Final Report

A Study on Health Care Financing and Feasibility of a Medical Savings Scheme in Hong Kong

Health Care Financing Study Group

Health, Welfare and Food Bureau

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Contents

Chapter 1 Introduction

Background of the Study

1.1 One fundamental role of the public health care system in Hong Kong is to protect the community from huge financial risks that may arise from serious or prolonged illnesses. At present, our public health care system provides about 94% of total hospital services in Hong Kong, which is heavily subsidized by tax revenue. The recurrent public health care expenditure for 2004/05 is estimated to be about $30.3 billion, constituting approximately 14% of the Government's total recurrent public expenditure for the year. The maintenance of a financially sustainable public health care system is an important issue. Against a background of ageing population, advances in medical technology and rising community aspirations, health expenditure is expected to continue to grow in the near future, a trend in line with other advanced economies.

1.2 The public debate on Hong Kong's health care financing policy could be dated back to 1993 when the Government published the document "Towards Better Health", also known as the "Rainbow Document". This consultation document highlighted the need to reform the health care system and identified five options as possible remedies. The proposed options included percentage subsidy approach, target group approach, coordinated voluntary insurance, compulsory insurance, as well as prioritisation of treatment. As none of these options or a combination of them could command a majority consensus in the community, the status quo was preserved at the end of the consultation period.

1.3 In late 1997, the Government commissioned the School of Public Health of Harvard University to study Hong Kong's health care system and to propose alternative options to improve the financing and delivery of health care. In its study report published in April 1999, the Harvard consultants questioned the long-term sustainability of our current health care financing system. It proposed a Health Security Plan (HSP), essentially a social health insurance, which spread the financial risks arising from serious illnesses among the entire population and which relied on substantial co-payments and deductibles to manage patient demand and address the financial challenge. The radical proposal was

not well received by the general public because the scheme involved inter-generation subsidisation, and given the aging population and the declining percentage of young people in Hong Kong, the scheme would put undue funding pressure on future generations.

1.4 In December 2000, taking into consideration the outcomes of the abovementioned consultation exercise, the Government proposed in the "Lifelong Investment in Health: Consultation Document on Health Care Reform" three strategic directions to address the issue of financial sustainability of our health care system, as follows:–

(a) To contain costs and to enhance productivity;

(b) To revamp public fees structure to better target public subsidies to those in need; and

(c) To initiate studies to assess the feasibility of establishing Health Protection Accounts (HPA) in Hong Kong.

1.5 The third strategic direction involves the introduction of a mandatory saving scheme to prepare the contributors to pay for their own health care expenditure in the longer term, with individuals putting a certain percentage of their earnings to a personal account during working years to assist them to pay for medical services at public sector rates in old age.

1.6 Against this background, a Study Group involving medical doctors, epidemiologists, actuaries, economists, statisticians and social scientists from local universities, Health, Welfare and Food Bureau (HWFB), Hospital Authority (HA) and Department of Health (DH) was formed to assess the feasibility of establishing the HPA scheme.

Objectives and Scope of the Study

1.7 The objective of the study was to examine the merits or otherwise of a HPA scheme and its feasibility for application in Hong Kong.

1.8 Specifically, this study was designed to address the following questions:-

(a) What international examples and lessons are pertinent to the HPA scheme?

(b) How does medical savings account compare with other financing options such as social insurance and private health insurance?

(c) What are the public's views on contributing to medical savings accounts?

(d) What are the 'optimal features' of a HPA scheme and to what extent can HPA assist individuals to pay for medical services in old age?

(e) What are the possible impact of HPA on savings and consumption?

1.9 This report summarizes the major findings of the study, including data and impact analysis, a review of international experience and comparative analysis of various health care financing options, elicitation of public opinions for the concept of medical savings accounts and the illustration of the extent of protection offered by HPA. It also discusses the feasibility of implementing HPA in Hong Kong based on the results of the study.

Guiding Principles of Public Health Care

1.10 A long-held policy of the Government has been to ensure that no one is denied adequate medical care because of lack of means. This serves as the fundamental principle in the health care reform and for the design consideration of HPA. The establishment of HPA should bear specific guiding principles for public health care that include the following:-

(a) Everyone should have equitable access to quality health care for comparable needs. Any reform measures should maintain the existing strengths of the local public health care system in terms of accessibility, equity and affordability, and enhanced quality. There must be a safety net for the financially vulnerable.

(b) Public resources should be used efficiently and public subsidies should be targeted at areas of greatest needs. Those who have the means should bear an affordable share of the medical expenses they have incurred.

(c) There must be a commitment to long-term financial sustainability of the health care system, which can best be achieved through pre-funding. Unnecessary burden should not be passed to future generations.

Concept of HPA

1.11 HPA is essentially a self-insurance scheme of mandatory saving designed to assist individuals to continue to pay for their health care expenditure after their retirement. The features proposed in the consultation document are as follows:-

(a) Every working individual from the age of 40 to 60 will contribute 1-2% of the earnings to a personal account, to cover the future medical needs of both the individual and the spouse, with the savings attracting investment returns.

(b) The savings cannot normally be withdrawn until the person reaches the age of 65 (or earlier in case of disability). Upon withdrawal, the savings can be used either to pay for medical and dental expenses at public sector rates, or to purchase medical and dental insurance plans from private insurers.

(c) If the person chooses services in the private sector, the person will still be reimbursed only at the public sector rates from the accumulated savings. The price difference will

have to be met either from the person's own means outside the savings account or from the entitlement of private insurance.

(d) In the case of the death of an individual, any unspent savings left in the account will be passed on to the surviving family.

1.12 The objectives of HPA are –

(a) To generate individual savings to pay for their health care expenditure after their retirement, thus sharing the responsibilities and financial risks for their health without shifting the burden to the next generations.

(b) To promote personal responsibility in utilisation for health care and contribute to the long-term sustainability of the system.

1.13 HPA would also encourage and facilitate the insurance industry to play a more active role in health care financing by formulating products which merges with the proposed HPA scheme, hence giving the public more choices of care and gradually reducing their reliance on public health care services.

Chapter 2 Methodology

Chapter Main Points

2.1 All Health Protection Account (HPA) studies are based on information from the Thematic Household Survey conducted in 2002 and health care utilisation data from the Hospital Authority.

2.2 Methodology of the studies include:-

a) Literature research;
b) Descriptive statistical analysis on savings behaviour in Hong Kong;
c) Regression model analysis on the patterns of health care utilisation;
d) Projection of future health care utilisation using sophisticated probability model;
e) Discussions with focus group participants;
f) Actuarial simulation to illustrate the HPA scheme; and
g) Statistical approximation and simulation of the economic impact of HPA.

Data Source

2.3 All Health Protection Account studies employed data mainly from a Thematic Household Survey conducted by the Census and Statistics Department on the topics of health status of Hong Kong residents, doctor consultation, hospitalization, dental consultation, provision of medical benefits by employers/companies and coverage of medical insurance purchased by individuals. The survey covered the entire land-based population in Hong Kong, which was conducted during May to July 2002. The sample population included non-institutional residents in domestic households and institutional residents who resided in institutions with residential services, such as elderly homes, hostels for mentally handicapped persons and half way houses for ex-mentally ill persons. Temporary travellers in hotels and persons living on boats were excluded.

2.4 Survey data were collected through two structured questionnaires for the institutional and non-institutional residents respectively. All institutional and non-institutional residents were approached for face-to-face interview during personal visits. Quality of the survey was assured by proper training of interviewers and monitoring of fieldwork supervisors, followed by checking and validation of the collected data.

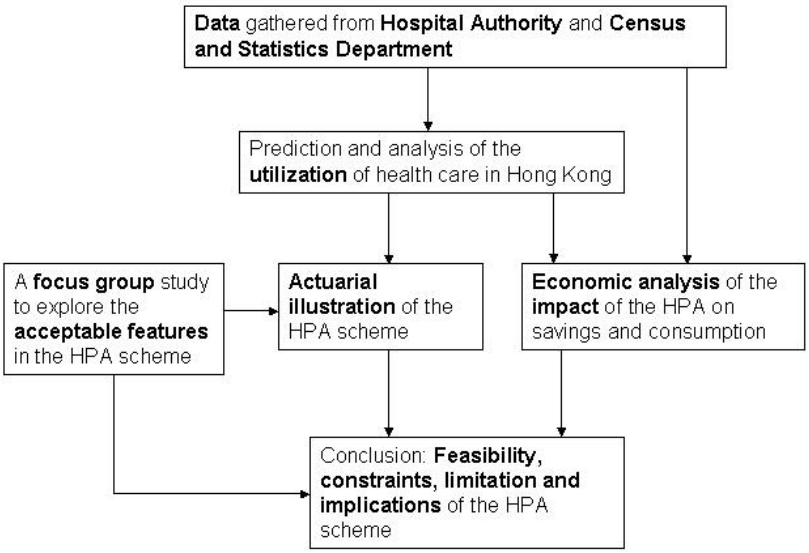
2.5 For non-institutional residents, the survey approached 12,781 households and successfully interviewed 10,015 households, representing a response rate of 78.4%. Among these 10,015 households, 29,561 persons were interviewed. For institutional residents, the survey included 2,171 valid cases of institutional residents and successfully interviewed 2,111 persons, representing a response rate of 97.2%. A total of 31,672 responses were obtained in the Thematic Household Survey.

2.6 The Thematic Household Survey covered data on socio-demographic characteristics, including income and education levels, self-perceived health status and health care utilisation as well as medical benefit and insurance coverage. Other sources of data came mainly from computerized databases in the Hospital Authority. The wide coverage of aspects of livelihood in the Thematic Household Survey enabled detailed studies on the behavioral characteristics of the Hong Kong population related to proposed HPA scheme.

Methodology in Each Component of the HPA Study

2.7 The HPA study can be separated into six major components: Studies on overseas health care financing options, savings behaviour, determinants and projection of health care utilisation, public views and opinions, performance and, finally, the economic impact of the HPA scheme. The organisation chart of the HPA study is depicted below:-

Figure 2.1 The Organisation Chart of the HPA Study



2.8 In the following sub-sections, the methodology employed in each of the study will be reported and discussed briefly.

Literature research on health care financing options and overseas experience

2.9 The first study produced an up-to-date review of the literature about health care financing options in selected (European Union) EU and Asian countries. The study composed of descriptive analysis of the mix of funding source for health care and evaluation of different health care funding options. The pros and cons of various funding options were then compared. The health care financing options, in particular, social insurance scheme in the EU countries and the medical savings scheme in Singapore were examined in greater depth.

Statistical analysis of savings behaviour

2.10 The study of savings behaviour in Hong Kong composed of two parts. Both parts employed the data from the Thematic Household Survey. The first part of the study performed a descriptive statistical analysis on personal savings behaviour. The second part focused on the analysis of potential economic impact of HPA.

Study on determinants and projection of health care utilisation

2.11 The study had adopted the Anderson (1985) health behavioral model as the basic framework for explaining and studying the health care utilisation in Hong Kong. The model was first proposed in 1968 and subsequently revised in the field of the study of public health. The study on the determinants of health care utilisation employed the Thematic Household Survey data to perform regression model analysis to uncover health care utilisation pattern across groups with different demographic characteristics (such as age and gender), behavioral pattern (such as smoking), self-perceived and doctor-diagnosed health care status (known as need factors), and medical benefit coverage and insurance (known as enabling factors). Logistic, Poisson and negative binomial models were used to study the hospitalization pattern. All results were generated using statistical package STATA 8.

2.12 The study of the projection of future health care utilisation employed the actual hospital utilisation records from the Hospital Authority's computer database (along with the modelling assumptions for hospitalization pattern in the private sector) to project the health care utilisation of individuals with certain demographical characteristics over their remaining lifespan. With the available cross-sectional data, the probability of various levels and intensities of health care utilisation were calculated for different age-sex cohorts. The projection was then based on the cross-sectional data on the hospitalization pattern for different age-sex groups from 15 to 84.

Focus group research on public's views on medical savings scheme

2.13 The public's views and opinions about a medical savings scheme, particularly related to the HPA scheme, were elicited through focus groups interviews. Focus group is a common research technique in which target persons are organized into informal gatherings to discuss a specific topic. The purpose of such gatherings is to ensure that the perceptions will be obtained in a free, relaxing and non-threatening environment. Comments obtained in a focus group research could provide useful information about the general impression of the target person on the topic in question.

2.14 The participants in the focus groups were selected based on some selected demographic criteria, such as gender, educational level, economic status and insurance coverage. The six groups were separated according to different age-income composition. These groups with varying demographic backgrounds were formed to represent the overall composition of the Hong Kong population. The purpose of the study and the background information about the concept of medical savings were explained to these groups. The participants were presented with a hypothetical medical savings scheme with some basic design features. This was followed by open discussion. The participants were also asked to identify the favourable and non-favourable features about the medical savings scheme in the interviews.

Actuarial illustration of HPA

2.15 The illustration of the HPA scheme using actuarial simulation model mainly addressed three areas including:-

(a) The extent of the protection coverage;
(b) The duration of protection, and
(c) The risk of insufficient coverage against financial risk due to episodes of illnesses.

2.16 The study employed the income distribution data from the Census and Statistics Department and the information from the study projection of health care utilisation (as described in 2.11) to study the protection offered by the proposed medical savings accounts. The analysis took into account some of the public's views and opinions concerning the medical savings scheme from the focus group study (as described in 2.13) for the parameterization of the simulation model.

2.17 The acturial model studied a simulated population of individuals until death in the absence of migration flow. It also incorporated accumulation phases of various starting age of contribution and disbursement phases that began at age 65. The study aimed at acquiring information with respect to: (i) the simulated amount of HPA savings and post-retirement expenditure on health care services

(including inpatient and outpatient consumption) financed solely by accumulated savings, and (ii) the extent and duration of protection offered by HPA.

Analysis of the potential economic impact of HPA

2.18 The impact of the HPA scheme was conducted as a part of the study of savings behaviour. Based on the data from the Thematic Household Survey and using the Ordinary Least Square (OLS) regression model, the linear relationship between savings and income after MPF contribution, i.e. the tendency to save at the last dollar income was estimated at both personal and household levels (see Stock and Watson for methodological details). All the results were generated in statistical packages SPSS and STATA 8. The information mentioned above was then used to approximate the potential impact of the HPA scheme on the personal level of consumption.

2.19 The impact of the HPA scheme on consumption was further approximated at the aggregated level by using a sophisticated microeconomic-based simulation model. The model allowed for the choice of consumption and savings by individuals and the smoothing of consumption over the lifespan with uncertain chance of survival into old age and health conditions. The HPA scheme was modeled on forced savings scheme under which only when illness occurred the amount of HPA contribution could be withdrawn for health care spending. The potential drop in consumption in the percentage of income after MPF contribution that followed the implementation of the HPA scheme was the main focus in both studies.

Reference

Anderson, RM. 1995, "Revisiting the behavioral model and access to medical care: does it matter?" *Journal of Health and Social Behavior*, 36: 1-10.

Stock J. and M. Watson, 2003, Introduction to Econometrics, Addison Wesley.

Chapter 3 Comparative Analysis of Health Care Financing Options

Chapter Main Points

3.1 The main sources of health care financing include general taxation, social health insurance, private health insurance, and out-of-pocket payments. Most health care systems rely on a mix of these funding sources.

3.2 A comparative analysis of the major features of the various financing options in selected Asian economies is also given, with special focus on the health care financing situation in Hong Kong and Singapore's experience in medical savings accounts. Similarly, the practices and experience of social health insurance in EU countries are also described.

Health Care Financing Options

General taxation

3.3 The financing of health care through general taxation is widely regarded as being highly efficient from a macroeconomic perspective. It delivers strong cost containment and forcing prioritization through the overall cash-limited health care budgets set by the government. Under tax financing, the government has both a strong incentive and the capacity to control costs. General taxation is also an efficient way of funding health care from a microeconomic perspective. It typically involves low administrative costs. It is sometimes suggested that a reliance on general tax financing can leave a health system vulnerable in times of economic and fiscal difficulties. Funding health care through general taxation ensures universal access to services irrespective of ability to pay, with minimum separation between an individual's financial contributions and their utilisation of health care services.

Social health insurance

3.4 In social insurance systems, employer and/or employee earnings-related contributions are usually paid to and managed by social insurance or 'sickness' funds. Social insurance contributions are raised from a narrower base than general taxation, with the costs falling mainly on employers and employees rather than the wider group of taxpayers. A criticism of traditional social insurance systems is that these sickness funds produce little incentive to seek to contain the payments they make to health care providers because of their ability to raise contribution rates. As a result, many argue that cost control under traditional social insurance models has been weak and has resulted in inefficient use of resource. Sharply rising costs and emerging deficits in social insurance funds in recent years have led several countries to introduce reforms to their social insurance systems moving towards financing arrangements where they can exert greater control on the overall level of health spending.

Private health insurance

3.5 Private health insurance schemes are taken out by individuals or by employers on their behalf. The extent to which private health insurance finances health spending and the nature and coverage of private insurance varies considerably across countries. In some countries (for example the US) private insurance is relied on by a majority of the population as their sole means of cover. In other countries, private insurance is largely taken out by higher income groups, either in place of social insurance or in addition to cover provided by the government. The level of access to health services is determined by the level of insurance cover which an individual can afford to purchase, and contributions are based not on ability to pay but on an individual's health risk rating as assessed by the insurer. It will usually be the poorer, older and less healthy in society who are considered by private insurers to have the greatest health risk and therefore face the highest insurance premiums. Such private insurance financing is highly regressive and inequitable.

Out-of-pocket payments

3.6 Out-of-pocket payments are made directly by patients for the use of particular health services, in either the public or private sector. Patients may be required to pay for all or part of the cost of a particular publicly provided service through user charges. In addition, individuals are increasingly choosing to pay privately for specific interventions as and when they need them. An efficiency argument in favour of such charges is that they can help to encourage the responsible use of resources by limiting wasteful and unnecessary activity and contain the total amount of health expenditure which the government has to finance publicly. However, there is also evidence that high charges can discourage people from seeking treatment at all, or can direct them to other areas of a health system where charges are not levied.

Medical savings accounts

3.7 Medical savings accounts are personalized accounts into which individuals contribute a proportion of their income regularly in order to save for future medical costs. Medical savings accounts can be defined as the voluntary or compulsory contribution of payments by individuals, households or firms into personalized savings account that serve to spread the financial risk of poor health over time. Savings in this account can be withdrawn for health care expenditures. The medical savings accounts scheme alone is similar to any savings account scheme, with no horizontal pooling of risk. Thus, individuals are still at risk for high expenditures from a catastrophic or chronic injury/illness. To minimize this risk, medical saving accounts are usually accompanied by a health insurance against catastrophic costs.

Health Care Financing in Selected Asian Economies

3.8 A comparison of health expenditure data in six Asian economies including Hong Kong revealed (i) a wide range in the size of expenditure in health care in terms of total percentage of GDP, and (ii) a significant variation in the ratio between public and private expenditure in health care. In 2001, the total health care expenditure as a percentage of GDP varied from 3.9% in Singapore to 8.0% in Japan (Table 3.1). The

proportion between the public expenditure and the private expenditure in health care were different in these economies, with Japan at the high end of public expenditure (77.9%) while Singapore committed the least to public funding (33.5%). Comparatively, Hong Kong's public expenditure (53.8%) was just slightly more than its private expenditure (46.2%) in health care.

Table 3.1: GDP per Capita, Personal Income Taxation & Proportion of Health Care Expenditure of Selected Economies (2001 data)

Economy	GDP per capita[1] (US$)	Highest rates for personal income tax [2]	Health care expenditure[3]		
			As a % of GDP	Public funding (% of total)	Private funding (% of total)
Hong Kong	24,850	17.0%	4.6	53.8	46.2
Japan	25,130	50.0%	8.0	77.9	22.1
South Korea	15,090	36.0%	6.0	44.4	55.6
Mainland China	4,020	45.0%	5.5	37.2	62.8
Taiwan	17,200	40.0%	5.9	66.1	33.9
Singapore	22,680	28.0%	3.9	33.5	66.5

Notes:-

1. Figures refer to purchasing power parity adjusted figures extracted from the Human Development Report 2003 published by the United Nation Development Programme (except for Taiwan).

2. Include central and local government taxation.

3. Figures (except for Hong Kong and Taiwan) are extracted from the World Health Report 2003 published by World Health Organization (WHO). Figures for Hong Kong are extracted from the Special Report on Estimates of Domestic Health Expenditures included in the Harvard Report published in 1999. Figures for Taiwan are published in the Governmental budget & settlement, Bureau of National Health Insurance of Taiwan.

3.9 It is worth noting that Hong Kong boasts the lowest personal income tax (17%) in comparison with all the other selected economies in Asia. Japan, for example, has the highest personal income tax at 50%. Personal income tax is a major component in general taxation. This would probably explain how and why Japan is able to commit such a large portion of public expenditure (77.9%) in health care. While Japan, South Korea, Taiwan and China have relatively high personal income tax, Hong Kong and Singapore are both at the lower end with the personal

income tax in Singapore 11% higher than that of Hong Kong. Despite this, Singapore also has a higher private expenditure in health care than Hong Kong, which has been facilitated by the Medisave, the Singarporean version of their medical savings scheme. Hong Kong, however, draws revenue from a very narrow tax base, making it more difficult to increase the allocation from general revenue to public expenditure in health care. In comparison with the other economies in Asia, Hong Kong's health care expenditure in terms of total GDP (4.6% of total GDP) is still relatively small. It would appear that any intention to increase the proportion of health care expenditure in Hong Kong would need to be sought from sources outside the general taxation.

Sources of Funding

3.10 The sources of health care financing in these economies are diverse. A more detailed breakdown (Table 3.2) shows that while public expenditure is made up of general taxation and social health insurance, private expenditure is a mix of private health insurance, out-of-pocket payments and other private sources. Of these, general taxation, social health insurance and out-of-pocket payments are the three main funding sources for health care. Hong Kong is exceptional amongst the Asian economies in not having any funding from social health insurance. It is also the only economy with general taxation (53.8%) being the predominant source of revenue. Private health insurance as a whole has not played any significant role in any of the economies, apart from South Korea, where in 2001, the private health insurance had accounted for 9.6% of the total expenditure in health care.

Table 3.2: Proportion of Health Care Expenditure[1] by Funding Source of Selected Economies (2001 data)

Economy	General Taxation	Social Health Insurance	Private Health Insurance	Out-of-Pocket Payments	Other Private Sources[2]
Hong Kong	**53.8%**	-	1.6%	37.6%	7.0%
Japan	12.8%	**65.1%**	0.3%	16.6%	5.2%
South Korea	10.1%	34.3%	9.6%	**41.3%**	4.7%
Mainland China	18.3%	18.9%	0.3%	**59.9%**	2.6%
Taiwan	8.7%	**57.3%**	-	30.0%	4.0%
Singapore	25.3%	8.2%	-	**64.5%**	2.0%

Notes:-

1. Figures (except for Hong Kong and Taiwan) are extracted from the World Health Report 2003 published by WHO. Figures for Hong Kong are extracted from the Special Report on Estimates of Domestic Health Expenditures included in the Harvard Report published in 1999. Figures for Taiwan are published in the Governmental budget & settlement, Bureau of National Health Insurance of Taiwan.

2. Other private sources include non-profit making institutions which provide health goods or services free or at subsidized price and corporations which provide medical benefits to their employees directly.

Singapore Experience in Medical Savings Accounts

3.11 Singapore is the first economy in the world to implement medical savings accounts on a nationwide basis (known as Medisave and established in 1984). It is the only country which integrates medical savings account program within the national health financing structure. Medisave accounts are embedded in a broader framework that backs up the medical savings accounts with a cross-sectional catastrophic risk pooling scheme called Medishield (introduced in 1990) and a means tested safety net for the poor called Medifund (introduced in 1993). This three-tier package (Medisave, Medishield and Medifund) is backed up by government financing of supply-side subsidies to public providers aimed at lowering the net prices charged to patients.

3.12 Contributions to Medisave are an integral part of Singapore's compulsory Central Provident Fund (CPF), which is funded by a mandatory payroll tax equivalent to 40% of wage bill, split evenly between employers and employees. Between 6-8 percentage points are allocated to the member's Medisave account. These contributions are income tax-deductible, interest bearing and can accumulate up to S$19,000. Withdrawals from the accounts can be used to pay medical bills incurred by the account holder and immediate family members, but subject to two important exclusions: ambulatory care services and defined hospitalization expenses caps. Claims for Medishield are subject to a high annual deductible (S$1,000), a 20% co-payment and claims limit of S$20,000 per policy year and S$80,000 per lifetime. As a last resort,

patients unable to pay their bills at government hospitals can apply for the Medifund.

3.13 The Singaporean system has shifted from a tax-based national health services model to a mixed model with a combination of taxation and savings, with limited insurance only for catastrophic illness. It still retains the dominant role of the public sector in providing essential medical services. It limits insurance only for "insurable" expenditure (i.e. high-cost events of low probability). Thus, the role of the state is a last resort to support the truly needy, while average individuals and families are expected to contribute towards greater cost sharing of increasingly expensive health care, so as to encourage self-reliance.

EU Countries Experience in Social Health Insurance

3.14 Health care systems in most EU countries rely on a mix of funding sources, and mainly derived from public expenditure, i.e. taxation and social health insurance. Table 3.3 shows the proportion of total health expenditure from social health insurance and taxation, and the proportion from private sources in selected EU countries.

Table 3.3 Percentage of Total Expenditure on Health from Taxation and Social Health Insurance in Selected OECD Countries.

Economy	General Taxation	Social health insurance	Other private sources
France	2.7	73.4	23.9
Netherlands	3.9	59.4	36.7
Germany	6.2	68.8	25.0
Luxembourg	15.1	72.7	12.2
Austria	27.2	42.5	30.3
Finland	59.8	15.8	24.4
Spain	64.9	6.6	28.5
Italy	75.1	0.2	24.7
Ireland	75.2	0.8	24.0
United Kingdom	82.2	0.0	17.8
Denmark	82.4	0.0	17.6

3.15 Taxation plays a role in funding health services in nearly all European countries. It is the predominant source of revenue in Denmark, Italy, Portugal, Spain, Sweden and the United Kingdom. Social health insurance contributions are the predominant source in France, Germany, and the Netherlands. Belgium, Greece and Switzerland have dual systems with about equal proportions funded from taxation and social health insurance.

3.16 Social health insurance is popular in EU countries. In some countries, social health insurance operates as a parallel system to taxation. Contributions are legally mandatory, which is independent of risk and are separated from taxation. Both employers and employees usually share the contributions. However, their shares of contribution vary considerably between countries, as shown in Table 3.4 below.

Table 3.4 Contribution Rates and Proportion of Employer/Employee Contributions in Selected Countries

	Contribution rate	**Employer/employee**
Belgium	7.4%	52/48
France	13.6 %	94/6
Germany	Varies, 14.3% mean	50/50
Netherlands	8.1%	78/22

Source: European Observatory on Health Care Systems

3.17 Contributions may be collected by individual funds as in Germany, a central fund as in the Netherlands or by local branches as in France. In Germany, there is an income ceiling for contribution and thus the system is mildly regressive. On the other hand, there is no income ceiling and no exemption in France. Contribution is thus progressive. Membership for social insurance may be assigned either according to occupation and/or region. Those not eligible for membership may be covered through a tax finance system of health care, social assistance, a compulsory or voluntary purchase of health insurance. There is usually a mechanism to ensure risk pooling between competing social insurance funds.

3.18 Coverage is not usually universal, which may be limited to certain income or occupational groups or may depend on contributions

made. Non-mandatory members of social health insurance have the right to opt-in in Germany. The majority in most countries, however, is compulsorily insured under social health insurance. In France and many eastern European countries, health care coverage is a universal right, based on residency and/or citizenship. The introduction of universal coverage in France is perhaps the most significant recent attempt to increase access to health care in any social health insurance system. Meanwhile, a survey of EU countries found that the public would accept increases in insurance contributions if the health care provided in return were perceived as efficacious and efficient. In Germany, increasing contributions is more readily accepted than curtailing benefits, such as exclusions and co-payments.

3.19 In the late 1980s and 1990s, competition between insurers in social health insurance systems in Germany, the Netherlands, Belgium, Switzerland and Israel was introduced. However, it is not evident that choice of insurer increases efficiency. Under certain circumstances it may even give rise to greater inefficiency. Risk selection is a major problem in Germany and Switzerland. Sickness funds have a disincentive to respond to the preferences of high-risk consumers.

3.20 Employers are usually required to contribute part of the cost of social insurance. This can result in higher labour costs and may reduce the international competitiveness of a country's economy. As a consequence, employers may offer (part-time) jobs that pay below the minimum threshold or outsource employment. The potential negative impact of social insurance on industry was one of the justifications for diversifying funding sources from an employee social insurance contribution to an income tax under the Juppé plan in France. Social insurance contributions were believed to inhibit job creation: international comparisons have shown that employment growth in France lags behind other OECD countries. Current reform proposals in Germany are also aimed at reducing the wage labor costs of health insurance.

3.21 Social health insurance may generate insufficient revenue, especially in countries with low participation in the formal labour force. Furthermore, as the ratio of total income from capital income to earned income rises, wage-related contributions become less sustainable. An

increasing proportion of the workforce is self-employed or in multiple occupations, which also increases the difficulty of collecting social insurance contributions.

Implications

3.22 Compared to the selected economies in Asia, Hong Kong has a low tax contribution rate, a very narrow tax base and a relatively high public expenditure for health care. Hence, consideration to increase the proportion of health care expenditure in Hong Kong would most likely have to be generated from sources outside general taxation.

3.23 Medical savings scheme is a recognized health care financing tool. It is, however, not normally deployed in isolation as it is not feasible to have complete self-insurance for health care, particularly in view of the risk of catastrophic illnesses that could result in a huge medical bill. Medical savings account should ideally be complemented by backup insurance for catastrophic illnesses and public funding or subsidy for people with low income and those with chronic diseases.

3.24 The design of social health insurance scheme varies in different EU countries, from the rate of contributions, mode of collection of contributions, health care coverage to choice of insurers. Experience in some of these countries show that social health insurance scheme might raise labour costs and reduce international competitiveness of a country's economy. The scheme may generate insufficient revenue, especially if there is a decline in formal labour force.

Chapter 4 Key Findings of the Statistical Analysis of Savings Behaviour

Chapter Main Points

4.1 Based on the data from the Thematic Household Survey in 2002, the relationships between saving rates and income, age as well as occupation categories were studied. The study found that at least 50% of the working population saved more than 10.45% in 2002. The average saving rate was 13.75%. Saving rates were also found to increase with income and education level, but decrease with age in general.

4.2 Using the same data set, the choice for the HPA contribution rate was explored. It was found that a contribution rate of 2% of income would be generally affordable to the public.

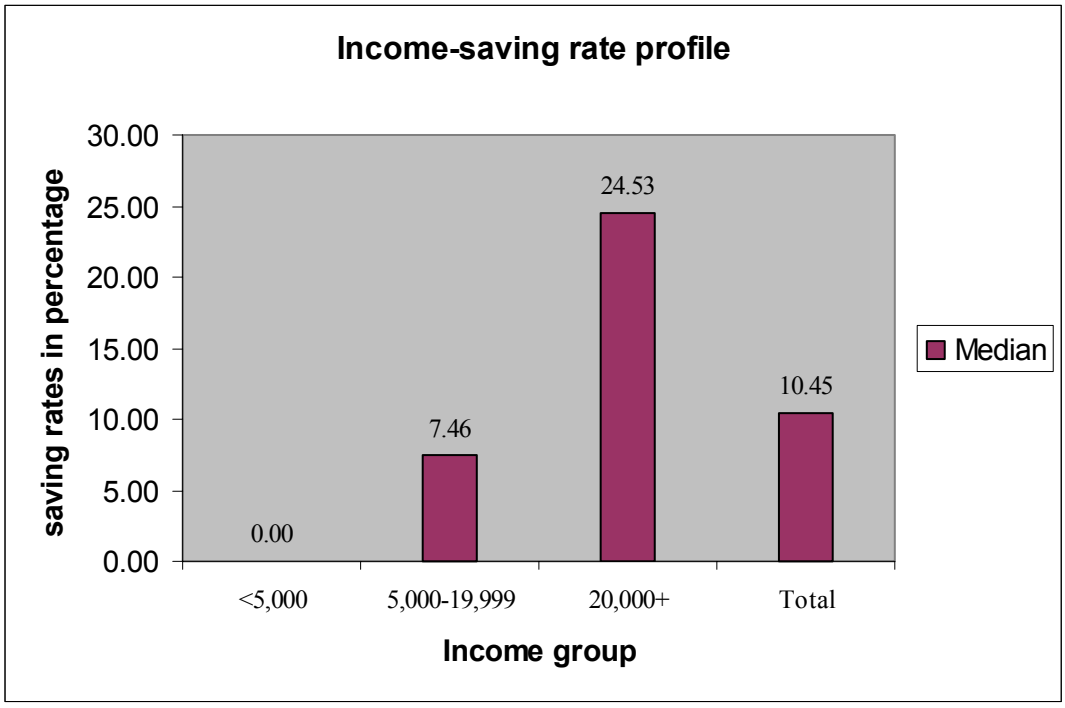
Key Findings of the Savings Study

4.3 The results of the savings behaviour study provided important information on when the HPA scheme may begin and what level of the HPA contribution rate may be acceptable to the general public. An acceptable contribution rate should impose minimal impact on the current savings and consumption behaviour of the contributors. The study employed the Thematic Household Survey conducted by the Census and Statistics Department during May to July in 2002.

4.4 Figure 4.1 reports the relationship between income (net of MPF contribution) and median saving rates. The study showed that the median saving rates was 10.45%. The median reports the saving rate of the individual at the middle of the distribution of saving rates in an increasing order. Therefore, there was at least 50% of the working population had a saving rate higher than 10.45%. The overall average saving rates for the working population was found to be 13.75%. Saving rates were also increasing with income (net of MPF contribution) in general. For example, the median saving rate increased from 0 to 24.5% from income $5,000 or less to $20,000 and above. The same pattern also emerged for the average and mode saving rates.

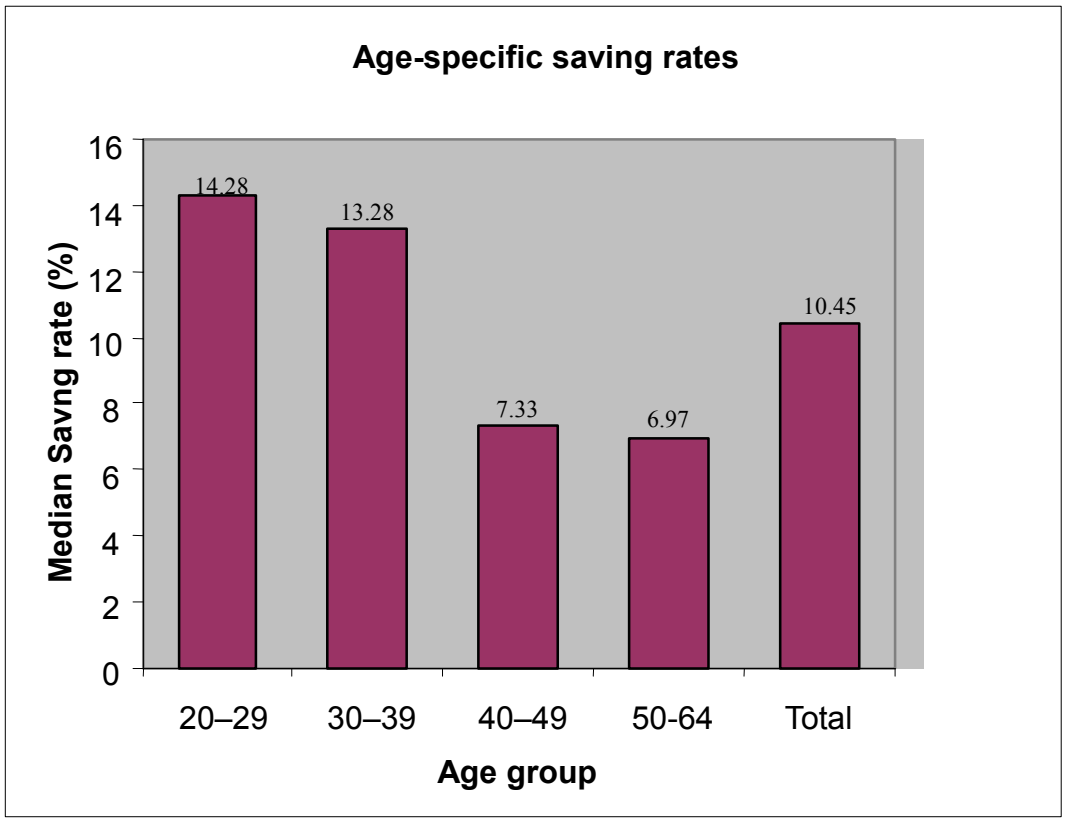
4.5 More importantly, the low-income group with monthly salary (net of MPF contribution) less than $5,000 had a zero median saving rate, as depicted in Figure 4.1. This means that half of the working population in this income group had a zero saving rate. For the implementation of the HPA scheme, the finding suggests that it may be inappropriate to mandate the low-income individuals with income less than $5,000 to contribute to the scheme.

Figure 4.1 Relationship between Income and Saving Rates



4.6 Furthermore, the study also provides a reference on when the contributors may commence contribution. Figure 4.2 shows the relationship between age and median saving rates.

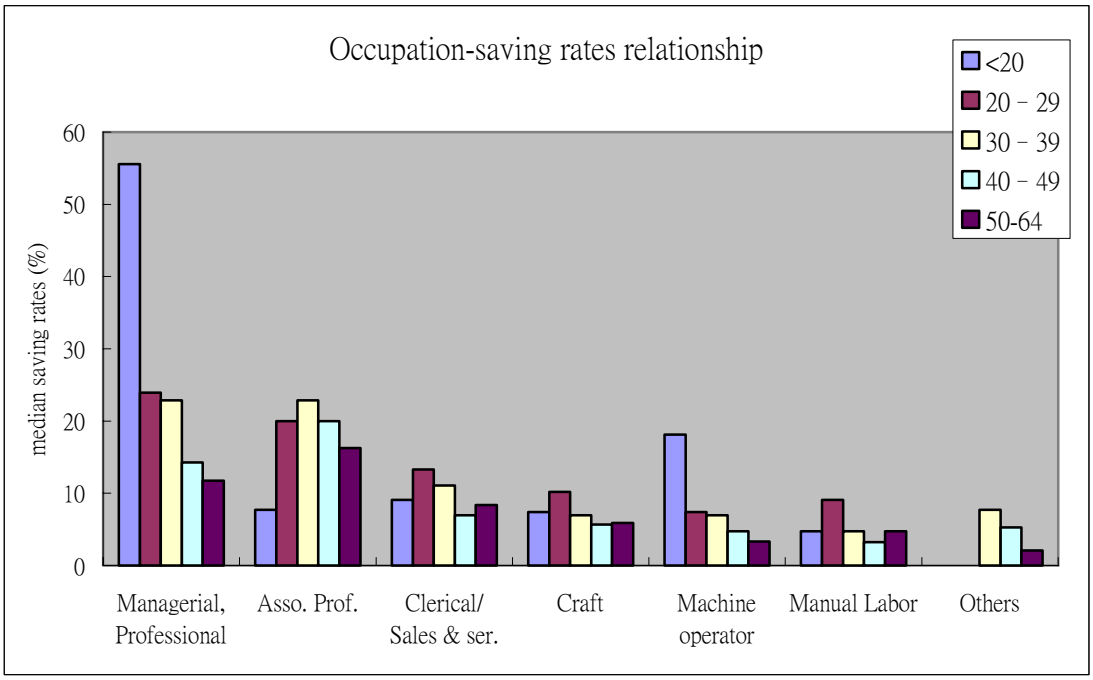
Figure 4.2 Relationship between Age and Saving Rates



4.7 As shown in Figure 4.2, individuals aged 20-29 had the median saving rate of 14.28%,. The median saving rates then fell to 6.97% for individuals aged 50-64. The savings study further revealed that the median saving rate for individuals aged 40-49 was about 7.33%. The figure was 6.95% lower than the median saving rate for the individuals aged 20-29. Similarly, the average and mode saving rates also presented the same pattern.

4.8 Figure 4.3 depicts the saving rates of different age groups in various job categories. A pattern similar to the relationship between age and saving rate emerged. The youngest age group in most job categories had the higher tendency to save. This finding suggests that the earlier the contribution begins in one's lifecycle, the more affordable the HPA scheme becomes from the perspective of the contributors.

Figure 4.3 Relationship between Occupation Categories and Saving Rates



4.9 The findings above suggests that the HPA contribution should begin early in one's lifespan so as to raise its affordability with minimal effect on savings and consumption. This observation is reinforced in the actuarial illustration of the HPA scheme discussed in Chapter 7 of this report.

4.10 The study has also addressed the issue of the HPA contribution rate. According to the "Lifelong Investment in Health: Consultation Document on Health Care Reform" in 2000, the contribution rate was proposed to be set around 1 to 2%. The findings in the study of savings behavior indicated that the proposed contribution rate of 2% would be generally affordable to most age and income groups.

4.11 One important point to mention here is that studies on income and savings behaviour generally encounter problems of under-reporting. This phenomenon may also have occurred in this study. The overall saving rate described in this report may therefore be an underestimate.

Implications

4.12 Individuals with monthly salary $5,000 or less may be considered exemption from contribution. Meanwhile, contribution to the HPA scheme should preferably start earlier in one's working life.

4.13 A contribution schedule that varies with age may be more affordable to different age-income groups.

Chapter 5 Determinants and Projection of Health Care Utilisation

Chapter Main Points

5.1 The Thematic Household Survey data and the health services utilisation data from the Hospital Authority were used to study the relationship between health care utilisation and a number of variables, including age, chronic condition and health insurance coverage.

5.2 It was found that:-

(a) The overall in-patient utilisation rate increases exponentially with age, particularly from 60-64 years onwards.

(b) Statistically, the overall in-patient utilisation rate for the group aged 75 and above is 80% higher than the group aged 15-24.

(c) A person with a long-term illness condition would utilize heath care services up to 3 times the amount utilized by another person without the condition.

(d) Individuals with health insurance or medical benefits would utilize up to 84% more health care services than those without.

(e) Health services utilisation is heavily skewed: 40% of the total post-retirement health care services would be utilised by the top 10% users.

Key Findings of the Determinants of Health Care Utilisation

5.3 Using the Thematic Household Survey data in 2002 and health services utilisation data from the Hospital Authority, a study was conducted to examine the relationship between the in-patient utilisation and factors such as age, sex, education level, income, economic activity status, smoking history, self perceived and verified health status, as well as medical benefit and insurance coverage. The results of the statistical

analysis were reported in odds-ratios. An odds-ratio describes the utilisation rate of health care in a selected condition in excess of the benchmark utilisation rate.

Age

5.4 Table 5.1 shows the relationship between age and health services utilisation. The baseline for calculating the utilisation rate was by using that of the group aged 15-24 as benchmark. This was done by setting their average utilisation rate at unity. The utilisation rate of the other age groups was then obtained by comparing to this benchmark age group.

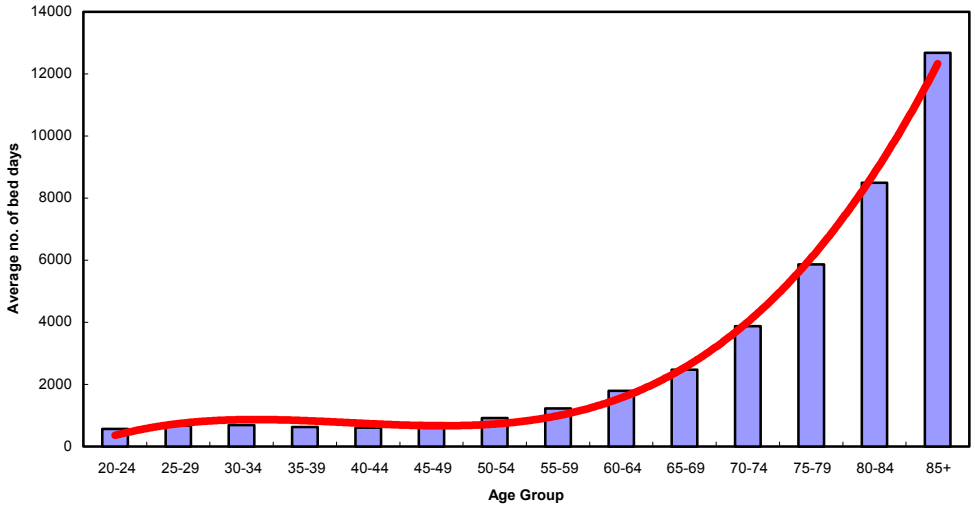
Table 5.1 Age and Health Care Utilisation

	Overall		**Public Sector**		**Private Sector**	
Age	*	Range	*	Range	*	Range
65-74	1.17	(0.86 - 1.59)	1.13	(0.81 - 1.58)	0.8	(0.32 - 1.97)
75 and above	1.8	(1.28 - 2.53)	1.74	(1.21 - 2.52)	1.06	(0.35 - 3.16)

* 1 for the group aged 15-24

5.5 It can be observed that the overall in-patient utilisation rate for the groups aged 65-74 and 75 and above were 17% and 80% higher than the benchmark age group respectively. The result was statistically significant for the older age group 75 and above. Sub-group analysis further showed that the higher utilisation rate for both age groups tended to occur in the public sector, rather than the private sector.

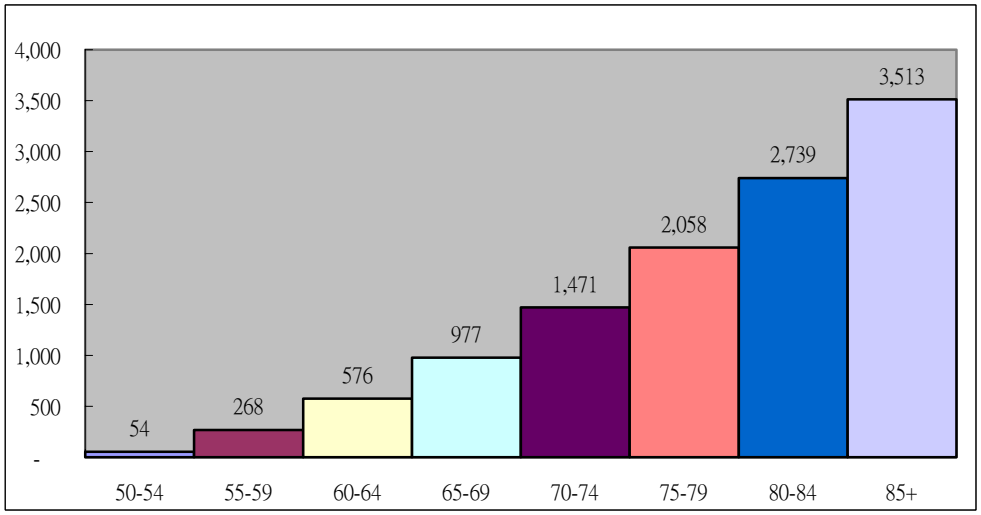
Figure 5.1 Average Number of Bed-Days for 1,000 Persons and Age Group in 2002



5.6 In addition, data from the Hospital Authority showed that the average number of in-patient bed-days per 1,000 population was increasing exponentially with age, particularly from 60-64 years onwards.

5.7 Figure 5.2 quantifies graphically the effect of ageing on the use of in-patient services. It can be observed that the in-patient bed-days utilization per 1,000 population for the age groups 75-79, 80-84 and 85+ were respective more 3½, 4½ and 6 times greater than that for the age group 60-64.

Figure 5.2 Effect of Age on In-patient Utilization per 1,000 Population



Chronic condition

5.8 Table 5.2 reports the relationship between chronic condition and health services utilisation. The findings showed that individuals with a chronic condition would utilize 3 times the amount of public health care services, or 2.5 times the amount of private health care services, as compared to those without such a condition.

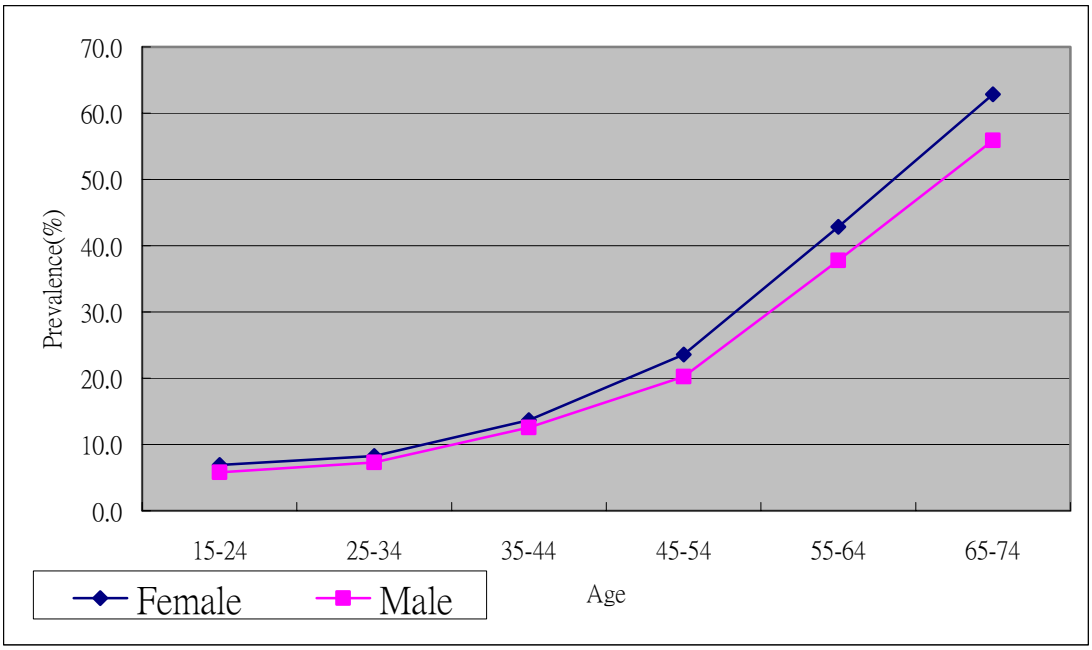
5.9 Figure 5.3 depicts the prevalence of chronic disease by age groups. It can be observed that the prevalence rate increased more than 6 times from age 20 to 80 for both male and female.

Table 5.2 Chronic Condition and Health Services Utilisation

	Overall		**Public Sector**		**Private Sector**	
	*	Range	*	Range	*	Range
Presence of a chronic condition	2.93	(2.54 -3.37)	3.11	(2.65- 3.66)	2.5	(1.9 - 3.29)

* 1 for without chronic condition

Figure 5.3 Effect of Age on the Prevalence Rate of Chronic Disease



Health insurance coverage

5.10 If individuals were covered by health insurance, it would be likely that the out-of-pocket expenditure on health care could be lowered. Consequently as a result of the relative lowering in out-of-pocket expenditure, these individuals might relatively utilize more health care services. This phenomenon is known technically as the "moral hazard" problem. Table 5.3 depicts the relationship between health insurance and health services utilisation.

Table 5.3 Health Insurance and Health Services Utilisation

Health insurance	**Overall**		**Public Sector**		**Private Sector**	
		Range		Range		Range
Hospitalization overall	1.47*	(1.29,1.68)				
Public hospitalization			1.49*	(1.25,1.77)		
Private hospitalization					1.84*	(1.39,2.44)
Insurance coverage including riders	1.51#	(1.3,1.76)			3.85#	(2.85,5.22)

* 1 for without any health insurance or medical benefit coverage
# 1 for without insurance coverage (including riders)

5.11 Insurance coverage or medical benefit would generally increase public and private hospital care utilisation. The study findings showed that for individuals with medical insurance, the demand for public hospital care was 47% higher than those non-insured. For insured individuals with medical benefits for private hospital care, the demand was correspondingly 84% higher than for those without the benefits. For people with insurance and riders for medical coverage, the demand for private hospital care was almost 4 times higher than for those without coverage. These findings suggest that medical benefit insurance coverage even in the form of riders would induce greater utilisation of hospital care.

5.12 Other key findings include:-

(a) Females used more public health care service than males;
(b) People with higher education and income level used more private health care service;

(c) People with smoking history used more health care services, and
(d) The unemployed, and people with poor self-perceived health status used relatively more public than private health care.

Key Findings of the Projection of Health Care Utilisation

5.13 Data from the Hospital Authority was employed in a sophisticated probability model for the projection of health care utilisation. The projection reported the utilisation of health care services for different age groups for the rest of their lives up to age 89. For the purpose of HPA scheme, Table 5.4 reports the projection of inpatient and outpatient care utilisations for the sub-groups of individuals aged 65-69 over a 20 year period.

Table 5.4 Projected Health Care Utilisation for the Age Group 65-69 Over the Following 20-Year Period.

		Average utilisation	Light users#	Heavy users#	Heaviest users#
Inpatient care	Male	86 days	≤19 days	≥ 122 days	≥181 days
	Female	91 days	≤14 days	≥124 days	≥ 186 days
Outpatient care	Male	190 visits	≤ 80 visits	≥ 318 visits	≥ 349 visits
	Female	263 visits	≤ 125 visits	≥392 visits	≥ 415 visits

The light users were the first 20th% of the distribution for the age group. The heavy users were the last 20% of the distribution. The heaviest users were the last 10% of the distribution for the age group.

5.14 Females were projected to use more inpatient and outpatient care than males. The average in-patient bed-days utilisation was projected to be 86 days for males and 91 days for females. However, the heaviest user would utilize up to 181 days or more for males and 186 days or more for females. A similar pattern was also found for outpatient care. Males were projected to have 190 visits for outpatient care while females were projected to have 263 visits over the 20-year period. However, the heaviest user would have up to 349 visits or more for males and 415 visits or more for females. It was noteworthy that

40% of the total health care utilisation were projected to be consumed by the top 10% users, indicating that health services utilization was heavily skewed.

Implications

5.15 Health services utilization, and hence health care expenditure, increase with age, particularly after retirement. The need to address post retirement health care expenditure is emphasized by the study findings. HPA may potentially offer protection against this type of financial risk.

Chapter 6 Public's Views on Medical Savings Scheme

Chapter Main Points

6.1 A focus group study was conducted to elicit the public's views on the concept of medical savings account (MSA) scheme. A total of six focus group sessions were conducted. Each focus group had a balanced mix of participants in terms of gender, education level, employment status, and insurance coverage.

6.2 The study successfully elicited the opinions of the participants about the desirable and undesirable features of a MSA scheme and their concerns about the administration and effects of a MSA scheme.

Key Findings of the Focus Group Study

Acceptance of the MSA concept

6.3 The participants could generally understand the concept and the nature of a medical savings account (MSA) through making an analogy with the Mandatory Provident Fund (MPF) system after having two years of experience with the MPF system.

6.4 Low-income group with monthly income less than $10,000 tended to have a higher acceptance of the medical savings scheme concept. This may reflect their expectation that the medical savings scheme would enable them to save more and secure better medical protection.

6.5 Participants aged over 40 were generally more supportive of the concept of MSA. It might be because some older participants had already experienced health problems related to chronic illnesses, while the younger participants considered retirement as too remote.

Desirable features for a MSA scheme

6.6 In the focus group research, participants provided views about desirable features for a MSA scheme, including:-

(a) <u>The need for early medical savings</u>
Most participants anticipated that if people started saving at age 40, the saving amount accumulated up to age 65 would not be sufficient to cover medical expenses after retirement. The participants suggested that contribution should start as soon as they commenced working.

(b) <u>Waiver of contributions</u>
Based on the experience with the MPF scheme, most participants expected that only the working population should contribute to their personal accounts. In other words, the unemployed, the sick or disabled groups who had lost working abilities, and homemakers should not be required to contribute. In addition, participants raised the concern of affordability for the poor. They generally agreed that the group earning less than $5,000 per month should be allowed exemption.

(c) <u>Greater flexibility in the coverage of medical savings</u>
Many participants suggested that a more flexible use of medical savings and greater choice of service providers (both public and private), as well as a wider range of services and products, should be allowed.

(d) <u>Account cap</u>
The higher income participants generally agreed that there should be an account cap for their medical savings accounts, while the lower income participants considered such a cap would generally not affect them.

(e) <u>Inheritance rights</u>
Many participants considered that the medical savings should be regarded as a personal asset. In case they did not

utilise the savings fully before their death, the residual savings should be passed to their family members or a designated person.

(f) Tax exemption

Both the middle and higher income participants were concerned whether their medical savings contributions would be tax deductible.

(g) Catastrophic medical insurance

Many participants considered that the total amount of medical savings, given the relatively low contribution rate, would probably be insufficient to pay for catastrophic health care expenses after retirement. They considered that the MSA scheme would become more attractive if an insurance component was included. Hence, catastrophic health insurance emerged as a significant parameter for increasing the acceptance of MSA. Some participants regarded the Singapore health care system which consists of a mandatory medical savings account (Medisave), a voluntary catastrophic health insurance (Medishield), and a safety net (Medifund) for poorer people as a good example for Hong Kong.

(h) Investment returns

Most higher income participants suggested that there should be sound investment strategies for the MSA and greater choices of investment plans. Most lower income participants, on the other hand, expected only to obtain modest interest from their MSA.

Undesirable features of MSA

6.7 During the focus group discussion, participants also highlighted the following unfavorable design features:-

(a) Mandatory spousal coverage

Few participants expressed agreement to the idea of setting up a separate medical savings account for a non-working

spouse, particular to those who were not enthusiastic about the MSA scheme. For participants who showed greater acceptance of the savings scheme, they considered spousal coverage as an optional feature of a MSA scheme. To many participants, the choice to cover their non-working spouse depended on their income.

(b) Mandatory employer contribution

It was an almost unanimous view among the participants that employer contribution was not a practical idea. Based on the experience of MPF, many participants considered that the employers would find ways to offset their contributions to MSA, for example by reducing their salaries and benefits. A small number of participants, mainly professionals, pointed to the implementation problems involved in a MSA scheme with multiple contributors.

(c) Post-retirement Catastrophic insurance at 65

A small number of participants supported the idea of using the medical savings to buy health insurance after the age of 65. Other participants promptly rejected the idea. Taking into consideration the high prevalence of chronic illness among the elderly, the participants pointed out that it would be difficult for an elderly person to buy an insurance policy at a reasonable price in the private market. In general, they were reluctant to pay a higher contribution rate to enable them to buy a catastrophic insurance after retirement.

Implementation and administration of MSA

6.8 In the focus group discussions, participants also expressed their views about the following issues concerning the implementation and administration of MSA:-

(a) Timing

As the MPF had been in operation for just over two years at

the time of focus group discussions, the general public was still adjusting to the mandatory contributory scheme. For many participants, especially the low-income individuals, MPF had brought less flexibility in the use of their disposable income. The implementation of MSA would certainly be an additional financial burden. Nearly all participants considered that MSA should only be implemented in times of better economic performance.

(b) Simple Administrative Mechanism

Even though the participants understood that the medical savings were to be used exclusively for medical expenses, many still regarded the scheme as a duplication of MPF. Some participants preferred to contribute their medical savings through the MPF scheme. The participants were concerned about the efficiency of the MSA administration. In particular, they expected the reimbursement procedures to be "fast" and "simple". The participants also expected that the suspension of contributions under special circumstances such as unemployment should take effect very quickly.

(c) Management of Accounts

Many participants suggested a specific agency should be designated for the management and investment of the medical savings with close monitoring by the Government. Moreover, they raised the issue of potential administration cost.

(d) Importance of Incentives

Although most participants had expressed that they could afford to contribute to a medical savings scheme, they did not welcome it to be mandatory. The Government would need to show the scheme's benefits to the contributors or build incentives into the scheme.

(e) Public Education

If a medical saving scheme is to be introduced, it is necessary for the Government to educate the public, in particular the younger ones, to understand their future health care needs, the financial implications, and the benefits of having designated savings for medical expenses.

Implications

6.9 The timing of implementation of MSA should take into account of the prevailing economic situation. It is difficult to implement the medical savings scheme during economic downturns.

6.10 The participants showed a consensus that the MSA scheme should cover the whole working population. Contribution should start when one commences working.

6.11 The accumulated fund in the MSA may not protect against catastrophic health care expenses. An insurance component against catastrophic health care spending should be considered. The development of private market insurance products deserves further study.

6.12 The government should educate the public, especially the younger groups, on their post-retirement health care needs to gain support for the MSA scheme.

Chapter 7 An Actuarial Illustration of HPA

Chapter Main Points

7.1 The simulation illustrated that the earlier the contribution began the larger the extent of protection to be conferred by HPA.

7.2 Based on the modeling parameters, the simulation study showed that if contribution began at age 20-29, then the amount of HPA savings would be enough for covering the whole post-retirement health care spending for most contributors. However, for those who used up the HPA savings before death, the duration of protection could last up to at a mean age of 82 years. The illustration further showed that the extent and duration of protection would be reduced, if the contribution age commenced later than age 20-29.

Description of the Simulation Model

7.3 The objective of the actuarial study was to assess the extent of protection offered by the HPA contributors for their post-retirement health care spending. In the simulation, combination of the parameters, such as contribution rates for the medical savings account, cost recovery rates for inpatient and outpatient care were used to determine the extent of coverage offered by HPA. The simulation reported results such as the proportion of contributors who would have a positive lifetime residual account balance, its size, and the duration of protection offered by the account. This chapter describes a set of simulation results as an illustration of HPA under specified model parameters.

7.4 The simulation model parameters included 2% contribution rate, 10% inpatient and 30% outpatient cost recovery rates as well as a 2% annual interest rate, and finally a 1% annual medical inflation. The rate of medical inflation represents the rising cost of health care due to the use of new and innovative health care technology and treatment. The model simulated the residual account balance for contributors over their lifetime with different initial income level and starting age of contribution. The reimbursement rate was set at the rate of the public

user fees. The gender specific utilisation pattern of health care of the contributors was as described in Chapter 5.

7.5 The simulation also made an assumption that a contributor would only use the accumulated HPA contribution to finance their post-retirement health care spending. In the simulation model, no safety net was incorporated and thus all post-retirement health care spending must be covered by out-of-pocket expenditure. If the amount of HPA contribution were exhausted before death, then the contributor would have to borrow at 2% interest rate to finance their health care spending as if there were no other forms of savings, such as MPF or private savings. The model therefore assumed the worst-case scenario of the contributors.

Key Findings of the Actuarial Illustration

7.6 Tables 7.1 and 7.2 report the actuarial illustration of the extent of protection to which the HPA might offer to the contributors of different income level and starting age of contribution.

Table 7.1 A simulation of the HPA for male (in 2002 HK dollars)

Starting age of contribution	Monthly income*	Proportion of contributors with a postive HPA balance until death (%)	Average residual account balance if the HPA is not exhausted (HK$000s)	Average age to first exhaustion of the account balance	Overall account balance for the age-income groups (HK$000s)	Range of post-retirement expenditure in the absence of HPA# (HK$000s)	
20-29	Low	89	139	85	112	-43	-375
	Middle	97	240	83	228	-42	-371
	High	98	264	82	255	-42	-364
	Overall	94	205	84	185	-42	-372
30-39	Low	67	60	83	10	-39	-341
	Middle	91	133	85	111	-38	-338
	High	96	170	84	157	-38	-336
	Overall	88	138	84	109	-38	-338
40-49	Low	39	29	79	-38	-35	-306
	Middle	71	63	83	21	-35	-308
	High	86	89	85	63	-35	-308
	Overall	68	70	82	22	-35	-308
50-64	Low	9	11	73	-77	-29	-271
	Middle	29	24	77	-48	-31	-278
	High	48	35	79	-22	-31	-278
	Overall	26	27	75	-53	-30	-275

Cover 80 percent of the distribution of the post-retirement health care spending.

*Definition of monthly income: Low: $5000-$9999, Middle: $10,000-19,999, High: $20,000+

Table 7.2 A simulation of the HPA for female (in 2002 HK dollars)

Starting age of contribution	Monthly income*	Proportion of contributors with a positive HPA balance until death (%)	Average residual account balance if the HPA is not exhausted (HK$000s)	Average age to first exhaustion of the account balance	Overall account balance for the age-income groups (HK$000s)	Range of post-retirement expenditure in the absence of HPA# (HK$000s)	
20-29	Low	77	117	88	58	-74	-525
	Middle	93	211	88	184	-72	-516
	High	95	240	86	218	-71	-509
	Overall	87	179	88	134	-73	-519
30-39	Low	42	49	83	-50	-66	-472
	Middle	82	120	88	74	-66	-475
	High	90	151	89	120	-66	-469
	Overall	74	121	85	55	-66	-473
40-49	Low	16	23	78	-101	-60	-430
	Middle	50	55	84	-27	-61	-431
	High	72	76	87	23	-61	-433
	Overall	40	58	81	-49	-60	-431
50-64	Low	4	10	73	-127	-53	-390
	Middle	15	21	77	-97	-54	-392
	High	32	30	81	-62	-54	-383
	Overall	12	23	75	-109	-54	-389

Cover 80 percent of the distributio of the post-retirement health care spending.

*Definition of monthly income: Low: $5000-$9999, Middle: $10,000-19,999, High: $20,000+

7.7 The simulation demonstrated that the earlier the contribution began, the better the extent of coverage in terms of protection and its duration to be offered by HPA. The results were robust across genders and different cost recovery rates for public health care (see Annex). Also a relatively large proportion of the contributors would have sufficient amount of HPA savings to cover their post-retirement health care spending. The duration of coverage of HPA would be sufficiently long for most contributors of different income who would eventually exhaust the account.

The coverage in terms of protection

7.8 As shown in Tables 7.1 and 7.2, a large proportion of contributors would have sufficient HPA savings to cover their post-retirement health care spending. If contribution began at age 20-29, the HPA savings would cover up to an average of 94% male contributors and 87% for female contributors for their whole post-retirement health

care spending. Furthermore, the average surplus for contributors in this age group with a residual account surplus would amount to $192,200 (Annex).

7.9 The extent of protection fell however if contribution began later in the life cycle. For example, if contribution began at age 40-49, then the HPA saving would cover only 16% of the whole post-retirement health care spending for the low-income female and 39% for low-income male contributors. The coverage of HPA for the post-retirement health care spending would be reduced when the contribution period were short.

The duration of coverage offered by HPA

7.10 Some contributors may exhaust their balance in the HPA. However, if contribution began at age 20-29, the HPA cover provide protection up to a mean age of 84 years for male and 88 years for female contributors. The difference was mainly due to the difference in illness experience for male and female. A short contribution period would reduce the duration of coverage of the HPA. For example, if contribution began at age 40-49, the HPA would cover only up to around age 80 for both male and female contributors.

The need for savings

7.11 The last column in Tables 7.1 and 7.2 further indicates why savings is needed for post-retirement health care spending. Post-retirement health care spending for a male and female aged 20-29 could be as high as $380,000 and $500,000, respectively, taking into account the rising cost of health care. Additionally, the total post-retirement health care spending for an average individual and the spending for the top 10% users (in terms of frequency) evaluated at the public user fees are also reported in Table 7.3. Overall, the average post-retirement health care spending would be $183,100 for an individual at current age 20-29. However, if the individual belonged to the top 10% user category (in terms of frequency), then the post-retirement health care spending would increase drastically to $357,400.

Table 7.3 Simulated post-retirement out-of-pocket health care spending

Current Age	Average post-retirement medical spending	The total expenditure for the top 10% user
20-29	$183,100	$357,400
30-39	$162,900	$319,100
40-49	$142,900	$281,200
50-64	$122,700	$243,700

Consideration of HPA

7.12 The simulation illustration demonstrates that if contribution began early at age 20-29, then the overall HPA account balance (i.e. the summation of the lifetime surplus and deficit of account balance) would be positive. In other words, the sum of the HPA savings would be in excess to the sum of HPA deficits. The observation appears to fulfil the Kaldor-Hicks criterion, which states that if the monetary gain of the gainers (in this case, the inheritors of the surplus HPA savings) is more than enough to compensate the loss of the losers (the uncovered health care spending in excess of the account balance), then even though the transfer may not actually take place, the policy in question would be worth implementing.

7.13 The overall account balance also points to the importance of insurance as a supplementary feature of HPA. Risk pooling arrangement, such as catastrophic or elderly care insurance, could further improve the well being of contributors.

Implications

7.14 For HPA to exert its intended effect, the age of contribution should begin early in the life cycle. The longer the contribution period, the better the extent and duration of protection conferred by HPA.

7.15 Risk pooling arrangement, such as catastrophic insurance, may further improve the protection of HPA to contributors.

Reference

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Annex

The following is an alternative presentation of the actuarial simulation illustration of HPA. The model parameter values are identical to the ones described in the paragraph 7.4.

Table 1A: Proportion of contributors who accumulated sufficient savings to finance their post-retirement medical spending

Starting age of contribution	Monthly income	% of HPA accounts with positive balance	Average surplus with positive account balance
20-29	$5,000 - $9,999	83.0%	$128,000
	$10,000 - $19,999	95.3%	$226,400
	≥$20,000	96.6%	$252,600
	Overall	90.3%	$192,200
30-39	$5,000 - $9,999	53.7%	$54,900
	$10,000 - $19,999	86.9%	$128,000
	≥$20,000	93.5%	$162,600
	Overall	81.8%	$130,900
40-49	$5,000 - $9,999	26.8%	$26,600
	$10,000 - $19,999	35.6%	$61,800
	≥$20,000	81.7%	$86,000
	Overall	58.6%	$67,200
50-64	$5,000 - $9,999	7.5%	$11,200
	$10,000 - $19,999	26.2%	$23,900
	≥$20,000	44.7%	$34,500
	Overall	22.2%	$26,900

Table 1B: The duration of coverage of HPA if the accumulated contributions were used up before death.

Starting age of contribution	Average age when the HPA balance reaches zero
20-29	86.4
30-39	84.6
40-49	81.1
50-64	75.0

Alternative Actuarial Simulations for the HPA Scheme

In addition to the basic actuarial model presented in the Chapter (with a contribution rate of 2% and cost recovery rate of 10% for public in-patient services), we have also conducted two other actuarial simulations to assess the potential effect of alternative contribution and cost recovery rates. The key results of these two alternative models are presented below.

Alternative Simulation 1:

Basic Assumptions: Contribution Rate = 1%
Cost Recovery Rate for Public In-patient Services = 10%

Table 1: Proportion of contributors who would accrue sufficient savings to meet their post-retirement medical expenses

Starting age of contribution	Monthly income	% of HPA accounts with positive balance	Average surplus with positive account balance
20-29	$5,000 - $9,999	42.7%	$45,100
	$10,000 - $19,999	68.3%	$75,000
	$20,000 or above	73.8%	$81,700
	Overall	**58.3%**	**$66,900**
30-39	$5,000 - $9,999	18.6%	$21,900
	$10,000 - $19,999	48.5%	$44,300
	$20,000 or above	60.7%	$53,500
	Overall	**46.0%**	**$46,500**
40-49	$5,000 - $9,999	7.6%	$11,700
	$10,000 - $19,999	26.8%	$24,000
	$20,000 or above	40.0%	$30,200
	Overall	**24.9%**	**$25,900**
50-64	$5,000 - $9,999	1.9%	$4,900
	$10,000 - $19,999	7.9%	$10,200
	$20,000 or above	14.9%	$14,200
	Overall	**6.8%**	**$11,500**

Alternative Simulation 2:

Basic Assumptions: Contribution Rate = 2%
Cost Recovery Rate for Public In-patient Services = 15%

Table 2: Proportion of contributors who would accrue sufficient savings to meet their post-retirement medical expenses

Starting age of contribution	Monthly income	% of HPA accounts with positive balance	Average surplus with positive account balance
20-29	$5,000 - $9,999	72.0%	$119,600
	$10,000 - $19,999	89.7%	$205,700
	$20,000 or above	92.5%	$227,600
	Overall	**82.7%**	**$177,500**
30-39	$5,000 - $9,999	43.0%	$53,300
	$10,000 - $19,999	76.8%	$118,700
	$20,000 or above	85.8%	$148,000
	Overall	**72.4%**	**$122,000**
40-49	$5,000 - $9,999	20.9%	$26,800
	$10,000 - $19,999	53.9%	$59,300
	$20,000 or above	70.1%	$80,200
	Overall	**48.7%**	**$64,300**
50-64	$5,000 - $9,999	6.0%	$11,300
	$10,000 - $19,999	20.5%	$23,900
	$20,000 or above	35.0%	$34,100
	Overall	**17.4%**	**$26,600**

Chapter 8 Analysis of the Potential Economic Impact of HPA

Chapter Main Points

8.1 The studies on savings behaviour and the economic simulation model were used to estimate the likely impact of the HPA scheme. It was found that the younger group (aged 20-34) saved more at the last dollar income than the more mature groups (aged 35 and above). The overall tendency to save at the last dollar income after MPF contribution was estimated to be around 31%.

8.2 The impact of a 2% HPA contribution on personal consumption would be around 1.4% of income (net of MPF contribution).

8.3 If individuals were allowed to borrow against the future income, then the impact of the HPA scheme on consumption would be further reduced.

Key Findings of the Impact of the HPA scheme

8.4 The impact of the HPA scheme was assessed using both the study of savings behavior and the economic simulation model. The first approach was based on the statistical relationship between savings and income (net of MPF contribution). The second approach was based on the simulation of economic choice of lifetime savings and consumption of an individual. The projection of health care utilisation and income profile were used in the economic simulation. Essentially, the first approach was static (technically, it was a Keynesian approach) while the second approach was dynamic (technically, it was a life-cycle consumption approach).

8.5 To assess the economic impact of the HPA scheme, the study made use of the estimate of the tendency to save at the last dollar income (net of the MPF contribution). The measure approximated how the consumers would split the last dollar income between consumption and savings. Technically, the tendency measure is called the “Marginal Propensity to Save” (abbreviation MPS).

8.6 The overall MPS in Hong Kong was estimated to be around 31%. This result was drawn from personal, household and aggregate data for estimation. Table 8.1 below reports the age-specific MPS in column [1].

Table 8.1 Impact on Consumption as % of Income

Age	Age specific marginal propensity to save# (MPS) [1]	Age specific marginal propensity to consume (1-MPS) [2]	Percentage of personal consumption withdrawal under a 2% HPA contribution (% of income) (column [2] times 2%) [3]
20-34	0.382	0.618	1.24
35-49	0.303	0.697	1.39
50-64	0.317	0.683	1.37
Overall	0.31	0.69	1.38

8.7 The younger group (aged 20-34) had a higher MPS of 38%. The older group (aged 50-64) had a lower MPS of 32%. Therefore, according to the estimates, the younger group would save about 40 cents and spend the rest at the last dollar income. Column [2] in Table 8.1 reported the tendency to consumption at the last dollar income (technically, "Marginal Propensity to Consume" (abbreviation MPC)). MPC is equal to one minus MPS. It is important to note that this is an approximation of the actual behavior of consumption and savings by averaging a large number of individual decisions.

8.8 Consider now a 2% HPA contribution rate of income (net of MPF contribution) as an illustration of a HPA scheme. The maximum loss of personal consumption could be up to 2% of income, equal to the contribution rate. However, by applying the MPS analysis, the HPA scheme only lowered consumption by 1.24% for the younger group, 1.39% for the middle age group and 1.37% for the group age 50-64, as reported in Column [3] in Table 8.1.

8.9 The withdrawal of consumption in percentage of income may be even smaller, however, if substitution of today's consumption

with tomorrow's consumption by borrowing and lending were taken into account.

8.10 By taking into account the individual smoothing of consumption over time, the dynamic approach was adopted to estimate the impact of a HPA scheme in an economic simulation model. The study separated an individual's lifetime into two periods. The first period represented the working (and the contribution) period while the second period represented retirement. The length of the first period depended on the age of an individual when s/he first began to work (contribute). For example, if the first working (contribution) age began at 20, then the length of the first period would be 45 years.

8.11 Contribution occurred in the first period. Retirement and withdrawal from the medical saving account began at age 65. Individuals made their consumption and savings decisions after their HPA and MPF contributions. It was found that the preventive motive for savings for health care was weak. It was mainly due to the low health care prices charged in the public sector. However, the economic simulation model predicted low-income groups would have a larger incentive to save.

8.12 The reduction of consumption due to the HPA scheme was estimated to be small in general. If the mandatory contribution rate were 1.5% of income, then the simulated reduction of consumption in the contribution period would be less than 1% of income. Similarly, if the mandatory contribution rate were 2%, then the reduction in consumption during the contribution period would be lower than 1.8% for all age-income groups. The impact on the economy that is composed of many individual consumers therefore is generally small.

8.13 The HPA scheme may negatively affect the contributors because by nature the policy would restrict the use of the accumulated contribution solely for health care. However, if the contributors are able to forecast correctly their health care spending after retirement, then they can arrange their lifetime consumption optimally (by lending and borrowing) to cope with the financial risk involved in ill health. The HPA scheme in this case is unlikely to improve the well being of the

contributors. Most individuals, however, are unable to predict their future health care expenditure perfectly even though they may be able to imperfectly arrange their consumption profile over their life span. Hence, the HPA scheme would potentially improve the well being of the contributors.

Implications

8.14 The HPA scheme with a flat rate of contribution would have a small impact on the general economy.

8.15 A schedule that requires the younger group (who has the higher tendency to save) to contribute a higher rate while the relatively older group (who has a lower tendency to save) to contribution less may further reduce the impact on consumption in the economy.

Chapter 9 Concluding Remarks

9.1 To address the financial sustainability of the Hong Kong health care system, there is a need to continue with the short and medium term measures including the introduction of rigorous cost-containment measures in the public health care system, and continual review of the public health care fees structure to ensure that resources can be targeted at patients and services of the greatest needs.

9.2 The findings show that there is no single best combination of funding sources which could meet the needs of every economy, and each economy has to take into account its own situation (e.g., level of subsidy to health care services, rate of taxation, economic development and demographic trends, etc) in coming up with the appropriate solution.

9.3 The research has also demonstrated that it is feasible to introduce a medical savings scheme in Hong Kong. However, it is important to examine carefully the role of a medical savings scheme, and how it will complement other measures, in our health care financing arrangement, as well as the detailed features of such a scheme. There is a need to take into account the feedbacks received in the focus group research, as well as other comments from the major stakeholders and the general public. In particular, the Government should take note the viewpoint that a medical savings scheme should not be introduced in times when Hong Kong is facing economic difficulties. In addition, it is beneficial to conduct further discussion with the private insurance industry, to explore the provision of new insurance products that could enhance the scheme's flexibility and attractiveness.

9.4 Given the complexity of the subject and the far-reaching implications a new financing arrangement may have on the community and the economy, further studies will be needed to develop new financing options that will be sustainable in the long-term, and equitable and accessible to all members of the community. These options should address not only the issue of the most appropriate mix of financing sources for Hong Kong, but also other issues like target subsidy, cost control measures and interface between public and private health care sectors. Nevertheless, in all of these, the Government should maintain

the long-established principle that no one will be denied appropriate medical care due to lack of means.