

EFFECTIVENESS OF THE CENTRAL PROVIDENT FUND HEALTHCARE SCHEMES

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Abstract

Singapore's Central Provident Fund (CPF) plays a significant role as a retirement saving vehicle for residents, since 1955. However, over the years, CPF has slowly evolved into a dynamic social system in order to achieve a variety of social, political and economical objectives. In the course of its development, CPF continues to have pervasive implications on the social fabrics, political scene and economic structure of Singapore. The objective of this study is to analyze whether CPF is adequate as a healthcare tool through surveys taken from a group of 500 respondents. We explore the adequacy of the CPF schemes by making comparisons between the actual amount that is being paid out by the CPF board and the amount that is desired by the CPF members. The problem of adequacy is also investigated by relating discrepancies in the actual versus desired amount to demographic, social and economic factors.

Introduction

The CPF has been called among others, an integral part of the social and economic system of Singapore [Ng, 1996]. However, there is a dearth of knowledge regarding the adequacy of its policies; Chen and Wong [1998] reported that few studies exist that examine its adequacy after retirement.

In 1984, due to the aging population and advancement of medical technology which resulted in increasing healthcare costs in the public sector, the CPF Board initiated the MediSave and MediShield Schemes to move the responsibilities of rising costs of healthcare back to Singaporeans. The MediSave account was set up for the members where employees have to contribute 6% to 8.5% of their monthly wages to their MediSave Accounts, while non-employees have to contribute 6% to 8% depending on their age group [CPF, 2004a]. In 1990, the Healthcare Scheme was extended with optional MediSave Approved Medical Insurance Schemes which was offered to CPF members and their dependants to provide further financial protection for serious illnesses using MediSave funds [CPF, 2004b]. CPF members can choose to adopt any of the MediSave Approved Medical Insurance Schemes. However, he/

she can only use his/her MediSave account to pay for one of the MediSave Approved Medical Insurance Schemes.

Statistics have indicated that Singapore's aging population is becoming a significant issue, with those aged 65 and above forming 8.4% of the total population of Singapore in 2000 and is projected to increase to 18.9% by 2030 [IMC, 1999]. With medical advancement, this group would have longer life expectancies than prior generations. With the life expectancy of Singaporeans and standards of living rising through the years, retirement needs will undergo significant changes as well. The Minimum Sum Scheme (MSS) was established in 1987 to put aside an amount of savings within the CPF to provide income for retirement years [CPF, 2004c]. The need to provide for this rising number of aging people and to ensure that they have sufficient means for their retirement will be a pressing and increasing issue for the MSS to cope with.

Low and Aw [2004] state that both the Economic Development Board and the Housing Development Board have worked as the two key agencies in Singapore to give Singaporeans a larger stake in the country through both jobs and homes with the CPF as a third pillar finessing the developmental state. Indeed more than 92.3% of Singaporeans own their own homes [SDS, 2000] and most have used the CPF Homeownership Scheme to finance the purchase of their homes. Singaporeans are also often "asset-rich, cash-poor" with sizeable CPF withdrawals to purchase houses. The general view of Singaporeans that their housing asset is a major part of their retirement assets is shared by the CPF Board as they allow pledging of up to 50% of the Minimum Sum for the residual value of the CPF member's property [CPF, 2004c].

The Blue Paper on Health in 1983 and the launch of MediSave have been initiated by two key reasons: studies on the rising cost of healthcare in other countries and the ageing demographics in Singapore [MOH, 1983]. With healthcare expenditure for Singapore increasing due to the advent of new medical technology and coupled with an increased demand for healthcare services by the ageing population, the pressure on Healthcare Schemes has been mounting. This resulted in adjustments to the Healthcare Schemes by the CPF Board. In addition to the above reasons, Healthcare costs are also a major issue for retirees.

Many people have only a hazy notion of how much they need to save so that they will have a comfortable income in retirement. "With greater life expectancy, the CPF is no longer enough for our nest egg. We have to start increasing our savings and face the prospect of working beyond our retirement age." [BT, 2004a] This rising concern is not a new phenomenon and the Government, through its Economic Review Committee, arrived at a report on refocusing the CPF system for enhanced security in retirement with the key issues: CPF should cater to the three key needs of retirement expenditure, healthcare, and home ownership. CPF should endeavour to meet these needs at a basic level [ERC, 2001]. Indeed recent changes to the

CPF are highly linked to the advice laid out in this report, and although not all changes suggested were eventually implemented, the rationale of the changes has been heavily influenced by it.

The biggest upcoming change to the Healthcare Schemes will be the changes to the MediShield scheme. This revamp is MediShield's largest reform since its inception as it tries to match the healthcare needs of its members. As stated in the ERC report, "it is important that Singaporeans are able to build up sufficient MediSave... bulk of which are required to be used in old age... should be sufficient to pay for the cost of medical treatment at Class B2 level" [ERC, 2001].

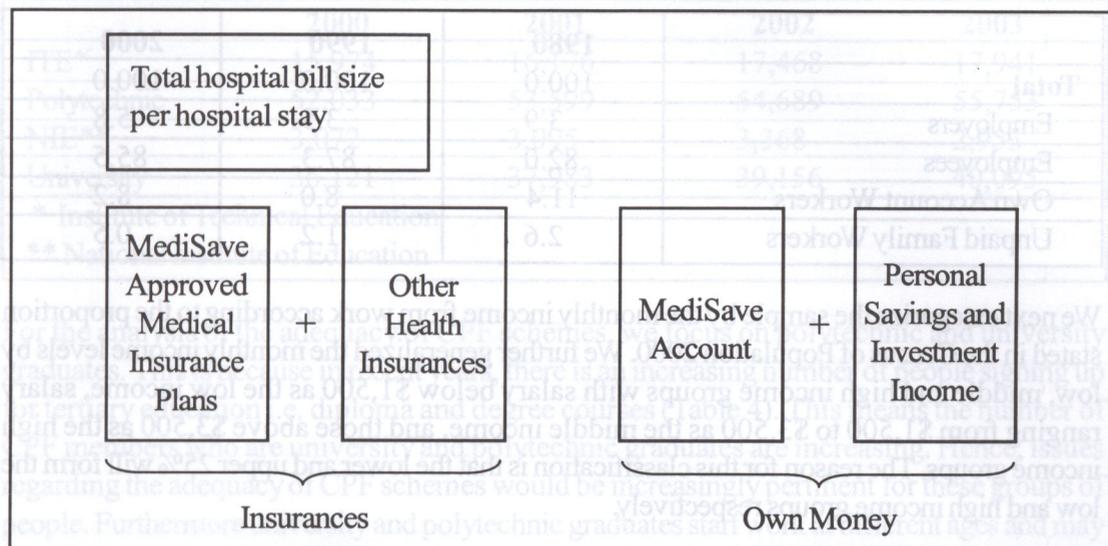
While the CPF contribution rates have been cut, the MediSave contributions have been raised instead. This draws to attention the importance of the Healthcare Schemes and indeed the Government intends to cover as many people into these schemes as possible by drawing the self-employed "as self-employed persons may not have enough CPF savings for their healthcare needs when they are older or are no longer working" [BT, 2004b]. Another indicator that the MediSave might not be enough for retirement can be shown through statistics whereby "only 56% of CPF members who reached age 55 in 2000 were able to meet the prevailing MediSave Minimum Sum" [ERC, 2001].

The objectives of this study are: (1) to investigate whether a CPF member will be able to meet the MediSave Minimum Sum set by the government at age 55, and (2) to investigate whether an average CPF member is capable of making the full payment of the total hospital bill throughout his/her lifetime. This study use both quantitative and qualitative methods to throw more light into the issue of adequacy of the CPF based on primary and secondary research. By further analyzing the various data with various scenarios, we arrive at a more comprehensive understanding of the adequacy of the CPF as a healthcare scheme.

Research Methodology

The CPF members that we are focusing on are employed persons (Employers, Employees, Owned Account Workers and Contributing Family Workers) and unemployed persons who are aged 15 years and above and are actively looking for a job during the survey reference period. To obtain the required background information for the study and to explore further issues for the research, an exploratory research of qualitative nature has been engaged initially to acquire background information relating to the CPF. This involves gathering and analyzing secondary data from various online sources, academic research papers, journals, newspaper articles, CPF handbooks and reports by the Singapore Department of Statistics (SDS). Subsequently, a descriptive research of quantitative nature was conducted by issuing survey questionnaires to 500 respondents grouped by their gender, income level, as well as their employment status.

Figure 1: Adequacy of Healthcare Model



We identify four ways in which an average Singaporean can pay for his/her hospital bill by utilizing the "Adequacy of Healthcare Model" as shown in Figure 1. We base this on the assumption that CPF members will make claims from their MediSave Approved Medical Insurance Plans before making use of other financial means. We also assume that the members will choose to utilize their MediSave accounts upon reaching the age of 55.

The sample was categorized by the employment status of the economically active population. Under the definition of the Ministry of Manpower (MOM), there is a category of economically active people known as "contributing family workers". Since the absolute number of "contributing family workers" is relatively small as compared to the other categories, we decided to classify the categories "employees" and "contributing family workers" together. The distribution of the economically active population by their activity status and employment status are shown in Tables 1 and 2.

Table 1: Distributions by Activity Status¹

	1980	1990	2000
Total	1,651.5 (100)	2,078.8 (100)	2,494.6 (100)
Economically Active	1,031.9 (62.5)	1,314.6 (63.2)	1,576.6 (63.2)
- Working	994.2 (96.3)	1,288.8 (98)	1,482.6 (94)
- Unemployed	37.7 (3.7)	25.8 (2)	94.0 (6)
Economically Inactive	619.6 (37.5)	764.2 (36.8)	918.0 (36.8)

¹ Source for Table 1 to 3: SDS, *Census of Population*, (2000).

Table 2: Distributions by Employment Status

	1980	1990	2000
Total	100.0	100.0	100.0
Employers	3.9	3.5	5.8
Employees	82.0	87.3	85.5
Own Account Workers	11.4	8.0	8.2
Unpaid Family Workers	2.6	1.2	0.5

We next categorize the sample by the monthly income from work according to the proportion stated in the Census of Population 2000. We further generalized the monthly income levels by low, middle and high income groups with salary below \$1,500 as the low income, salary ranging from \$1,500 to \$3,500 as the middle income, and those above \$3,500 as the high income groups. The reason for this classification is that the lower and upper 25% will form the low and high income groups respectively.

In addition, to simplify the analysis, we assume that all employers belong to the high income group and own account workers belong to the low and middle income group. This is because employers form only 5.8% of the economically active population in the year 2000 (Table 2), and to further subdivide employers into low and medium income would further reduce the significance of data gathered from employers during data analysis due to their small numbers.

As for own account workers, it would be more realistic to categorize them in equal proportions to the low and medium income segments because the number of own account workers earning high income is relatively and significantly less as compared to employers or employees (for example, Taxi drivers earning more than \$3,500 are few in numbers). The distribution of the economically active population by their monthly income from work is shown in Table 3.

Table 3: Distributions by Monthly Income from Work

	1980	1990	2000
Below \$500	63.3	4.1	3.5
\$500 - \$999	24.9	36.9	8.2
\$1,000 - \$1,499	6.0	26.8	14.9
\$1,500 - \$1,999	2.5	13.0	15.5
\$2,000 - \$2,499	1.3	6.5	13.6
\$2,500 - \$2,999	0.6	3.8	10.0
\$3,000 - \$3,499	0.4	2.5	8.3
\$3,500 - \$3,999	0.2	1.7	5.2
\$4,000 & Over	0.7	4.6	20.7
Total	100.0	100.0	100.0

Table 4: Enrolment Numbers (FULL TIME)²

	2000	2001	2002	2003
ITE*	15,974	16,176	17,468	17,941
Polytechnic	52,033	53,599	54,689	55,753
NIE**	3,072	3,095	3,368	2,953
University	36,121	37,983	39,156	40,095
* Institute of Technical Education				
** National Institute of Education				

For the analysis of the adequacy of CPF schemes, we focus on polytechnic and university graduates. This is because in recent years, there is an increasing number of people signing up for tertiary education i.e. diploma and degree courses (Table 4). This means the number of CPF members who are university and polytechnic graduates are increasing. Hence, issues regarding the adequacy of CPF schemes would be increasingly pertinent for these groups of people. Furthermore university and polytechnic graduates start work at different ages and may have differing starting salaries; it would therefore be interesting to investigate how these differences affect their CPF funds for retirement needs.

Administration of the questionnaire

The questionnaire was administered personally through street intercept and convenience sampling. To achieve our targeted number of respondents in a quicker manner, some of the questionnaires were emailed to potential respondents. Administrators were always present to answer queries that the respondents had. Frequently, the administrators had to verbally translate the questions into Mandarin to facilitate understanding for respondents who are not proficient with English.

Upon collecting the completed questionnaires from the respondents, the questionnaires were checked to ensure the questionnaire was correctly filled up. Incorrectly filled questionnaires were usually corrected by the respondents on the spot or sent back to them via email in order to increase the reliability of the data collected. For cases where the respondent is not around to correct the incomplete or wrongly filled questionnaires i.e. respondent who emailed back incomplete questionnaire, the response is discarded and replaced by another person. Altogether, there were 43 questionnaires that were made void due to the above reasons. Table 5 shows the profiles of our respondents.

² Source: Ministry of Education, MOE education fact sheet, retrieved 2 March 2005, from the World wide Web: <http://www.moe.gov.sg/esd/Default.htm>.

Table 5: Profiles of Respondents

Employment Status	Income Level	Males	Females	Total
Unemployed	-	15	15	30
Employer	High	14	13	27
Employee	Low	53	52	105
Employee	Med	102	102	204
Employee	High	48	47	95
Own Account Workers	Low	10	10	20
Own Account Workers	Med	10	9	19
Total		252	248	500

ANALYSIS OF ADEQUACY OF CPF HEALTHCARE SCHEMES

According to the data collected by the Monetary Authority of Singapore (MAS), the MediSave Approved Medical Insurance Schemes (excluding MediShield Schemes) captured 95% of the total annual premium collected for Health and Accident Insurances [MAS, 2004]. This means the "Other Health Insurance" portion of the method is insignificant in the model analysis and we therefore exclude it from the analysis.

The first step taken in analyzing the healthcare adequacy is to determine the amount of total hospital bill size per hospital stay. To calculate the weighted average hospital bill size, we make use of the information that is available on the Ministry of Health (MOH) website. This indicates the volume (number) of hospital admission, average length of hospital stay, and the 50th and the 90th percentile bill sizes for the illnesses of significant volume in Singapore's hospitals [MOH, 2004]. Table 6 shows the list of common physical disorders among the elderly worldwide. As Table 6 shows worldwide data, we only consider those illnesses that are considered significant³ in Singapore.

From Table 6 and the MOH website, we derive Table 7, which shows the list of common physical disorders among the elderly in Singapore. With the above information, we calculate the weighted average hospital bill size based on the 50th percentile bill sizes and the 90th percentile bill sizes as shown in Tables 8 and 9.

³ According to the Ministry of Health, significant illnesses are those illnesses that have more than 30 cases for a particular ward class within each hospital.

Table 6: List of Common Physical Disorders among Elderly

Class of health problem	Specific type
Heart disease and stroke	Congestive heart disease Hypertension (high blood pressure) Coronary vascular disease (CVD)
Cancers	Breast Bowel Cervical and related Prostate Lung
Musculoskeletal	General damage Osteoarthritis Osteoporosis
Sensory	Cataracts Glaucoma Macular degeneration Hearing loss Parkinson's disease
Other	Diabetes Urinary incontinence Chronic obstructive Pulmonary disease

Source: World Health Organization, *Ageing and Health*, (2004).

We next determine the average amount that the insurance companies are willing to pay to the CPF members in the event of a claim. We classify similar MediSave Approved Medical Insurance Schemes that share common features in terms of the amount of deductibles and the percentage of co-insurance in order to simplify our analysis in Table 10. Based on the amount of deductibles and the percentage of co-insurance, we calculate the amount that each insurance plan will pay out in an event of a claim using the formula in Figure 2.

$$= (X - D) \times (1 - C)$$

where X = Total hospital bill for a one-time stay
D = Amount of deductible for the MediSave Approved Medical Insurance Plan
C = Percentage of co-insurance

Table 7: List of Common Physical Disorders among Older People in Singapore

Class of Health Problems	Specific type
Heart disease and stroke	Heart Surgery (Coronary Artery Bypass Graft)
	Heart Attack with Heart Angiography (Coronary Angiography)
	Heart Angiography (Coronary Angiography)
	Heart Angioplasty (Coronary Angioplasty)
	Heart Failure
	Heart Attack
	Stroke
	Stroke with complications
Cancers	Lung Cancer
	Lung Cancer with complications
	Prostate (Enlarged, Medical Treatment)
	Prostate Operation (TURP)
Musculoskeletal	Back Problems
Sensory	Cataract Surgery (Phacoemulsification)
Other	Chronic Obstructive Airways Disease
	Diabetes Age ≥ 60
	Diabetic Eye Disease (Laser Treatment)

Source: MOH website, "Hospital Bill Size", Bills and Charges, (2004)

The next step of the analysis is to determine the amount that can be used in the MediSave account for the payment of total hospital bill, given the expected number of times of hospital admission throughout the lifetime of an average CPF member [SDS, 2004] as shown in Tables 11 and 12. With the elimination of the "Other Health Insurance" and "Personal Savings and Investment Income" portions from the model, we calculated the amount that can be used in the MediSave account for the payment of total hospital bill using the model in Figure 3.

Figure 2: Co-Insurance Formula

$$\text{Amount claimable for the MediSave Approved Medical Insurance Plan} = (X - D) \times (1 - C)$$

- where X = Total hospital bill for a one-time stay
- D = Amount of deductible for the MediSave Approved Medical Insurance Plan
- C = Percentage of co-insurance

Table 8: Weighted Average Hospital Bill Based On 50th Percentile Bill Size

Type of illness	Total Number	Total Size (\$\$)	Weighted Bill Size (\$\$)	Total Length of Stay (days)	Weighted Length of Stay (days)
Cataract Surgery (Phacoemulsification)	17,388	1,829.05	609.59	1.00	0.33
Diabetes Age >=60	827	384.78	6.10	3.72	0.06
Diabetic Eye Disease (Laser Treatment)	4,638	625.89	55.64	1.00	0.09
Chronic Obstructive Airways Disease	2,576	446.70	22.06	4.48	0.22
Back Problems	2,916	559.99	31.30	3.23	0.18
Heart Surgery (Coronary Artery Bypass Graft)	560	3,147.09	33.78	9.82	0.11
Heart Attack with Heart Angiography (Coronary Angiography)	863	1,114.80	18.44	4.78	0.08
Heart Angioplasty (Coronary Angioplasty)	3,247	5,737.25	357.07	2.82	0.18
Heart Angiography (Coronary Angiography)	2,520	1,113.59	53.79	1.78	0.09
Heart Failure	3,865	556.92	41.26	5.03	0.37
Stroke	2,883	819.16	45.27	5.87	0.32
Stroke with complications	5,504	1,468.26	154.90	11.76	1.24
Heart Attack	1,255	661.12	15.90	5.71	0.14
Prostate (Enlarged, Medical Treatment)	1,109	188.62	4.01	1.00	0.02
Prostate Operation (TURP)	500	1,827.33	17.51	3.54	0.03
Lung Cancer with complications	1,267	830.83	20.18	7.55	0.18
Lung Cancer	254	362.75	1.77	2.35	0.01
		Weighted average hospital bill size	\$1,488.55	Weighted average length of stay	3.65

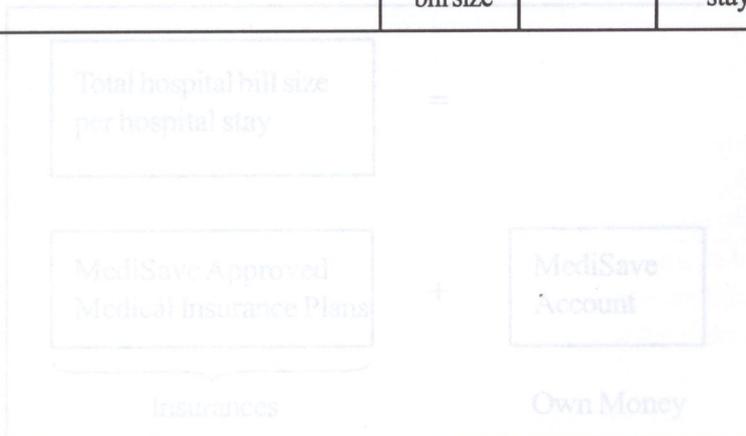


Table 9: Weighted Average Hospital Bill Based On 90th Percentile Bill Size

Type of illness	Total Number	Total Size (S\$)	Weighted Bill Size (S\$)	Total Length of Stay (days)	Weighted Length of Stay (days)
Cataract Surgery (Phacoemulsification)	17,388	2,084.07	694.58	1.00	0.33
Diabetes Age >=60	827	737.23	11.69	3.72	0.06
Diabetic Eye Disease (Laser Treatment)	4,638	703.08	62.50	1.00	0.09
Chronic Obstructive Airways Disease	2,576	964.34	47.61	4.48	0.22
Back Problems	2,916	1,389.31	77.65	3.23	0.18
Heart Surgery (Coronary Artery Bypass Graft)	560	4,931.39	52.93	9.82	0.11
Heart Attack with Heart Angiography (Coronary Angiography)	863	1,774.62	29.35	4.78	0.08
Heart Angioplasty (Coronary Angioplasty) Heart Angiography (Coronary Angiography)	3,247	9,224.56	574.10	2.82	0.18
Heart Failure	2,520	1,567.18	75.70	1.78	0.09
Heart Failure	3,865	1,175.14	87.06	5.03	0.37
Stroke 2,883	2,049.72	113.27	5.87	0.32	
Stroke with complications	5,504	4,166.80	439.59	11.76	1.24
Heart Attack	1,255	1,343.97	32.33	5.71	0.14
Prostate (Enlarged, Medical Treatment)	1,109	320.21	6.81	1.00	0.02
Prostate Operation (TURP)	500	2,451.41	23.49	3.54	0.03
Lung Cancer with complications	1,267	2,068.59	50.24	7.55	0.18
Lung Cancer	254	790.95	3.85	2.35	0.01
		Weighted average hospital bill size	S\$2,382.75	Weighted average length of stay	3.65 days

Figure 2: Co-Insurance Formula

Amount claimable for the MediSave Approved Medical Insurance Plan

$$= (X - D) \times (1 - C)$$
 where X = Total hospital bill for a one-time stay
 D = Amount of deductible for the MediSave Approved Medical Insurance Plan
 C = Percentage of co-insurance

Table 10: Medisave Approved Medical Insurance Schemes

Medisave Approved Medical Insurance Schemes	Deductible (S\$)		Co-insurance	Amt paid by insurance (S\$)	
	Ward B2 and Above	Ward C		Ward B2 and Above	Ward C
MediShield Basic	1,000	500	0.2	390.84	790.84
Asia Life Asia PreferredCare Plan 1	750	350	0.15	627.77	967.77
IncomeShield Plan C	750	350	0.15	627.77	967.77
MediShield Plus A	4,000	-	0.2	0	0
MediShield Plus B	2,500	-	0.2	0	0
Asia Life Asia PreferredCare Plan 2	1,500	-	0.15	0	0
AIA HealthShield Plan B Plus	1,500	-	0.15	0	0
IncomeShield Plan B	1,500	-	0.15	0	0
GE SupremeHealth Plan B	1,500	-	0.15	0	0
OAC MaxHealth Plan B	1,500	-	0.15	0	0
Asia Life Asia PreferredCare Plan 3	2,500	-	0.15	0	0
AIA HealthShield Plan A Plus	2,500	-	0.15	0	0
IncomeShield Plan A	2,500	-	0.15	0	0
GE SupremeHealth Plan A	2,500	-	0.15	0	0
OAC MaxHealth Plan A	2,500	-	0.15	0	0

Source: MOH, Comparisons of Medisave-Approved Medical Insurance Schemes, (2004).

Figure 3: Adequacy of Healthcare Model (Finalized)

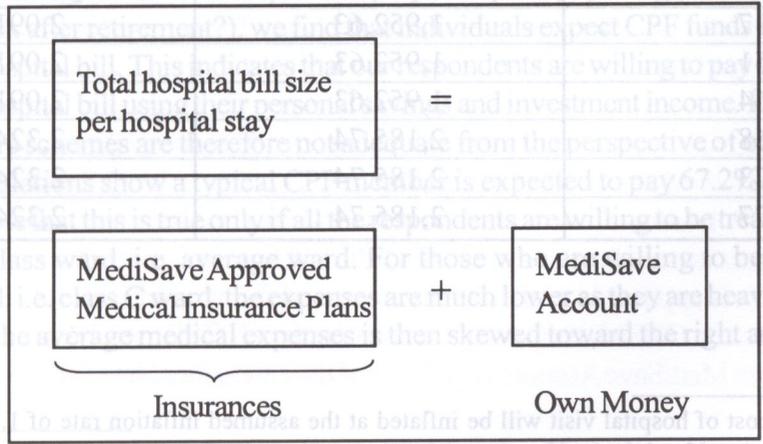


Table 11: Hospital Admission Rate

Hospital Admission Rate (%) by Sex and Age (per 1,000 population)				
		2001	2002	2003
Public Sector Hospitals				
Male				
Age	0 - 14 years	62.9	60.9	51.5
	15 - 64 years	61.3	61.8	51.5
	65 years & above	311.1	316.2	262.8
Female				
Age	0 - 14 years	50.9	49.3	42.7
	15 - 64 years	59.0	59.0	47.8
	65 years & above	278.5	279.2	229.8
Private Sector Hospitals				
Male				
Age	0 - 14 years	18.1	22.6	30.7
	15 - 64 years	5.3	4.9	4.5
	65 years & above	26.1	27.8	27.9
Female				
Age	0 - 14 years	14.5	19.4	29.6
	15 - 64 years	21.1	19.4	17.3
	65 years & above	30.8	31.8	30.7

Source: SDS, Central Claims Processing System, (2004).

Table 12: Age and Cost of Hospital Visit for Males

Age of Hospital Visit	Cost of Hospital Visit (S\$)	Inflated⁴ Cost of Hospital Visit (S\$)
37	1,952.63	2,091.48
51	1,952.63	2,091.48
64	1,952.63	2,091.48
68	2,185.74	2,324.59
73	2,185.74	2,324.59
77	2,185.74	2,324.59

⁴ The cost of hospital visit will be inflated at the assumed inflation rate of 1.5% which is the average inflation rate for the past 40 years.

We then investigate how some variables affect the adequacy of CPF Healthcare Schemes. The variables are (1) educational level, (2) age when the person start working, and (3) hospital bill size. These variables have a major impact on the starting salary, the salary increment rate, and the amount deducted from the MediSave account and hence the total contribution in the MediSave account.

In view of the first objective, a data table is generated to indicate the excess over the CPF Minimum Sum in the CPF member's MediSave Account at the age of 55. To achieve the second objective, a similar data table is produced to indicate the balance in the CPF member's MediSave Account at age 77. We assume the age of death to be 77 years old based on the life expectancy of males at 2004.

We calculated the weighted average of the 50th and 90th percentile hospital bill size for the common physical disorders among the older people in Singapore to be \$1,488.55 and \$2,382.75 respectively as shown in Tables 8 and 9. For our study, we analyze the 50th percentile hospital bill size only. Similar analysis can be done using the 90th percentile hospital bill size.

We excluded all the MediSave Approved Medical Insurance Schemes that have deductibles exceeding \$1,488.55 as those schemes will require the CPF member to pay for the total amount of hospital bill. We therefore focus on the three remaining insurance schemes: MediShield Basic, IncomeShield Plan C and Asia Life Asia Preferred Care Plan 1.

The average amount claimable from the MediSave Approved Medical Insurance Schemes based on the result in Question 8 (Which is the type of MediSave-approved insurance plans that you have or intend to purchase?) is \$487.23. The difference (i.e. \$1,488.55 less \$487.23) i.e. \$1,001.32 (or 67.2%) is the average amount of each hospital bill that a typical CPF member is expected to pay. However, from the survey result in Question 12 (What is the minimum percentage of the total hospital bill do you hope to pay using your CPF funds if you were to fall sick after retirement?), we find that individuals expect CPF funds to pay for 55 to 59%⁵ of the hospital bill. This indicates that our respondents are willing to pay a portion (41 to 45%) of the hospital bill using their personal savings and investment income. It seems that the CPF healthcare schemes are therefore not adequate from the perspective of our respondents as above calculations show a typical CPF member is expected to pay 67.2%. However, we should also note that this is true only if all the respondents are willing to be treated and/or stay in the same class ward, i.e. average ward. For those who are willing to be treated in the cheapest ward, i.e. class C ward, the expenses are much lower as they are heavily subsidised. The curve of the average medical expenses is then skewed toward the right and the average

⁵ On average, respondents choose Option 11 of Question 12 which translate into 55-59%.

hospital bill size is then much lower than \$1,488.55 and the conclusion should then be the CPF healthcare schemes are therefore adequate. Similarly, for those who prefer to be treated in the more expensive wards, i.e. class A or B wards, the expenses are much higher as they are less or non-subsidised. The curve of the average medical expenses is then skewed toward the left and the average hospital bill size is much higher than \$1,488.55 and the conclusion should then be the CPF healthcare schemes are therefore not adequate. This is in line with the government's findings and this resulted in the introduction of the more expensive CPF healthcare schemes which have since been privatised.

Table 13: Annual Increase of Medisave Minimum Sum

Year	MediSave Minimum Sum (S\$)
1-Jul-03	\$25,000
1-Jul-04*	\$25,500
*Assume increment of \$500 per annum from 2004	

Source: Central Provident Fund Board, Minimum Sum Handbook, (2004a).

Table 13 shows the annual increase of the Medisave Minimum Sum. Table 14 shows the MediSave Contribution Ceiling will also increase annually by \$500. We calculated the excess of the MediSave Minimum Sum in the CPF member's MediSave Account at the end of age 55 for a Polytechnic graduate and a University graduate whose mean gross monthly salary are \$1,782 and \$2,419 respectively, as shown in Tables 15 and 16. We assume that an individual has lifelong employment. To be more realistic we also assume the economy experiences cyclical movements of major downturns every 10 years and assume a CPF member will not have a wage increment in every 10th year. With this taken into account, it is shown that the average CPF member will be able to repay his/her hospital bills over his/her lifetime and have excess in his/her MediSave account upon death (as long as he/she is willing to be treated in the average ward), though the excess amount is not significantly large. This applies for both the Polytechnic and University graduates.

One interesting point to note is that, regardless of the educational level, the excess of the MediSave Minimum Sum are similar (Tables 15 and 16). This is due to the fact that most of the University and Polytechnic graduates should have attained the Minimum Sum before the age of 55. The excess is transferred to the CPF Ordinary Account. Since the weighted average hospital bill size is applicable to all CPF members and this amount is assumed constant, any deduction from the CPF Minimum Sum is similar for all CPF members. This leads to the similar excess in MediSave Account regardless of the educational level and starting salary.

Table 14: Medisave Contribution Ceiling

Year	MediSave Contribution Ceiling (S\$)*
1-Jul-01	\$26,000
1-Jul-02	\$28,000
1-Jul-03	\$30,000
1-Jul-04**	\$30,500
* Different MediSave Contribution Ceilings apply to government pensioners under the Fixed Amount on Ward Charges and Co-payment on Ward Charges schemes	
** Assume increment of \$500 per annum from 2004	

Source: Central Provident Fund Board, MediSave/MediShield Handbook, (2004e).

Table 15: Amount in Excess in the Medisave Minimum Sum at the End of Age 55 for a University Graduate

Excess of MediSave Minimum Sum (S\$)		Average Gross Monthly Salary (S\$2,419.00)
Age whereby they first start working:	24	589.83
	25	588.19
	26	586.55
	27	584.92

Table 16: Amount in Excess in the Medisave Minimum Sum at the End of Age 55 for a Polytechnic Graduate

Excess of MediSave Minimum Sum (S\$)		Average Gross Monthly Salary (S\$1,782.00)
Age whereby they first start working:	24	589.83
	25	588.19
	26	586.55
	27	584.92

CONCLUSION

This study shows that most CPF members, with both their MediSave and their MediShield-Approved Insurance Schemes, will be able to tide through the expected number of hospitalisation in their lifetime if they are willing to be treated in the average ward. However, it is almost impossible to predict the future inflation rates. We use an assumed rate of 1.5% for the calcu-

Table 17: Balance in the Medisave Account at the End of Age 77 for a University Graduate

Balance in MediSave Account (S\$)		Average Gross Monthly Salary (\$) (S\$)2,419.00
Age whereby they first start working:	24	49,598.49
	25	49,096.85
	26	48,595.22
	27	48,093.58

Tables 17 and 18 show that most of the CPF members will have excess in his/her MediSave Account at the age of 77 despite the possibility of a CPF member utilizing his/her MediSave Account to pay for his/her children's medical expenses. The results are calculated by projecting the amount in the CPF member's MediSave Account with the current interest rate for MediSave Account (4%).

Table 18: Balance in the Medisave Account at the End of Age 77 for a Polytechnic Graduate

Balance in MediSave Account (S\$)		Average Gross Monthly Salary (\$) 1,782.00
Age whereby they first start working:	24	50,601.76
	25	50,100.13
	26	49,598.49
	27	49,096.85

To be more realistic, we should also build in the possibility of a CPF member utilizing his/her MediSave Account to pay for his/her parents and spouse. However, given the difficulties in assessing the amount involved, we will not consider these possibilities in this study. We would consider this unused balance as not being fully utilized during the lifetime of the CPF members. This significant amount of resources could be used elsewhere.

CONCLUSION

This study shows that most CPF members, with both their MediSave and their MediSave Approved Insurance Schemes, will be able to tide through the expected number of hospitalization in their lifetime if they are willing to be treated in the average ward. However, it is almost impossible to predict the future inflation rates. We use an assumed rate of 1.5% for the calcu-

lations even though inflation can be volatile over the years, especially for medical expenses. We have only taken into account those illnesses considered significant by their volume. There are also some minority illnesses that are considered significant in terms of the amount of hospital bill size.

In the event of a catastrophic illness, the result may no longer hold as such illness will cost much more than \$1,488.55. For simplification of analysis, our analysis has excluded ElderShield, Primary Care Partnership Scheme (PCPS) and Interim Disability Assistance Programme for the elderly (IDAPE). The inclusion of these assistance schemes may suggest a different result. This study also shows that the average CPF member will meet the required Minimum Sum by the end of age 55. This may suggest that CPF Contribution Rate could be lowered to allow the CPF members to have more freedom in managing their own money.

This study also shows that the current Healthcare Schemes are relatively sufficient for the purpose of providing for healthcare needs for CPF members during their retirement years. From the survey results, respondents expect to pay a portion of their medical bills from their own pockets rather than solely through the MediSave Account. Although there are concerns that many CPF members who do not have the MediSave Minimum Sum upon retirement, the CPF Board does not demand the topping up of this Minimum Sum from the Retirement Account, indicating that the MediSave Minimum Sum is more of a "safe" requirement rather than a "needed" requirement.

A person who does not expect to be treated in expensive wards is able to pay for his/her hospital bills. The role of the CPF in the retirement needs of CPF members has always been a major one and the CPF Board's astute and forward-thinking changes have helped many retirees in having a comfortable life in their retirement years. However it must be noted that many of the CPF provisions are highly dependent on the economic situation. While the CPF Board provides in some ways for the retirement needs of its members, it has reminded its members that members have to save by their own means for their retirement needs rather than depend solely on the CPF in their retirement years. It will be interesting to see how the constantly changing CPF will evolve to meet the retirement needs of its members.

Turning now to liability insurance, Products Liability, Directors and Officers Liability, Professional Indemnity, Employers Liability and Motor Liability insurance will be examined. There is an increasing awareness of the need for various types of liability insurance. However, many types of coverage are not yet available in every insurance company because of limited expertise.

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CONCLUSION

This study shows that most CPF members, with both their MediSave and their MediSave Approved Insurance Schemes, will be able to tide through the expected number of hospitalization in their lifetime if they are willing to be treated in the average ward. However, it is almost impossible to predict the future inflation rates. We have assumed an inflation of 1.5% for the calcu-