percent of household health care expenditures in the Central, Northern, Southern and Northeastern Regions respectively. Expenditures at public facilities range from 136 Baht in the North to 292 in the South. Discrepancies this large cannot be explained by the free card program; this does not seem to be a case of the sick in the Northern region turning to public facilities when they are sick, but not having to pay for the care. Government expenditures for free care are too small and do not vary sufficiently by region to account for this much variation in household expenditure. Seventy percent of household health care expenditures in the Northern Region go to private facilities: the number of missionary hospitals in the North may explain some of this distribution.

1/ Deemar, Contraceptive Usage Survey, October, 1984.

2/ All Baht figures in this chapter, both for expenditures and for income, have been adjusted to 1983 price levels unless explicitly noted otherwise.

3/ Percentages do not sum to 100 because of round up.

Table 4.3
1981 Monthly Expenditure Health Care by All Households
Reporting Illness

Units:
Sum: Baht 100 (1983)
Mean: Baht

Region		Drug Stores		Public Facilities		Private Facilities		Total		
		Sum	Mean	Sum	Mean	Sum	Mean	Sum	Mean	N
Central	Urban	4	11	66	178	33	89	103	279	37
	Rural	48	26	363	194	530	283	941	503	187
	All	53	24	428	191	563	251	1044	466	224
	All-weighted	62	25	475	194	677	276	1214	495	245
North	Urban	20	19	442	410	374	346	836	774	108
	Rural	75	23	381	118	1200	370	1656	511	324
	All	95	22	824	191	1574	364	2492	577	432
	All-weighted	100	23	592	136	1609	369	2302	528	436
South	Urban	3	17	50	277	82	453	134	747	18
	Rural	10	15	198	291	177	260	385	567	68
	All	13	15	248	288	258	301	520	604	86
	All-weighted	13	15	263	292	244	271	520	578	90
Northeast	Urban	22	18	223	181	397	323	641	521	123
	Rural	82	18	719	162	381	72	1120	253	443
	All	104	18	942	166	715	126	1761	311	566
	All-weighted	109	18	964	163	581	98	1576	267	590
Whole Kingdom	Urban	49	17	781	273	886	310	1714	599	286
	Rural	215	21	1661	163	2286	224	4102	401	1022
	All	265	20	2442	187	3110	238	5817	445	1308
	All-weighted	284	21	2294	168	3112	228	5611	412	1362

The Northeastern Region shows the most striking difference between urban and rural expenditures: urban households spent more than twice as much on health care as did rural households. The spending at drug stores was about the same in rural as in urban areas, 18 Baht per month, and spending at public facilities was only slightly higher in urban households than in rural households, 181 Baht compared to 162 Baht per month. Ninety-four percent of the difference between urban and rural average health care expenditures in the Northeast is attributable to higher urban spending at private facilities. Urban households in the Northeast spent 4 1/2 times the rural household expenditure at private facilities, and they spend only two-thirds the urban average at public facilities. Overall, the Northeast had the lowest average expenditures of households reporting illness -- 267 Baht per month, less than half of the expenditures in the South and slightly more than half of expenditures in the North.

For families reporting illness in 1981, health expenditures were a high proportion of average monthly income -- 13 percent in urban areas and 18 percent in rural areas.

In the rural Northeast, households reporting illness spent 23 percent of average monthly income on health care -- a statistic that reveals why income is a barrier to seeking health care in that region. The proportions of average monthly income spent for health care by households who reported illness and had contact with health services are shown in Table 4.4. These proportions are high particularly bearing in mind that they do not include expenditures for children who may have been ill in the same month. The numbers tend to confirm numerous anecdotes of families selling land or going heavily into debt to pay for health care.

4. Average Household Health Expenditures

Table 4.5 shows average monthly expenditures of households for drugs, medical care and total health services per month and total monthly expenditures from the NSO survey in 1981-82. Total monthly expenditures correlate with monthly income but are reportedly more reliable than the income data gathered in the survey. Thus, total expenditures can be used to talk about affordability and income responsiveness of health care in much the way income was used for the CHS.

Table 4.4

Average Monthly Health Care Expenditure as Percentage of Monthly Income by Households Reporting Contact with Health Care System (1991)

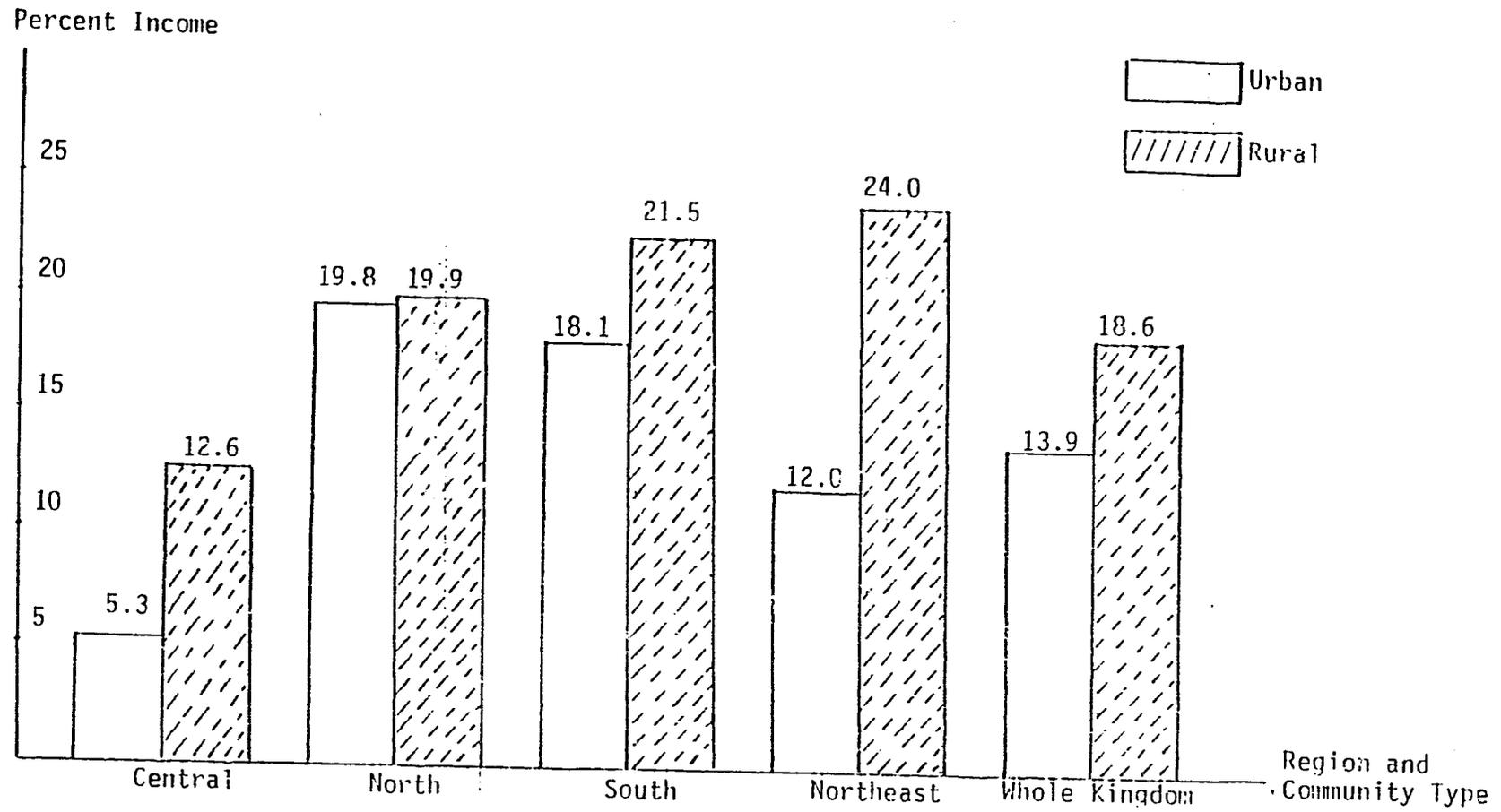


Table 4.5
Average Monthly Household Health Care Expenditures, 1981-82

Unit: Baht 1983

Region		Drug Stores	Medical Services	Total	Total Expenditures
Central Region	Municipal areas	37	111	148	(5519)
	Sanitary districts	45	116	161	(3953)
	Villages	45	84	129	(3526)
	Total (whole region)	44	92	136	
Northern Region	Municipal areas	27	116	143	(5097)
	Sanitary districts	30	78	108	(3188)
	Villages	30	57	87	(2512)
	Total (whole region)	30	64	94	
Northeastern Region	Municipal areas	31	85	116	(4715)
	Sanitary districts	33	114	77	(3467)
	Villages	36	59	95	(2364)
	Total (whole region)	35	50	94	
Southern Region	Municipal areas	32	130	162	(5166)
	Sanitary districts	43	63	106	(3596)
	Villages	36	51	87	(3032)
	Total (whole region)	36	62	98	
The Greater Bangkok Metropolitan Area *		39	131	170	(5737)
	- City core	34	169	203	(6612)
	- Suburbs	37	97	134	(5627)
	- Fringe	49	87	136	(4160)
Whole Kingdom **		36	71	113	(3374)
	Municipal areas **	32	111	143	(5158)
	Sanitary districts **	37	80	117	(3560)
	Villages **	36	63	99	(2737)

* The Greater Bangkok Metropolitan Area refers to Bangkok Metropolitan, Nonthaburi Province, Pathumthani Province and Samutprakarn Province and the area is classified into city core, suburbs and fringe area based on the density of people in this area.

** Whole Kingdom is separated into municipal areas, sanitary districts and villages as a whole, except for the area within the Greater Bangkok Metropolitan Area.

Overall, drug consumption varies regionally from 30 Baht per month in the Northern Region, to 44 Baht per month in the Central Region. In both regions, pharmaceutical represent 32 percent of health care expenditures, and the same percentage applies to the Kingdom as a whole.

The comparable percentages from the 1981 CHS were five, four, and five percent for the Central and Northern Regions and the Kingdom respectively. These differences are large enough that it is unlikely that they are explained by sampling error. (If they were based on sampling error, it is the CHS, much more than the NSO survey, that would be suspect. The NSO sample is more randomly drawn and represents almost fourfold the households surveyed for the CHS.) Rather, the differences are likely explained by the fact that the CHS percentages are for households reporting illness, and the NSO percentages are for all households. Households with illness are, on average, likely to show a shift of expenditures toward medical care compared to the pattern for all households.

The higher reliance on drug stores in the Central and Northeastern Regions shows up in both studies, as do the high total health care expenditures in the Central Region relative to other regions. Table 4.6 shows drug and total health expenditures of the Bangkok area and the rural Northeast. The Bangkok fringe area, which spent over 1/2 times what Northeastern villages spend on health care, spent a very similar percentage of its total health care expenditures on pharmaceuticals.

This reliance on drugs suggests supply constraints, income constraints, or both in the rural Northeast and in areas of Bangkok. Anecdotal evidence suggests that it is not unusual at all to wait all day for care in Bangkok's public hospital outpatient departments, a main source of first-contact health care for Bangkok's poor. The apparently high rate of self-treatment suggests that people prefer more convenient and prompt treatment of health problems perceived as minor to low cost queue-rationed professional care.

That it is the poor who constitute those relying mainly on drug stores for their health care can be shown by further breaking down Table 4.6, as in Table 4.7. The 11 percent of the households of the Bangkok fringe who consumed less than 18,676 Baht per month in 1981-82, consumed 77 percent of their total health care consumption as drugs. (The total consumption ranges in Table 4.7 are such odd numbers because we have price adjusted them. For example, the limit 18,676 was published as 15,000 current Baht.) As total consumption rose cross-sectionally, drug consumption as a fraction of total health care consumption dropped markedly. While low cost and free professional care is available in Bangkok, it is highly queue-rationed and income acts as a barrier to alternative professional care.

Table 4.6

Drug Consumption as a Percentage of Health Expenditures: 1981-1982

	Percent Drugs	Average Health Expenditures per Month (1983 Baht)
BMA	24	184
Core	17	220
Fringe	36	147
All Urban	22	155
NE Villages	38	95

Source: NSO, Socio-Economic Survey, 1981-82

Table 4.7

Average Health Care Consumption,
Drug Consumption as a Percentage of Health Expenditures,
and Average Household-Size, by Total Consumption Level:
Bangkok Fringe 1981-1982

	Annual Total Consumption Level (1983 Baht)		
	less than 18,676	18,676 to 43,577	more than 43,577
Average Annual Health Care Consumption (1983 Baht)	351	1,105	2,580
% Drugs	77	45	31
Average Household Size	2.1	3.9	5.5
% Households	11	45	44

Source: NSO, Socio-Economic Survey, 1981-82

Many of the poor in the Bangkok Fringe are farm workers (as distinct from farm operators who own or rent land). Farm workers in the Bangkok area consumed 41 percent of their health care expenditures as drugs. General workers' drug consumption was 42 percent of total health care consumption. That drug consumption of the economically inactive was, in contrast, 23 percent of total health care consumption is evidence that the supply constraint, manifested by long waiting-times at public facilities, is operational along with an income constraint. Economically inactive people can be expected to be less averse to waiting in lines, because the waiting-time does not represent foregone income. This tendency is evidenced by unemployed people in urban areas using government hospitals five times as often as private hospitals; while employed people use the government hospitals only three times as much as private hospitals. (See Table 4.8.)

5. Income Elasticities of Demand

Another way of approaching the relationship between income and health expenditures is to estimate the percent increase (or decrease) in expenditures associated with a one-percent increase in income; a statistic known as the income elasticity of demand. An elasticity greater than one, means that a one percent increase in income will result in more than a one percent increase in health expenditures. In such a case, demand is said to be "income elastic." If the estimated elasticity is less than one, demand is said to be "income inelastic" because the percentage increase in demand is less than the percentage increase in income.

Using the NSO survey for 1981-82, we found that for every one percent difference in income, there was a 0.25 percent difference in the same direction in consumption of health care, an elasticity of 0.25 for the Kingdom.^{1/} Thus, a group with ten percent higher income could be expected to be spending 2.5 percent more on health care. This higher level of consumption came almost entirely from higher demand for medical services, with an income elasticity of 1.62, rather than from pharmaceuticals: ten percent more income was associated with 16.2 percent more spending for medical care services. (See Table 4.9.) In fact, higher income was associated with reduced spending on pharmaceuticals.

Health care expenditures in Bangkok were particularly responsive to income differences, with an elasticity for medical services of 2.05: a ten percent difference in income yielded a 20.5 percent difference in expenditures on medical services. This strong relationship could be seen in the increasing level of medical care expenditures as income rose in Table 4.5; the strength of the relationship is quantified in this elasticity estimate.

^{1/} These elasticities were estimated controlling for educational level of the wife.

Table 4.8: Number of Persons Receiving Public Health Service by Employment Status and Place of Health Service 1981

Place of Health Service Employment Status	URBAN						RURAL						: Persons
	Government Hospital	Private Hospital	Clinic	Health Centers	Others	Total	Government Hospital	Private Hospital	Clinic	Health Center	Others	Total	
Persons in Labor Force	467,260 (39.21)	145,570 (12.22)	475,090 (39.87)	88,120 (7.40)	15,530 (1.30)	1,191,570 (100)	2,329,350 (38.96)	142,330 (2.38)	1,086,480 (18.17)	1,989,870 (33.27)	431,500 (7.22)	5,979,530 (100)	
- Employed Persons	455,750 (39.12)	143,290 (12.30)	464,590 (39.87)	85,980 (7.38)	15,530 (1.33)	1,165,140 (100)	2,313,440 (39.00)	142,330 (2.40)	1,014,880 (17.00)	1,986,000 (33.40)	430,730 (7.24)	5,947,380 (100)	
1. Professional and Administrative Workers	81,620	31,650	83,420	7,080	3,360	207,150	87,430	8,270	42,080	26,690	4,050	168,520	
2. Clerical and Sales Workers	145,710	60,730	198,360	21,030	6,910	432,740	160,180	17,680	131,890	61,270	15,540	386,560	
3. Farmers and Miners	43,040	3,410	25,330	22,980	1,910	96,670	1,838,590	105,590	761,320	1,793,960	384,510	4,883,970	
4. Transport Workers	31,700	6,360	23,470	5,940	460	67,930	27,650	1,400	19,420	9,290	3,590	61,350	
5. Craftsmen and Laborers	103,030	28,160	97,940	20,000	2,130	251,260	147,910	8,840	101,340	77,120	17,570	352,780	
6. Service Workers	50,410	12,530	35,870	8,950	740	108,550	51,680	550	18,830	17,600	5,470	94,200	
7. Unknown	240	400	260	-	-	840	-	-	-	-	-	-	
- Unemployed persons	11,510 (43.55)	2,280 (8.63)	10,500 (39.73)	2,140 (8.07)	-	26,430 (100)	15,910 (49.49)	-	11,600 (36.08)	3,870 (12.04)	770 (2.39)	32,150 (100)	
Persons not in Labor Force	697,100 (30.98)	201,700 (8.97)	876,430 (38.96)	323,020 (14.36)	151,590 (6.73)	2,249,947 (100)	1,883,500 (27.59)	111,810 (1.64)	1,135,830 (16.64)	2,612,140 (38.26)	1,003,830 (15.87)	6,827,149 (100)	
1. Worked around house	145,890	35,120	95,790	24,190	1,580	302,570	197,910	9,850	67,520	87,010	20,680	382,970	
2. Students	124,500	34,870	194,020	73,020	78,240	504,650	305,590	19,910	175,240	433,130	399,410	1,333,280	
3. Others	82,670	16,670	49,800	10,180	1,000	160,470	230,240	14,380	74,010	112,350	20,580	451,560	
4. Persons under 11 years old	344,040	115,040	536,820	215,670	70,620	1,282,150	1,149,760	67,700	819,060	1,979,650	643,160	4,659,330	
(a) 0-6 years old	247,640	85,170	370,250	135,990	6,880	845,930	803,720	54,780	543,530	1,233,380	160,510	2,795,920	
(b) 7-10 years old	96,400	29,870	166,570	79,640	63,740	436,220	346,040	12,920	275,530	746,270	482,650	1,863,410	
Total	1,164,360 (33.83)	347,270 (10.09)	1,351,520 (39.27)	411,140 (11.95)	167,120 (4.86)	3,441,410 (100)	4,212,850 (32.90)	254,170 (1.98)	2,222,310 (17.35)	4,602,010 (35.93)	1,515,330 (11.84)	12,806,670 (100)	

Note: Figures in parentheses are percents.

Source: National Statistical officer, Health and Welfare Survey, 1981.

Table 4.9

Income Elasticities of Demand for Health Care, 1981-1982

	Pharmaceuticals	Medical Services	Total
Bangkok	0.07	2.05	1.21
Other Urban	-0.29	1.68	0.51
Rural	0.28	1.35	0.64
Kingdom	-0.69	1.62	0.25

Source: Computed from National Statistics Office;
Socio-economic Survey 1981-82.

The elasticity estimates are based on cross-sectional analysis -- the idea that those of lesser incomes can be expected to exhibit consumption patterns similar to those of currently wealthier households; when the incomes of the poorer households rise. Richer households are assumed to maintain the same relative differences between their consumption patterns and those of poorer households, as the income of the richer households rises absolutely. These assumptions permit an inference from cross-sectional to intertemporal analysis.

With the NSO data from 1975-76, it is possible to examine directly the changes in consumption over time, and to see how changes in income correspond. Tables 4.10 and 4.11 show how health care consumption and income have changed over the six year period. Once again, total consumption is used as a proxy for income. The ratios of percentage changes shown in Table 4.11 are very rough elasticities. Unlike the cross-sectional analysis, in longitudinal analysis it is essential to control for the many changes that are happening over time in addition to changes in income. (The cross-sectional analysis, by taking a slice in time, in effect, controls for historical change.) Many changes other than income, for example, structural changes in education and in supply of health care, can affect the demand for health care. Yet, as a rough approximation of how consumption patterns are changing over time, this approach is useful.

Table 4.10

Average Household Health Care Expenditures, 1975-76

Unit: Baht 1983

Region		Drug Stores	Medical Services	Total	Total Expenditures
Central Region	Municipal areas	31	105	136	(3415)
	Sanitary districts	44	97	141	(2717)
	Villages	39	60	99	(2182)
	Total (whole region)	39	70	109	(2375)
Northern Region	Municipal areas	21	63	84	(3144)
	Sanitary districts	25	68	93	(1791)
	Villages	25	41	66	(1424)
	Total (whole region)	25	46	71	(1592)
Northeastern Region	Municipal areas	28	59	87	(3085)
	Sanitary districts	34	54	88	(2309)
	Villages	27	30	57	(1492)
	Total (whole region)	27	33	60	(1612)
Southern Region	Municipal areas	30	58	88	(3011)
	Sanitary districts	28	52	80	(2186)
	Villages	25	44	69	(1689)
	Total (whole region)	26	47	73	(1913)
The Greater Bangkok Metropolitan Area *		32	80	112	(3323)
	- City Core	26	92	118	(3675)
	- Suburbs	39	64	103	(3380)
	- Fringe	36	72	108	(2467)
Whole Kingdom **		29	51	80	(2004)
	Municipal areas **	27	70	97	(3157)
	Sanitary districts **	34	71	105	(2283)
	Villages **	26	41	70	(1679)

* The Greater Bangkok Metropolitan Area refers to Bangkok Metropolitan, Nontaburi Province, Pathumthani Province and Samuthprakarn Province and the area is classified into city core, suburbs and fringe area basing on the density of people in the area.

** Whole Kingdom is separated into municipal areas, sanitary districts and villages as a whole, except for the area within the Greater Bangkok Metropolitan Area.

Table 4.11

Socio-Economic Survey
Monthly Health Care Expenditures and Changes

	Municipal Areas	Bangkok	Villages	Kingdom
MEAN TOTAL CONSUMPTION				
1975-76 (1983 Baht)	3,151	3,323	1,679	2,004
1981-82 (1983 Baht)	5,158	5,737	2,737	3,374
Percent Change	64	73	63	68
MEAN DRUG CONSUMPTION				
1975-76 (1983 Baht)	27	32	29	29
1981-82 (1983 Baht)	32	39	36	36
Percent Change	19	22	24	24
MEAN MEDICAL CARE CONSUMPTION				
1975-76 (1983 Baht)	97	112	70	80
1981-82 (1983 Baht)	143	170	99	113
Percent Change	47	52	41	41
Percent Change in Drug Expenditure over Percent Change in Total Expenditures	0.29	0.30	0.38	0.35
Percent Change in Medical Care Expenditure over Percent Change in Total Expenditures	0.74	0.71	0.65	0.60

There are important similarities between the longitudinal estimates in Table 4.11 and the cross-sectional estimates in Table 4.9. In both, medical care elasticities are much higher than drug elasticities, and medical care elasticities are higher in the cities than in the villages. The most important difference is that drug elasticities between 1975-76 and 1981-82 are much higher than in the 1981-82 cross-sectional, and medical care elasticities are much lower. This suggests, it is only since 1980, that demand for medical care has become income elastic; that is, greater than one. Drug purchases are not increasing and may even be declining as incomes rise.

This explains in part the high medical care elasticity. Not only is there an income effect -- more health care is demanded because income is rising -- but there is a consumption shift: households are substituting professional health care for self-treatment with drugs. Since the professional care tends to cost more, this also makes total health expenditures rise. Studies in other countries show that the income elasticity is greater than 1 for a certain range of income per capita.^{1/} (At lower incomes the elasticity is less than one, and at higher incomes it is also less than one; for example, the income elasticity in the U.S., Japan and Western Europe is between 0.1 and 0.2.^{2/} Thailand appears now to be within the range where demand for medical care is increasing faster than incomes.

Clearly, this has important implications for the immediate future -- through the next plan period. It is reasonable to think that the average households of tomorrow will make spending decisions similar to those being made by households with above average incomes today. Thus cross-sectional associations between income and health care expenditures can be applied to projections over time. If the income elasticity of demand for medical services is 1.62, as is estimated using the HSO survey, and income rises in the next 5 years by 16 percent (the cumulative result of a 3 percent growth rate), then expenditures for medical services can be expected to rise by 27 percent in that time (the cumulative result of 3 times 1.62 percent growth).

^{1/} William Hsiao, Harvard School of Public Health, personal communication, March 21, 1985

^{2/} Ibid.

Of course, growth in expenditures for medical care cannot continue to outstrip growth in income for a very extended period of time. Nor is it reasonable to think that the observed cross-sectional preference for private care among higher earners means that eventually few people will turn to public facilities for care. As health care expenditures become an increasing percentage of income, it is likely that more households will turn to public facilities for lower cost care. A primary goal of MOPH should be to devise ways to channel this demand to the facilities where it can be given most effectively and efficiently as it is doing with health card funds, and to finance the care in such a way that subsidizes only those who cannot afford to pay for necessary services themselves.

6. Demand for Free Care

Until now, this chapter has concentrated on how much households paid for care. Included among those households who sought care discussed in earlier sections, are those who sought care at public facilities and did not pay for it. Budget allocations for free care were discussed in Chapter 2; now we examine the demand for care as financed by that budget.^{1/}

The regional differences in take-up rates of free care are highest in the Northeastern region. (See Table 4.12). The income cut-off for free care eligibility, 2,000 Baht per month, (1,500 for single people) far exceeds the average income of public facility clients in the northeastern rural areas. The Central Region is surprisingly the second highest--average income of public facility users. There was much higher than average for the Kingdom, in fact the urban and rural incomes were both the highest of the four regions, and on average far exceed the income cut-off for the program. The non-Bangkok Central region has the lowest percent of its population in poverty.^{2/} This situation seems inequitable, although it cannot be determined from available data whether this distribution of free care is the result of greater care-seeking behavior by the Central Region's poor, or whether the income cut-off of the free care program is being applied more laxly in the Central Region. Given that the household survey seemed to indicate the income is a barrier to care in the Northeast, this issue bears further investigation.

^{1/} As for the earlier discussion of the Free Care budget, we rely heavily on Anne Mills, "Health Services for Low Income Groups: Access to Free Medical Care." op. cit.

^{2/} Ibid., p. 8

Table 4.12

Utilization of Free Care Health Services by Region - 1978

Region	Patients Receiving Free Care per 1,000 Population	Percent of Inpatients Receiving Free Care At Provincial and District Hospitals
Northern	167	25
Northeastern	260	39
Central	213	37
Southern	193	33
Kingdom	217	35*

*Excludes Bangkok

Source: Annie Mills, "Health Services for Low Income Groups: Access to Free Medical Care", Appendix I, Table 3.

7. First Contact Services: Funding Alternatives to Public Outpatient Department Care for Bangkok's Poor

MOPH officials say that waiting time for care in Bangkok's public hospital outpatient departments averages from 2 to 4 hours. Anecdotal evidence suggests that it is not unusual to wait all day, from early morning to late afternoon, for care. Some of Bangkok's poor use private clinics but many rely on these departments for routine care: more than one-fourth of the households in the Bangkok core reported total consumption of less than 3,500 Baht per month in the 1981-82 NSO Socio-economic Survey.^{1/} (3.5 percent of households). Those whose monthly consumption expenditures were less than 1,500 Baht paid an average of 7 Baht per month to hospitals and clinics; those whose total consumption was between 1,500 and 3,499 Baht (22.8 percent of households) paid an average of 34 Baht per month to hospitals and clinics, while the remainder of households paid an average of 191 Baht per month to these facilities. From what is known about greater incidence of illness among the poor, this expenditure difference is evidence that the poor are going to the public facilities for care that is publicly subsidized.

^{1/} Baht amounts in this paragraph have not been adjusted in 1983 price levels; rather they are presented as reported by NSO.

Thus, public outpatient departments are serving the needs of the poor in Bangkok, but they are doing it with long waiting times. They are providing very basic, routine, first contact services along side of more complicated care. It is likely that adjustments could be made in Bangkok's health care system to shift some of the routine care on to private clinics and health centers or smaller public facilities, while publicly financing such care for the poor.^{1/} Not only is there incentive to reduce the waiting time in outpatient departments, but it is likely that smaller facilities could provide routine care of equivalent quality more promptly, with more convenience to the patient, and at a lower cost to the government.

A program to finance alternative to public outpatient departments for Bangkok's poor should take into account the following goals:

- There should be built-in incentives for administrative integrity and efficiency.
- The program should take advantage of cost-controlling effects of competition among providers of care.
- There should be incentive for the patient to choose less expensive forms of care--and for the provider to advise such care--when it is appropriate.
- There should be incentives for use of preventive services.

Moving toward these goals depends in large part on which of many possible provision or payment schemes is chosen. Direct provision of care by the government is embodied in the prospect of building more small government health centers like the BMA centers to absorb the current demand for subsidized care. Instead of opening health centers and employing health care professionals, the government could also contract with clinics to provide care to the poor. The program could entail prepayment to provider/contractors for an HMO-style arrangement; or the poor might be given vouchers that the providers could redeem. Retrospective reimbursement of patients would probably defeat the purpose of the program--that of providing care for people who do not have much money to pay for health care.

Some of the pressure on Bangkok hospitals would be reduced by improved medical care outside of Bangkok. In 1981, 46.7 percent of in-patients in 8 MOPH hospitals in Bangkok were from outside Bangkok. See Santhat Sermsri and Yawarat Porapakkham, "Socio-economic Differentials in Morbidity in Thailand," A paper presented at the National Seminar on ASEAN Morbidity and Mortality Differentials: Studies in Thailand, Sailom, Hua Hin, November 1-3, 1984.

Just as there are many alternatives about whether to provide or merely pay for care, and when to pay for it, there are alternatives about who would administer such a program. In the past in Thailand, government finance of care has been linked with government provision of care. Suppose a program is adopted that breaks this link. Suppose that when a poor patient receives certain types of care at a private clinic, the patient shows a card certifying membership in the program, and the provider of care bills the program for the services provided. There are options about how verification and payment of this bill would be handled. A government bureau might process the papers involved in administering such a system. A private service bureau with profit incentives to do the program's processing efficiently might also be considered. A further alternative, one that draws even more on the profit motive of the private sector, is to arrange for a contractor to insure the health care of the poor. Many permutations of this basic arrangement are possible; for example, MOPH might certify participants in the plan, contracting for insurance for those certified. Certification could also be left to the private sector, where incentives to limit coverage would be balanced against hopes for contract renewal.

Similar arrangements for private administration are possible for a voucher or prepayment scheme. No matter how the program were administered, it would be important to understand clearly before implementation how many people would be making use of such a program, how much care they would seek, where they would seek it and at what cost. It would be particularly important in negotiating payments to a private administrator.

One more issue to be considered if care is not provided, merely financed, by the government, is how much should be paid. If the program paid a set amount for specific services, the incentive would be to perform more of these services than was medically necessary. If payments were on a per visit basis, then the incentive would be too scrimp, perhaps to a medically inadvisable extent. These sorts of mechanisms and their effect on quality of care, are related to the more basic design issues discussed above.

If the program allowed patients to choose providers, for example, using vouchers or the membership card example, exercise of consumer choice would provide built-in quality control to the extent that consumers can judge whether the care they are given is good and enough. While full third party payment removes cost control incentives from both the patient and the provider, copayment for care by the patient, or bonuses for low utilization might give the patient enough reason to be a thrifty shopper for health care services. A possible cost-controlling measure from the provider side might be to arrange for "preferred providers": lower fee structures (or in the case of HMOs, membership fees) in return for an incentive built into the program for participants to use these providers.

The possible solutions to the excess demand for outpatient department care in Bangkok are myriad, and many of them quite complicated. Making an informed decision will require careful research, experimentation, and simulation using data from the experiments to understand the implications of various program designs. It is important quickly to begin to search for a solution to this problem for there is every reason to think that what is happening now in Bangkok, is in store for other urban areas, and represents the more distant future for rural areas of Thailand.

Summary

The most policy-salient features of the Thai demand for health care as analyzed in this chapter are:

- As income rises in Thailand over the coming years, demand for health care can be expected to rise dramatically.
- Low cost public health care for Bangkok's poor is inadequate; self-treatment with pharmaceuticals is being substituted.

The first of these points, the burgeoning demand for health services, arises from several characteristics of Thai health status and the Thai economy: A shift from predominance of treatment of infectious diseases, to treatment of accidents and degenerative disease, that is, a shift from primary to secondary care. Secondary care, perhaps because it is often less efficacious, tends to be more open-ended and intensive, and thus more costly.

Thailand also happens to be at a level of income growth where income elasticity of demand for health care is very high. As households are newly able comfortably to pay for their most basic needs, they tend to have very high demand for health care. Further, rising demand for health care is composed of a shift from self-treatment with pharmaceuticals to seeking public and private medical care, both of which are more costly.

Household expenditures are a large portion (two-thirds) of health care spending, and it is important that they remain so. If demand rises to a point where households can no longer afford to pay for the majority of their care, the government will not be able to pay the bill, either.

Recommendations relating to containing high demand for care are generally the same as those for containing costs; presented in Chapter 3.

- The Thai government should make sure that it is subsidizing care for only those who cannot afford to pay the full cost. Currently MOPH hospitals' charges are below market rates, and hospitals for government employees subsidize the general public. The government should not compete with the private sector.

- Health care funds should encourage the consumption of primary care: preventive care is much less expensive than curative care.
- Research and planning to allocate increasingly scarce public resources equitably and efficiently is essential.

As for care for Bangkok's poor, we recommend research into ways of letting the private sector absorb the excess demand for low cost health care services. Perhaps if subsidy of the general public's health care by public institutions were discontinued, queues would be shortened. Even so, if the private sector can provide adequate care more cheaply and with greater convenience to patients, that would be preferable.

In conclusion, the main health care problem facing the Thai government today is how to meet tomorrow's demands. A range of sources all point in one direction: in comparison with recent years, those demands will be great. Only by careful planning to channel household demand efficiently will the health care system continue to be able to meet the health care demands of the people.

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CHAPTER 5

COMMUNITY FINANCE OF PRIMARY HEALTH CARE

1. Introduction

Increasing household demand for health services has several implications for the national program of primary health care for the rural population. The increased demand for curative services will put severe limitations on the MOPH's continued provision of VHV and VHC training and of family planning services or expanded dental or mental health services -- unless demand for these services is high and cost recovery is high. (The possibility of increased cost recovery for family planning services needs to be explored; in particular, it will be important to analyze how much increased cost recovery, if any, would be consistent with the population growth rate targets of the Sixth Five Year Plan.) Other elements of PHC/BMN -- essential drugs, nutrition, sanitation, local control of endemic diseases, MCH, EPI and health education -- will increasingly depend on the current and future viability and performance of PHC funds set up to finance and provide these services locally.

This Chapter analyses the performance and prospects of drug, nutrition and sanitation funds^{1/}.

2. Drug Funds

Drug funds are the oldest, most numerous, most consistently profitably PHC funds in Thailand. They serve more households, have more diversified income sources, show more potential for diversification of services and less regional variation than nutrition or sanitation funds.

^{1/} This Chapter is based on the findings of a PRICOR-supported study of community finance of primary health care being conducted by the Social Projects Division of the National Economic and Social Development Board. The study included a national survey of 4,631 PHC funds and detailed case studies of 72 funds.

About two-thirds of all PHC funds are drug funds and more than half of all drug funds are in the Northeast. Of the 4,631 PHC funds studied in the national survey, 2,955 or 64 percent are drug funds; 1,425 or 52 percent are in the Northeast. The Mahidol University study identified 8,233 drug funds, 60 percent of them in the Northeast.^{1/} MOPH records show a total of more than 18,000 drug funds throughout the country.^{2/} The number and distribution of drug funds reflect government policy. Drug funds have been established first, ahead of nutrition, sanitation and health card funds, and priority has been given to poverty districts primarily in the Northeast.

Drug funds are not without problems. Most important are problems of management and record keeping, inventory control and maintenance, decapitalization, and the fact that drug funds are more successful in villages which are socially cohesive, specially compact, and distant from other sources of pharmaceuticals and medical supplies -- conditions which do not prevail in many villages in Thailand. Nonetheless, the drug funds provide a promising institutional base for the evolutionary development of multipurpose funds able to mobilize sufficient community resources to finance preventive and promotive services and primary, even secondary, medical care

2.1 Age and Origin of Drug Funds

As in the case of other PHC funds, most drug funds have been established at the initiative of the MOPH -- by hospital directors, Provincial, District and Tambon Health Officers usually with the active cooperation of village leaders and a majority of village households.

The MOPH has been establishing drug funds since 1978. The pace has accelerated recently as evidence of their success became available. As a result, the median age of drug funds is only slightly more than 12 months. The oldest funds have been in operation for six years. The 22 drug funds covered in the case studies range in age for six months to five years, averaging two years and three months. This is long enough for patterns of operation and management to stabilize, and prospects for future viability, profitability, diversification and growth to become clear.

1/ Mahidol University, Study of Medical Cooperatives (1984), Table 1, p. 8.

2/ As of November, 1984, the MOPH recorded a total of 18,422 drug funds.

Initiation of most drug funds begins with MOPH provision of starting capital in the form of an inventory of drugs. There is then a village meeting, election of fund managers, sale of fund shares, and sometimes a festival or other event to raise additional funds. The MOPH role and the roles of District and Tambon Health Officers are pivotal to the origin of most funds. Only two of the case study drug funds were established by villagers on their own initiative and in these two cases leading roles were played by the chief monk, the school headmaster and other village leaders not only in initiation but in subsequent -- and high quality -- management of the funds.

Drug funds are located in villages that often have other funds supporting activity in agriculture, animal husbandry, aquaculture, community savings and sometimes other PHC activities. A village is more likely to respond to an MOPH initiative to establish a drug fund and to succeed in operating it successfully when it has had prior successful experience with other community funds -- particularly ones which sell producers' goods on a revolving fund basis and thus are similar in management, record keeping, inventory control and other requirements to the operations of a drug fund.

Forty-one percent of Tambon Health Officers and 36 percent of drug fund managers interviewed in the case studies reported that familiarity with an existing successful fund had influenced the establishment of a drug fund in the village. This was less of a factor in the drug fund's origin than the MOPH's initiative in providing an inventory of drugs (reported by 71 percent and 86 percent respectively) but generally more important than local perception of need for a drug fund (reported by 23 percent and 36 percent respectively).

The case study villages with drug funds have an average of 2.5 funds of all kinds, with a maximum in several villages of 6 funds. Numbers reported in the national survey are somewhat higher.

Surprisingly, training in management or rudimentary pharmacology -- beyond what VHV's may have already received -- has not been a prominent activity in the initiation of drug funds. Only 5 percent of Tambon Health Officers and 9 percent of drug fund managers interviewed in the case studies reported any training as part of fund initiation. It was also apparent in the case studies that villager's understanding of the rationale for and operations of the drug fund was limited and perhaps a limiting factor on fund success.^{1/} Training and social preparation may be activities where additional effort would yield high returns.

^{1/} Villagers lack of understanding was the second most frequent cause of drug fund problems found in the Mahidol University study, op. cit., Table 10, p. 49.

2.2 Drug Fund Management

Drug funds are managed by a committee averaging 10 to 12 members. VHV's and VHC's are members of the management committees of more than 90% of drug funds in all regions. (See Table 5.1). The Tambon Health Officer almost always serves as consultant to the fund committee. Within this basic structure are large variations in commitment, competence, energy and compensation. These variations, in turn, go a long way in explaining the differences in fund viability, performance, growth and diversification.

2.2.1 Characteristics of Managers

Members of the management committees are from leading families and hold leading position in the village. They include monks, school teachers, village headmen, health and other community development volunteers. Some have high levels of educational attainment -- secondary and above. Others have worked in jobs outside the village which have given them managerial skills. Many are members of other village committees such as education and temple committees.^{1/} In the case study drug funds, committee members are overwhelmingly male (more than 80 percent), range in age from 30 to 57 with an average age of 44, and an average household income of 60,000 Baht per year -- more than twice the median household income in agriculture villages. Committee members were selected by vote at village meetings in 75 percent of the drug funds covered in the case studies. However, the positions were not really contested and the vote was more an affirmation of consensus and participation than an election. In the remainder of the cases, committee members were appointed by District or Tambon Health Officers.

Committee members are shareholders of the fund and serve for unspecified, usually unlimited terms. There has been very little turnover of committee members. Most have served for as long as the funds have been in existence, for terms ranging from 4 months to 5 years. The tenure of managers is undoubtedly traceable to respect and trust, particularly where drug funds have been successful. It may also reflect the fact that some managers receive compensation in cash and in kind and/or that few others in the village are willing to take on the responsibility particularly if the fund is in difficulty. But good or bad, once selected the managers do not change.

^{1/} Mahidol University, op. cit., Table 20

Table 5.1 : Characteristics of Drug Funds

Region	% of Funds with VIIV's on Management Committee	% of Funds Compensating Managers	Median Working Capital in Baht	Median Age in Months	% of Funds Profitable	% of Funds Active in Nutrition	% of Funds Active in Agriculture	% of Funds Active in Water and Sanitation	% of Funds Active in Other Community Development	Average Village Population	Average Number of Stores per Village
North n=708	95.9	50.6	2,000	12	91.5	35.2	8.8	26.1	9.3	1,425	5.4
Northeast n=1,677	92.5	48.2	2,000	12.1	92.0	43.8	11.0	29.8	12.0	1,009	3.9
Central n=290	95.2	45.5	2,550	11.2	85.2	42.0	11.0	31.0	7.0	1,310	6.7
South n=151	93.4	31.0	1,999	12.0	87.4	32.5	2.0	23.8	10.6	7,550	4.5

2.2.2 Patterns of Management

Managerial responsibilities are divided among committee members. Drug sales -- and any advise or referral recommendations connected with them -- are usually the responsibility of the VHV. This is in keeping with the MOPH's policy that the VHV is to be the agent for distribution of pharmaceuticals in the village whether there is a drug fund or not. The VHV may also serve as committee chairman and lead manager. In other cases, this role is played by the village headman. Daily fund receipts and fund working capital are sometimes entrusted to a monk. Other committee members serve as accountants, auditors, record keepers, sales clerks and general overseers. For most committee members these responsibilities are not heavy or time-consuming; 86 percent of drug fund committee members interviewed in the case studies reported that their participation in fund management is part-time and does not interfere with their principal occupation -- mainly farming.

One or two members of the committee are sometimes much more active, devoting full-time to management of the fund and in most cases they report that this work does interfere with their principal occupation. Drug funds with this level of managerial commitment are the most successful. Two examples are the drug funds at Baan Pho Samphao village, Nong Hiang sub-district, Phanat Nikhom district in Chonburi province and Baan Maab Pla Khao, Maab Pla Khao sub-district, Tha Yang district in Phetchburi province. The VHV's in both cases manage the funds full time, sell drugs at any hours to people who need them, keep all accounts and records, and order and maintain inventory. While both VHV's receive some compensation for this work it probably does not equal the foregone earnings in agriculture. The drug funds in this instance receive a subsidy equal to the difference, or to the value of the leisure or other foregone production of family members who take over the VHV's role in agriculture production. Patterns and amount of compensation may need to be adjusted in the long term to reduce or eliminate this subsidy.

When the full-time manager of a drug fund is a VHV, or even when the VHV devotes a substantial portion of his or her time to the drug fund, there is another opportunity cost. Preventive and promotive activities may suffer; less time may be devoted to outreach and to care and referrals of conditions which do not involve pharmaceuticals. Although difficult to measure and assess, these are costs with potential public health implications.

Successful funds exhibit other managerial characteristics. Some benefit from active participation of the Tambon Health Officer in all facets of funds operations. The drug funds in Khlong Wa village No. 8, Kho Hong sub-district, Haad Yai district, Songkhla province; Baan Phai Songkhram village, Sa Si Mum sub-district, Kamphaengsaen district, Nakhon Pathom province; and Baan Nong Bua Lon

village, Chik Sang Thong sub-district, Rasi-Salai district, Si Sa Ket province, are all successful and growing rapidly for this reason. Because the Tambon Health Officer is paid by the MOPH she or he does not forego income by working with the drug fund. But here also there are opportunity costs with potential public health implications. A drug fund is located in one village while the Tambon Health Officer is responsible for an average of Ten villages. If the drug fund is serving multiple villages, as some do, then this opportunity cost is reduced. But there is another. Drug funds focus on and provide mainly curative services. To the degree that the Tambon Health Officer devotes her time to the drug fund, preventive and promotive activities -- including support of nutrition and sanitation funds -- will receive proportionally less.

Other drug funds get managerial help from professionals in nearby district hospitals and other MOPH institutions. For example, the drug fund at Baan Serd Noi Moo 2 village, Baan Bueng sub-district, Baan Bueng district, Chonburi province get help on accounting, inventory control and resupply and pharmacology from the pharmacist of the district hospital. The Khlong-wa Drug Fund, Tambon Kho Hong, Haad Yai district, Songkhla province gets similar help from four hospital officials who are members of its management committee. This kind of help entails few if any important opportunity costs other than leisure foregone and should be encouraged where distance permits.

2.2.3 Compensation of Managers

Between 30 and 50 percent of drug funds compensate members of the management committee. (See Table 5.1 for a regional breakdown). Compensation takes a variety of forms including salary, a percentage of profits, or free or discounted drugs. The proportion of managers benefitting from drug fund operations may be higher than these numbers suggest. Managers have first access to scarce pharmaceuticals when the monthly order arrives. They may also have the right to borrow from the fund and to do so at interest rates below the prevailing market rates of about 60 percent per year in rural areas. And fund managers own shares in the fund and thus receive annual distributions of a portion of profits if the fund is profitable.

In the case study drug funds, the most active member of the committee -- the de facto manager -- is often paid if the fund is profitable and growing; for example, the manager receives 5 percent of the profits of the Baan Donpin Drug Fund, Tambon Cha Charng, San Kamphaeng district, Chiang Mai province; 7 percent of the profits of the Khlong-wa Drug Fund, Tambon Kho Hong, Haad Yai district, Songkhla province; and 20 percent of the profits of the Phosamphao Drug Fund, Tambon Nongheag, Panat Nikhom district, Chonburi province. In four other case study drug funds managers receive wages of 60 to 335 Baht per month.

Except in the most profitable drug funds, such levels of compensation will not cover the foregone earnings of managers who work full time or reimburse their families on whom the extra burden falls. But such compensation is important conceptually and statistically. There are obvious incentives for good management when compensation is tied to performance and managers are shareholders themselves. Careful control of inventory maintains and increases sales; lack of control and supply interruptions reduce or eliminate them. Inadequate records reduce performance, profits, capital and trust. Good records increase them all. Statistical analysis of the national survey and case study data found high correlations between compensation of managers and fund capital, profit, growth and diversification.

2.2.4 Managerial Problems

Management problems of drug funds are traceable to the inverse of the conditions which create success. Drug funds have managerial problems when the Tambon Health Officer is inactive; when the committee members lack commitment and energy; when income producing opportunities are overlooked; when health volunteers play a limited role in sales, record keeping and inventory control. The most common problems are incomplete records and inadequate and inaccurate accounts.^{1/} None of the case study drug funds has complete double-entry accounts or complete and current inventory records. The long run consequence of these problems for some funds is gradual decapitalization, stagnation at a lower level of operation, or failure.

The process is well-documented for a drug fund in Ubon province.^{2/} Eight health volunteers took turns running the store. Each day a different woman waited on customers and kept track of money and inventory. When the first inventory of drugs arrived the store was jammed with customers. Records and accounting fell behind. Some drugs sold out quickly. Others languished on the shelf. Yet each month the same 20 drugs in the same quantities were ordered from the GPO's agent in Ubon. Some villagers were allowed to buy on credit but records were not complete. Others paid in kind with rice, charcoal or firewood. But no

^{1/} The Mahidol University study found the same set of managerial problems, see op. cit., Table 18, p. 52.

^{2/} Youngyut Kajornpadungkiti, "The Fate of Nok Ten's Drug Cooperative" mimeo, Harvard School of Public Health, MPM 266d, #984. The drug fund described in this document is a composite case for teaching purposes, based on the experience of several drug funds in the Northeast.

effort was made to sell these items. In spite of strenuous efforts by a school teacher on the committee to make sense of the records and maintain capital, the fund was eventually unable to come up with the 2,000 Baht needed for the next month's order. The monk entrusted with the money had only 1,600 Baht at order time. Villagers began to travel to other villagers with well stocked funds to purchase drugs.

Such managerial problems are the most serious problems drug funds face.^{1/} While other variables affect fund growth, diversification, profit and success, none is more important than the quality of management.

2.3 Drug Fund Capital

The capital of the 2,955 drug funds covered in the national survey, ranges from 0 to 50,000 Baht. The median is 2,000 Baht in the North, Northeast and South, and 2,550 Baht in the Central region (see Table 5.1). Sixty percent of the drug funds studied by Mahidol University had capital of 1,000 to 4,000 Baht.^{2/} The capital of the case study drug funds is higher because they are older and more successful than most. It ranges from 200 to 90,000 Baht with an average of 7,500.

2.3.1 Initial Capital

The initial capital provided by the MOPH is small in comparison to what is raised in the communities themselves and particularly in comparison to the level of capital attained by the most successful funds in just two or three years of operation. The initial inventory of drug and medical supplies provided by the Ministry to the VHV ranges in value from 500 to 1,000 Baht. Some of this variation is traceable to the year in which the stock was provided. The Baht was devalued in 1981, and the cost of pharmaceuticals increased by more than 50 percent between 1978, when drug funds were first started, and 1983.^{3/} Seven to 800 Baht -- in 1983 Baht -- is probably the average value of the initial inventory for drug funds started in the last 18 months.

^{1/} The Mahidol University study reached the same conclusion, op. cit., Table 10, p. 44.

^{2/} Calculated from ibid., Table 5, p. 39

^{3/} Calculated from Bank of Thailand, Quarterly Bulletin, Vol. 23, No. 4, December 1983, p. 90.

Initial capital in the form of drugs or money is sometimes received from other sources outside the community. For example, the Baan Donpin Drug Fund, Tambon Cha Charng, San Kamphaeng district, Chiang Mai province received 500 Baht from the District Red Cross and 1,000 Baht from a local corporation. But such examples are few. Most of the initial capital of drug funds is raised from households in the village.

2.3.2 Sales of Shares

Capital is raised from households by sale of shares in the fund. Share prices are set by the management committee. In the case study drug funds, prices range from 10 Baht to 50 Baht a share, and shares are owned by 30 to 100 percent of village households. Households can own more than one share but an upper limit (for example: of 50 shares per household or 25 percent of all shares) is sometimes set by the committee to prevent a single family's taking over the fund. Poor families unable to purchase shares are sometimes able to buy shares on credit or are provided shares in exchange for labor contributed to the construction or improvement of the drug fund's store. When share ownership is widespread and/or multiple shares are owned by households, the amount of capital raised is impressive indeed. Table 5.2 shows share prices, share purchases and aggregate capital raised in six case study drug funds. The initial capital raised in each community exceeds the amount provided by the Ministry and in the most successful fund is ten times as much.

Differences in village size, wealth (as measured by motorcycle ownership) and share price account for some of the variation in capital raised in the six villages. The proportion of households purchasing shares also accounts for some but does not correlate strongly with wealth. And in spite of an MOPH incentive of an additional 1,000 Baht for any drug fund with share ownership by 80 percent or more households in the village, many highly successful funds with rapid capital appreciation have stayed below the threshold.

Table 5.2
Share Purchase Case Study Drug Funds

Fund	Number of Households	% of Households with Motorcycles	% of Households Purchasing Shares	Share Price	Number of Share Purchased	Initial Capital Raised
Kuteen, Songkhla	75	84%	75%	10 Baht	90	900 Baht
Ban Nongbualon, Si Sa Ket	46	9%	80%	10 Baht	133	1,330 Baht
Serdnoi, Chonburi	169	47%	30%	20 Baht	51	1,020 Baht
Ban Jomtevee, Chiang Mai	246	37%	90%	10 Baht	214	2,140 Baht
Khlong-wa, Songkhla	?	100%	70%	50 Baht	?	?
Pho Samphao, Chonburi	234	50%	50%	50 Baht	219	10,950 Baht

* Percentage includes later share purchase as well as initial share purchases.

Why then do households purchase shares and what explains the variations? Households do not purchase shares in order to purchase drugs from the fund. They are entitled to purchase drugs without owning shares. Nor do households purchase shares, at least initially, in anticipation of high profits or even of any profit at all. This was apparent in meetings with drug fund shareholders in the case studies and is confirmed by the Mahidol University Study. Only 6 percent of shareholders reported expectation of profits as a reason for buying shares; 71.5 percent reported wanted to help the village have the benefits of a drug fund, and 11 percent reported respect for the individuals setting up the fund.^{1/} Both responses are measures of social obligation and social contract in Thai culture and are strongest in villages which are socially cohesive and spatially compact. A few shareholders also report a low share price as a reason for purchase.^{2/} Together with the social obligation is an affordable cost in fulfilling it.

Statistically, villages with the highest percentages of households owning drug fund shares are small, with relatively equitable distribution of land ownership and household income and wealth, and have drug funds with low share prices managed by people of relatively modest income. They are also villages which have fewer funds supporting other activity and making social obligation claims on households to purchase shares. (There is an important tension in this last finding. The more funds a village has, the better the management of any one of them is, but the greater the limit on households' ability financially to contribute and participate in them. This is one of the arguments in favor of the multipurpose models, to be elaborated further in Chapter 6.)

Social obligation and village cohesion are central to other ways of augmenting drug fund capital. All households in the village may be asked to contribute a small amount to the fund -- not for share purchase but as an outright donation for the common good. Households in Baan Donpin village, Tambon Charcharng, San Kamphaeng district, Chiang Mai province contributed 5 Baht each to the drug fund

1/ Mahidol University, op. cit., Table 33, p. 67

2/ Ibid, 7 percent reported low price as a reason for share purchase.

for a total of 805 Baht - more than the value of initial drug inventory from the MOPH. Villagers in Nok Ten in Ubon province held a village fair with sale of food and drink, a raffle of 10 kilos of rice, and a dance. The fair raised 5,000 Baht -- 10 times of the initial inventory from the Ministry.^{1/}

Social obligation is the main reason for initial share purchase and other contributions, but high profit is the main reason for subsequent share purchase and for the dramatic variation in amount of drug fund capital. A good example is the Pho Samphao Drug Fund in Chonburi province -- a fund for which reasonably good records are available. The initial share purchase at the beginning of 1981, as shown in Table 5.2, was 219 shares with a total share of 10,950 Baht. In January 1982 shareholders received profit distributions of 43 Baht per share -- an annual return of 86 percent. In January 1983 they received 25.49 Baht per share -- an annual return of 50.8 percent. Households may purchase additional shares once a year just after profit distributions. Since January of 1982, the Pho Samphao drug fund has sold 321 additional shares with a total value of 16,050 Baht, more than doubling the initial capital raised from households in the village.

2.4 Drug Fund Profits

The Pho Samphao Drug Fund is profitable because it is well managed, well stocked, and able to undersell the private market and compete successfully with public sector alternatives. It also now sells to households in other villages. Most important, it has diversified its sources of income by selling other goods in addition to drugs and medical supplies. This pattern is typical of successful drug funds.

2.4.1 Drug Supply and Pricing Policy

The drug funds receive resupplies of pharmaceuticals by ordering from the Government Pharmaceutical Organization (GPO) which maintains stock at each provincial health office. The provincial health office receives and fills the orders for the drug funds in the province. It also supplies district health offices and sub-district health centers. The system appears to work quite well if orders are timely and money is available to pay for them; 95 percent of case study drug funds

^{1/} Yongyut Kajornpadungkiti, "The Fate of Nok Ten's Drug Cooperative," op. cit., p. 4.

restock in this fashion. Some report delays in obtaining resupplies of some or all items with consequent drop in sales and confidence. Thirty percent of the drug funds studied by Mahidol University reported supply problems.^{1/} But these problems may be equally traceable to poor record keeping, late orders, and systems of inventory control that are insensitive to market signals; 53 percent of funds studied by Mahidol reported problems in keeping their accounts in order and up-to-date.^{2/}

Resupply through the private sector might be more prompt and certainly would offer a far broader range of pharmaceutical preparations. This might be a marketing advantage for the funds, though it is less obviously desirable in public health terms. But the real advantage of the GPO system for the profitability of drug funds is its pricing policy. The GPO supplies drug funds at prices 30 percent below the urban retail prices of the largely generic drugs which the drug funds sell. Thus while the funds offer fewer drugs than are available in the private market or in district or provincial hospitals, they have a three-fold advantage in pricing and marketing. Generics supplied by the GPO are cheaper than name brands, the mark-up is based on urban prices because the GPO absorbs transportation costs, and travel costs of consumers are lower because the drug funds are closer than most public or private alternatives.

Reduced travel costs may be the biggest advantage the drug funds have and the most important economic benefit they offer consumers. A study of villages in the Kranuan district of Khon Kaen province, prior to establishment of drug funds, showed that travel costs to purchase drugs from the district hospital were more than twice the cost of drugs the travelers bought.^{3/} Many of the successful drug funds analyzed in the case studies are distant from alternative sources. Forty-three percent of consumers interviewed in the Mahidol University study reported buying from the drug fund because it was close; 32 percent also cited good quality and low price.^{4/}

^{1/} Mahidol University, op. cit., Table 16, p. 50.

^{2/} Ibid, Table 18, p. 52.

^{3/} Kraissid Tontisirin and Yongyut Kajornpadungkitti, "Medical Cooperatives" (mimeo, NESDB, 1981), pp. 19-20.

^{4/} Mahidol University, op. cit., Table 35, p. 69.

With these advantages, most drug funds are able to sell competitively at the full 30 percent mark-up, and more than 85 percent of drug funds in the national survey reported making profits. The evidence from the case studies and from the Mahidol University study is that some drug funds make modest profits while others make high profits. Average are misleading. Of the 22 drug funds analyzed in the case studies, 2 had failed and decapitated, 7 reported no profit, 9 reported profits below 10 percent, and 10 are successful with profits over 30 percent. (Of 100 drug funds evaluated in the Mahidol University study, 23 were found to be in trouble, 49 were modestly successful and 23 were highly successful.^{1/})

Inventory turnover and rates of profit in the successful funds are much higher than the averages would suggest. In 1982, the Pho Samphao drug fund, for example, had a gross profit of 172 percent of which 50 percent went to shareholders, 30 percent to fund capital and 20 percent to fund managers. (In another case study drug fund, the distribution was 20 percent, 75 percent and 15 percent respectively.) The Pho Samphao fund has been able to sell drugs to households in other villages and is now serving a total of ten villages. This is part of the explanation of its success.

2.4.2 Sale of Other Goods

Another major component in the success of the Pho Samphao fund and others like it is sale of other goods. The drug fund becomes a store selling basic consumers and producers' goods, some luxury items and in one case even includes a barber shop. People coming for drugs buy other things. People shopping for other things buy drugs. Goods sold include soap, salt, sugar, onions, fish sauce, dried chilli, tooth brushes, detergents, animal feeds, fertilizer, paper goods, weaning and supplemental foods, ORS packets, whisky, beer, soft drinks, clothing and cigarettes. Not all drug funds selling other goods sell this broad a range. The broadest range is available in the Changhan "multipurpose fund" in Koi-et.

^{1/} Calculated from Mahidol University, op. cit., Table 9, p. 43.

Profit margins on these items vary among items and from place to place. The Pho Samphao fund reported highest profits on whisky and cigarettes. If most of these items are available in local stores, the drug funds do not have the same marketing advantages in reduced travel costs or prices that they do in the case of pharmaceuticals except where the drug funds are more centrally located and/or more efficient and timely in restocking the most popular and high profit items. But the drug funds retain two advantages in selling other goods which enable them to compete with local stores. If there is no other nearby source of drugs people will buy drugs from the fund and once there it is and likely that they will buy other items if the perceived quality of these items is at least equal to that of other sellers and the price no higher. Second, if buyers are shareholders it is in their interest to buy other goods just as it is to buy drugs from the fund. Potential profit distributions effectively reduce the prices they pay. Finally for those goods not available from other local sources, the drug funds enjoy an absolute advantage equal to the average travel costs to alternate sellers, and can price and profit accordingly.

For all these reasons, there are high correlations between drug funds' profits and the diversity of other goods they sell, and between profit and capital appreciation. Whether all of this is important for the objectives of primary health care depends on how the profit and capital are used and on the equity and service consequences of fund operations.

2.5 Drug Fund Services, Benefits and Prospects

Village drug funds can be important and effective instruments for financing and facilitating PHC when they provide basic pharmaceuticals at affordable prices; reduce abuse of pharmaceuticals, serve a high proportion of households; and are equitable, in operations while maintaining viability, profitability, growth and diversification. By many of these measures, drug funds in Thailand are successful. Some funds are successful by all of these measures, and highly successful funds are found in all regions of the country.

2.5.1 Drug Supply and Prices

When drug funds can at a minimum maintaining capital and inventory and restock without interruptions in supply they provide a service potentially important for PHC, and unambiguously important for the economic welfare of village households.

Prices of pharmaceuticals are reduced not only because the funds sell mainly generic preparations but because travel and opportunity costs are reduced--sometimes dramatically so. Several studies show that average travel costs to district and provincial hospitals -- when these are the alternate sources in the absence of a drug fund -- are higher than the average cost of the pharmaceuticals purchased per visit or even per month per household.^{1/} The total cost of pharmaceuticals in these cases is thus effectively reduced by half or more; for example, by two-thirds in the villages covered in the Khon Kaen study.^{2/} The savings are highest for the more remote villages, and if these villages are also the poorest and least advantaged, the existence of a minimally functioning drug fund is an important innovation in equity terms if it does nothing more than reduce prices by this extent.

That this reduction might also have positive health consequence is clear from the fact that more than a third of average rural household expenditures for health are for pharmaceuticals.^{3/} With a functioning drug fund, more money is available for consultations or other medical expenditures which are needed but which -- without the fund -- households could not have afforded or would not have made.

2.5.2 Abuse of Pharmaceuticals

There is, of course, the possibility that a reduction in prices will increase abuse of pharmaceuticals by encouraging over-consumption or unnecessary consumption by some households. Critics of the drug funds worry about this possibility. Drugs sold in district or provincial hospitals even if more expensive, are at least dispensed with diagnosis and advice of qualified health professionals.

But high prices, coupled with availability of drugs from private sellers, may be equally or more conducive to abuse. Patients reluctant to purchase a complete dosage of antibiotics may buy only a few pills, or if they buy the complete dosage may take only a few and save the rest for another illness because the travel costs for a refill are so high. Preparations obtained from private sellers may be worthless, dangerous and indiscriminately mixed, and/or not taken in correct dosage.

1/ See, for example, NSO, Socio-economic Survey, 1981-82.

2/ Kraissid and Yongyut, op. cit.

3/ Calculated from: NSO, op. cit.

The drugs funds are stocked with an "essential drugs" inventory. Dangerous and worthless drugs are excluded. Preparations requiring diagnostic sophistication and careful monitoring are available at next steps in the referral structure, at the sub-district health centers and district and provincial hospitals.

In the end, much depends on the involvement, commitment, training and competence of the VHVs. VHVs are members of the management committee in more than 90 percent of the drug funds studied in the national survey. In the most successful drug funds covered in the case studies, the VHV's are de facto managers, devoting up to full time to fund operations particularly to the sale of drugs.

The study did not attempt to assess the quality of advice, diagnoses, or referral decisions of VHVs, or measure decrease or increase in abuse of pharmaceuticals resulting from drug fund operations. But when the VHV is well trained, careful, and conscientious the benefits from reduced prices and the "essential drugs" inventory probably far outweigh the negatives. These are issues which need more study and which raise, again, the question of whether more training and social preparation preceding the establishment of drug funds are not needed.

2.5.3 Households Served

Drug funds which stay viable and well stocked serve a high proportion of village households. An average of more than 80 percent of households are served by the case study drug funds and most of these funds sell to households in other villages as well. The proportion of households served varies directly with the age of the fund, compensation of fund managers and widespread ownership of farm land and inversely with village size and use of fund capital to make household loans. Except for the funds making loans, the operations of drug funds appear neutral on average in equity terms, that is, the households purchasing shares and receiving profit distributions (if any) are statistically indistinguishable from households buying from the fund, even though more households buy than own shares. Where the disparity is large; for example, when 80 percent buy, but shares are owned by the most wealthy 30 percent of households, the immediate consequences are not necessarily inequitable since capital raised from the wealthy lowers the cost of essential goods for all. In the longer run, however, high profits and limited share ownership will concentrate income and wealth. This is undoubtedly one reason why the MOPH offers an incentive for share ownership by 70 or 80 percent of households. And many drug funds have reached or exceeded these levels.

2.5.4 Diversification of Services

Drug funds are the most diversified of PHC funds in both sources of income and services provided to households. Diversification of income sources increases profits and fund capital. Increased profits and capital, in turn, are associated with diversification of services and with compensation of managers.

In the national survey, drug funds with diversified services were most active in nutrition (e.g. 43.8 percent of drug funds in the Northeast), second, in water and sanitation (e.g. 31 percent of drug funds in the Central region) and lastly in agriculture and other community development (e.g. 12 percent in the Northeast and 11 percent in the Central region). Drug funds in the Northeast are the most diversified in the services they provide; drug funds in the South the least (See Table 5.1).

In many cases, diversification of services is identical with diversification of income sources. Drug funds selling weaning foods, seeds and fertilizer are providing services in nutrition and agriculture and if prices and/or travel costs are thereby reduced and quality is equal or better, the benefits to households are real and significant.

In other cases, the diversification of services goes beyond sale of other goods. For example, the Ban Nong Bua Lon Drug Fund in Si Sa Ket province subsidizes the sale of supplemental food to households with malnourished children and makes loans to households for sanitation improvements and other purposes. Subsidizing the sale of supplemental foods clearly has positive distributional and equity consequences. But as will be clear in the analysis of sanitation funds, household loans tend to reduce the proportion of households receiving services and favor the wealthier households. Still, with diversification of both income sources and services, various and complex cross-subsidies with equity consequences impossible to predict in a cross-sectoral analysis undoubtedly occur. At a minimum, diversification indicates real community influence on fund operations, and fund managers sensitive to community interests and to opportunities for increasing fund profits and capital.

2.6 Summary: Prospects and Problems

Drug funds are now established in 33 percent of villages in Thailand and because many sell to households in other villages, effective coverage extends to a portion of 50 to 60 percent of the rural population.

Drug funds are the most successful of PHC funds by measures of viability, profitability, capital appreciation, diversification of income sources and services, and proportions of households contributing to and benefiting from fund activities. Because the capital raised from local sources usually exceeds the government contribution and because fund management is contributed on a voluntary basis or is paid out of fund operations a drug fund is a cost effective innovation for delivery of basic PHC commodities. Drug fund failures are relatively few. Government resources are at least matched by community resources in those funds which just stay even and are multiplied many folds in funds with capital appreciation. In either case no additional government capital is needed. The funds are self sustaining thereafter. There are incremental recurrent costs to the GPO as the drug fund spread. The study did not attempt to measure or analyze these costs. But it is probable that they are lower than the costs of alternative government schemes for provision of basic pharmaceuticals to rural households.

Funds which grow rapidly are potentially the most cost effective and also serve as a mechanism for transfer of a portion of general consumption and investment expenditures to the maintenance and support of PHC services. (The transfer may, of course, go the other way -- an issue which will be analyzed in the second phase of the study.) Rapid growth of the case study drug funds is correlated with diversification of income sources -- primarily the sale of consumers and producers goods -- with payment of fund managers, and with the quality of fund management.

The case study instruments asked Tambon Health Officers, fund managers, shareholders and clients to rank the success of the fund on a four point scale. Interviewers ranked the fund on the same scale. Success is correlated with the same variables as rapid growth and with perceived need for a drug fund in the village and with village characteristics such as small size, equitable land holding and relative isolation.

Successful drug funds are nonetheless found in villages without these characteristics and also in all regions of the country. Demand for pharmaceuticals is consistent across regions as is the potential for the substantial reduction of opportunity costs which give the funds a market advantage conducive to success. All of this, plus the demonstrated ability to diversify income sources and services makes the drug funds the better base than nutrition or sanitation funds for evolutionary development of multipurpose PHC funds.

Problems persist which merit government attention and intervention and further study. These include problems of management, training, social preparation, opportunity costs, and the possibility that some drug funds may increase rather than reduce abuse of pharmaceuticals and divert capital away from rather than in support of PHC activities.

3. Nutrition Funds

Nutrition funds are the second most widespread of PHC funds, accounting for 1,136 or 25 percent of the 4,631 PHC funds covered in the national survey. They are located primarily in the Northeast (45 percent of the national survey nutrition funds) and in the North (39 percent). Although there are regional variations, there are some common characteristics and problems. Nutrition funds tend to be located in smaller, poorer villages, except in the Central region. The funds are established to finance PHC interventions -- including nutrition surveillance, supplemental feeding and nutrition education -- which are currently important, but which will diminish in importance with the success of the funds and with economic and social development. Thus the duration of their activities is variable and uncertain from village to village -- particularly compared to drug funds or even sanitation funds where need and demand are more consistent, predictable and long term. This, together with the nature and structure of their activities, leaves the nutrition funds vulnerable financially. They have little financial basis for profitability or capital appreciation. As a result, the most successful nutrition funds by PHC criteria are just holding their own, are heavily dependent on labor contributions of women, and/or are slowly decapitalizing. Conversely, the most profitable of nutrition funds are often the least active in reducing malnutrition and the least successful by other PHC criteria.

Yet the nutrition funds finance and provide important PHC services with positive equity consequences. When serious malnutrition exists, nutrition interventions should not be constrained by lack of capital. Sanitation improvements can wait and be rationed by interest rates or waiting lists. Nutrition interventions should not. Thus there is an argument either for continued subsidy of nutrition funds by the MOPH, or for incorporation of nutrition activities into multi-purpose funds able to generate and sustain high levels of capital and capital growth from multiple sources of income.

3.1 Age and Origin of Nutrition Funds

Most nutrition funds have been in operation for only a year or less. (See Table 5.3.) The oldest funds are in the Northeast and the North. The median age of nutrition funds covered in the national survey in the South is only 9 months and in the Central 5 months. For this reason, statistical analysis of the national survey data concentrated on funds \geq 6 months in operation in the Northeast (n = 514) and North (n = 299). The case study nutrition funds (n = 29) have been in operation for an average of 17-18 months with a range of 10 to 47 months. They are among the most successful of nutrition funds. Their characteristics and problems are probably the best that can be expected of the newer funds, as they are currently structured.

Table 5.3: Characteristics of Nutrition Funds

Region	% of Funds with VIV's on Management Committee	% of Funds Compensating Managers	Median Working Capital in Balit	Median Age in Months	% of Funds Profitable	% of Funds Selling Other Goods	% of Funds With Other Income Sources	% of Households Contributing	% of Funds with Shares Purchased	% of Funds with Labor Contribution
North n=299 (≥ 6 months)	78.3	5.4	2,999	9	44.0	3.0	9.0	48.1	3.7	48.2
Northeast n=514 (≥ 6 months)	81.0	17.0	2,999	10	41.2	6.0	9.0	50.0	22.2	68.0
Central n=94 (all)	55.3	55.0	3,498	5	61.0	3.0	19.0	34.0	49.0	17.0
South n=85 (all)	82.4	16.5	3,003	9	51.8	3.5	2.4	38.5	23.5	40.0

Region	% of Funds with In-kind Contribution	% of Funds with Money Contribution	% of Households Benefiting	% of Funds Active in Drug Supply	% of Funds Active in Agriculture	% of Funds Active in Water and Sanitation	% of Funds Supporting Other Community Development	Average Village Population	% of Village Households with Electricity	Average Number of Stores per Village
North n=299 (≥ 6 months)	49.8	19.4	39.0	21.0	42.5	22.0	5.0	1,146	37.0	6
Northeast n=514 (≥ 6 months)	41.8	25.0	48.9	37.0	24.0	23.0	11.0	761	36.0	3
Central n=94 (all)	12.8	38.0	31.0	39.0	24.0	32.0	9.0	1,356	75.0	7
South n=85 (all)	20.0	27.0	38.5	21.0	22.4	15.3	4.0	1,082	22.9	N.A.

Most nutrition funds have been established at MOPH initiative. The Ministry supplies initial capital in the form of food stuffs and food processing equipment and packaging equipment with an approximate value of 3,000 Baht. There is also social preparation and some training in production and packaging of weaning mixes and other supplemental foods. Fund managers and tambon health officers interviewed in the case studies cited MOPH initiative as the most important factor in establishment of the nutrition fund (in 85 percent of the cases), followed by perceived need for nutrition activity in the village (37 to 40 percent), familiarity with other successful funds (37 to 38 percent) and training (27 to 28 percent).

Two of the case study nutrition funds were set up at local initiative with help from the Tambon Health Officer. One in Ban Seou, Si Sa Ket province was established because village perceived acute problems of child malnutrition. The other, in Cha Choeng Sao province was established more as an income generating scheme. The fund sells supplemental food packets to the provincial health office and other villages. The capital thus obtained is used to make sanitation loans. Both funds show local initiative and control but quite different perceptions of PHC priorities, and use of the same institutional mechanism and initial capital to quite different ends. This variation is seen in nutrition funds set up at government initiative as well.

3.2 Nutrition Fund Management

Managers and management of the nutrition funds differ in important ways from drug and sanitation funds. Like the other PHC funds management is by committee, and the most successful funds are those with highly dedicated and effective managers.

3.2.1 Characteristics of Managers

The managers of the nutrition funds are somewhat less prominent and less wealthy, younger, and more often women than the managers of drug funds. In the case study nutrition funds, the managers are 58 percent male, with an average age of 37 and average household income of 40,000 Baht per year. The managers were elected in more than 90 percent of the cases, the highest proportion of all PHC funds, and they serve for unlimited terms with very little turnover. VHVs are on the management committee of 78 to 82 percent of the nutrition funds covered in the national survey except in the Central region where the proportion is 55 percent. (See Table 5.3).

3.2.2 Patterns of Management

The various responsibilities are divided among nutrition funds committee members in the same fashion as the drug fund committees. However, in the successful nutrition funds, the key roles including leadership, motivation, food processing, packaging and sales are played by women. Six of the most successful case study nutrition funds -- Ban Seou, Si Sa Ket; Klongnumsai, Prachinburi; Ban Kuteen, Songkhla; Ban Phu Kao Thong, Narathiwat; Ban Or and Ban Erm, Lampang -- have management committee consisting primarily of members of the village's housewives group. Performance of funds with strong housewives group involvement is uniformly good. Other case study nutrition funds are successful because, although the management committees are still overwhelmingly male, the housewives groups have effectively taken over the critical fund operations, for example Kaolarn in Songkhla province. Two case study nutrition funds with all male management committees and no housewives group involvement have failed.

Good management, of course, is more than gender. In nutrition funds, it consists of motivating families with malnourished children to participate, to weigh their children and improve their diets. Above all it means contributing labor to the fund and encouraging others to do so. None of the managers of the case study nutrition funds is full time and only 4 percent reported that their responsibilities interfered with their regular occupations. Yet most contribute significant labor, foregoing leisure to subsidize the fund. In other cases, the more time-consuming functions are taken over by women not on the committee and the fund is subsidized by them. In all cases good management is associated with large contributions of labor and raw materials, but not necessarily with profit or capital accumulation. Good record keeping and accounting is more likely in villages with other successful funds -- good management by these measures is cumulative -- but the nutrition funds are not as sensitive to financial record keeping as other funds because they depend so much on contributed labor. They are sensitive to the role played by the Tambon health officer. An active health officer who supports nutrition surveillance and other fund activities can salvage a fund that might otherwise have failed. For example, a nutrition fund in Yan Sur, Satoon province -- in a Muslim community with a management committee consisting entirely of men -- is strongly supported by the Tambon health officer who is a woman and a trained midwife. The fund is a success. When the health officer is inactive, a fund is more likely to fail.

3.2.3 Compensation of Managers

Few nutrition funds compensate managers or others involved in fund activities and most of the compensation that is provided in kind, for example, free or subsidized food packets and soy milk. In the national survey, 17 percent of funds in the Northeast reported compensation, 16.5 percent in the South and 5 percent in the North. Central is the exception at 55 percent but the median age of the 94 nutrition funds analyzed there is only 5 months. It is doubtful that the proportion of managers compensated will remain that high. (See Table 5.3.) Three of the case study nutrition funds provide in kind compensation to committee members. Seven make monthly payments to workers and others involved in fund activities of from 10-900 Baht but much of this is purchase of ingredients -- rice, beans, fish, etc., for preparation of food packets. Statistical analysis of the national survey shows positive but weak associations between compensation of managers and fund profits and the percentage of households served in the Central Region and the South. No associations were found in the North and the relationships were inverse in the Northeast.

3.3 Nutrition Fund Capital

The median capital of the nutrition funds analyzed in the national survey was 3,000 Baht in all regions except the Central where the median was 3,500 Baht. (See Table 5.3.) The case study funds ranged from capital of less than 100 Baht to 8,000 Baht with an average of 2,100 Baht. (These last numbers are "cash on hand" and do not include the value of inventory and equipment.) The fact that the older case study funds do not on average show capital appreciation and may instead show some decapitalization is fully consistent with their being successful funds. Such is the characteristic of nutrition funds.

The initial capital from the MOPH, valued at 3,000 Baht, is supplemented by share purchases and other contributions from households. Share prices are low, ranging in the case study nutrition funds from 10 to 50 Baht -- the median nationally is close to 10 Baht. Shares were purchased by an average of 60 percent of households in the case study villages, with an average of 100 shares sold, or 1.4 shares per household buying. The average capital raised from sale of shares in the case study nutrition funds is 2,000 Baht. Share purchase reported by funds analyzed in the national survey was lower and varied considerably by region (see Table 5.3). There is much less variation, however, in the percentage of households making some kind of contribution - purchasing shares, donating

labor, materials or cash separate from share purchase. The aggregate for the North and Northeast -- regions with the most and oldest nutrition funds -- averaged 48-50 percent. Households purchase shares not out of an expectation of profit but rather out of social obligation, particularly respect for the Tambon health officer when she or he is active in monitoring and explaining problems of child malnutrition and in promoting the fund. It is not necessary to own shares to get fund services but contributions of labor and/or raw materials are usually required.

3.4 Nutrition Fund Profits and Viability

~~.....~~ Nutrition funds have obvious problems of viability, of simply maintaining capital. They have limited opportunities for increasing it which do not conflict or distract them from their basic mission. Very few are highly profitable and many that are, are no longer financing PHC activities in nutrition. In the national survey, "profitability" ranged from a high of 61% in the Central region to a low of 41% in the Northeast (see Table 5.3). However, in post interview pretests it was clear that "profitability" in this instance was understood as not losing money. Further, the percentage of funds reported profitable goes down with median age. Of the 29 case study nutrition funds, 6 are highly profitable, 4 are rapidly decapitalizing or have failed and 19 are holding their own or decapitalizing slowly.

In the national survey, it is clear that nutrition funds depend for their viability on household contributions of labor, raw materials and cash whether for share purchase or otherwise. Disaggregated contributions by regions are shown in Table 5.3. Particularly impressive are labor and raw material contributions in the Northeast and the North. Most of the labor is contributed by women. Most of the food stuffs contributed are grown -- in large part -- by women. Share purchase and money contributions are more important for a larger portion of funds in the Central region and the South. Few of the nutrition funds analyzed in the national survey report selling other goods (6% in the Northeast, 3% elsewhere); and few report sources of income other than sale of food packets, snack foods, soy milk, etc. (19 percent in the Central, 9% in the North and the Northeast and 2% in the South.) (See Table 5.3.)

Four case study nutrition funds make substantial profits selling food packets. These funds are found in villages with little or no malnutrition, in other words, well-to-do villages. The capital growth of these nutrition funds is explained by the fact that these villages were chosen or naturally emerged as supplementary food suppliers to villages without nutrition funds and to MOPH health centers and hospitals. Three examples are the nutrition funds at Baan Khao Laam, Thung Wang sub-district, Muang district, Songkhla province; Baan Tha Lad Tai, Tha Tharn sub-district, Phanom Sarakham district, Cha Choeng Sao province, and at Baan Non Toan village, Tha Song Khon sub-district, Muang district, Maha Sarakham province.

One case study nutrition fund in Ban Sri Don Chai, Mae Hong Son province had an annual profit of 131 percent and shows rapid capital appreciation earned by finance, production and sale of garlic. Another fund in Kong Jan, Buriram province has a profit of 74 percent per year earned by loaning its capital at an average interest rate of 60% per year. Finance of agricultural production and provision of rural credit are important activities. But they are not primary health care and their health consequences are indirect and eventual at best.

The remaining 19 case study nutrition funds stay even or are decapitalizing slowly. They are unable to make enough by selling prepared foods -- even when healthy adults develop a taste for them and buy them -- to increase or maintain capital -- to cover the degree of subsidy they provide in their pricing of fund packets for malnourished children. Some have become inactive or less active than the prevalence of malnutrition would require in order to preserve capital. In two sub-districts in the North, Tambon health officers are simply holding the capital, leaving the funds inactive, because the Provincial Health Officer has told them they will be held accountable for any decapitalization. Funds which remain active depend for their survival on continuing household contributions, particularly the labor of women, and occasional additional support -- such as food stuffs -- from the MOPH.

3.5 Nutrition Fund Services, Benefits and Prospects

The nutrition funds finance important PHC services under highly constrained circumstances. They serve and subsidize services for the poor without widely marketable products or other income sources adequate to support this activity. The funds that have solved the income problem have by and large given up providing the services. The surprise is not that the nutrition funds are in trouble. The surprise is that they work and persist as well as they do.

3.5.1 Fund Services

Nutrition funds support weighing of children under 5 years of age every three months. They produce and subsidize supplemental food packets for the malnourished, with beans and rice (or fish and rice in parts of the South) grown by the Agricultural Youth Group, or contributed by participating households or purchased. Some funds also produce soy bean milk for the malnourished and for sale to village day care centers and schools. The need for these services in 1981 was evident in the prevalence of malnutrition among pre-school children. (See Table 5.4). By 1984, the situation had improved, with particularly dramatic reductions in the prevalence of third degree malnutrition. (See Table 5.5). Some of the improvement in the North and Northeast is undoubtedly due to the nutrition funds. But the fact that there was also

improvement in the Central region and the South where nutrition funds are new and not widespread, together with the fact that malnutrition is still most prevalent in the Northeast where the funds are oldest and most numerous, indicates that levels of social and economic development over the three years have had an impact as well. This illustrates the uncertainty the nutrition funds face about how long their services will be needed. Many have made plans to diversify into other activities as the need drops and some have diversified already.

Table 5.4
Nutrition Surveillance of Preschool Children
March 1981

Region	Preschool Children	Nutrition Status (%)			
		Normal	First Degree Malnutrition	Second Degree Malnutrition	Third Degree Malnutrition
Northeast	434,090 %	188,160 43.35	170,442 39.26	65,635 15.12	9,853 2.27
North	68,693 %	32,208 46.89	25,370 36.93	9,361 13.63	1,754 2.55
South	65,575 %	35,142 53.59	21,826 35.28	7,380 11.25	1,227 1.87
Central	71,530 %	43,097 60.25	21,624 30.23	5,859 8.19	950 1.33
East-Central	32,009 %	19,090 59.64	9,349 29.21	2,930 9.15	640 2.00
Total	671,897 %	317,697 47.28	248,611 37.00	91,165 13.57	14,424 2.15

Table 5.5
Nutrition Surveillance of Preschool children
January 1984

Region	Preschool Children	Nutrition Status (%)			
		Normal	First Degree Malnutrition	Second Degree Malnutrition	Third Degree Malnutrition
Northeast	580,352	56.18	34.35	8.11	1.36
North	250,974	70.41	24.76	4.46	0.38
South	151,064	65.39	27.71	6.37	0.52
Central	189,317	77.10	20.64	2.15	0.11
East-Central	98,686	76.39	20.25	3.07	0.29
Total	1,270,393	64.77	28.53	5.90	0.80

Source: Nutrition Division, Ministry of Public Health.

The national survey confirms that there has already been some diversification of nutrition fund services (see Table 5.3) but the evidence from the case studies is that the new activity has replaced the nutrition activity before the need for it has ended. Nutrition activity has been replaced by finance of agricultural production, loans for irrigation improvements, sale of drugs, or sanitation loans. Diversification after nutrition problems have been reduced is desirable. Beforehand it is not.

3.5.2 Households Served

Nutrition funds -- for all their problems -- serve a high proportion of village households. This is largely because mothers with malnourished children are willing and able to contribute labor or raw materials to the fund and thereby receive fund services, particularly subsidized supplemental food packets, free to third degree malnourished children and below cost for second and sometimes first degree children. Whether the opportunity cost of the labor contributed is less or more than the value of the supplements obtained cannot be determined. Economies of scale and MOPH subsidies probably may make fund "prices"

more attractive; and more households contribute than benefit thereby enabling the funds to reduce "prices" -- in labor time and/or Baht -- still further. The percentage of households benefiting from the nutrition funds analyzed in the national survey ranged from 48 percent in the Northeast to 31 percent in the Central region. Households contributing ranged from 50 percent in the Northeast to 34 percent in Central region (see Table 5-3). The percentage of households benefiting from case study nutrition fund services averages 48 percent, the percentage contributing 60 percent.

3.6 Summary: Problems and Prospects

~~The nutrition funds are established to provide critical PHC services for which there is evident need and high demand (implicit in the labor contributions made). Most of the nutrition funds are new. Conclusions must therefore be tentative. Nonetheless, a few points seem clear. The nutrition funds have been effective in mobilizing community resources -- mainly labor -- for PHC activities in nutrition. This is because they offer reduced prices, and perhaps because they offer opportunities for socializing and interesting demonstrations. More households contribute than benefit so there may be some positive equity consequences in nutrition fund operations -- less because of the way the funds are structured than because of the strength of social obligation and social contract in Thai culture and villages. But without products or services to sell to higher income families and without prospects of profits to attract share purchases by these families, the nutrition funds serve mainly to mobilize the needy to help themselves. For these reasons, it is recommended that the nutrition funds experiment with products or services which would put them on a firmer financial footing -- for example, drugs -- or that nutrition activities be included in multi-purpose funds with incentives to insure that the activities -- which will never be money makers in themselves -- be retained until the need for them gradually disappears.~~

4. Sanitation Funds

~~Sanitation funds are the least numerous of PHC funds (except for health card funds), accounting for 12 percent or 538 of the 4,631 funds covered in the national survey -- half located in the Northeast. There are regional variations in working capital, profitability, interest rates, share purchase, and services, but the sanitation funds have some common characteristics. They tend to be located in larger and more prosperous villages than other PHC funds. The most successful funds charge interest rates close to market rates and concentrate loan on the construction of water-sealed privies. Many of the funds are undercapitalized relative to household demand for loans and relative to the cost of some of the water and sanitation improvements the funds are established to finance. Many charge no interest on loans, or rates way below market, and as a result have little profit or capital growth.~~

4.1 Age and Origin of Sanitation Funds

Because of high capital requirements and need for specialized training, almost all sanitation funds have been established by the MOPH or other outside agencies such as the Population and Community Development Association and the Accelerated Rural Development Project. Most have been in operation less than one year. (See Table 5.6.) The case study sanitation funds have been in operation for an average of 18 months, long enough for the characteristics of success and failure -- to become clear.

Sanitation funds are established with initial capital -- including construction molds, materials and, sometimes, cash -- from the MOPH or other sources. Training in construction of privies, well heads, water jars and rain-water cisterns is given to village craftsmen -- called "village sanitation craftsmen (VSCs)". Sample units are constructed as part of the training and as a way of generating household interest in the improvements. Some management training may be provided as well. Fund managers and Tambon health officers interviewed in the case studies cited MOPH initiative as most important factor in establishment of the fund (in 90 percent of the cases), followed by training (63 percent), perceived need for a sanitation fund in the village (42 percent) and familiarity with other successful funds (32 percent).

4.2 Sanitation Fund Management

Sanitation fund management is by committee, requires special skills, involves quite complex record keeping and more often interferes with manager's, principal occupations than is the case of managers of other PHC funds. Sanitation funds have, so far, also had fewer management problems than the other funds.

Sanitation fund committees consist mainly of older men of modest income, semi-retired from their principal occupations. In the case study sanitation funds, committee members are more than 85 percent male, with an average age of 44 and an average household income of 30,000 Baht. At least one village sanitation craftsman is a member of the committee but inclusion of VHV's is limited -- ranging from 36 percent of sanitation fund committees in the South to 46 percent in the Central region (see Table 5.6). Fund managers were elected in 75 percent of the case study sanitation funds; the remainder were appointed by District or Tambon health officers. All managers are shareholders and serve for unlimited terms with almost no turnover.

Table 5.6 : Characteristics of Sanitation Funds

Region	% of Funds with VIII's on Management Committee	% of Funds Compensating Managers	Median Working Capital in Baht	Median Age in Months	% of Funds Profitable	% of Funds Charging Interest (rate/yr. for those charging)	% of Households Contributing	% of Funds with Shares Purchased	% of Funds with Labor Contributions	% of Funds with In-kind Contributions
North n=52 ≥ 12 mos. in operation	65.4	0.0	3,100	13.5	63.5	61.5 (i=5.4%) (mode=15%)	34.5	15.4	67.3	1.0
Northeast n=100 ≥ 12 mos. in operation	60.0	23.0	3,030	13.8	41.0	34.0 (i=5.6%) (mode=18%)	38.1	30.0	12.0	2.0
Central n=50 ≥ 12 mos. in operation	46.0	6.0	11,971	18.2	14.0	8.0 (i=6.25) (mode=8%)	32.9	16.0	20.0	6.0
South n=36 ≥ 12 mos. in operation	36.1	0.0	20,999	6.5	41.7	41.7 (i=6.9) (mode=8%)	30.0	6.3	19.4	2.8

Region	% of Funds with Money Contributions	% of Households Benefiting	% of Funds with Other Sources of Income	% of Funds Active in Nutrition	% of Funds Active in Drug Supply	% of Funds Active in Agriculture	% of Funds Supporting Other Community Development	Average Village Population	% of Village Households with Electricity	Average Number of Stores per Village
North n=52 ≥ 12 mos. in operation	17.3	14.8	3.8	32.7	-	19.2	51.9	2,075	30.5	7.4
Northeast n=100 ≥ 12 mos. in operation	34.0	21.0	13.0	26.0	-	3.0	26.0	633	63.9	2.8
Central n=50 ≥ 12 mos. in operation	22.0	12.3	4.0	10.0	-	6.0	22.0	3,150	60.3	11.6
South n=36 ≥ 12 mos. in operation	16.7	8.5	8.3	16.7	-	0.0	33.3	2,225	29.9	11.1

4.2.1 Patterns of Management

Sanitation fund committees are responsible for four functions: construction supervision, accounting and record keeping, inventory control (including the construction molds, cement, sand and bamboo) and loan collection. The committee also sets interest rates and share prices and decides how to allocate loans if there is excess demand. Sometimes a lottery is held and sometimes the committee itself selects the recipients. The committee is often assisted and supported in all of this work by the Tambon health officer, when the officer is a man. The relationship is generally less close when the health officer is a woman, perhaps because this kind of construction is seen as "men's work" in some of the villages. There are exceptions: at Ban Seou, Si Sa Ket, for example, a female health officer helps maintain the accounts and records of the sanitation fund.

For most committee members, these responsibilities are not heavy and do not interfere with their other activities. But 18 percent of case study committee members did report some interference -- highest of all PHC funds. And, as in the case of drug funds, a heavy load often falls on one member of the committee -- on the village headman in Ban Tha Song Khon, Maha Sarakham province, on VSCs in Ban Tha Hād Tai, Maha Sarakham province and Ban Seou, Si Sa Ket province. These individuals devote full time to the fund often taking responsibility for all management functions. Funds with this level of management commitment are most successful, and benefit from a subsidy since few of these managers receive compensation equal to their opportunity costs. Other funds receive uncompensated help from monks, other development volunteers and other government officials.

These are public health and other opportunity costs (as in the case of drug funds) when the Tambon health officer and other government officials devote time to sanitation fund management. Other health activities and other households not involved in the sanitation fund get less attention; leisure time -- time with spouse and children -- is foregone.

4.2.2 Compensation of Managers

Few sanitation funds compensate managers in cash or in kind, for example free or subsidized construction materials. The national survey showed none providing compensation in the South and the North, 6 percent in the Central region and 23 percent in the Northeast (see Table 5.6). Case study estimates ranged from 6 to 13 percent. In only one case is the level of compensation high. At Ban Ta Loh Bukeh, Narathiwat province, a VSC on the committee manages the fund and the fund's construction as part of a larger construction business which he owns. The funds, activities reportedly contribute significantly to his profits.

There is another form of "compensation" which managers may receive, at least in the first year or so of the fund's operation. Only shareholders can borrow from the fund. Managers are shareholders and may have first call on fund capital for themselves, family or friends. Most funds do not charge interest. Those that do have modal rates of 8 to 18 percent per year compared to prevailing rural money-lender rates from 36 percent per year (a loan to a shopkeeper secured by inventory) to 60 percent per year (an unsecured personal loan). Thus a sanitation fund borrower -- of 3,000 Baht for a rain water cistern -- gets an interest windfall of up to 1,800 Baht if the repayment period is one year. If the loan is in cash -- rather than for a constructed improvement and at least a third of the case study sanitation funds loan in this fashion -- then compensation opportunities via arbitrage are also present. This may explain why most funds -- particularly the newer ones -- do not charge interest. The managerial job is demanding. A low or no interest loan for family or friends is at least partial compensation.

4.2.3 Managerial Problems

So far, the sanitation funds appear to have few management problems apart from dealing with excess demand for loans and undercapitalization. In the case studies, the financial records of the sanitation funds were better than those of drug and nutrition funds, confirming the cumulative effect of experience with other funds. A sanitation fund is usually the third PHC fund in a village. In the national survey, no loans were reported in default in the North, South and Central region; and only 4 percent of funds reported defaults in the Northeast. Overall, sanitation fund failures seem more traceable to village poverty and resulting in inability to purchase shares or borrow from the fund than to managerial problems.

4.3 Sanitation Fund Capital

The capital of the 238 sanitation funds analyzed in the national survey -- those longer than or equal to 12 months in operation in the North, Northeast and central region and longer than or equal to 3 months in the South -- ranged from 3,000 Baht in the Northeast to 20,000 Baht in the South. (There is probably a downward bias in these averages since some respondents may not have included equipment or loan portfolios.) The case-study sanitation funds for which good records are available -- 12 out of 19 -- have average capital of 18,000 Baht. The largest one has capital of 41,000 Baht.

Sanitation funds receive initial capital from the MOPH and other sources, including construction molds and building materials, valued at 3,000 to 5,000 Baht. Some of the case study funds also received cash ranging from 5,000 to 10,000 Baht.

4.3.1 Sale of Shares

The initial capital is supplemented by sale of shares. Share prices of sanitation funds are much higher than the share prices of nutrition and drug funds and the proportion of households purchasing them much lower. The average share price of the case study sanitation funds is 80 Baht and the proportion of households buying them ranges from 2 to 40 percent. In the national survey, the proportion of households purchasing sanitation fund shares ranged from 8.3 percent in the South to 30 percent in the Northeast. There are a number of reasons why sales of sanitation fund shares are low. The sanitation fund may be the third PHC fund in the village; many households may already have purchased shares in drug, nutrition and other funds reducing both the social obligation and the resources to purchase the (quite expensive) shares of the sanitation fund. For some households, social obligation is instead discharged by labor contributions. Poor households unable to borrow from the fund have little incentive to purchase a share giving them the right to borrow; and households not ready to borrow may postpone their share purchase until they are. If households perceive or anticipate favoritism in the allocation of loans, then the "right to borrow" value of the share is reduced. And the fact that most funds charge low or no interest reduces the chance of a household's receiving any return on share ownership other than the right to borrow.

4.3.2 Labor Contributions

Labor contributions are an important aspect of sanitation fund operations. In many of the case study villages, households contribute labor to help in the construction of sanitation improvements. The labor is contributed in the traditional pattern of "Long Khaeg" in which the households contributing receive only meals during the construction and the household benefiting is obliged to contribute labor in a like amount in the future. Thus the contributed labor accrues as increments to household capital (fixed improvements) on the part of the recipients and as obligations to contribute labor to the donors in the future. The fund is a mechanism for capital formation via labor contributions but the labor contributions do not increase fund capital.

4.3.3 Adequacy of Fund Capital

In absolute amounts, sanitation funds start with more capital than average drug or nutrition funds; but -- given their limited equipment and the cost of the PHC innovations they are to finance -- there is evidence of undercapitalization. First, most funds are supplied with only two sets of molds and no vehicle for transporting them from place to place. If need and demand are high, the fact that the fund can only construct sanitation improvements two at a time is clearly a significant constraint. In some villages, transportation delays add to the problem.

Second, the sanitation improvements are expensive and repayment periods fairly long. In the case studies, average costs and repayment periods are as follows:

<u>Average Cost</u>	<u>Repayment Periods</u>
Privy 500 Baht	6-10 months
Well head 1,000 Baht	10-12 months
Water jar 1,500 Baht	10-15 months
Cistern 2-3,000 Baht	12-24 months

With capital, in money, of 20,000 Baht, a sanitation fund loaning money could thus make an average of 50 privy loans, or 20 well head loans, or 13 water jar loans or 5 rain water cistern loans per year (if not constrained by the number of molds). If demand is high and for the higher priced improvements, then even 20,000 Baht in cash -- which few funds have -- would be inadequate and loans would have to be rationed.

Finally, there is evidence from the case studies of excess demand for loans. For funds loaning cash at zero or low interest this is hardly surprising. But excess demand is also found when the "loan" takes the form of a constructed privy, water jar, or cistern. In some cases there are complaints of favoritism in allocation of loans. In others -- where a lottery is used -- there is an incentive for eager and wealthy potential borrowers to, in effect, bid up the price of the "ticket"; that is, to set the share price high, and thereby limit the number of borrowers competing for loans. This may explain why sanitation fund share prices are high, and why capital raised from local sources and the number of households served are low.

4.4 Sanitation Fund Profits

Not surprisingly, many sanitation funds' profits are low or non-existent. Only those which charge interest close to the market rates and/or those able to use the molds, construction materials and skill training to supplement their income are highly profitable and show capital appreciation which, in turn, enables them to make more loans and serve a greater proportion of households. Forty percent of sanitation funds analyzed in the national survey reported making profits. The range was from 14 percent of funds in the Central region to 63.5 percent in the North. (See Table 5.6.) Half of the case study sanitation funds charge no interest, have no profits (except when involved in other activity) and pay no dividends to shareholders. Most sanitation funds do, however, seem so far to hold their own. There are few cases of decapitalization, default, dishonesty or failure.

In the national survey in all regions, the percentage of funds profitable is almost identical to the sum of the percentage charging interest on loans and the percentage with other sources of income (see Table 5.6). Statistically, the percentage profitable in the Northeast is explained by interest rates, compensation of managers, working capital, share purchase and the age of the fund ($R^2 = .52863$); and in the North, by interest rates, share purchase, working capital, the percentage of households contributing to the fund, and diversification into agricultural activity ($R^2 = .45450$.)

In the case studies, the most profitable funds are these which manufacture sanitation components and other building materials -- such as cement blocks -- for sale at a profit. Two funds, one in Cha Choeng Sao province and one in Roi-Et are doing this in addition to loans for construction of sanitation improvements to village households. The extra income supports and expands the activity they were set up to finance. In a third village, a poor one in Si Sa Ket province, manufacture and sale of cement blocks for profit is the only activity of the sanitation fund. Because of poverty and the inability of households to borrow and repay loans, there is here an inverse correlation between profitability and PHC services to households. In the long run PHC and the village households may be served. For the time being, shareholders and workers employed by the fund are the main beneficiaries.

4.5 Sanitation Fund Services

The most frequent activity of sanitation funds is loans for construction of water-sealed privies. There are the least expensive of the improvements the sanitation funds finance. More households can afford the loans, and the pay back period is short so more households can be served. In a few cases of highly profitable funds, construction of privies has spread throughout the village -- for example, at Ban Kuteen, Songkhla and Ban Seou, Si Sa Ket. Indeed at Ban Seou the fund is now supporting construction of privies in other villages as well. There has been less finance of the more expensive improvements and thus less potential impact from them on welfare and public health outcomes than is undoubtedly the case with privies. There has been some diversification of sanitation fund services, most notably in the North where activity in nutrition, agriculture and other community development is supported. This diversification correlates with working capital, profitability, with the percentage of funds charging interest on loans and the percentage of households owning shares. The case study sanitation funds are less diversified in the services they provide. And, overall, the sanitation funds are less diversified than drug or nutrition funds.

Sanitation funds are new. Some are undercapitalized and charge no or low interest. And all are set up to finance high cost improvements. For these reasons, the funds currently serve a small proportion of village households. The range in the national survey is from 21 percent in the Northeast to 8.5 percent in the South (see Table 6.6). The average in the case studies is 20 percent. Statistical analysis of the national survey data indicates that variations in the percentage of household served in the Northeast are explained by the percentage of households contributing to the fund, the age of the fund and the interest rate ($R^2 = .43294$); and in the Central region by the percentage of households contributing to the fund, diversification into agriculture and nutrition activities, working capital and profitability ($R^2 = .59632$).

Given the small proportion of households served and the nature of sanitation fund operations, there are significant issues and questions of equity. Wealthy households can afford the shares, and get loans which bear no or low interest. Some of the improvements require expensive homes to begin with, for example, a cistern will not work except with a tile, metal or other permanent roof. The funds are located and seem to work best in larger wealthier villages. (In very wealthy villages there is little need for or interest in sanitation funds; households purchase improvements directly.) Poor households cannot afford even the least expensive improvement -- a privy. And some poor villages cannot sustain a sanitation fund -- the few failures covered in the case studies occurred in poor villages.

4.6 Summary: Problems and Prospects

Sanitation funds finance PHC innovations for which there is evident need and strong demand. The funds are still new, most less than a year old. Conclusions drawn and recommendations made at this point must, therefore, be tentative. For example, it is to be expected that initial loans will go to wealthier households because a new fund must be risk-avoidant until its capital appreciates and it can tolerate the greater risks of delay or default. Still there are a few clear, if tentative, findings and recommendations.

Zero or low interest on sanitation loans is inconsistent with rural credit markets, with fund viability and growth and with equity objectives. Rationing of loans by favoritism, lotteries or queues is not conducive to share purchase, capital appreciation or equity. Market interest rates or near-market interest rates would be a better choice for all these reasons. Another option would be to auction loans in the fashion of the traditional "Wong Share". This would be highly conducive to share purchase, capital growth and to a lesser extent -- equity. Even with all the changes, the capital needs of the sanitation funds will remain high; only very slow construction of the more expensive improvements may be possible. If so, incorporation of the sanitation loan function into multi-purpose funds able to generate and maintain high levels of capital growth may be the preferable alternative.

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CHAPTER 6

HEALTH CARD FUNDS

1. Introduction

Health card funds constitute a major new initiative by the MOPH to influence and structure private rural demand for health services. The idea behind the funds is simple and inventive.

Health cards are sold at a modest price, affordable by most households. The card entitles households to treatment of 8 illness episodes a year and to MCH and immunization services. Points of first contact for treatment of illness are the VHV and the drug fund or the Tambon health center. Referral to a district or provincial hospital requires a letter or slip from providers at the lower level except in an emergency. With the slip, the card-holder is entitled to quick attention via a "green channel" or "express way" in the hospitals honoring the card. The money collected from sale of the cards is used to make loans to card-holders and, at the end of the year, to reimburse service providers.

In principle, health card funds will:

- * encourage the use of preventive services
- * increase the use of Tambon health centers, now often by-passed by rural families in favor of district or provincial hospitals
- * reduce congestion and waiting time for those referred to hospitals
- * raise capital--and by loans increase it further--to finance health services.

This chapter analyzes health card funds. The focus is on the experience to date, the affordability of the card, the incentives the funds create, and the implications for cost and cost recovery.

2. Experience to Date

The first health card funds were started at the end of 1983 in 18 villages in 7 provinces in the Central region, the North, the Northeast and the South. If the MOPH's goal for 1984 has been met, there are now health card funds in at least one Tambon in every province. The goal for 1985 is to have health card funds in at least one Tambon in every district.

There has been no MOPH evaluation of these funds as yet but seven were analyzed by the NESDB study of community finance of primary health care in April and May of 1984. The study interviewed Tambon health officers, fund managers on the health card fund committee (HCFC) including VHVs and village headmen, and a sample of card-holders. The study found important variations in prices, coverage and benefits among the funds but uniform enthusiasm for the funds among most card-holders.

Table 6.1 shows variations among four health card funds; one in each region. These funds are representative of the variations found by the NESDB and also reported by MOPH staff and others who have made site visits to health card funds.

There are variations in the price of the card, the coverage it provides and the number of people eligible to use it. In the Ratchaburi and Roi-et examples, a 200 Baht card limited to four specified family members--usually husband and wife and two children--is required for treatment of the 8 illness episodes. A 100 Baht card covers only MCH and immunizations. In the Songkhla example, a 100 Baht card covers everyone in the household for the total of 8 illness episodes. Only if the wife is pregnant is the cost 200 Baht. Not surprisingly, many of the card holders interviewed in Songkhla volunteered the prediction that the card would save them a lot of money.

There are also large variations in ceilings or limitations on coverage. The fund in Songkhla imposes none except the referral slip. The fund in Roi-et excludes certain diseases from coverage. The fund in Lumpoon imposes Baht ceilings on hospital coverage. A fund in Tambon Huay Sai, Mae Rim District, Chiang Mai, imposes a ceiling of 2,000 Baht of patient charges per household per year. Such differences create different incentives for households, and will affect costs and cost reimbursement of providers.

Table 6.1

Health Card Funds: Variations in Price, Coverage, Benefits, and Use of Capital

Fund Characteristic	Price of the Card and Eligibility	Coverage	Requirements, Limitations, and Ceilings	Other Benefits	Use of Capital (in the first year)
Tambon Numkao, Jana District, Songkhla Province, South	- 200 B: households in which wife is pregnant - 100 B: all other households	- MCH - all immunizations - free treatment of 8 illness episodes/yr. - free pharmaceuticals for hospital patients	- referral slip needed to use card at district and provincial hospitals	- eligible for loans - unused card renewable for one more year - 10% discount at village drug fund - "green channel" at district and provincial hospitals	- 50% for loans, (managers to receive 3% of the profits of loans) - 50% to reimburse service providers
Tambon Hong Tho, Photharam District, Ratchaburi Province, Central	- 200 B: 4 specified family members - 100 B: mother and children	- same as above - MCH and immunizations only	- 70% of household must purchase card - households with more than 4 members need to buy a second 200 B card to be covered - referral slip needed	- same as above, except - unused card is renewable 2 times - incentive payment for non-use of the card	- 40% for community development and loans - 35% for reimbursement of health center and hospitals - 10% for reimbursement of individual providers - 15% for management of the fund
Poi-et Province, Northeast	- Same as above	- Same as above	- Same as above except: - Card does not cover treatment of diabetes, heart disease, VD, or alcoholism	- same as above	- same as above
Tambon Mafrang, Farsang District, Lumphoon Province, North	- 200 B: households in which wife is pregnant and 1 or more children are under 5 - 100 B: all other households	- MCH - all immunizations - free treatment of 8 illness episodes and free pharmaceuticals in hospitals subject to ceilings	- referral slip req'd - card holder pays outpatient hospital charges in excess of 50 B per visit - card holder pays inpatient hospital charges in excess of 300 B per stay	- eligible for loans - 10% discount at village drug fund - "green channel" at district and provincial hospitals	- 40% for loans - 60% for reimbursement of providers

Sources: Songkhla, Poi-et, and Lumphoon from HESDB study of community financing of primary health care; Ratchaburi from: Terrence P. Tiffany and Namtr Tims, "Field Trip Report--Primary Health Care Financing," USAID Bangkok, Sep. 1994.

There is significant variation in how the funds treat unused cards. Unused cards may be renewed once in Songkhla, twice in Roi-et and Ratchaburi, and not at all in Lumpoon. As a result, the Lumpoon example is a full "pooled risk" fund, the others are not. This too, creates different incentives and affects costs and cost reimbursement.

Finally, there is some variation in use of capital. MOPH guidelines suggest that in the first year a fund set aside 40 percent for loans or other community activity to increase fund capital, and 60 percent for provider reimbursement and fund management. The proportions are to be 20 percent and 80 percent in the second year and 10 percent and 90 percent in the third. However, given that most funds do not reimburse providers until the end of the year, a fund could loan most or all of its capital on short term in the interim. The HCFC has the discretion to set loan terms and alter allocations among providers in consultation with them. The HCFC will doubtless face contending pressures and objectives--for loans on the part of card-holders and reimbursement on the part of providers; for maintenance of fund capital and maintenance of the good will and cooperation of hospitals. These pressures are not felt in the first year. The first reimbursement has not occurred and all or most of the capital is available for loan. Most managers and card-holders interviewed by the NESDB were enthusiastic about the funds.

Some problems, however, were reported and these are worth reviewing for the insight they provide on how the funds might be improved. Some managers complained that card-holders were still bypassing Tambon health centers by obtaining referral slips from drug funds and VHVs. New health card funds are to be organized at the Tambon level rather than the village level and will be managed by a Tambon HCFC. Centering referral slips at the health center would eliminate the abuses but might increase travel costs and might unduly reduce the roles which VHVs and drug funds play in primary curative care. The trade-offs need to be analyzed.

Some card-holders were worried about how an "illness episode" was to be defined, what constituted "an emergency" if the VHV or the Tambon health Officer was unavailable to authorize a referral slip, and what would happen if they had to be transferred to a hospital not in the plan. Clear definitions and procedures are needed. Other card-holders complained that there were too many referral steps and high travel costs to get to them. The price of the card might need to be adjusted for travel costs for the referral system to work. This, too, needs to be analyzed.

Still other card-holders complained of having to keep track of yet another I.D. number, and of the fact that some hospital staff were not yet familiar with the card and the "green channel" provisions. These are predictable start-up problems and should not persist, in the near term at least, as the funds and the cards become more familiar. And none of the problems reported dampened the enthusiasm of most card-holders for the benefits the card will provide or the loans available from the fund.

The evidence from experience to date, then, is that the funds are a popular innovation in health care finance with notable and significant variations in price, coverage and benefits, and with some early problems that point the way to needed or possible improvements. The remaining sections of the chapter look in more detail at affordability, incentives and viability, costs and cost recovery.

3. Affordability

This section analyzes the affordability of health cards. The focus is on the 200 Baht card and on two questions: is the card affordable by rural households at different income levels and in different regions, and would higher priced cards be affordable now or in the future?

Affordability can be assessed first of all from the experience of health card funds already established for which sales records are available. The proportion of village or Tambon households purchasing cards from health card funds in 5 Tambons in 5 provinces is as follows:^{1/}

Tambon Numkao, Songkhla	100%
Tambon Tubkarang, Petchaburi	95%
Tambon Nong Pho, Ratchaburi	90%
Tambon Tubkarang, Petchaburi	88%
Tambon Huay Sai, Chiang Mai	62%
Tambon Mae Raeng, Lumpoon	55%

Clearly, the card is affordable by households in these Tambons in the Central region and the South. None of the villagers interviewed by the NESDB study in these regions or in the Northeast reported any problems with the price of the card. The fund in Songkhla charges only 100 Baht for the 8 illness card except when the wife is pregnant. It is little wonder that all households there have purchased cards.

^{1/} Source: Case study data form; NESDB, study of community finance of primary health care, 1985. Data for Tambon Nong Pho, Ratchaburi, from Tiffany and Tima, op. cit.

The proportion purchasing cards in the two Tambons in the North is lower but the problem there isn't price. In Tambon Mae Raeng, Lumpoon province the 8 illness card costs 100 Baht except when the wife is pregnant and the household has children under 5. Villagers interviewed in the NESDB study reported that the cards were easily affordable but less attractive because of the ceilings which the fund imposes on out-patient and in-patient coverage in hospitals, and because the card is not valid at the McCormick hospital, a Seventh Day Adventist hospital in Chiangmai which they prefer to the MOPH hospitals. The fund in Tambon Huay Sai, Chiang Mai Province, charges 200 Baht for the card covering eight illness episodes and has a much higher ceiling on hospital coverage. Villagers reported no problems with the price or the ceiling, but some prefer to use the McCormick Hospital rather than purchase the card.

The evidence from these early funds, then, is that the card is purchased by most rural households, but that sales are sensitive to limitations on coverage and to competition from private sector providers.

Affordability can also be inferred from the household surveys. At the national level, the NSO survey found average monthly health expenditures by village households in 1981-82 of:

Drugs purchased in drug stores:	36 Baht/mo.
Medical care:	63 Baht/mo.
Total health expenditures	99 Baht/mo.

When annualized and corrected to 1983 Baht, these numbers yield estimates of national average health expenditures by village households of:

Drugs purchased in drug stores:	450 Baht/yr.
Medical care:	788 Baht/yr.
Total health expenditures:	1,238 Baht/yr.

The estimates suggest that in 1981-82, the average village household was already spending nearly 4 times the cost of a 1985 health card on medical care and more than 6 times its cost on health services as a whole. For the average rural household in 1985, the 200 Baht card is clearly affordable.

That this is also true for an average rural household in each region is shown in Table 6.2. Estimated annual expenditures for an average rural household in the Central region are higher than the national averages for rural households, and the estimates for the Northeast only slightly below. (Indeed, both sets of estimates are higher than the averages for households headed by "general workers" in Bangkok).^{1/} In all regions in 1981-82, estimated average rural expenditures for medical care were 3 to 4 times the cost of the 1985 health card and total health expenditures 5 to 8 times the cost of the card.

Table 6.2

Estimated Average Annual Health Expenditures:
Rural Households, 1981-1982 (1983 Baht)

Region	Health Expenditures		Total Health Expenditures
	Drugs Purchased in Drugstores	Medical Care	
North	406	772	1,178
Central	608	1,135	1,743
South	476	674	1,150
Northeast	480	786	1,266

Note: Calculated from NSO, Socio-Economic Survey, 1981-82.

^{1/} The comparable estimates for these Bangkok households are drugs 524 Baht, medical care 719 Baht, total 1,243 Baht. Calculated from: NSO, Socio-economic Survey, 1981-82.

Another approach to analyzing the affordability of the card is to look at what households are willing and able to pay when a family member is ill. The card covers eight illness episodes in a year. The Community Household Survey in 1981 asked each household what they spent in the past month if the wife or husband was ill. Forty-two percent of rural households reported illness and purchased services during that month. Table 6.3 shows that average monthly expenditures ranged from 252 Baht in the Northeast to 566 Baht in the South--in all regions more than the cost of the card and in all regions except the Northeast more than 2 1/2 times the cost of the card. Monthly expenditure for care at MOPH and other government facilities exceeded the cost of the card in the South; expenditures for care at private facilities exceeded the cost of the card in all regions except the Northeast. Total health expenditures as percentages of monthly household income were:^{1/}

North	19.9%
Central	12.6%
South	22.5%
Northeast	24.0%

These are high proportions notwithstanding the fact that health expenditures for children during the month were not recorded. The numbers suggest that some households may have had to borrow money, sell land or other assets or otherwise jeopardize the future financial status of the household to pay for medical care.

The evidence is strong, then, that the health card is easily affordable for the average rural household in each region and that average medical care expenditures in one month four years ago exceeded the annual cost of the card when the wife or husband was ill.

But is the card affordable by households at or below the poverty line? The Free Medical Service Project--the "free card" program--set this line at an income of less than 2,000 Baht per month for a married couple in 1976. Corrected to 1981 Baht, this is a monthly income of less than 3,442 Baht at the time of the NSO survey.

^{1/} Calculated from: MOPH and Mahidol University, Community Household Survey, 1982.

The NSO survey divided rural households into three expenditure groups, as follows: (1) less than 500 Baht per month, (2) 500 to 2,999 Baht per month and (3) more than 3,000 Baht per month. Households in the first group accounted for less than 1.5 percent of all rural households. Households in the second group accounted for between 58 and 78 percent of rural households and if it is assumed that monthly expenditures are approximately equal to monthly income, all are below the inflation-adjusted poverty line set by the free card project.

Tables 6.4 and 6.5 show that these households in 1981-82 were spending an estimated average of 3 to 5 times the cost of the 1985 health card for health services as a whole, and 1.6 to 2.9 times its cost for medical care.

The tables also show that for rural households with total monthly expenditures above 3,000 Baht, the card is a bargain. In 1981-82, these households were spending an estimated average of 7 to 12 times the cost of the card for medical care and 10 to 16 times its cost for health services as a whole. In all the regions except the South, these households spent more per month for health services than the annual cost of the card.

A final approach to analyzing the affordability of the card is to look at households by occupations.

The NSO household survey classified rural households by occupation of the head of the household. The classifications were (1) farm operator owning land, (2) farm operator renting land, (3) entrepreneur in trade or craft, (4) professional, technical or administrative worker, (5) farm worker, (6) clerical, sales or service worker, (7) production or construction worker, (8) general worker, and (9) economically inactive. With the exception of farm workers in the Central region, and farm workers and general workers in the South, none of the household groups classified by occupation had average monthly expenditures for health or medical care lower than the households classified as "lower income" in each region in Table 6.5. The exceptions constitute 10.7 percent of rural households in the Central region and 10.5 percent in the South. Their estimated annual health expenditures are shown in Table 6.6.

Farm worker households in the Central region and the South can afford the card. Indeed, they could have afforded a 300 Baht card in 1981-82 without shifting any expenditures from drugs to medical care. General worker households in the South spent an estimated average of only 93 Baht per year for medical care. They could not have afforded the card without a shift of expenditures from drug purchases to medical care. Still their total health expenditures--largely for drugs--averaged more than 2 times the cost of the card.

Table 6.3

Average Monthly Household Health Expenditure
by Community Type and Region, 1981

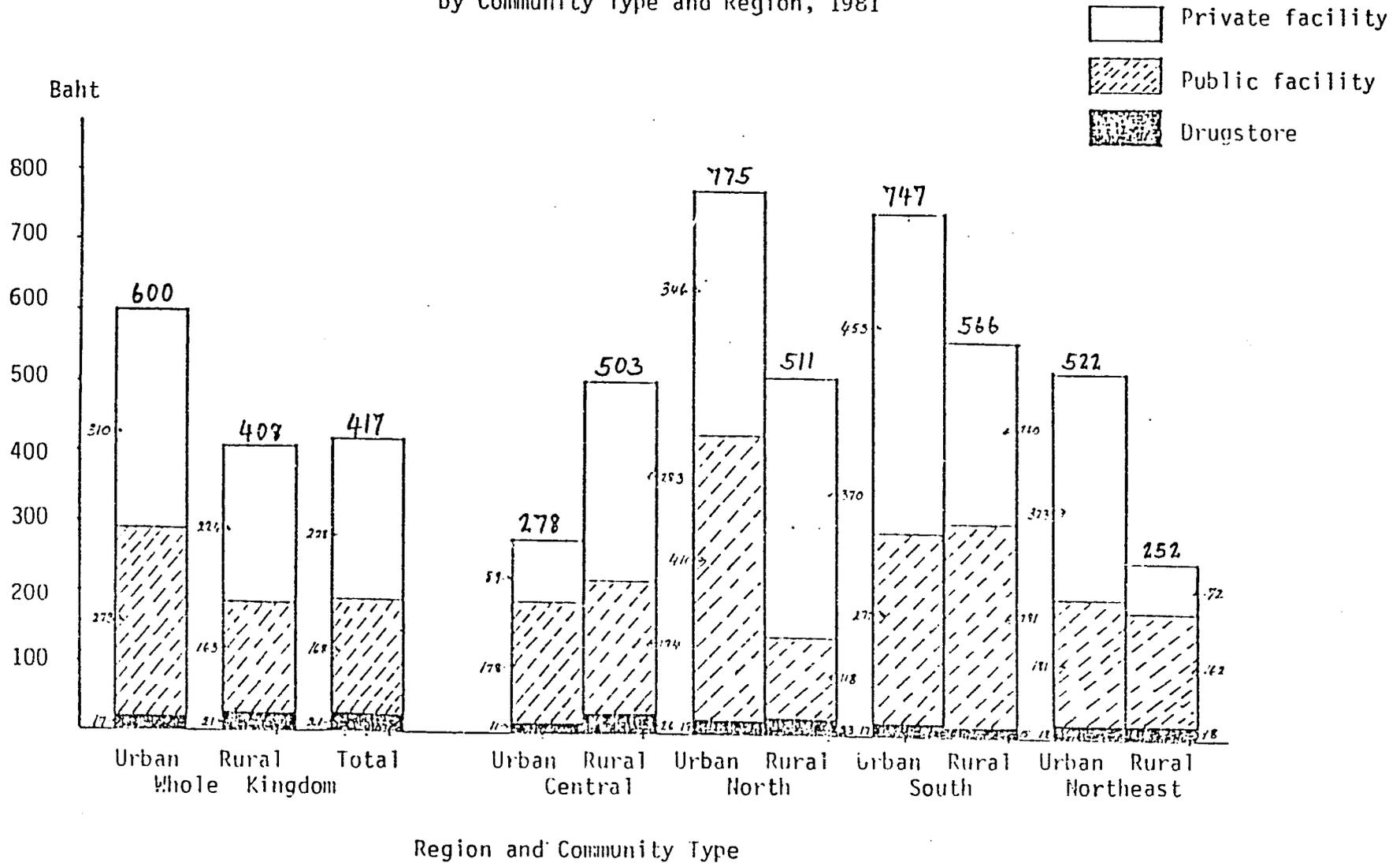


Table 6.4

Average Monthly Health Expenditures of Rural Households:
by Expenditure Groups; 1981-82
(1983 Baht)

Region	Total Monthly Expenditures		
	< 500 B	500-2,999B	> 3,000 B
<u>North: Villages</u>			
Percentage of all households	0.7%	77.6%	21.7%
Average expenditure for drugs	9 B	27 B	45 B
Average expenditure for medical care	-	30 B	154 B
Total average health expenditure	9 B	57 B	199 B
<u>Central: Villages</u>			
Percentage of all households	0.6 %	58.1%	41.3%
Average expenditure for drugs	11 B	36 B	59 B
Average expenditure for medical care	-	43 B	143 B
Total average health expenditure	11 B	79 B	202 B
<u>South: Villages</u>			
Percentage of all households	1.1%	65.2%	33.7%
Average expenditure for drugs	7 B	29 B	49 B
Average expenditure for medical care	-	25 B	103 B
Total average health expenditure	7 B	54 B	152 B
<u>Northeast: Villages</u>			
Percentage of all households	1.4%	78.6%	20.0%
Average expenditure for drugs	10 B	31 B	56 B
Average expenditure for medical care	5 B	27 B	188 B
Total average health expenditure	15 B	58 B	244 B

Source: NSO: Socio-economic Survey, 1981-82.

Table 6.5

Estimated Average Annual Health Expenditures:
Rural Households by Regions and Income Levels, 1981-1982
 (1983 Baht)^{1/}

Regions	Income of Households	
	Lower Income ^{2/}	Upper Income ^{3/}
<u>North</u>		
Percentage of all households	77.6%	21.7%
Average expenditure for drugs	366 ₪	609 ₪
Average expenditure for medical care	406 ₪	2,085 ₪
Total average health expenditure	772 ₪	2,694 ₪
<u>Central</u>		
Percentage of all households	58.1%	41.3%
Average expenditure for drugs	487 ₪	797 ₪
Average expenditure for medical care	581 ₪	1,933 ₪
Total average health expenditure	1,068 ₪	2,730 ₪
<u>South</u>		
Percentage of all households	65.2%	33.7%
Average expenditure for drugs	383 ₪	648 ₪
Average expenditure for medical care	330 ₪	1,361 ₪
Total average health expenditure	713 ₪	2,009 ₪
<u>Northeast</u>		
Percentage of all households	78.6%	20.0%
Average expenditure for drugs	413 ₪	746 ₪
Average expenditure for medical care	360 ₪	2,505 ₪
Total average health expenditure	773 ₪	3,251 ₪

^{1/}Calculated from: NSO, Socio-economic Survey, 1981-82.

^{2/}Defined as households with monthly expenditure of 500-2999 ₪ in 1981-82: households with expenditure < 500 ₪ are excluded--see Table 6.4.

^{3/}Defined as households with monthly expenditures of > 3,000 ₪ in 1981-82.

Table 6.6

Estimated Average Annual Health Expenditures
Rural Households, Low Income Occupations,
Central Region and South, 1981-82 (1983 Baht)

Region and Occupation	Health Expenditures		Total Health Expenditures
	Drugs Purchased in Drugstores	Medical Care	
Central: Farm workers	527	433	960
South: Farm workers	357	304	661
General workers	357	93	450

The analysis of the household survey data confirms that:

- * the 200 Baht card is affordable---even a bargain---compared to the average annual medical care expenditures of rural households 3 to 4 years ago in all regions.
- * the 100 Baht card is obviously all the more affordable, priced way below what the average rural household was willing and able to spend for medical care 3 to 4 years ago.
- * either card is priced below what families spent in one month in 1981 for medical care when the wife or husband was ill.
- * the cards are affordable by most households below the poverty line and by most households in low income occupations.
- * there are clear incentives for households to purchase the card even if it is not renewable.
- * given that household income has increased by 6 to 11 percent since the surveys, there would be ample incentives for most households to purchase a card priced at 300 or 400 Baht, and for upper income families to purchase a card priced higher than that.

- * a very small proportion of large households would have trouble affording higher-priced cards and perhaps even the 200 or 100 Baht cards. An example is "general worker" households in the South that spent an average of less than 100 Baht for medical care and had an average size of 5.3 members in 1981-2. Continuation of the free card project or a subsidized health card purchased in part by labor contributions may be necessary in such cases. However they constituted only 1 percent of rural households in the South in 1981-2.

- * the poorest 1-2 percent of rural households in all regions--defined by total monthly expenditures of less than 500 Baht--had annual estimated health expenditures, mainly for drugs, of 93 Baht (South, expressed in 1983 Baht) to 199 Baht (Northeast) in 1981-2.^{1/} These households may find the 200 Baht and 100 Baht cards too expensive and/or unaffordable. On the other hand, most of these households are very small, with average sizes of 1.6 to 1.7 members. A health card covering 4 or more people and 8 illness episodes may not be appealing or appropriate in these cases; a less expensive card covering fewer illness episodes may be needed instead.

4. Incentives and Viability

Health card funds alter incentives for use of health services. This section analyzes the probable effects of those incentives on rural households and on the long-term viability of the funds.

The card is priced below what most households were spending for medical care before the funds were established. If the card covers all the medical care a household would have purchased otherwise, then the effect of the card is to reduce the "price" or cost to households of medical care by the difference. Based on 1981-82 expenditures for medical care, an average rural household would save 588 Baht if the card cost 200 Baht, and 688 Baht a year if the card is 100 Baht. A lower income household in the Northeast would save 160 Baht a year if the card is 200 Baht, and 260 Baht a year if the card is 100 Baht. These reductions in cost to households are large -- ranging from 44 to 87 percent -- and the 1985 savings are doubtless larger still. Reducing costs by the magnitude will increase demand, and shift demand from private providers back to public ones.

^{1/} Estimates are based on average annual medical care expenditures of 788 Baht in 1981-82 for all rural households, 360 Baht for lower income households in the Northeast; see p. 111 and Table 6.5 above. All numbers are corrected to 1983 Baht.

Limits on the number of people covered, exclusion of certain diseases, and ceilings on allowable charges could reduce the savings to households. Lack of a clear definition of what constitutes an illness episode could potentially increase them. In any event, a household has an incentive to limit its use of services to what the card will cover. There are incentives, to be analyzed below, to not use the card at all except for immunizations and MCH. But once used for curative care, there are no incentives not to use it for as much as it will cover other than lack of need and travel and opportunity costs.

The evidence from the household surveys is that lack of need will probably not limit use of the cards. In Chapter 4, illness and use of health services in a one-month period were analyzed from the CHS studies of 1979 and 1981. In 1979, 75 percent of rural households reported illness and contact with health services in one month, this is an annual rate of nine illnesses for which some kind of care was sought. In 1981, 42.3 percent of rural households reported illness of wife or husband and contact with health services; this is an annual rate of 5.1 illnesses of wife and/or husband alone for which care was sought. Some households each year will have a run of good health and reduced or no need for curative services. Others will have only minor problems and if the card is renewable or the fund offers other incentives, will choose not to use it and self-treat or pay out-of-pocket instead. Because need is unpredictable and inpatient hospital care is the most expensive of services, households do have an incentive to go easy with the card in the early months of the year and keep one or several "illness episodes" in reserve depending on how they are defined. This would reduce demand for treatment of minor complaints, but its overall impact on demand, particularly demand for expensive hospital services, is likely to be small.

The main incentive, perhaps the only incentive, to use the card at the health center is to get a referral slip. Direct patient charges in health centers are low. (Cost recovery from patient fees in 14 health centers studies in 1979-80 ranged from 0.6 percent to 27.6 percent; 9 of the 14 recovered less than the 10 percent of their costs, and most patient fees were for pharmaceuticals.^{1/}) A household may well prefer to pay out of pocket rather than "waste" an illness episode at the health center if the health problem for which care is sought is perceived to be minor.

1/ MOPH, Study of Cost of Rural Health Facilities in Thailand, pp. 186-188.

Travel and opportunity costs may have more of an impact. The travel costs described in Chapter 4 are a constraint to the use of hospital services that the health card does not reduce. Indeed, by requiring a visit to the health center before referral to a hospital, the card may increase travel and time costs of patients and family members who accompany them above what these costs would have been had the travelers gone directly to the district hospital. On the other hand, the card eliminates direct costs of hospital services including, in most cases, pharmaceuticals; and the "green channel" reduces waiting time. The net effect is hard to predict and should be analyzed, but again is likely to be small.

On balance, then, the modest price of the card may increase demand for services. A price effect is combined with an income effect: the card reduces costs to households at the same times as household incomes are increasing and consumption is shifting from self-treatment with pharmaceuticals to medical care. Increases in demand could be large. This would include demand for preventive services which otherwise entail patient charges, as well as increased use of free preventive services because more people are going more often to health centers for curative care. The health centers cannot be bypassed if they retain control of referral authorizations. Patient load at a health center in Khon Kaen, visited in November 1984, for example, has doubled since the start of the health card fund. Importantly, the number of patients referred to the district hospital from the covered communities is also higher -- and increasing -- than the number who came on their own before the fund. A long-term threat to the viability of this fund and other funds which generate increased demand at the higher levels of the referral system is that they will be unable to provide reimbursement judged adequate by the hospitals to which the patients are sent. A related threat is that reimbursement -- and MOPH support -- will not enable supply to keep pace with demand, leading to crowding, dissatisfaction, reduced card purchase, decapitalization, and failure of the fund.

In addition to modest price, health card funds offer other benefits to households including loans, renewal of unused cards, incentives payments for non-use, a 10 percent discount at village drug funds and reduced waiting time in hospitals.

Loans are perhaps the most important other benefit to households and also a way to increase the capital of the funds. Households with cards in Tambon Numkac, Songkhla Province, for example, can borrow up to 1,000 Bant for a maximum of ten months on the signatures of 3 members of the HCFC and the signature of a co-maker who has also purchased a card. Up to 2,000 Bant may be borrowed for ten months with these signatures if collateral is provided. The interest rate is 3 percent per month. (The fund in Tambon Huay Sai, Chiang Mai province, charges a rate of 2 percent per month). Loans are to be used for sanitation improvements, finance of

crop production or any other activity which in cost and duration is consistent with repayment in 10 months. The fund can, in principle, loan all of its capital for 10 months, because it reimburses service providers only once a year. In practice, some reserve would be kept and loan demand, if it reflects agricultural cycles, might be uneven or out of phase, with the calendar of the fund. However, if loans range from 1,000 to 2,000 Baht and the card is sold for 200 Baht, only 10 to 20 percent of households can borrow from the fund the first year, even if all the capital is loaned. And given that rates charged by money lenders are substantially higher, loan demand may be high -- perhaps higher than the fund can satisfy.

Certainly a household obtaining a loan gets not only the loan but an interest windfall as well. As was clear in Chapter 5, rural interest rates on unsecured loans are 5 percent or more a month. On a 1,000 Baht loan at 3 percent per month for 10 months, the interest windfall is 200 Baht, at 2 percent per month the windfall is 300 Baht -- equal to or greater than the full cost of the card. Savings of this magnitude will increase demand for loans. Excess demand for loans would enable households who do get them to realize the windfall in cash by reloaning the money at market rates. The availability of loans at these rates is a powerful incentive to purchase a card. Preferential access to loans might provide a substitute incentive for non-use of the card. Alternatively, loans could be auctioned particularly the first year, or otherwise priced at market rates, to increase fund capital more rapidly. In subsequent years, a fund might offer a mix of subsidized and market-rate loans.

Non-use of the card is currently to be encouraged by two other incentives -- renewal of an unused card (one or two times), and/or payment of a non-use premium at the end of the year. Not all health card funds offer these incentives. The health card fund in Tambon Nong Pho, Ratchaburi province, offers both.

Incentives for non-use are important for cost containment, to reduce the demand for care which the modest price of the card may generate. But renewal of unused cards is probably not the right incentive to offer. Renewal reduces fund capital and reimbursement of providers by eliminating most pooling of risk. (There is still some because the card is not renewed indefinitely.) Payment of a premium at the end of the year for unused cards that are not renewed or can no longer be renewed is undoubtedly better. In Ratchaburi, for example, 3 percent of fund capital is to be set aside and divided among households with unused cards at the end of the year. This particular arrangement may create some undesirable incentives since the amount of the premium per household will vary inversely with the number of unused cards. Non-users have an incentive to encourage other households to use the card, and if the premium is low or expected to be low, the incentive to use the card is increased. While a different arrangement might eliminate these problems, any premium system will still deplete fund capital available for loans in the subsequent year.

For that reason, preferential access to loans with interest rates below market may be the best incentive to offer for unused cards. The borrowing household gets the loan and a savings on interest which may equal or exceed the cost of the card. But its interest payments add to fund capital and it must purchase a new card for the new year. If there is more capital to loan than households with unused cards to borrow, then the remainder of the capital could be loaned at higher rates, or loans could be auctioned if demand is high, in order to increase fund capital. Higher rates would, of course, reduce one of the incentives to purchase card. But the modest cost of the card, even if priced at 300 or 400 Baht, may be incentive enough.

Another benefit for households who purchase a card is a 10 percent discount at the village drug fund. In 1981-82, this would have been worth 45 Baht in savings a year for the average rural household, 37 to 48 Baht a year for lower income households in the different regions and 60 to 75 Baht a year for upper income households.^{1/} Savings in 1985 will be only slightly higher since demand for drugs is income inelastic and consumption is shifting from drug purchase for self-treatment to medical care. Still, the savings are significant and increase the appeal of the card.

The problem with this incentive is that it may threaten the viability of the drug funds. It does so for two reasons. It reduces the profit margin of drug funds from 30 to 20 percent and it withholds any reimbursement of the drug fund until the end of the year. Drug funds restock several times a year. With reduced profits and delayed or no reimbursement, some funds will be unable to restock, will lose customers and eventually fail. This will increase the cost of drugs for all households by the travel costs to alternate public sources or the higher prices of private ones. Clearly a 10 percent discount in an intermittently stocked or failing drug fund is not worth much. Even the full 10 percent is probably not worth the risk of jeopardizing the most successful of local institutions for financing primary health care. The modest cost of the health card may, again, be incentive enough.

A final benefit to households who purchase a card is reduced waiting time via the "green channel" in district and provincial hospitals. Some villagers interviewed in the NESDB study reported that hospital staff were not yet familiar with the card, that the green channel was not set up, or that it did not reduce waiting time. Some hospital staff familiar with the card do not like giving special treatment to card holders over other rural patients and urban patients. But where the green channel works, waiting time is reduced by at least two to four hours and card-holders are delighted. They still have to pay the travel costs

^{1/} Calculated from p. 112 and Table 6.5 above.

which limit use of hospital services by rural families, but they no longer have to wait in the long queues which ration services to all other patients. This is a significant benefit and incentive to purchase the card. The question is, will it continue as health cards spread and more and more households have cards? One estimate is that a provincial hospital will have 80-100 referrals a day when health card funds cover all villages in the province.^{1/} Clearly, waiting time will increase unless district and provincial hospitals expand OPD capacity in the green channel. This, in turn, means either increased waiting time and less capacity for other patients -- which hospital staff would presumably find less and less tolerable -- or increased recurrent and capital costs.

In summary, the analysis of benefits and incentives shows that:

- * the modest price of health cards reduces the cost of medical care to households and may increase demand for services from public sector providers.
- * the availability of loans is an important incentive to purchase the card; unlike other incentives, loans do not raise costs or reduce capital. However, interest rates could be higher to increase fund capital more rapidly.
- * the existing incentives to encourage non-use of the card are problematic. Renewal of unused cards reduces capital and reimbursement of providers; premiums for non-use reduce capital available for loans.
- * preferential access to loans with interest rates below market may be a better incentive for non-use.
- * the 10 percent discount at village drug funds is probably not enough of an incentive to purchase the card to be worth its risk to the viability of drug funds.
- * reduced waiting time is an important benefit and incentive to purchase the card; however, keeping this benefit will have cost and cost recovery implications that need to be analyzed.
- * the most significant threat to the viability of health card funds will come from inadequate reimbursement of providers and the inability of supply to keep pace with increased demand.

^{1/} Tiffany and Tima, op. cit., p. 4.

5. Cost Recovery

Health card funds reimburse providers at the end of the year, and the proportion of fund capital committed to reimbursement will increase from 60 percent in the first year to 90 percent in the third. Because most funds are new there is no information available yet on actual reimbursement. This section analyzes prospective reimbursement from two points of view; first, relative to the cost of providing services and, second, relative to charges patients pay without the card.

The cost of the card in 1985 can be compared to the unit cost in 1979-80 of delivering the various services analyzed in Chapter 3. Assuming a 90 percent reimbursement rate, a 200 Baht card would cover the full cost in 1979-80 of one of the following services per year, clustered in three categories.^{1/}

Preventive and Promotive Services

30	innoculations and vaccinations
19	visits to well-baby clinics and health centers
4.7	antenatal visits to health centers
3.8	family planning visits to health centers
3	nutrition visits to health centers

Outpatient Curative Services

4.7	visits to a health center
2.6	OPD visits to a 10-bed district hospital
2.3	OPD visits to a 60-bed district hospital
1.8	OPD visits to a 30-bed district hospital

Inpatient Hospital Services

0.63	patient days in a 10-bed district hospital
0.60	patient days in a 30- or 60-bed district hospital
0.36	surgical patient days in a provincial hospital

These numbers are subject to many of the reservations mentioned in Chapter 3. They are based on a small sample of health centers and hospitals, and on average not marginal costs. There is some evidence that the marginal costs of hospital inpatient services are lower than average costs. If so, a 200 Baht card would cover slightly more of a patient day than shown. Off-setting this is the fact that the medical price index increased by 47 percent between 1979 and 1983. The services a 200 Baht card will reimburse in 1985 are, on average, at least 50 percent below the quantities shown. And if the 8 illness-episode card costs only 100 Baht, then the services reimbursed are only 25 percent of the quantities shown.

Calculated from Chapter 3, Tables 3.3 and 3.4

Thus the numbers probably represent more than a "best case" level of reimbursement from a 200 Baht card. The pattern shows that a 200 Baht card is likely to cover the full cost of all immunizations and visits to well-baby clinic that a household will need. Other health center based services are more expensive but the card would cover the full costs of 3 to 5 visits per year; nutrition and family planning visits, unlike other preventive and promotive services, are covered for fewer visits than curative care. The coverage of outpatient services in hospitals is lower still but the card would reimburse the full cost of 2 visits per year except in 30-bed facilities. In-patient hospital costs--even four years ago--are so high that less than one patient day per year is reimbursed by the cost of the card. Given that one illness episode can include more than one visit and more than one patient day in a hospital, the evidence is overwhelming, even in this best case level of reimbursement of just one service, that unless demand is extremely low and confined to immunizations, well-baby clinics and a few visits to the health center, the 200 Baht card will not begin to reimburse the cost of services a household with the card will use each year.

There is, of course, no expectation that all costs will be covered. Rather, there is the expectation that by diverting first-contact patients to the health centers and away from district hospitals that total costs will go down and that the proportion reimbursed will be higher or at least equal to the proportion covered by patient fees before the cards were available. It was clear in the preceding section that while use of health centers will increase with health cards, use of hospital services may increase also because of the combined effect of lower prices and rising household incomes. Unless referrals are tightly controlled, total costs are likely to increase. Whether the proportion of costs reimbursed by the card is likely to be higher than recovery from patient fees can be assessed with estimates of patient charges per illness episode at each level of the referral structure.

Chapter 3 presented calculations of average patient charges in MOPH hospitals in each region. These were obtained by dividing the total of patient fees in 1983 in each of a sample of hospitals by the number of patients treated in OPD and all in-patient departments in the hospital in that year. The resulting numbers can be considered a rough approximation of average patient charges per illness episode at these hospitals. Taking the median point in the ranges presented in Chapter 3 and making an estimate for health centers, gives the estimated patient charges per illness episode shown in the first column of Table 6.7.

Table 6.7

Health Card Coverage and Cost Reimbursement Compared
to Director Patient Fees per Illness Episode

Patient Charges and Health Card Coverage and Reimbursement Institution	Median Patient Charges per Illness Episode without the Card 1983 ^{1/}	Assumed Allocation of Health Card Fund Capital: (200 ₪ per card)	Average Number of Illness Episodes per Household a 200 ₪ Card will cover if Health Card Fund Reimbursement equals Patient Charges in 1983	Average Number of Illness Episodes per Household a 200 ₪ card will cover if Health Card Fund Reimbursement is 50 percent higher at Health Centers & District Hospitals than Patient Charges in 1983
Health Center	10₪	25% (50 ₪ per card)	5.0	3.3
10 Bed District Hospital	39 ₪	30% (60 ₪ per card)	1.5	1.0
30 Bed District Hospital	66 ₪		0.91	0.61
60 Bed District Hospital	86 ₪		0.70	0.47
Provincial Hospital	110 ₪	25% (50 ₪ per card)	0.55	

^{1/} Health Center patient charges were estimated by assuming that an illness episode treated at the health center requires 1.25 visits; that is, that most people are treated successfully in one visit. The cost (to the health center) per visit in 1979 (see Chap. 3) was increased by 47%, the increase in the medical index between 1979 and 1983, and multiplied by 1.25 to yield an estimate of 68 ₪ per illness episode in 1983. This number, in turn, was multiplied by the median percentage of health center costs reimbursed by patient charges in 1979-80 of 14.1% (NORH, Study of Cost of Rural Health Facilities in Thailand, pp. 186-188) giving an estimate of 9.6 ₪, rounded to 10 ₪, for patient charges per illness episode in health centers.

The second column of the table shows an assumed distribution of health card fund capital designed to maximize reimbursement of institutional providers: 80 percent of capital at the end of the year goes to health centers and hospitals, leaving 10 percent for individual providers and drug funds and 10 percent for loans, fund management and other purposes. Given this allocation, the table shows that, on the average, if households are treated for more than 1.5 illness episodes per year in a 10-bed facility, or more than 1 illness episode per year in a larger district hospital, reimbursement of hospitals by the health card funds will be lower than reimbursement by direct patient charges. The permissible averages would drop to 1.0 and 0.6 illness episodes per household per year, respectively, if the target were to increase cost recovery in district hospitals from 22 percent to 33 percent--still low and below what they were recovering from patient fees in 1979.

Cost recovery in hospitals would be reduced further if more of fund capital were allocated to support health centers and other primary care providers at the community level. Here there is an obvious tension between the objective of using health card funds to finance primary care and the incentives the funds create for households to use the cards for secondary and tertiary care. If, because of these incentives, a 30-bed district hospital is heavily used and asks for and receives 80 percent of fund capital at the end of the year, it would still get less reimbursement from the fund than from direct patient charges unless the average household with a card was treated for less than 2.5 illness episodes per year in the OPD and in-patient departments of the hospital. This is less than half the care sought by a household in one year to treat wife and/or husband alone in 1981, and at much higher cost to the household than the 200 Baht card. Finally, the hospital must wait until the end of the year to be reimbursed by the fund, while direct patient fees are received soon after the services are delivered.

In summary, the analysis of prospective reimbursement of providers by health card funds indicates that:

- * the 200 Baht card will cover only a tiny fraction of the cost of delivery the increased services card-holders are likely to use.
- * the card may not generate as much cost recovery as direct charges paid by patients without the card.
- * there will be a tension in allocation of fund capital between financing primary care and reimbursing secondary and tertiary providers.
- * there will be an eventual tension between increased demand and reduced reimbursement to pay for the services demanded.

c. Summary, Conclusions and Recommendations

Health card funds are innovative and conceptually correct. It is appropriate and desirable for the MOPH, which spends only one Baht in five for health services and medical care in Thailand, to influence and structure private rural demand to better meet public health objectives and make better use of scarce resources. A prepayment scheme which encourages the use of preventive services and rationalizes the referral structure for curative care is an effective and imaginative way to do this.

The question addressed throughout this chapter is whether in price coverage and structure health card funds will accomplish the objectives set for them. The conclusion of the analysis is that they will not without some change.

At 200 Baht--to say nothing of 100 Baht--the card is priced too low relative to the cost of the services covered and relative to what rural households were spending for health services four years ago. The card should not be renewable because renewal reduces capital and the pooling of risk. Preferential access to low interest loans is a better incentive for non-use of the card. Loans will increase capital. Unused cards will reduce demand and repurchased new ones will increase reimbursement of providers. The 10 percent discount at drug funds should be eliminated. The green channel in referral hospitals should, if possible, be retained.

The low price of the card combined with rising household incomes will increase demand. Demand is unlikely to be limited very much by lack of need or by travel and opportunity costs. Households have an incentive to use the card for as many services as it will cover, particularly for hospital services which entail the highest charge to patients without the card, and which households before the card often used in preference to health centers even with the higher charges. With the lower prices represented by the cost of the card, the incentive to use the card for hospital services is high. Yet it is precisely in hospitals where without low average referrals rates per household, cost recovery will drop relative to recovery from direct patient fees, to say nothing of the full cost of providing the services used.

As demand goes up, then, cost recovery may not keep pace. The MOPH could decide to encourage holders of free cards to purchase health cards--this is already happening at the local level--and to use its annual budget of approximately 500 million Baht for the free card program to support the hospitals and health centers and make up the difference. Eventually, however, supply may not keep pace with demand. Waiting time would go up and the appeal of the card would drop. If referrals are tightly controlled, cost recovery may be maintained or increased but tight control would reduce the appeal of the card and far fewer households may buy it.

A better alternative, suggested by the analysis, may consist of a combination of higher-priced cards and graduated benefits. Four possible models are shown in Table 6.8.

The first assumes that the card costs 300 Baht and that fund capital is allocated 15 percent to health centers, 30 percent to district hospitals, and 35 percent to provincial hospitals. Households are then covered for 4 illness episodes at the health center, and 2 at a 10-bed hospital or 1 at larger district hospitals or provincial hospitals per year.

The second model assumes a 300 Baht card but eliminates coverage at the provincial hospital except where a district hospital is not available. Fund capital is allocated 27 percent to health centers and 53 percent to district hospitals. In this model, households are covered for 8 illness episodes at the health center, and 4 at a 10-bed hospital or 2 at larger district hospitals. Both models reimburse providers by at least as much as direct patient fees.

The third model assumes that the card costs 400 Baht and that fund capital is allocated 20 percent to health centers, 33 percent to district hospitals and 27 percent to provincial hospitals. Households are covered for 8 illness episodes at the health center, 3 at 10-bed units, or 2 at 30-bed units, or 1 at 60-bed units or a provincial hospital. It is noteworthy that even at a price of 400 Baht per card, referrals to the bigger hospitals, particularly the provincial hospitals, still need to be controlled to an average of only 1 per household per year to maintain cost recovery equal to direct patient fees.

The fourth model assumes a 400 Baht card and excludes coverage at the provincial hospitals. Fund capital is allocated 20 percent to health centers, and 60 percent to district hospitals. In this model, households are covered for 8 illness episodes at the health center and 6 at 10-bed facilities or 3 at larger district hospitals. Table 6.9 shows that if allowable coverage in this model is reduced to 5 at the health center and 3 at a 10-bed hospital, or 6 at the health center and 2 at a larger district hospital for a combined total of 8 illness episodes in either mix, then cost recovery per illness episode would increase by 25 to 38 percent in health centers and by 33.3 to 50 percent in the district hospitals.

Table 6.8

Health Card Fund Models: Provider Reimbursement
Equal to Direct Patient Fees

Characteristics Model	Cost of the Card Covering 8 Illness Episodes (Baht)	Allocation of Fund Capital for Reimbursement (%)			Allowable Number of Illness Episodes at each Level; Some Possible Combinations*				
		Health Center	District Hospitals	Provincial Hospitals	Health Center	10-Bed District Hospital	30-Bed District Hospital	60-Bed District Hospital	Provincial Hospital
One	300	15	30	35	4	2			
					4		1		
					4			1	
					4				1
Two	300	27	53	0	8	4			
					8		2		(none)
					8			2	
					8	3			
Three	400	20	33	27	8		2		
					8			1	
					8				1
					8				
Four	400	20	60	0	8	6			
					8		3		(none)
					8			3	
					8				

*Other combinations are possible but are not shown.

Table 6.9

Health Card Fund Models; Service Mix and Cost Recovery with
Reimbursement Higher than Direct Patient Fees

Service Providers Model	*Allowable Number of Illness Episodes Totalling 8				Increase in Cost Recovery per Illness Episode relative to Patient Fees	
	Health Centers	10-Bed Hospitals	Larger District Hospitals	Provincial Hospitals	Health Centers	District Hospitals
Two (300 \$ Card)	6	2	0	0	12.5-25%	50%
	7	0	1	0		
Three (400 \$ Card)	6	2	0	0	12.5-25%	33%
	7	0	1	0		
	7	0	0	1		
Four (400 \$ Card)	5	3	0	0	25-30%	33-50%
	6	0	2	0		

* Other mixes totalling 8 are possible but are not shown.
 Source: calculated from Tables 6.7 and 5.8.

The table also shows that reduction in coverage to mixes of 8 illness episodes in models two and three would also increase cost recovery per illness episode but less so overall than in model four. Recovery is less in district hospitals in model three because a portion of fund capital is allocated to cover referrals to provincial hospitals. Recovery is less in health centers in model two because the card is 300 Baht. Any combination of 8 illness episodes treated by 2 or more providers in model one will reduce cost recovery per illness episodes relative to patient fees everywhere unless all 8 episodes are treated in the health center and the fund's allocation of capital to the health center is increased.

All models could cover more than 8 illness episodes in the health center if only the health center is used. Alternatively, they could offer referral access to loans or other incentives to households which use only the health center for the 8 episodes.

Clearly there are numerous other variations which the models might include. The cost of the card could vary directly with household income and/or inversely with travel costs to the health center. Higher priced cards offering more coverage could be sold on an optional basis. Poorer households could be allowed a discount and or the opportunity to purchase a card in installments, at harvest time, or by labor contributions to a multi-purpose community fund which includes health cards as part of its operations. Smaller families could be offered a card covering fewer illness episodes. Co-payments could be required, or deductibles and ceilings imposed at district and provincial hospitals.

There are two basic questions about all of these changes which the analysis cannot answer: first, how much simplicity should be sacrificed to increase financial viability of the funds and improve cost reimbursement of providers? Complexity may confuse card-holders and service providers, create abuses and lead to poor management. Second, what combination of price increases and coverage limitations will maintain the appeal of the card to households? There is some evidence reviewed in the sections on affordability and incentives to suppose that increases in the price of the card may be preferable to sharp limitations in coverage. This is because need is unpredictable and patient charges for a few illnesses in the hospital will still exceed the increased cost of the card. The card is well worth buying for protection because each year some households will save a lot of money while in the aggregate--if the risk is pooled--the fund will still be able to reimburse providers at a rate equal to or better than direct patient charges.

The most important recommendation of this chapter and of the study as a whole, is that the MOPH analyze these issues with better data and more intensity than was possible here, and to do so before health card funds as currently organized become widespread. This analysis should include the monitoring of existing health card funds and experimentation with multi-purpose funds that include health cards, which the second phase of the NESDB/PRICOR study is undertaking. The analysis should also include simulations of and experimentation with different prices, coverage, and levels of cost reimbursement. The end goal of the analysis should be to determine what model or models with what prices, coverage and cost reimbursement and what training and management requirements look best. A related goal is to determine how existing health card funds could be modified to be closer to the optimal model or models by gradual adjustment of prices and coverage.

CHAPTER 7

SUMMARY AND CONCLUSIONS

1. Introduction

This chapter is a summary of findings, analyses and recommendations on current and future finance of health services and medical care in Thailand. The focus is on the same set of questions addressed throughout the study:

- * How much is being spent for health, by whom and for what?
- * What are the trends?
- * What are the implications for policy?

The conclusions presented in this chapter are developed from primary and secondary sources used in the study, and from extensive statistical analyses undertaken--particularly of household-survey data sets collected by the Health Planning Division, MOPH, the Institute for Population and Social Research, Mahidol University, and the National Statistics Office.^{1/} The various sources and data sets are subject to many of the usual limitations and reservations of instrument design, samples' application, variable forms, difference in disaggregation, problems of consistency and lack of comparability.

But even with reservations about secondary and primary sources and limited time available for the study, the major trends in health sector finance, the critical gaps and policy issues, the priorities for intervention and further investigations are clear. These are summarized in the next eight sections.

2. Total Expenditures for Health Services and Medical Care

Total expenditures for health services and medical care have grown rapidly in real terms in recent years: from 29,183 million Baht in 1979 to 41,771 million Baht in 1983.^{2/} They have grown from 3.5 percent of GNP to 4.6 percent, and from 633 Baht per capita to 845 Baht in the years 1979 to 1983. By way of comparison, the percentage of GNP spent on

^{1/} We gratefully acknowledge the collaboration and help received from these institutions.

^{2/} These and all other Baht figures presented in this chapter have been converted to 1983 Baht unless otherwise noted.

health in three other countries for which data are available was 3.2 percent in Pakistan in 1981-82, 3.5 percent in Sri Lanka in 1982, and 5.3 percent in Zimbabwe in 1980-81.^{1/} The amounts spent per capita in these countries in the same years were 299 Baht in Pakistan, 322 Baht in Sri Lanka and 759 Baht in Zimbabwe.^{2/}

Per capita expenditures on health in Thailand between 1979 and 1983 grew at an annual rate of 7.5 percent, higher than any industrialized country. If this trend continues through 1991, expenditures will reach 6.4 to 7.9 percent of GNP (depending on assumptions about growth of the economy), or about 1,660 Baht per capita.

3. Sources of Health Sector Expenditures

Health sector expenditures in Thailand are financed by private sources, by households mainly and by corporations and other private sources. Private expenditures were 66 percent of total health expenditures in 1979 increasing to 69 percent in 1983 (see Table 7.2). Again, by way of comparison, private household expenditures were 33 percent of total health expenditures in Zimbabwe, 45 percent in Sri Lanka and 58 percent in Pakistan.^{3/} In Thailand, private expenditures are an unusually high proportion of total health expenditures, while public expenditures are somewhat below the median for countries at comparable levels of per capita product.^{4/} Between 1979 and 1983, MOPH and other government sources, including public sector enterprises, have been a slightly declining proportion of total health expenditures. In 1983, the MOPH accounted for 19 percent and other government sources 12 percent of the total.

Were these trends to continue through 1991, the MOPH budget would have to more than double in real terms to remain a constant proportion of total health sector finance. If MOPH expenditures remain a constant proportion of the government budget, MOPH expenditures will be a decreasing proportion of health expenditures total.

1/ Michael H. Mills, "Health Sector Financing: An Introduction to the Issues," in, National Council for International Health, Alternative Health Delivery Systems: Can They Serve the Public Interest in Third World Settings, Washington, D.C., August, 1984, pp. 97-98.

2/ Ibid. U.S. dollar estimates in this source were converted to Baht at a rate of \$1 = 23 Baht, the rate prevailing in 1983.

3/ Michael Mills, op. cit., pp. 97-98.

4/ World Bank, Thailand: Managing Public Resources for Structural Adjustment, Vol. I, August 31, 1983, p. 268.

4. Allocation and Trends: MOPH and Other Government Expenditures

MOPH budget and expenditures since 1981 show an important proportional shift from urban and hospital expenditures to rural and primary health care expenditures, as follows:

	<u>Percent of MOPH Budget</u>	
	<u>1981</u>	<u>1985</u>
Bangkok	12.1	7.0
Primary Care	30.5	38.8
Secondary/Tertiary Care	60.8	52.9

Source: MOPH Budget Data

Over the four years, allocations to primary health care doubled in real terms and allocations to Bangkok decreased in absolute as well as relative terms. The proportion of the MOPH budget devoted to health promotion increased from 16.8 to 18.8 percent and the proportion devoted to communicable disease control increased from 17.7 percent to 18.6 percent.

It may be difficult for the MOPH to sustain allocations to primary care and to the population living outside Bangkok. As will be clear in the sections which follow, cost recovery in MOPH hospitals is dropping and household demand for secondary and tertiary care is increasing. Other government expenditures are already primarily for hospital services in Bangkok.

5. Costs and Cost Recovery

Cost recovery in MOPH hospitals appears to be decreasing as demand for services and cost per patient and per patient day increase. Unit costs at different level institutions in 1979 and 1980 were already quite high in comparison to the 8 "illness episodes" covered by a 200 Baht health card or the 1981 fee structure published by of the MOPH. Fees have not increased since 1981. Unit costs have undoubtedly increased substantially since 1979--the "second oil shock" year--but more recent estimates are not available. The national CPI for medical care increased by 47 percent between 1979 and 1983.^{1/} Thus, unit costs may be as much as 50 percent higher in 1985 than in 1979. If so, an OPD visit to one of the larger hospitals now costs 150 Baht and an in-patient day 400 to 750 Baht. Cost recovery comparisons show a drop from 40-52 percent in 1979

^{1/} National and regional CPIs for medical care are published in: Bank of Thailand, Quarterly Bulletin, Vol. 213, No. 4, December, 1983.

to 22 percent in 1983 in the District Hospitals. Fees have not kept pace with costs. The drop may also be explained by the effect of the "Free Card" program and/or the spread of drug funds. The drop is important to investigate further. Cost recovery in most hospitals is based mainly on drug fees. This finding is important because in some health card funds, holders of the 200 Baht card are entitled to free drugs in the hospitals.

6. Private Expenditures

Private expenditures are mainly for curative services. In all regions there is a shift in consumption with changes in income, place of residence, prices and supply, from self-treatment with purchased drugs to public sector medical care and from public sector medical care to private medical care. A high proportion of households sampled in 1979 reported illness of one or more family members in the past month--73 percent of urban households and 75 percent of rural households. In 1981 a repeat of this survey asked only if husband and/or wife were ill in the past month 45 percent of households sampled said yes. High proportions of households reporting illness sought medical care. In the one month covered by the surveys, the proportion was higher than 90 percent. These high levels of contact were prior to health cards but did include some holders of free cards.

There is an "income effect" or barrier to contact with medical service in rural areas in 1981 among the households reporting illness. There was no income barrier evident in urban areas. The proportion of households in rural areas reporting illness but not seeking care was small; low incomes were a reason why they did not. The monthly expenditures for health care by households reporting illness and seeking care in 1981, ranged from 276 Baht (Northeast, rural) to 820 Baht (Central, urban)^{1/}. These expenditures were high proportions of monthly income -- 13.9 percent in urban areas, 18.6 percent in rural areas. The proportions were highest in the poorer regions, reaching 24 percent of income in the rural Northeast.

Table 7.1 shows that as average annual health expenditures go up, the percentage spent on self-treatment with purchased drugs goes down. The total in Baht spent on drugs may still go up with expenditures, and the drug store may still be the "provider" most frequently consulted, but the shift of expenditure is to medical care. Table 7.2 shows the same pattern by overall consumption levels in one location -- fringe Bangkok.

^{1/} 1983 Baht

Table 7.1

Drug Consumption as a Percentage of Health Expenditures
1981 - 1982

	Percent Drugs	Average Health Expenditures Per Year (1983 Baht)
BMA	24	2,210
Core	17	2,639
Fringe	36	1,768
All Urban	22	1,859
Northeast Rural	43	938

Source: NSO, Socio-Economic Survey, 1981-82

Table 7.2

Average Health Care Consumption,
Drug Consumption as a Percentage of Health Expenditures
and Average Household Size, by Total Consumption Level:
Bangkok Fringe 1981-1982

	Annual Total Consumption Level (1983 Baht)		
	less than 18,676	18,676 to 43,577	more than 43,577
Average annual health Care Consumption (1983 Baht)	351	1,105	2,580
% Drug	77	45	31
Average household size	2.1	3.9	5.5
% Households	11	45	44

Source: NSO, Socio-Economic Survey 1981-82

All of these findings and trends are confirmed by the income elasticities estimates presented in Chapter 4. The NSO data were used to define three measures of demand for health services based on household expenditures, as follows:

- D_t = demand for health care measured by total household expenditures for all health services.
- D_p = demand for drugs (mainly self-treatment) measured by expenditures for drugs in drug stores.
- D_m = demand for medical care measured by expenditures for public and/or private care.

The income elasticity of demand measured by any of these variables is, simply, the percentage change in demand which results from a one percent change in household income. If the estimated elasticity is greater than one, then demand will increase faster than income. Estimated elasticities for 1981-82, are as follows:

	<u>D_t</u>	<u>D_p</u>	<u>D_m</u>
Kingdom	0.25	-0.69	1.62
Bangkok	1.21	0.07	2.05
Other urban	0.51	-0.29	1.68
Rural	0.64	0.28	1.35

Although subject to many limitations, these estimates are consistent with findings in other countries of household elasticities greater than one for a certain range of per capita income.^{1/} It is noteworthy that in Thailand the estimates for medical care exceed 1.5 nationally and in all urban areas, and 2.0 in Bangkok.

If average household incomes increase by 3.5 percent per year between 1982 and 1991--a 36 percent increase in real terms, then the estimates suggest that household demand for medical care measured by expenditures will increase by 48 percent in rural areas, 60 percent in cities other than Bangkok and 74 percent in Bangkok. The increases could be even greater as the pattern of illness shifts increasingly from infectious to degenerative diseases, and household expenditure patterns in rural areas

^{1/} Michael Mills, op. cit., p. 100, and Chapter 4, Section 5.

and smaller cities evolve in the direction of the Bangkok pattern over the ten-year period. Even if the estimates turn out to be 20 to 25 percent too high, demand for medical care will still increase faster than household income in all regions, rural and urban. The MOPH, as the major public provider of medical care outside of Bangkok, will face the prospect of having to devote an increasing proportion of its budget to secondary and tertiary care.

7. Implications for PHC and Basic Minimum Needs Objectives in Rural Areas

Increased demand for curative services will put limitations on the MOPH's continued provision of VHV and VHC training and of family planning services or expanded dental or mental health services--unless demand for these services is high and cost recovery is high. The possibility of increased cost recovery for family planning services needs to be explored. In particular, it will be important to analyze how much increased cost recovery, if any, would be consistent with the population growth rate targets of the Sixth Five-Year Plan.

Other elements of PHC/BMN--essential drugs, nutrition, sanitation, control of endemic diseases, MCH, EPI and health education--will increasingly depend on the current and future viability and performance of PHC funds set up to finance and provide these services locally. The NESDB/PRICOR study analyzed the performance and viability of drug, nutrition and sanitation funds based on a national survey of 4,631 funds and 72 case studies. The results, reviewed in Chapter 5, can be summarized as follows:

- * The drug funds are a success; viable and profitable in supplying 50 to 60 percent of the rural population with essential drugs. Many are evolving into multi-purpose funds.
- * The nutrition funds are in trouble, the majority cannot maintain capital; services financed and provided are being reduced.
- * A few sanitation funds are highly successful; but most are undercapitalized, most under price loans, are inequitable, and ineffective in mobilizing community resources, and serve a small proportion of households.
- * A multi-purpose PHC fund model (possibly including health cards) would be more likely to generate high levels of local finance, conserve scarce management skills, compensate VHV's and be more cost-effective in service provision than several single purpose funds.

It is a priority for the MOPH to study how such multi-purpose funds can be encouraged; how new ones can be established where no PHC funds exist, and how existing single purpose funds might be combined or linked together to realize the benefits of multiple functions without threatening the viability of the successful single activities.

Health Card Funds are a major new initiative to influence and structure rural household demand--to provide MCH and EPI and other preventive services and to rationalize referral patterns for treatment of illness. The HCF is conceptually correct and innovative. The analysis in Chapter 6, however, suggests that:

- * the price of the card is too low
- * unused cards should not be renewable
- * demand may put heavy pressure on health centers and MOPH hospitals
- * cost recovery may be reduced in district and provincial hospitals
- * the drug discount will threaten drug fund viability
- * models which include higher priced cards and lower or graduated benefits, and use preferential access to low-interest loans as incentives for non-use or low use of the card look like more viable alternatives.

It is a high priority for the MOPH to analyze these issues further before health card funds as currently organized become widespread.

8. Implications for Urban Areas

The most important implication of the findings for urban areas is that demand for medical care is increasing most rapidly there. As household incomes go up and the causes of morbidity and mortality shift more to accidents and degenerative diseases, demand for hospital services will increase. In Bangkok and a few other cities the private sector is able to provide first contact care and some secondary care. Where this is the case, the public sector should encourage it, not try to duplicate it. The concern should be with minimum standards, encouraging competition, and cost containment. A major job of the MOPH and other public providers in the cities is the provision of the secondary and tertiary care which--with the exception of a few hospitals for the wealthy in Bangkok--the private sector does not provide. Here the priority will be cost containment and cost recovery to finance increased supply. As suggested in Chapter 3, fee structures in MOPH and other

public hospitals should be reviewed, and should at a minimum differentiate between private patients able to pay and public employees entitled to hospital services at subsidized rates as part of their employee compensation.

A second concern in urban areas is that families in the fringe areas and slums of Bangkok and in low income occupations in other cities are in some ways worse off than rural families with respect to health services. As was clear in Chapter 4, they are able to spend less for health care, and spend as much or a greater proportion of it on drugs than many of their rural counterparts. Low income families in the cities cannot afford to use available private clinics for first-contact care. They self-treat with drugs, or go to the out-patient departments of large public or charity hospitals--often distant and always with long and increasing waiting lines.

The average cost to these hospitals of attending to one out-patient is estimated to be at least 150 Baht. This is much more than a modest private clinic would charge the same patient for a comparable visit. It is thus a priority for the MOPH to analyze how an urban health insurance or primary care voucher system might be structured to encourage use of preventive services and enable first-contact curative care for the urban poor to be supplied mainly by the private sector.

9. Priorities for MOPH Policy and Further Study

Overall, then, there are three priorities for policy and analysis:

- * viability and impact of health card funds: simulation and testing of alternate models including multi-purpose models with diversified income sources which link together existing PHC funds.
 - * repricing and increased cost recovery in health centers, and MOPH hospitals, and other public sector institutions.
 - * feasibility study and testing of models for an urban health insurance or voucher system.
-

Appendix

Price Level Adjustments

Throughout this report, it is frequently noted that Baht figures have been adjusted for "price level", or "adjusted to 1983 Baht". This adjustment is intended to make expenditure figures comparable between years, so that changes in resources devoted to health care can be evaluated aside from the effects of price inflation.

For adjusting health care costs and expenditures, the following medical care price indices from the Department of Business Economics of the Ministry of Commerce were used:

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Bangkok	109.4	115.8	164.1	178.8	183.3	186.3
Central	131.9	141.2	160.2	173.6	200.1	216.8
North	110.8	114.0	119.7	131.4	143.4	148.0
Northeast	116.7	125.6	141.7	154.4	161.8	174.2
South	<u>103.4</u>	<u>112.3</u>	<u>119.0</u>	<u>123.3</u>	<u>134.8</u>	<u>136.9</u>
Kingdom	113.9	120.9	152.9	165.9	176.2	182.7

For adjusting income and non-health care consumption and expenditures, the following general price indices from the December 1983 Bank of Thailand Quarterly Bulletin (Vol. 23, No. 4) were used:

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Kingdom	116.1	127.6	152.7	172.1	181.1	187.9
Bangkok	117.9	130.0	155.9	176.8	186.3	192.6
Central	113.4	125.0	150.2	167.2	175.2	181.6
North	115.0	124.1	145.5	162.8	171.5	180.0
Northeast	114.0	123.3	149.9	169.1	178.2	188.2
South	113.6	125.2	148.7	164.4	173.0	178.4

The regional indices enable adjustment for interarea differences in price change over time, but they do not enable adjustment for differences in prices between regions as of the base year for the series, 1976.

A Baht figure is adjusted by multiplying it by the index for the year to which it is being adjusted, then dividing the product by the index for the year of the original figure. For example, a 1979 Southern Region health care expenditure figure is adjusted to 1983 price levels by multiplying it by 136.9/112.3.