



CHAPTER 4 ANALYSIS AND RESULTS

This chapter presents data analysis and results, which comprise of four major sections : 1) equity in health expenditure on the elderly under the Public Assistance Scheme, MOPH., 2) equity in utilization by the elderly under the Public Assistance Scheme, MOPH., 3) the correlation between the incidence of poverty and the distribution of elderly health expenditure and elderly utilization under the Public Assistance Scheme, MOPH., and 4) international comparisons of health welfare for the elderly. The results of the analysis are based on the methodology described in Chapter 3.

4.1 Equity in Health the Expenditure on the Elderly under the Public Assistance Scheme

Equity in this study is defined in terms of a fair distribution of health expenditure on the elderly under the Public Assistance Scheme, MOPH. As the Thai Government provides free medical care for the elderly, they are all entitled to receive certain services free-of-charge at health centers and government hospitals. This section assumes that if demand and the need for health care of the elderly in this Public Assistance Scheme are equal among the provinces, the distribution of health expenditure may be equal under the Lorenz curves and Gini coefficient index measurement. The sources of the data are the OPD and the IPD expenditure on the elderly from all public health facilities that provide completely free medical care and which occur at the point of service in 1997 and 1998.

The results are compared between the two-years (1997 and 1998). Before starting the Lorenz curves and Gini coefficient measurement, firstly, the per capita health expenditure in each province had to be analyzed. Per capita was the result of dividing annual elderly health expenditure in each province by the number of elderly people in the province the same year. The results of the analysis are shown in Table 4.1.

Table 4.1 Elderly Health Expenditure under the Public Assistance Scheme, MOPH., Thailand, 1997 - 1998 (Ranked by Provincial Code)

Provincial code	Provinces	poverty incidence	Elderly population		Total OPD expenditure		OPD exp. per capita		Total IPD expenditure		IPD exp. per capita	
			1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
			povin	agpr97	agpr98	opde97t	opde98t	opde/c97	opde/c98	ipde97t	ipde98t	ipde/c97
11	SAMUT PRAKAN	0.94	63092	66274	9801929	14129926	155.36	213.2	6189466	9468764	98.10	142.87
12	NONTHABURI	1.48	62465	65200	7359931	9222275	117.82	141.45	5052391	6980801	80.88	107.07
13	PATHUM THANI	0.29	39176	41219	7973392	9807805	203.53	237.94	5619876	8194651	143.45	198.81
14	AYUTTAYA	2.46	104192	108105	17407084	20860362	167.07	192.96	26384845	28593178	253.23	264.49
15	ANG THONG	0	40291	41834	7932639	10731382	196.88	256.52	15409689	20858561	382.46	498.6
16	LOP BURI	12.9	77237	80236	16737704	19919279	216.71	248.26	27518560	36230799	356.29	451.55
17	SING BURI	7.17	35141	36408	9476302	10795871	269.67	296.52	22257082	20475838	633.37	562.4
18	CHAI NAT	6.99	46783	48561	14707314	15222898	314.37	313.48	16390714	16304898	350.36	335.76
19	SARABURI	3.88	54133	56255	16274364	10803166	300.64	192.04	34070283	21608709	629.38	384.12
20	CHON BURI	0.65	83263	86570	15921227	17910695	191.22	206.89	21205623	27502482	254.68	317.69
21	RAYONG	3.11	41523	43166	12606284	13670362	303.60	316.69	14525702	19738289	349.82	457.26
22	CHANTHABURI	4.63	36362	37783	11092263	13050407	305.05	345.4	11029889	20970348	303.34	555.02
23	TRAT	8.79	13830	14367	6908898	7065114	499.56	491.76	9481347	12320213	685.56	857.54
24	CHA CHOENG SAC	8.2	67430	70083	12104615	13560028	179.51	193.49	18124244	21579497	268.79	307.91
25	PRACHIN BURI	6.92	45866	47658	6191212	10082329	134.98	211.56	13946766	18932998	304.08	397.27
26	NAKHON NAYOK	0.78	32189	33417	8180362	7262924	254.14	217.34	8457298	11615293	262.74	347.59
27	SA KAEW	0.09	29466	30629	8851548	7999530	300.40	261.18	10353702	11173930	351.38	364.82
30	NAKHON RATCHAS	9.49	218951	227199	45306126	40199158	206.92	176.93	61354416	79685949	280.22	350.73
31	BURI RAM	18.93	107512	111518	20753566	27532897	193.03	246.89	28568104	33948031	265.72	304.42
32	SURIN	22.06	109199	113222	19257899	25050138	176.36	221.25	21350190	25115436	195.52	221.82
33	SI SA KET	27.36	104219	108099	19896629	19774873	190.91	182.93	37529605	34468011	360.10	318.86
34	UBON RATCHATHA	23.83	130121	134947	31169165	30768037	239.54	228	47679053	43884329	366.42	325.2
35	YASOTHON	32.15	45085	46765	10799508	9596594	239.54	205.21	9489742	10327068	210.49	220.83
36	CHAIYAPHUM	7.81	88921	92258	21176341	19822493	238.15	214.86	28055841	44924337	315.51	486.94
37	UMNAD CHAREUN	30.95	26663	27658	4332588	4309084	162.49	155.8	4049005	4731194	151.86	171.06
39	NONGBUA LUMPHC	20.88	28522	29600	8550888	8376803	299.80	283	7496589	8985463	262.84	303.56

Table 4.1 (Continued)

Provincia code	Provinces	poverty incidence	Elderly population		Total OPD expenditure		OPD exp. per capi		Total IPD expenditure		IPD exp. per capita	
			1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
		povin	agpr97	agpr98	opde97t	opde98t	pde/c97	opde/c98	ipde97t	ipde98t	pde/c97	ipde/c98
40	KHON KAEN	4.56	131950	236879	42012523	61355472	318.40	259.02	66905534	93579693	507.05	395.05
41	UDON THANI	11.81	85069	88245	22844770	20260900	268.54	229.6	25742160	19887350	302.60	225.37
42	LOEI	25.65	42354	43916	18754144	20518267	442.80	467.22	31379810	43611495	740.89	993.07
43	NONG KHAI	21.21	57312	59545	9078152	9857916	158.40	165.55	21726892	18403054	379.10	309.06
44	MAHA SARAKHAM	25.62	65608	68080	24298950	14659841	370.37	215.33	17221850	33040890	262.50	485.32
45	ROI ET	12.74	87497	90798	22934906	30549558	262.12	336.46	26429305	30258435	302.06	333.25
46	KALASIN	36.89	58803	60985	18212520	19966850	309.72	327.41	34707889	31718135	590.24	520.1
47	SAKON NAKHON	36.19	62022	64379	17626748	16578939	284.20	257.52	31080891	34070655	501.13	529.22
48	NAKHON PHANOM	28.23	48139	49989	12535602	10627400	260.40	212.59	11915301	9825918	247.52	196.56
49	MUKDAHAN	22.61	18898	19619	4283383	7354990	226.66	374.89	8632800	19272835	456.81	982.36
50	CHIANG MAI	10.23	167640	172808	34494727	29208162	205.77	169.02	53906423	74247889	321.56	429.66
51	LAMPHUM	5.3	53686	55347	12282360	12776974	228.78	230.85	27466157	34105177	511.61	616.21
52	LAMPANG	7.3	87311	90051	19258528	23043825	220.57	255.9	56725739	79224642	649.70	879.78
53	UTTARADIT	9.29	47521	48923	16202313	9976460	340.95	203.92	45315190	34319339	953.58	701.5
54	PHRAE	8.59	52199	53802	11854254	11939467	227.10	221.91	26823122	25674776	513.86	477.21
55	NAN	24.31	40947	42255	12248554	13538551	299.13	320.4	37683379	41802759	920.30	989.3
56	PHAYAO	16.67	47621	49094	17911899	12978580	376.13	264.36	18001976	16846464	378.03	343.15
57	CHIANG RAI	13.76	104567	107777	29022992	30796692	277.55	285.74	87940435	78383169	841.00	727.27
58	MAEH HONG SON	43.06	12531	12972	4083209	3520047	325.85	271.36	5800761	5585831	462.91	430.61
60	NAKHON SAWAN	6.43	112623	116139	33715446	33238566	299.37	286.2	42893712	49463574	380.86	425.9
61	UTHAI THANI	10.3	32375	33383	11901416	9759394	367.61	292.35	30025337	32920526	927.42	986.15
62	KAMPHAENG PHET	8.36	52485	54098	13696209	14785966	260.95	273.32	18147870	25996310	345.77	480.54
63	TAK	16.31	26581	27412	12034170	10497892	452.74	382.97	23402702	14875549	880.43	542.67
64	SUKHOTHAI	10.94	56478	58210	15022747	15968928	265.99	274.33	24632190	33644158	436.14	577.98
65	PHITSANULOK	15.37	70349	72538	19333888	16484044	274.83	227.25	53289646	52356918	757.50	721.79
66	PHICHIT	5.58	63236	65170	17809179	10246333	281.63	157.22	18082259	24187581	285.95	371.15
67	PHETCHABUN	9.34	75740	78081	16359844	7584484	216.00	97.14	22743291	19777064	300.28	253.29
70	RATCHABURI	3.69	88209	91209	23335114	28330441	264.54	310.61	40355362	58754442	457.50	644.17

Table 4.1 (Continued)

Provincia code	Provinces	poverty incidence povin	Elderly population		Total OPD expenditure		OPD exp. per capita		Total IPD expenditure		IPD exp. per capita	
			1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
			agpr97	agpr98	opde97t	opde98t	pde/c97	opde/c98	ipde97t	ipde98t	pde/c97	ipde/c98
71	KANCHANABURI	8.59	51165	52927	13410416	15676270	262.10	296.19	30726698	30573513	600.54	577.65
72	SUPHAN BURI	19.88	96068	99325	39072908	24370227	406.72	245.36	35645360	41399354	371.04	416.81
73	NAKHON PATHOM	2.4	72886	76641	20704845	23069992	284.07	301.01	27805847	31440654	381.50	410.23
74	SAMUT SAKHON	1.11	29073	30583	12100813	10472364	416.22	342.42	17829979	21851136	613.28	714.49
75	SAMUT SONGKHA	1.37	27328	28246	2629170	5492165	96.21	194.44	3465929	7234419	126.83	256.12
76	PHETCHABURI	1.04	46075	47644	13292625	14259616	288.50	299.3	14096130	18882547	305.94	396.33
77	PRACHUAP KHIRI	11.9	35048	36259	12391519	15637992	353.56	431.29	20520267	35680000	585.49	984.03
80	NAKHON SI THAM	10.81	143351	147641	16938146	23569950	118.16	159.64	31153986	35763155	217.33	242.23
81	KRABI	6.58	18648	19263	6762810	5654372	362.66	293.54	11272913	8808227	604.51	457.26
82	PHANG NGA	13.56	18231	18806	7267187	5908799	398.62	314.2	12912859	9039905	708.29	480.69
83	PHUKET	1.64	13069	13497	11498433	12123859	879.83	898.26	12238710	17761885	936.47	1315.99
84	SURAT THANI	1.57	72561	74763	23348648	22262735	321.78	297.78	78107304	82739766	1076.44	1106.69
85	RANONG	16.6	7340	7568	4076908	4707176	555.44	621.98	3611628	5156203	492.05	681.32
86	CHUMPHON	12.42	38118	39309	10703323	11683482	280.79	297.22	17795026	21522143	466.84	547.51
90	SONG KHLA	2.82	108500	111989	18878149	18980516	173.99	169.49	41110058	51643490	378.89	461.15
91	SATUN	3.58	15790	16367	5168615	4598665	327.33	280.97	8232165	7477582	521.35	456.87
92	TRANG	4.94	49065	50547	14157520	8859790	288.55	175.28	28157457	12415806	573.88	245.63
93	PHATTHALUNG	7.38	43574	44867	11751938	12023106	269.70	267.97	14219124	12353025	326.32	275.33
94	PATTANI	30.85	52252	53990	10156487	10690003	194.38	198	13577745	15992669	259.85	296.22
95	YALA	26.13	25356	65236	11088070	11082783	437.30	169.89	32964191	21153357	1300.05	324.26
96	NARATHIWAT	32.27	44226	45756	10686418	7090837	241.63	154.97	14791046	11270819	334.44	246.32

The equity of the distribution in health expenditure is presented in the form of a graph, namely the Lorenz curve as shown in Figure 4.1. The Lorenz curve shows the relationship between the cumulative elderly population and cumulative elderly health expenditure, ranking the groups from the lowest to the highest values of expenditure per capita both OPD and IPD in 1997 and 1998. The results show that the curves lie below the diagonal but are not far from the line of perfect equality, which implies some slight inequality. At the same time, the measurement index that is used to represent the extent of inequality, namely the Gini coefficient is shown in Table 4.2.

The Gini coefficients of outpatient health expenditure were 0.121 in 1997 and 0.111 in 1998, while the Gini coefficient of inpatient health expenditure were 0.195 in 1997 and 0.175 in 1998. As mentioned in Chapter 3, the value of the Gini coefficient increases from 0 to 1 as inequality increases. The Gini coefficients for the year 1997 are both lower than for 1998 for both OPD and IPD. This result suggests that the distribution in health expenditure on the elderly under the Public Assistance Scheme in 1998 was less unequal than in 1997.

4.2 Equity in Utilization by the Elderly under the Public Assistance Scheme

The same measurements were also used to evaluate the equity level of elderly utilization. Table 4.3 presents the results of the distribution of elderly utilization per capita among the provinces. The sources of the data are the OPD and the IPD annual reports for years 1997 and 1998. Per capita utilization was found by dividing annual elderly utilization by the number of the elderly population for each year. Figure 4.2 shows the Lorenz curve, which relates the cumulative elderly population to the cumulated elderly utilization, ranking the group from the lowest to the highest values of utilization per capita in 1997 and 1998. The values of the Gini coefficient are shown in Table 4.4. The Gini coefficient of outpatient elderly utilization are 0.116 for 1997 and 0.130 for 1998. For inpatient elderly utilization, the Gini coefficients are 0.149 for both 1997 and 1998.

Figure 4.1 Lorenz Curves of Inequality of Elderly Health Expenditure (OPD and IPD) under the Public Assistance Scheme, MOPH.1997 – 1998, Ranked by the Lowest to the Highest Elderly Health Expenditure per Capita

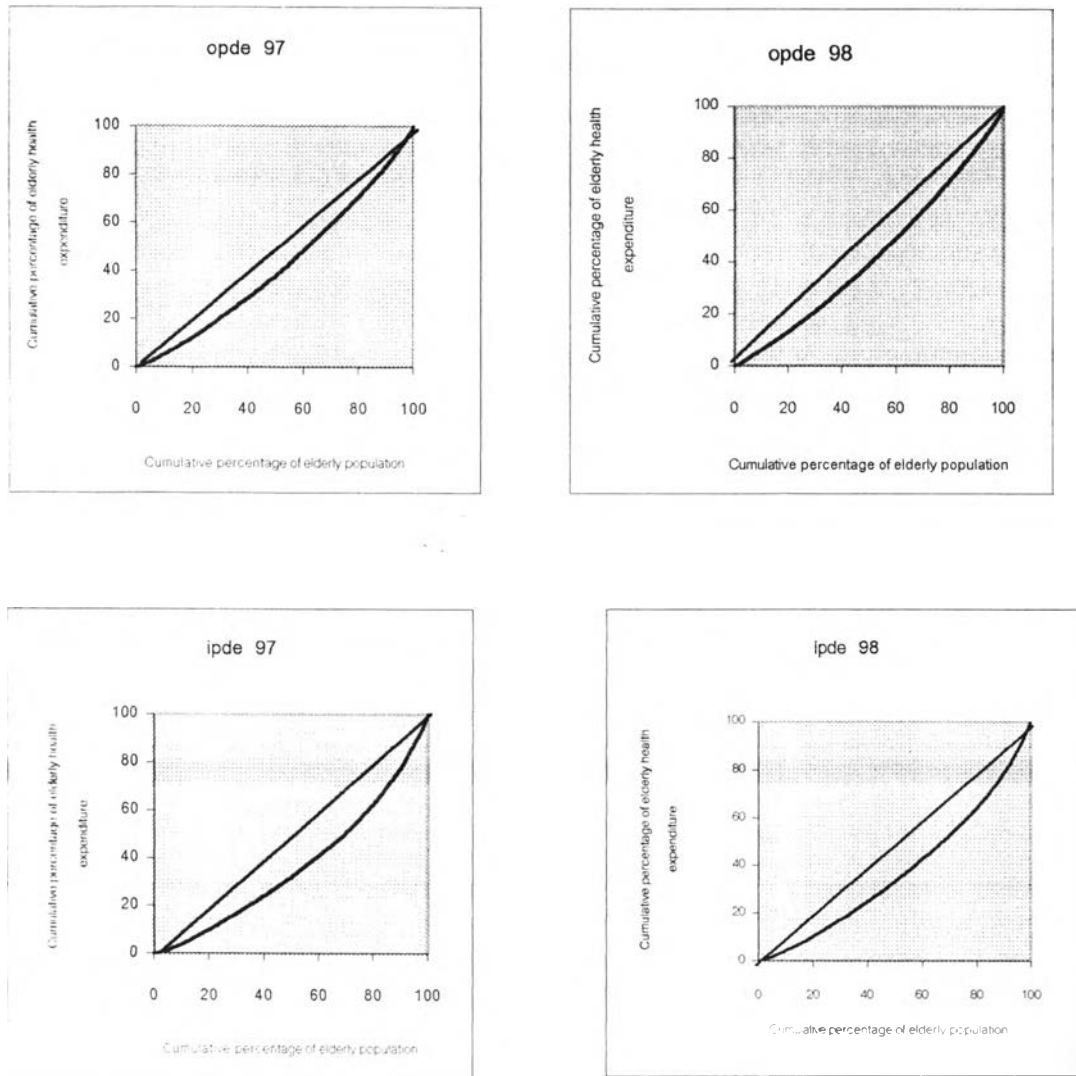


Table 4.2 Gini Coefficient of Inpatient and Outpatient Elderly Health Expenditure
1997 – 1998, Ranked by the Lowest to the Highest Elderly Health
Expenditure per Capita

Year	OPD	IPD
1997	0.121	0.195
1998	0.111	0.175

Table 4.3 Elderly Utilization under the Public Assistance Scheme, MOPH., Thailand, 1997 - 1998 (Ranked by Provincial Code)

Provincial code	Provinces	poverty	Elderly population		Total OPD utilization		OPD util. per capita		Total IPD utilization		IPDutil. per capita	
		incidence	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
		povin	agpr97	agpr98	opdu97t	opdu98t	opdu/c97	pdu/c98	ipdu97t	ipdu98t	ipdu/c97	pdu/c98
11	SAMUT PRAKAN	0.94	63092	66274	76534	84012	1.21	1.27	12037	51119	0.19	0.77
12	NONHABURI	1.48	62465	65200	62977	74094	1.01	1.14	8518	52398	0.14	0.8
13	PATHUM THANI	0.29	39176	41219	74664	84530	1.91	2.05	11469	61357	0.29	1.49
14	AYUTTAYA	2.46	104192	108105	213924	243618	2.05	2.25	36042	173398	0.35	1.6
15	ANG THONG	0	40291	41834	96269	113680	2.39	2.72	18856	85487	0.47	2.04
16	LOP BURI	12.9	77237	80236	142112	179401	1.84	2.24	37523	142223	0.49	1.77
17	SING BURI	7.17	35141	36408	78671	80490	2.24	2.21	23073	62741	0.66	1.72
18	CHAI NAT	6.99	46783	48561	136510	128053	2.92	2.64	18740	92176	0.40	1.9
19	SARABURI	3.88	54133	56255	156849	148695	2.90	2.64	41086	136430	0.76	2.43
20	CHON BURI	0.65	83263	86570	135333	150102	1.63	1.73	35547	130513	0.43	1.51
21	RAYONG	3.11	41523	43166	92047	109367	2.22	2.53	21577	89822	0.52	2.08
22	CHANTHABURI	4.63	36362	37783	96987	203314	2.67	5.38	21132	181050	0.58	4.79
23	TRAT	8.79	13830	14367	59417	64506	4.30	4.49	19945	60154	1.44	4.19
24	CHA CHOENG SAO	8.2	67430	70083	135097	147301	2.00	2.1	32540	128961	0.48	1.84
25	PRACHIN BURI	5.92	45866	47658	88788	155983	1.94	3.27	29407	84482	0.64	1.77
26	NAKHON NAYOK	0.78	32189	33417	65388	55633	2.03	1.66	22127	41271	0.69	1.24
27	SA KAEW	0.09	29466	30629	90793	71347	3.08	2.33	23894	44667	0.81	1.46
30	NAKHON RATCHASIM	9.49	218951	227199	407187	302883	1.86	1.33	94597	233250	0.43	1.03
31	BURI RAM	18.93	107512	111518	202129	284127	1.88	2.55	45433	85349	0.42	1.66
32	SURIN	22.06	109199	113222	175500	181567	1.61	1.6	42039	130892	0.38	1.16
33	SI SA KET	27.36	104219	108099	229778	215647	2.20	1.99	40164	140539	0.39	1.3
34	UBON RATCHATHANI	23.83	130121	134947	286793	280152	2.20	2.08	52928	155301	0.41	1.15
35	YASOTHON	32.15	45085	46765	149381	121097	3.31	2.59	25672	85501	0.57	1.83
36	CHAIYAPHUM	7.81	88921	92258	220348	177739	2.48	1.93	41579	112434	0.47	1.22
37	UMNAD CHAREUN	30.95	26663	27658	61035	60178	2.29	2.18	5228	34223	0.20	1.24
39	NONGBUA LUMPHOO	20.88	28522	29600	68026	64774	2.39	2.19	12332	41531	0.43	1.4

Table 4.3 (Continued)

Provincial code	Provinces	poverty incidence	Elderly population		Total OPD utilization		OPD util. per capita		Total IPD utilization		IPDutil. per capita	
			1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
		povin	agpr97	agpr98	opdu97t	opdu98t	opdu/c97	pdu/c98	ipdu97t	ipdu98t	ipdu/c97	pdu/c98
40	KHON KAEN	4.56	131950	236879	351838	411879	2.67	1.74	76285	286225	0.58	1.21
41	UDON THANI	11.81	85069	88245	209959	196622	2.47	2.23	39902	136056	0.47	1.54
42	LOEI	25.65	42354	43916	140512	157119	3.32	3.58	35508	125353	0.84	2.85
43	NONG KHAI	21.21	57312	59545	87303	92833	1.52	1.56	31277	74036	0.55	1.24
44	MAHA SARAKHAM	25.62	65608	68080	218050	118202	3.32	1.74	34130	61947	0.52	0.91
45	ROI ET	12.74	87497	90798	257215	291479	2.94	3.21	40326	186374	0.46	2.05
46	KALASIN	36.89	58803	60985	167834	165070	2.85	2.71	35574	105335	0.60	1.73
47	SAKON NAKHON	36.19	62022	64379	146942	125694	2.37	1.95	33979	73876	0.55	1.15
48	NAKHON PHANOM	28.23	48139	49989	147217	123003	3.06	2.46	25899	83302	0.54	1.67
49	MUKDAHAN	22.61	18898	19619	54922	64586	2.91	3.29	10260	46118	0.54	2.35
50	CHIANG MAI	10.23	167640	172808	416606	342224	2.49	1.98	74545	286412	0.44	1.66
51	LAMPHUM	5.3	53686	55347	153811	143032	2.87	2.58	31285	111492	0.58	2.01
52	LAMPANG	7.3	87311	90051	231359	241154	2.65	2.68	58675	199437	0.67	2.21
53	UTTARADIT	9.29	47521	48923	142074	84158	2.99	1.72	46197	78992	0.97	1.61
54	PHRAE	8.59	52199	53802	156679	131042	3.00	2.44	29510	85960	0.57	1.6
55	NAN	24.31	40947	42255	179660	172924	4.39	4.09	66989	125797	1.64	2.98
56	PHAYAO	16.67	47621	49094	157524	129574	3.31	2.64	33772	94570	0.71	1.93
57	CHIANG RAI	13.76	104567	107777	280409	308541	2.68	2.86	111050	291043	1.06	2.7
58	MAEH HONG SON	43.06	12531	12972	42079	23949	3.36	1.85	8481	14045	0.68	1.08
60	NAKHON SAWAN	6.43	112623	116139	301367	358299	2.68	3.09	61380	272359	0.55	2.35
61	UTHAI THANI	10.3	32375	33383	118961	106735	3.67	3.2	28872	93766	0.89	2.81
62	KAMPHAENG PHET	8.36	52485	54098	159560	180906	3.04	3.34	32291	132012	0.62	2.44
63	TAK	16.31	26581	27412	108031	92164	4.06	3.36	31558	69994	1.19	2.55
64	SUKHOTHAI	10.94	56478	58210	162723	200632	2.88	3.45	35599	155132	0.63	2.67
65	PHITSANULOK	15.37	70349	72538	159321	140258	2.26	1.93	81831	157529	1.16	2.17
66	PHICHIT	5.58	63236	65170	211666	144644	3.35	2.22	29681	120239	0.47	1.85
67	PHETCHABUM	9.34	75740	78081	139313	55212	1.84	0.71	30848	45887	0.41	0.59
70	RATCHABURI	3.69	88209	91209	168534	165460	1.91	1.81	53465	135585	0.61	1.49

Table 4.3 (Continued)

Provincial code	Provinces	poverty incidence povin	Elderly population		Total OPD utilization		OPD util. per capita		Total IPD utilization		IPDutil. per capita	
			1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
			agpr97	agpr98	opdu97t	opdu98t	opdu/c97	pdu/c98	ipdu97t	ipdu98t	ipdu/c97	ipdu/c98
71	KANCHANABURI	8.59	51165	52927	105514	168017	2.06	3.17	31781	118050	0.62	2.23
72	SUPHAN BURI	19.88	96068	99325	221261	249605	2.30	2.51	73819	182765	0.77	1.84
73	NAKHON PATHOM	2.4	72886	76641	140203	146871	1.92	1.92	30039	74237	0.41	0.97
74	SAMUT SAKHON	1.11	29073	30583	83353	81367	2.87	2.66	25611	63151	0.88	2.06
75	SAMUT SONGKHRAM	1.37	27328	28246	38927	62107	1.42	2.2	6196	52952	0.23	1.87
76	PHETCHABURI	1.04	46075	47644	135023	133284	2.93	2.8	34302	94277	0.74	1.98
77	PRACHUAP KHIRI KH	11.9	35048	36259	56994	96570	1.63	2.66	40616	104941	1.16	2.89
80	NAKHON SI THAMMA	10.81	143351	147641	128348	188977	0.90	1.28	104017	132883	0.73	0.9
81	KRABI	6.58	18648	19263	55022	47850	2.95	2.48	18135	28199	0.97	1.46
82	PHANG NGA	13.56	18231	18806	55657	42978	3.05	2.29	18437	27429	1.01	1.46
83	PHUKET	1.64	13069	13497	40271	43499	3.08	3.22	12147	24901	0.93	1.84
84	SURAT THANI	1.57	72561	74763	148651	152736	2.05	2.04	63838	101784	0.88	1.36
85	RANONG	16.6	7340	7568	27083	29410	3.69	3.89	7220	19058	0.98	2.52
86	CHUMPHON	12.42	38118	39309	67124	82061	1.76	2.09	24828	63697	0.65	1.62
90	SONG KHLA	2.82	108500	111989	130546	159048	1.20	1.42	43542	123223	0.40	1.1
91	SATUN	3.58	15790	16367	39161	39698	2.48	2.43	10627	27171	0.67	1.66
92	TRANG	4.94	49065	50547	126629	67512	2.58	1.34	32491	49464	0.66	0.98
93	PHATTHALUNG	7.38	43574	44867	92238	94831	2.12	2.11	23316	67425	0.54	1.5
94	PATTANI	30.85	52252	53990	85420	73159	1.63	1.36	28934	59930	0.55	1.11
95	YALA	26.13	25356	65236	49601	47415	1.96	0.73	34129	42294	1.35	0.65
96	NARATHIWAT	32.27	44226	45756	70871	43172	1.60	0.94	27898	29779	0.63	0.65

Figure 4.2 Lorenz Curves of Inequality of Elderly Utilization (OPD and IPD) under the Public Assistance Scheme, MOPH., 1997 – 1998, Ranked by the Lowest to the Highest of Elderly Utilization per Capita

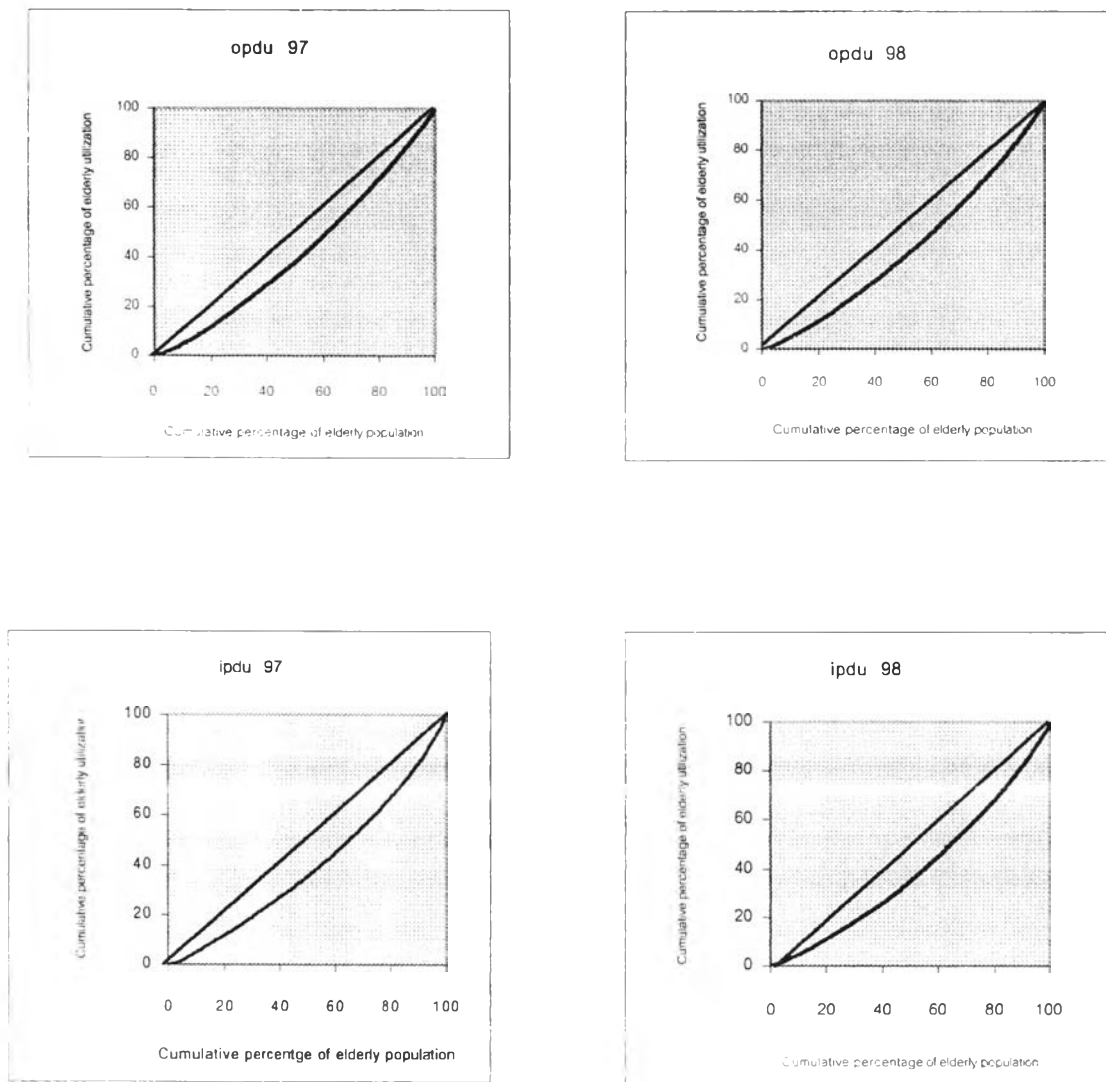


Table 4.4 Gini Coefficient of Inpatient and Outpatient Elderly Utilization
1997 – 1998, Ranked by the Lowest to the Highest Elderly
Utilization per Capita

Year	OPD	IPD
1997	0.116	0.149
1998	0.130	0.149

The Lorenz curves in this section are similar to those for the distribution of health expenditure in that the curves lie below the diagonal but close to the line of perfect equality. In comparing the values of the Gini coefficients of health expenditure and utilization for 1997 and 1998, the value of the Gini coefficients for both OPD and IPD in 1998 are low than for 1997, while the value of the Gini coefficients of utilization in 1998 are higher than for 1997 the previous year. The results show that the Gini coefficient of IPD has increased from 0.116 to 0.130 while the Gini coefficients of IPD elderly utilization are the same. This suggests that the distribution of OPD elderly utilization under the Public Assistance Scheme in 1998 was more equal than it had been in 1997, while there is the same value in IPD. At the same time, the comparison of the Gini coefficients of health expenditure with utilization in one particular year, except OPD in 1998, the value of the Gini coefficient of health expenditure is higher than the figure for utilization. This suggests that health expenditure on the elderly is more unequal than utilization.

4.3 Correlation Between the Incidence of Poverty and Elderly Health Expenditure and Utilization under the Public Assistance Scheme

The results in the previous parts show that the distribution of health expenditure and utilization by the elderly under the Public Assistance Scheme were not equal under the assumption that the elderly have equal demand and needs in health care. In contrast, this section assumes that the demand and the need for health care among the elderly under the Public Assistance Scheme are not equal. The elderly in areas of higher incidences of poverty, which are associated with poor health, need more health care services than the elderly in the provinces with less poverty. The correlation coefficient was used to measure this association. The sources of the data are OPD and IPD expenditure of the elderly under the Public Assistance Scheme in 1997 and 1998, related to poverty incidence as already shown in Table 4.1 and Table 4.3.

The results of the correlation coefficient between the distribution of elderly health expenditure under the Public Assistance Scheme and Poverty Incidence are shown in

Table 4.5. For 1997, the calculated correlation is positive, but the true coefficient is not significantly different from zero for both OPD expenditure ($r=0.051$) and IPD expenditure ($r=0.031$). For 1998, the calculated correlation shows a negative correlation, but the number is not significantly different from zero for both OPD expenditure ($r = -0.064$) and IPD expenditure ($r = -0.069$).

The results of the correlation coefficient between the incidence of provincial poverty and elderly utilization (OPD and IPD) under the Public Assistance Scheme for 1997-1998 show a quite similar pattern to the correlation between the incidence of poverty and elderly Health expenditure. The coefficient of correlation is positive but the true coefficient is not significantly different from zero for 1997 and the number negative but is still not significantly different from zero for 1998, as shown in Table 4.6. This suggests that there is no linear relation between the distribution of elderly health expenditure (also utilization) under the Public Assistance Scheme and the incidence of poverty.

4.4 International Comparisons of Health Welfare Programs for the Elderly

This section summarizes and analyzes the experiences of elderly health welfare policy in Thailand, Singapore, Japan and the United States based on the review in Chapter 2. The findings indicate that the population over 60 years of age dramatically. Even more dramatic is expected increase in the number of very old people (aged 80 and over). Extended longevity, which along with declining fertility is the universal cause of population aging affects both society and individuals. It is estimated that 20 years will be added to the average life of an individual by the end of this century. The comparing demographic indicators for these four countries are shown in Table 4.7.

Table 4.5 Correlation Coefficient between the Incidence of Poverty in each Province and Elderly Health Expenditure (OPD and IPD) under the Public Assistance Scheme, MOPH., Thailand, 1997 – 1998

Poverty incidence	1997		1998	
	OPDe	IPDe	OPDe	IPDe
POVIN	0.051	0.031	-0.064	-0.069

Table 4.6 Correlation Coefficient between the Incidence of Poverty in Each Province and Elderly Utilization (OPD and IPD) Under the Public Assistance Scheme, MOPH., Thailand, 1997 – 1998

Poverty incidence	1997		1998	
	OPDu	IPDu	OPDu	IPDu
POVIN	0.181	0.099	-0.059	-0.130

Table 4.7 Comparison of Demographic Indicators among Countries, 1998 and 2010

Indicators	Thailand		Singapore		Japan		The U.S.	
	1998	2010	1998	2010	1998	2010	1998	2010
Births per 1,000	17	14	14	10	10	9	14	14
Infant deaths per 1,00 live births	31	19	4	4	4	4	6	5
Life expectancy at birth (years)	69.0	72.9	78.5	81.1	80.0	81.1	76.1	77.4
Population age 60 and over(%)	9.26	12.62	9.86	14.7	22.08	29.09	16.47	18.66

Source: U.S. Bureau of the Census, International Data Base

Among these countries, the strengths and weaknesses of health welfare for the elderly are compared. This comparison focuses on the policies and legislation, coverage, sources of finance, provider payment mechanisms, and services provision as shown in Table 4.8.

Table 4.8 Summary of the Strengths and Weaknesses of Health Welfare Programs for the Elderly

Aspects	Thailand	Singapore	Japan	The United States
<p>1) Policies and Legislation</p> <p>1.1 Strengths</p>	<ul style="list-style-type: none"> - Free health care services policy for the elderly - The elderly have access to health services without financial barrier 	<ul style="list-style-type: none"> - Compulsory medical saving accounts to pay for own health care needs - The elderly have access to health services of their own or their children's medical saving accounts, (Medisave) This system has made individuals responsible for maintaining good health and also reduces waste and unnecessary consumption 	<ul style="list-style-type: none"> - Universal medical insurance - The elderly hav access to medical service under the Health and Medical Service Law for the Elderly - Most of the health system is under the Law 	<ul style="list-style-type: none"> - Hhealth insurance program to respond to the medical care need of the elderly - The elderly have access to health care services under the health insurance program namely; Medicare

Table 4.8 (Continued)

Aspects	Thailand	Singapore	Japan	The United States
1.2 Weaknesses	<ul style="list-style-type: none"> - The budget from general taxation is not enough for providing free health care services for the elderly 	<ul style="list-style-type: none"> - Burden for the low income families 	<ul style="list-style-type: none"> - Problem of insurance system being a moral hazard both for consumers and providers lead to a rapid growth in health expenditure for the elderly 	<ul style="list-style-type: none"> - Similar to Japan
2) Coverage				
2.1 Strengths	<ul style="list-style-type: none"> - Most people aged 60 and over have access to health care services under the Public Assistance Scheme and CSMBS 	<ul style="list-style-type: none"> - Most of the elderly have access to health care services under their own or their children's Medisave savings - Catastrophic illness is covered under Medishield (catastrophic insurance program) - The elderly poor who have no or only low Medisave accounts are supported by the Medical Endowment Fund (Medifund) 	<ul style="list-style-type: none"> - Most of the elderly have access to health care services under the universal insurance system 	<ul style="list-style-type: none"> - Almost all of the elderly have access health care services under the Medicare (Social Security) Medicaid (Public Assistance Program for the Poor)

Table 4.8 (Continued)

Aspects	Thailand	Singapore	Japan	The United States
2.2 Weaknesses	<ul style="list-style-type: none"> - Inequity within the program - Unfair in terms of ability to pay 			
3) Sources of Finance				
3.1 Strengths	<ul style="list-style-type: none"> - Health care costs from general tax revenue reduce the prevailing difficulty of access to health services for the elderly poor 	<ul style="list-style-type: none"> - Current generations of young wage-earners are mandated to save for their health care needs (payroll both employee and employer) in old age instead of relying on the uncertain taxes of future - This approach helps moderate both demand and cost pressures and ensures all the elderly have access to affordable health care 	<ul style="list-style-type: none"> - Health service costs for elderly consist of three components; co-payment, public costs and contributions (from respective insurers Medical Insurance) - the purpose of joint contributions is fair cost-sharing for the elderly from all of the Japanese - public costs are paid by national and local government 	<ul style="list-style-type: none"> - Mandatory payroll tax though the work experience (pay-as-you-go tax financed) provides medical security cover beneficiaries for old-age pension - Public assistance program provides health care cost for low incomes and limited through general tax revenue

Table 4.8 (Continued)

Aspects	Thailand	Singapore	Japan	The United States
3.2 Weaknesses	<ul style="list-style-type: none"> - Resource constraints (the budget is severely under-funded) - Increasing demand and rising costs in the health sector 	<ul style="list-style-type: none"> - Heavily subsidized by the government for basic medical service facilities. to ensure equal access - The Medical savings accounts avoid increasing the tax burden on the productive - The low income family cannot save 	<ul style="list-style-type: none"> - Local government act as the insurers and the central government provides direct subsidies under the Law - cost-sharing by all Japanese through medical insurance has led to a cost burden on the younger generation as a result of the rapidly aging population and greater use of medical technology 	<ul style="list-style-type: none"> - Medical savings accounts help to cost control problems - Pay-as-you-go tax financed has placed the cost burden on the younger generation and the scheme will not be sustainable over the long term because the dependency ratio rises being too as health care expenses exceed revenues.

Table 4.8 (Continued)

Aspects	Thailand	Singapore	Japan	The United States
<p>4) Provider Payment</p> <p>Mechanism</p> <p>4.1 Strengths</p>	<ul style="list-style-type: none"> - Fee-for-services under CSMB can be subsidize other schemes 	<ul style="list-style-type: none"> - Medical savings accounts (Medicines) likely out-of pocket payment (including user charges), and a national catastrophic insurance (Medishild) has a system of deductibles and coinsurance the system provides with strong incentives to be cost conscious and avoid the moral hazard - Free to choose the class of inpatient care according to their financial means 	<ul style="list-style-type: none"> - Fee-for service payment incentive improves the quality of care - Has a system of co-payment at point of service to enhance awareness for maintaining the health of the elderly and to reduce medical expenses 	<ul style="list-style-type: none"> - Medicare payments for inpatient hospital under Prospective Payment System (PPA) based on a diagnosis related groups (DRGs), it can combat moral hazard in the hospital sector and is a means of controlling costs - Has a system of cost-sharing deter unnecessary health care consumption, introduced Medical savings accounts for high cost-sharing (as out-of-pocket cover remains deductible)

Table 4.8 (Continued)

Aspects	Thailand	Singapore	Japan	The United States
<p>4.2 Weaknesses</p>	<ul style="list-style-type: none"> - The budget allocation in the Public Assistance Scheme under the same criteria leads to inequity - Fee-for service reimbursement under CSMBS induces - provider led cost - Inequity among the scheme - There is no strong mechanism to control unnecessary health care consumption. 	<ul style="list-style-type: none"> - Could be a heavy financial burden on the elderly poor 	<ul style="list-style-type: none"> - Co-payment may be a burden on the elderly poor - "Overuse" as a result of provider moral hazard, often associated with fee-for-service payment 	<p>co-payment and coinsurance) for the purpose of cost control</p> <ul style="list-style-type: none"> - Except inpatients, the others are paid under reasonable cost reimbursement induces provider moral hazard

Table 4.8 (Continued)

Aspects	Thailand	Singapore	Japan	The United States
<p>5) Service Provision</p> <p>5.1 Strengths</p>	<ul style="list-style-type: none"> - The provision adequate social and recreational activities and the promotion of community support for the elderly - Determines a referral system and integrates primary health care strategy to strengthen the health system - Provided geriatric clinic in general hospital all over the country 	<ul style="list-style-type: none"> - Mix of private and public services the government plays a leading role in developing the necessary infrastructure and forces private sector to reduce its charges - Upon admission the elderly are free to choose a class of ward that they can afford and can cover their expenses through the help of subsidy (lower priced essential services) - The elderly have access to geriatric clinics which provide network linked to the rest of the community 	<ul style="list-style-type: none"> - Health care service is provided by the municipalities which are the closest administrative organization to the community - Promotes home -visit care and promotes medical treatment at home and sets up Long-term Care Insurance which lead to achieve quality of life in old age at a lower cost - Development of Health and medical service for the elderly is under the Law 	<ul style="list-style-type: none"> - Health system is a mix of public and private facilities - Length of stay per case in hospitals is low for the reason many nursing homes care and hospices care that the elderly can be received care for until death by their families

Table 4.8 (Continued)

Aspects	Thailand	Singapore	Japan	The United States
5.2 weaknesses	<ul style="list-style-type: none"> - Lack of adequate co-operation among the Ministries - There is no long -term care planning - Lack of well-trained personnel and limitation of resources to provide nursing home 	<p>base health services; sheltered housing, residential and nursing homes.</p>	<ul style="list-style-type: none"> - Freedom to set up practices which include fee-for-service payment leads to excessive and unnecessary treatment - There is no regular control of the supply side 	<ul style="list-style-type: none"> - Belief in market forces does not require the government to deliver equity in health care