

Schreyögg, Jonas

**Working Paper**

## Demographic development and moral hazard: Health insurance with medical savings accounts

Diskussionspapier, No. 2004/16

**Provided in Cooperation with:**

Technische Universität Berlin, School of Economics and Management

Suggested Citation: Schreyögg, Jonas (2004) : Demographic development and moral hazard: Health insurance with medical savings accounts, Diskussionspapier, No. 2004/16, Technische Universität Berlin, Fakultät Wirtschaft und Management, Berlin

This Version is available at:

<http://hdl.handle.net/10419/36427>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Demographic Development and Moral Hazard: Health Insurance with Medical Savings Accounts

*Jonas Schreyögg*

Department of Health Care Management, Faculty of Economics and Management, Berlin University of  
Technology, Secr. EB2, Straße des 17. Juni 145, 10623 Berlin, Germany

E-mail: [jonas.schreyoegg@tu-berlin.de](mailto:jonas.schreyoegg@tu-berlin.de)

Phone: ++49-30-314-22627; Fax: ++49-30-314-28433

## **Abstract**

In times of ever-rising health expenditures it is becoming more and more obvious that conventional models for funding health care are increasingly experiencing difficulties in meeting up this challenge. The concept of Medical Savings Accounts (MSAs) represents an innovative and so far rarely analysed alternative for the funding of health care systems. In this concept an anticipated amount of money needed is saved up ex ante by each individual in a special account set aside to cover health care expenses. Since, however, health care expenses for certain kinds of treatment frequently exceed the financial capacity of the individual, Medical Savings Accounts are normally introduced in combination with health insurance covering defined services with higher financial risk. From a theoretical point of view the MSA concept helps counteracting the phenomenon of moral hazard in health insurance systems and at the same time coping with the future challenges posed by demographic

development. This paper also examines first experiences gained so far with the implementation and use of Medical Savings Accounts in different countries. It draws a mixed but rather positive picture of the results. Therefore it could be feasible to integrate certain elements of this concept into health care systems of European countries.

### **Zusammenfassung**

Das Konzept der Medical Savings Accounts als Instrument zur Finanzierung von Gesundheitssystemen hat in den letzten Jahren international Aufmerksamkeit erregt. Länder wie Singapur, Südafrika, China und die USA haben diese neue Form der Finanzierung bereits eingeführt oder in Pilotprojekten erprobt. Dieser Beitrag gibt zunächst einen Überblick über Erfahrungen, die einzelne Länder bisher mit der Konzeption der Medical Savings Accounts gemacht haben. Er geht auf aktuelle Entwicklungen in diesen Ländern ein. Außerdem wird anhand erster Ergebnisse aufgezeigt, dass sich das Modell der Gesundheitssparkonten sowohl als Tarifmodell für private Krankenversicherung sowie als konstitutiver Bestandteil eines gesetzlichen Krankenversicherungssystems bewährt hat. Abschließend wird vorgeschlagen, bestimmte Elemente dieses Systems in die Krankenversicherungssysteme Europas zu integrieren.

**JEL: H4, I1, L3, O2**

## **1. Introduction**

Many European countries are finding themselves confronted by burgeoning health care expenditures that are attributable to both demographic developments as well as to numerous advances in medicine and medical technology. At the same time, it is becoming apparent that conventional models for funding health care systems are experiencing greater difficulties in meeting this challenge. European countries are therefore well advised to examine existing funding models and to seek new alternatives to solve the problem of deficits in their funding systems. The concept of Medical Savings Accounts (MSAs), as an innovative alternative for the funding of health care systems has attracted attention in Asian countries and in North America in recent years. Countries like Singapore, South Africa, China and the US have already introduced this new form of funding or have tested it in pilot projects. In Europe, this concept has also been adopted from both a practical standpoint (Johannssen 2003) and a scientific perspective (Henke/Borchardt 2003). This paper will examine the theoretical background of the concept and offer an overview of the experience gained so far with the use of Medical Savings Accounts by individual countries. This is followed by an assessment of the extent to which it has contributed to solving the problems existing in these countries. Finally, it will discuss the feasibility of transferring elements of this system to European countries.

## **2. Defining Medical Savings Accounts**

Medical Savings Accounts represent a form of financial security to cover the risk of illness. The anticipated amount of money needed is saved up ex ante by each individual in a special account set aside to cover health care expenses. In contrast to

collective forms of financial security against the risk of illness, such as social insurance, the system of Medical Savings Accounts provides that the risk be covered by each individual. Even though there is no redistribution of income, the formation of capital reserves for emergencies is in accordance with the principal rules of insurance. Thus, the principle of Medical Savings Accounts is referred to as Self-Insurance (Brunner 1999).

Since, however, health care expenses for certain kinds of treatment frequently exceed the financial capacity of the individual, Medical Savings Accounts are normally offered in combination with high-risk health insurance. The reimbursement of health costs in the framework of this high-risk insurance is limited either to the costs of precisely defined treatments, especially those which potentially expose the insured to high financial risk, (e.g. in the case of severe or chronic diseases), or takes effect only in excess of a certain deductible, which is limited to a specific sum per year (Nichols et al. 1997). This high-risk insurance can be provided by a tax- or contribution-based public system or by private health insurance.

In a funding system employing Medical Savings Accounts, each month every citizen pays a fixed amount or a percentage share of his gross income into a Medical Savings Account on a compulsory basis. Either the entire amount or a share paid by his employer is contributed. The compulsory nature of Medical Savings Accounts, in contrast to a private bank account, guarantees that the individual really does, in fact, create capital reserves that he can fall back upon in case of illness (Schulenburg/Greiner 2000).

This account is normally managed by the insurer providing high-risk insurance, for example, a sickness fund. If an individual requires medical services that are not reimbursed by the high-risk insurance, he can pay for these from the funds he has saved in his Medical Savings Account. In the case of family-related Medical Savings Accounts, the health care expenses of the entire family can be paid accordingly.

Should the account be exhausted and the prerequisites for reimbursement by high-risk insurance are not yet fulfilled, expenses incurred must be paid by overdrawing the account or by private means. Depending on the principles of justice prevailing in a given society, the system can be so designed as to prevent such situations, e.g. by supplementary transfer payments for citizens with low incomes (Nichols et al. 1997).

If the funds in the savings account have not been exhausted by the end of a given year, the remaining funds will be saved in the individual's account to cover future health expenses subject to a defined rate of interest. Depending on the organization of the system, reserves can also be created as old age reserves for the time when the individual is no longer gainfully employed. Persons that are no longer gainfully employed are then no longer obliged to pay contributions to the Medical Savings Account. Furthermore, it is also possible for the account holder to bequeath any funds saved to his descendants.

Medical Savings Accounts can be used to supplement an existing system of funding health care. Depending on the aims of the scheme, they may represent an instrument for rectifying possible weaknesses in an existing system (Nichols et al. 1997).

### **3. Medical Savings Accounts in economic theory**

In the current literature, Medical Savings Accounts are frequently discussed solely with respect to their cost-saving aspects. Behind the “cost-saving” effect of this concept, however, lie two different theoretical approaches. First, the MSA concept counteracts the phenomenon of moral hazard in health insurance systems and secondly, it copes with the future challenges posed by demographic development.

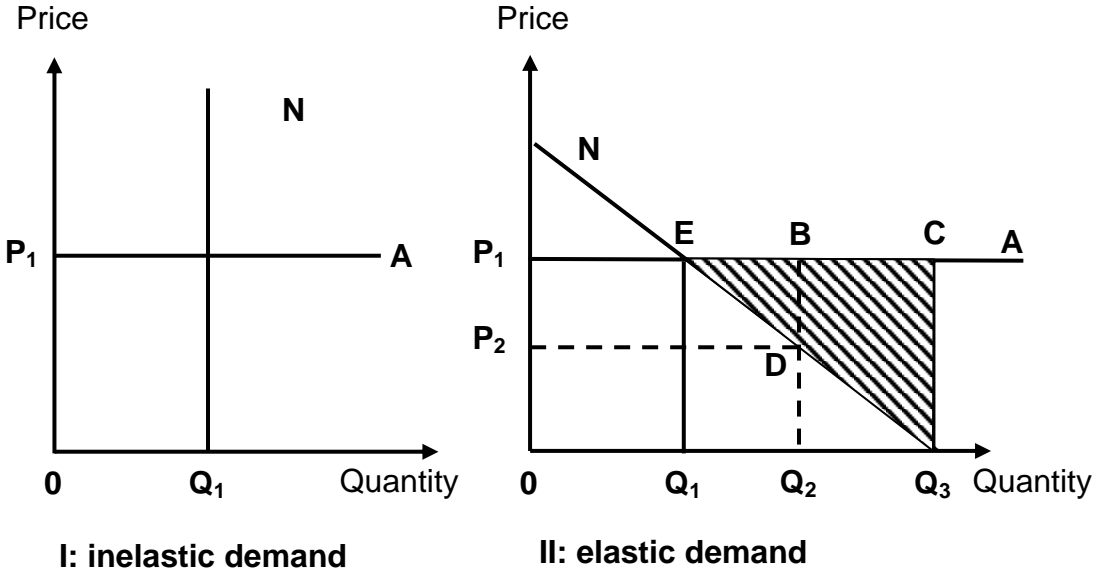
#### *3.1. Addressing Moral Hazard Behaviour*

The fundamental problem with all manifestations of moral hazard is a diminution of welfare due to a lack of pareto-optimal allocation. This loss of welfare, resulting from moral hazard, manifests itself in health care systems in a variety of ways. On one hand, it leads to rising health expenditures, rising insurance contributions and consequently to an increase in the redistribution of insurance funds from non-users to users of insurance benefits. Thus, health care costs are higher than really necessary and resources are inefficiently allocated. Furthermore, WEISBROD (1991) argues that health insurance systems providing extensive benefits coverage and the resulting problems of moral hazard have steered the progress of medicine and medical technology in the wrong direction. The reason for this is that R & D is highly influenced by expected utilization, depending on the insurance system which, in turn, is higher under insurance plans with extensive coverage. In view of the possibilities offered by seemingly unlimited resources of insurance systems with high coverage, technologies have frequently been promoted which, de facto, constitute only a minimal improvement in the provision of medical care (Weisbrod 1991). A number of empirical studies estimate the loss of welfare due to moral hazard in health insurance

to be so great that it might even outweigh gains in welfare resulting from risk-pooling (Feldman/Dowd 1991; Manning/Marquis 1996).

The loss of welfare as a consequence of moral hazard in insurance is dependent upon the individual price elasticity of the insured person. This dependency is illustrated in Fig. 1.

Fig. 1: Demand for Health Services in Relation to Price Elasticity



$P_1$  represents the market price, (i.e., the price that an individual without insurance would need to pay.) Through a comprehensive insurance without co-payment, the price, seen from the point of view of the insured person, falls to quasi 0, because he himself does not have to pay it directly. In part I of figure 1, the demand for health goods, in the case of comprehensive insurance, which is equal to a quasi zero price, remains constant.



In part II of figure 1, on the other hand, the demand for health goods rises in relation to a „quasi price“ from zero to the saturation point from  $Q_1$  to  $Q_3$ , because the price elasticity is relatively high. Thus, in II, health services are also demanded whose marginal utility lies below the price. The pareto-optimal amount of health services would be reached at point E. On reaching this amount, expenses would occur amounting to  $OP_1EQ_1$ , while at the amount  $Q_3$ , expenses incurred would be  $OP_1CQ_3$ . The welfare loss resulting from moral hazard is clearly shown by the shaded triangle  $ECQ_3$ . By introducing a proportional co-payment of 50%, the quasi-price would rise to  $P_2$  and, as a result, the amount would fall to  $Q_2$ . The remaining welfare loss would then amount to only  $EBD$ .

The welfare losses thus tend to be reduced most significantly if insurance coverage is confined to a large extent to those areas of demand involving inelastic prices. In order to guarantee adequate availability of resources to cover the demand for health care services, areas of demand characterised by elastic prices can be funded via Medical Savings Accounts. In this way, Medical Savings Accounts resolve the conflicting goals between the problems of moral hazard and the availability of resources. Since persons insured within a system of Medical Savings Accounts must finance a part of their health care expenses by means of funds they themselves have saved in their own savings accounts, a higher degree of cost consciousness is achieved, the danger of moral hazard is reduced and a greater efficiency in allocating resources is attained. This increased cost consciousness can manifest itself, for one thing, in a higher awareness of the need for prevention and, in this way, reduce the probability of ex ante moral hazard behaviour. Secondly, the higher degree of cost

consciousness on the part of patients can have an immediate effect on the provision of services by service providers and thereby reduce the danger of ex post moral hazard behaviour (Schreyögg 2002).

### *3.2. Addressing rising costs resulting from Demographic Development*

In many European health systems the demographic problem is becoming increasingly urgent. On one hand, the population is aging; on the other hand, fewer children are being born. As a result, the proportion of the total population over 60 years of age (or which is no longer gainfully employed) is constantly growing. However, both those health care systems funded by contributions as well as those funded by taxes work on the basis of an inter-generative redistribution. The major part of the contributions or tax revenue is funded by those members of the population who are engaged in gainful employment. Therefore, an ever-increasing number of health care services in these systems must be funded by an ever-decreasing number of people engaged in gainful employment.

Another reason for introducing Medical Savings Accounts as a complementary part of the system is that individual capital stocks may be accumulated through unused funds in the accounts, which can serve as capital reserves to cover health care expenses for individuals in their old age. By the gradual introduction of Medical Savings Accounts and corresponding diminution of that part of the system funded by contributions or taxes, the inter-generative redistribution will be reduced and replaced by an inter-temporal redistribution. The larger the proportion of health care expenditures funded by Medical Savings Accounts, the smaller the extent of inter-

generative redistribution, which, in the case of aging populations, leads to rising health care expenditures.

This effect is reinforced insofar as the returns derived from the invested capital stocks exceed the returns accrued from the system funded by contributions or taxes. This advantage takes effect when the accrued interest exceeds the growth rate of the total payroll, which consists of the sum of the growth rate in the number of employed persons and the rate of pay increases. This is especially the case in industrialized countries with a falling population and where saturation has been reached in many markets, thus producing a low growth rate of the overall payroll.

The literature discussing the actual impact of both demographic development as well as moral hazard behaviour on health expenditures is controversial, and varies across different countries (Jacobzone 2003). However, the existence of both problems is undisputed. Depending on the aims and design of the Medical Savings Accounts concept in individual countries, the two theoretical approaches can be more or less vigorously applied.

#### **4. Medical Savings Accounts in Practice**

Medical Savings Accounts already exist in a number of countries, including Singapore, South Africa, China and the US.<sup>1</sup> Since the most progress so far has

---

<sup>1</sup> For more details on pilot project on Medical Savings Accounts in China see: Hsiao 1995; Liu/Hsiao 1995; Liu 2002; The State Council 2001; Yip/Hsiao 1997; Yip et al. 1998.

been made in Singapore, South Africa and the US, the following illustration will be limited to these countries.

#### *4.1. Medical Savings Accounts in Singapore*

After Singapore gained independence in 1959, the social security systems installed by the British were continued, at least at first. The existing health care system was very similar to that of the British National Health Service. Health was seen as a public good that had to be provided for the population as needed. Both the funding as well as the provision of health services lay firmly in the hands of the state (Toh/Low 1991). While funding was organised as a tax-financed system, provision of health services was assured through state-run institutions. At the beginning of the 1980s, a distinct increase in the proportion of elderly in the population and an accompanying rise of health care expenditures were anticipated. An accelerating rate of advances in medical technology was also contributing to the growth of health care expenditures. It was foreseen that a health care system funded entirely by taxes in an environment of rising health care expenditures and falling tax revenues as a result of a declining labor force would no longer be a suitable method of funding in the long run (Phua 1991). In addition, the conclusion was reached that a system in which health is accepted as a public good to be provided on demand negated the economic principle of the scarcity of resources because it did not reflect prices. A reformed system was therefore intended to solve the anticipated demographic problem and, at the same time, to create incentives for acting economically, while respecting the provision of health care services as a scarce resource (Schreyögg 2003a).

By creating a new system of funding health care, the old system did not in any way suddenly become obsolete. Instead, the tax-funded system was reduced to one pillar of the overall system and was gradually supplemented by two further pillars. Initially, in 1984, a system of Medical Savings Accounts, called Medisave, was introduced in Singapore as a second pillar. In this system, every gainfully employed citizen of the State of Singapore is obliged to pay a 6-8 % share of his income – according to his age – into an individual account managed by the state. Two working spouses each have a Medisave Account, out of which their respective health care services and those of their children until they reach working age must be financed. At the end of 2001, 2.71 million Medisave accounts existed in Singapore. With a permanent population of 3.26 million, this corresponds to an 84% coverage ratio. Considering that health services provided for children and elderly dependents are financed through the Medisave Accounts of their family members, nearly full comprehensive coverage has been reached (Ministry of Health 2002).

Funds saved in the accounts are invested in the capital market by the government and interest is paid at the current market rate (Asher 1995, p. 3ff.). In case of illness, the individual can pay for his treatment and that of his dependents from the savings in his Medical Savings Account. However, only hospital costs and certain selected out-patient costs approved by the state in a catalogue of services may be financed by the Medical Savings Account. In the case of out-patient services rendered by a physician to treat non-serious illnesses or ailments that are not contained in the catalogue of services, each citizen must pay the expenses incurred as a private

consumer cost. Citizens receive regular statements of account, showing the current status of their savings account (Singh 1999).

As soon as a Medisave Account shows a balance ca. € 30.000, all amounts paid in over and above this amount are automatically transferred to the building savings account of the respective individual, which every employed citizen of Singapore is legally obliged to maintain. This second pillar of Medisave Accounts is based upon the idea that insurance systems financed by taxes for health care services lead to an inefficient utilisation of resources because insured persons frequently demand services that, from a medical point of view, are unnecessary. In addition, it is assumed that a savings scheme reduces the effects of inter-generative redistribution from younger to older citizens that occur, albeit in a different form, both in systems funded by contributions as well as those funded by taxes. Since, however, with Medical Savings Accounts there is no balancing out of the various health risks involved, costs for the treatment of chronic or serious diseases frequently exceed the amount saved in the Medical Savings Account (Massaro/Wong 1995). For such cases, a third pillar was created in 1990 to supplement Medisave. This pillar can be characterised as high-risk insurance, which functions purely in accordance with the principles of insurance and does not involve any income redistribution. It is intended to finance both expensive hospital treatments as well as out-patient treatment for chronic diseases. The insurance contributions are paid as premiums, depending on age, and can be financed from individual savings, (i.e. from their respective Medical Savings Accounts) (Massaro/Wong 1995).

Besides the two added pillars, the pillar financed by taxes also guarantees minimum health provision for citizens with low incomes who do not have a Medical Savings Account at their disposal or who are unable to set aside sufficient savings. This minimum provision is achieved by direct transfers to citizens with low incomes in the form of a fund, called Medifund, which was set up by the state and introduced in 1993. On the other hand, certain hospital bed classes are subsidised from tax revenues (Low/Choon 1997). There are different levels of subsidies for Bed classes A to C. While C (open ward) is subsidized at a rate of 80% by the state, A (single bed room) is not subsidized at all. At the same time patients of all bed classes receive the same quality of treatment. The concept of the financing pillars allows citizens to stay in the lowest bed classes C or B2 (6 beds) (Lim 1998). If someone wishes to stay in a higher bed class he or she has the option to choose a more exclusive high risk insurance with higher premiums or finance the difference by out-of-pocket payments or private health insurance.

The implementation of the system of Medical Savings Accounts in Singapore has not yet been fully completed, because the generation entering into retirement before 1984 was not able to accumulate capital stocks and is therefore financed by family members or by state assistance. For this reason, full implementation of the system will not be achieved until the year 2030. So far, however, in the opinion of experts, the system has proven itself in many respects (Massaro/Wong 1995; Goodman/Musgrave 1994; Pauly 2001; Prescott/Nichols 1998).

While there has been a strong increase in health care expenditures in European countries and in the US, they have remained constant in Singapore in recent years at

ca. 3% of the Gross National Product (Ministry of Health Singapore 2002). This is very surprising, because per capita income, living standard and the standard of the health care system are comparable, for example, with Germany. To a certain extent this can be explained by the low percentage of the Singaporean population above age 65 (about 7.3%), which is lower than in European countries. But calculations show that, even assuming that 14% of the population is older than age 65, (comparable to that of European countries), the share of health expenditures would still only total 5.8% (Low et al. 1996). This may not be exclusively attributable to the introduction of Medical Savings Accounts but there exist a number of indications on the basis of different studies that they have at least made a considerable contribution to this figure.(Prescott/Nichols 1998, Schreyögg 2003a).

Furthermore, the high degree of self-responsibility within the system evidently leads to an increased sense of sovereignty on the part of the patient, which manifests itself in various behaviours and which has implications for the behaviour of service providers (Choon/Low 1998). An increased sense of sovereignty on the part of the patient is evident, since many patients in Singapore, during medical treatment, endeavour to assert their influence regarding the costs incurred and the efficacy of the treatment (Massaro/Wong 1995). Accordingly, increased sovereignty on the part of the patient effects a potential reduction of the risk of ex-post-moral-hazard behaviour. At the same time, this system initiates stronger incentives towards prevention and consequently to the avoidance of ex-ante-moral-hazard behaviour (Schreyögg 2002).



Beyond this, the accumulated assets of all Medical Savings Accounts already amount to ca. € 13.1 billion, thus constituting an important source of capital for investments in Singapore's national economy (Asher 2002). All in all, Singapore's experience with the system of Medical Savings Accounts so far can be assessed as positive.

#### *4.2. Medical Savings Accounts in South Africa*

South Africa has incorporated the concept of Medical Savings Accounts in a different way from that applied by Singapore. Here, Medical Savings Accounts are offered by private insurance companies.

The provision of general health services in South Africa is guaranteed by means of a state run system funded by taxes. As a result of increasing rationing in this public sector, more and more individuals are buying private health insurance contracts. Currently, 20% of the population is privately insured, while the remaining 80% are covered by the public system (Ramsay 2001). The number of privately insured persons is growing at a rate of ca. 2-3% per year. In the eighties and the early nineties health care expenditures rose and, as a result, insurance premiums in the private sector also rose by more than 20% per year (Söderlund et al. 1998). The private insurance market was extremely regulated and consisted of Non-Profit Organisations strongly encumbered by bureaucracy. After comprehensive deregulation in 1994, which, among other things, allowed private insurance companies to freely set their premiums, there was a distinct deceleration in the rise of

insurance premiums due to competition among a growing number of insurance companies (Matisonn 2000; McIntyre 1997).

Since deregulation, a wide variety of insurance programmes have been offered on the market. In addition to the diverse Managed Care Programmes of American Health Maintenance Organizations (HMOs) it is also possible to choose a combination of insurance and Medical Savings Accounts. Insurance with premiums calculated to correspond to respective risks covers all expenses that arise from the treatment of chronic diseases or cost-intensive hospitalisation. Since it is extremely difficult to foresee the extent of such expenses, they are referred to as “non-discretionary” expenses (Ramsay 2001). Expenses of a discretionary nature arising from the treatment of out-patients are reimbursed by insurance only in excess of a deductible of ca. € 1.100 per annum.

Medical Savings Accounts function here to close the gap in funding which is left by the deductible. Insured persons can thus finance the deductible in part or totally by means of their Medical Savings Accounts; it remains at the discretion of the insured to decide what amount will be paid monthly into their Medical Savings Account. The majority of persons, however, enter into a savings contract for their Medical Savings Account that accumulates an amount annually of ca. € 1,100, exactly equivalent to the deductible. When services are required, amounts due for the deductible are withdrawn from the Medical Savings Accounts in accordance with the benefit-in-kind-principle. Since the insurance card works like a credit card, the service provider is able to use it to debit this amount directly (Matisonn 2000).

Medical Savings Accounts are managed by the insurance companies. The latter also invest the accumulated capital in the capital market (Benko 2000). Depending on the insurance company, insured persons currently receive a rate of ca. 7.5% interest on the capital stock in their account. In case the Medical Savings Account of the insured is depleted, the account may also be overdrawn at an interest rate of 7.5%.<sup>2</sup> Some insurance companies connect the Medical Savings Accounts with a points system which is intended to offer the insured incentives to engage in preventive health practices. By using preventive services, insured persons acquire points for which they receive a wide array of discounts. In the case of the insurance company, "Discovery Health", for example, a 45-year-old woman receives 2,500 points for a mammogram. Aside from other discounts, insured persons that have accumulated more than 60.000 points pay only 8% of the price for domestic flights with British Airways (Matisonn 2000).

In South Africa, insurance schemes coupled with Medical Savings Accounts were distinctly more successful than other concepts. They already hold a 50% market share of the South African private insurance market. Some authors criticise the MSA concept applied in South Africa by arguing that it is attractive primarily for healthy, young insured and therefore leads to adverse selection (Söderlund/Hansl 2000).

In a study conducted by the National Center of Policy Analysis it was discovered, however, that insured with Medical Savings Accounts were no healthier than persons

---

<sup>2</sup> An interest rate of 7.5% is calculated by Discovery Health, one of the largest insurance providers. The identical interest rate for debit and credit balances is explained by the specific market strategy followed by Discovery Health. Other health insurance companies under certain circumstances offer different interest rates for debit and credit balances.

insured by other schemes. It was also substantiated that both old as well as young insured opt in favour of schemes containing Medical Savings Accounts. The study also showed that expenses incurred for out-patient treatment by insured with Medical Savings Accounts were distinctly lower than with traditional comprehensive insurance in South Africa. Nor did the study show any possible substitution of out-patient treatment by hospital treatment as a result of the constraints imposed by the deductible for out-patient services (Matisonn 2000).

#### *4.3. Medical Savings Accounts in the US*

In the United States, Medical Savings Accounts have been undergoing a test phase since 1997 in a large-scale, state-run project for a limited sample of insured persons. As in South Africa, health insurance contracts in combination with Medical Savings Accounts are offered as an alternative to private health insurance (Prescott/Nichols 1998).

A large part of the population in the US is privately insured. People who cannot afford the premiums for private health insurance receive a minimum provision via the social health insurance systems Medicaid and Medicare. However, 15% of the population (40 million persons) is not insured at all. For this reason, next to endeavours to slow the rise in health care expenditures, the central focus of health policy in forthcoming years is aimed at reducing the proportion of people without health insurance.

The idea of Medical Savings Accounts in the US originally came from John C. Goodman and the National Centre for Policy Analysis. Against the background of a sharp increase in health care expenditures in the US, the concept was developed in

order to lower the risk of moral hazard on the part of the insured persons, in particular in the case of out-patient medical treatment by physicians. Goodman and Musgrave, in a study conducted in 1992, concluded that an increase in health insurance deductibles leads to a considerable reduction in premiums (Goodman/Musgrave 1992). The introduction of Medical Savings Accounts was seen as a possible way to finance high deductibles, because it cannot be assumed that all individuals will automatically set aside sufficient funds to finance their deductibles (Scandlen 2001).

Subsequently, an intensive discussion concerning the introduction of Medical Savings Accounts took place in the early nineties (Pauly 1994; Pauly et al. 1991; Keeler et al. 1996; Nichols et al. 1996). In this discussion a proposal put forward by Pauly and Goodman (Pauly/Goodman 1995) received recognition from different sides (Nichols 1996). The focal point of this proposal was the creation of tax incentives for citizens to pay voluntarily into Medical Savings Accounts, which were then to be offered by insurance companies in combination with health insurance with a high deductible.

As a result of wide public interest in Medical Savings Accounts, the Republicans included a similar concept in their election campaign platform against Bill Clinton in the 1996 election. Despite the Democrats' victory, Congress passed a law in 1996 allowing private insurance companies to offer Medical Savings Accounts in combination with health insurance with a high deductible.

In the framework of the Health Insurance Portability and Accountability Act (HIPAA) (Public Law 104-191, Aug. 21, 1996), the offer of Medical Savings Accounts was initially limited to a period of four years (1997-2000) and subsequently prolonged by two years up to 2002 (Scandlen 2001).

Since, however, some politicians feared negative consequences, (e.g., adverse selection), the scope of the project was severely restricted. By law, the number of Medical Savings Accounts in the entire US was limited to 750,000. Since Medical Savings Accounts covering family members were also permitted, up to two million citizens could potentially use a Medical Savings Account. In addition, participation in the project was exclusively reserved for self-employed persons and employees of firms employing fewer than 50 people (Prescott/Nichols 1998). In this way, it was possible for private insurance companies to offer an insurance contract, consisting of high-risk insurance coupled with a deductible financed by Medical Savings Accounts.

In contrast to the system of Medical Savings Accounts in South Africa, the deductible in the US was applied to both the discretionary as well as the non-discretionary areas within the spectrum of health services. According to HIPAA, however, the deductible was required to be between US\$ 1,500 and US\$ 2,250 for single individuals and between US\$ 3,000 and US\$ 4,500 for families. Depending on the insurance contract, either the employer or the employee, but not both, was allowed to make tax exempt payments into Medical Savings Accounts within a given year. The total annual sum paid into a Medical Savings Account was not allowed to exceed 65% of the deductible for single individuals and 75% for accounts covering the expenses of family members. The payment of interest on capital stocks accumulated in accounts

was a matter for the individual insurance companies to decide (Public Law 104-191, Aug. 21, 1996).

Even after this national project was finished, the strong ideological discussion surrounding Medical Savings Accounts in the US continued. The results of this study have not yet been conclusively evaluated, so that on an aggregated basis only few concrete statements can be made about the success of the project.

Opponents of Medical Savings Accounts point to low demand by insured individuals, with about 50.000 account holders at the end of 1998 (Department of the Treasury 1999) and an estimated 150,000 accounts at the end of 2000 (Bunce 2001) as proof of the unsuitability of the concept for a wide population. Proponents counter this argument by claiming that the restrictive legal conditions of the pilot project prevented the testing of the system under real conditions (Scandlen 1998). Insurance companies argued that the restrictions stipulated in HIPAA were so complicated that the simple concept of Medical Savings Accounts was beyond the understanding of many insured and was therefore not chosen. In addition, it was claimed that the maximum annual amount of 65% or 75% of the deductible, which could be paid tax-free into the accounts, was too low to finance a deductible at the required level (United States General Accounting Office 1998).

One study conducted by the Buckeye Institute for Public Policy Solutions, encompassing 400 insurance companies, showed that health care expenditures of the insured were reduced by up to 40% by Medical Savings Accounts (Buckeye Institute for Public Policy Solutions 1999). In contrast, the Rand Corporation, in a

different study, calculated a decline in health care expenditures between 0-13%. On the other hand, this study refutes the argument that Medical Savings Accounts would bring about an adverse selection and exclude bad risks. Keeler et. al, in a simulation model, proved that Medical Savings Accounts constitute an interesting solution in the case of bad risks (Keeler et al. 1996).

This thesis is also supported by large American insurance companies, such as the Golden Rule Insurance Company and the American Health Value Company, which claim that the number of insured opting in favour of Medical Savings Accounts is distributed relatively evenly over various age groups and morbidity risks (Bunce 2001).

It is also worth mentioning that four out of ten persons who chose Medical Savings Accounts during the pilot project had previously not been insured at all. This supports the argument that a significant reduction in premiums that goes hand-in-hand with Medical Savings Accounts renders a private insurance contract more affordable for persons with low incomes (United States General Accounting Office 1998).

However, there is still not enough empirical research in the US to rigorously evaluate the experimental period between 1996 and 2002. Studies conducted thus far are either based on micro-simulation exercises with problematic assumptions or do not include a sufficiently large sample to produce robust evidence (Dixon 2002).

A number of proponents of Medical Savings Accounts have formulated other proposals as to how the concept could be further developed in a sensible way for



wider segments of the US population (Pauly/Herring 2000; Laditka 2001; Cardon/Showalter 2001). The Bush administration extended this pilot project until the end of 2003 and lifted most of the previously existing restrictions. Medical Savings Accounts have thus become available to employees and self-employed persons without any limitations on the number. Among other things, the amount that can be paid tax free into the Medical Savings Accounts has been raised to 100% of the deductible (Department of the Treasury 2004).

Although the pilot project for Medical Savings Accounts in private health insurance has not been extended after the end of 2003, the Bush administration introduced a new MSA-scheme effective Jan.1<sup>st</sup> 2004 for Medicare beneficiaries. According to this scheme an unlimited number of people who are eligible for Medicare are allowed to choose a policy with a minimum deductible of \$ 1000 for singles and \$ 2000 for families in combination with Medical Savings Accounts. Employers of all sizes can offer these programs to their employees, but they must be approved by the Medicare program. They are funded by pre-tax payroll contributions or employer contributions. The idea behind it is that Medicare beneficiaries are able to pay for their “qualified expenses” (e.g., prescription drugs and doctors’ fees), which are not or not sufficiently covered by health insurance under Medicare. The first report about the effect of the introduction of this new program is expected at the end of 2004 (Department of the Treasury 2004).

## **5. Comparison between different approaches to Medical Savings Accounts**

Significant differences are evident with respect to the reasons for instituting Medical Savings Accounts. Singapore has chosen a distinctly more comprehensive approach than the other two countries. In Singapore, besides being designed to reduce moral hazard, Medical Savings Accounts also contribute to solving the demographic problem and serve as reserves for individuals in their old age. To achieve this second aim, however, large-scale coverage of the population through Medical Savings Accounts and high-capital volume financing are needed – both of these requirements are fulfilled in Singapore. In this context the possibility of public investments supported by the formation of capital stocks also plays an important role. In contrast, the objective of the other approaches is focused instead on cost containment, expansion of insurance coverage and serves primarily to finance the deductible. Therefore, the moral hazard aspect stands clearly in the foreground (Schreyögg 2003). In regard to the various ways in which the MSA concept is conceived, considerable differences can also be recognized between the approaches adopted in the countries under review. Table 1 differentiates the various approaches based on certain criteria.

Table 1: Comparison of the MSA conceptions of Singapore, South Africa and the USA on the basis of selected criteria

Country \ Criterion	Singapore	South Africa	USA
Objective	Preventing moral hazard/ setting aside reserves for old age	Cost containment (preventing moral hazard)/ expansion of private insurance to self-employed and small firms	Cost containment (preventing moral hazard)/ expansion of private insurance
Enrolment	Compulsory	Voluntary	Voluntary
Financing form of high-risk insurance	(Social) health insurance	Private insurance	Private insurance
Administration	State-run (Central Provident Fund)	Private	Private
Premiums or contributions calculation	Income-dependent contributions	Risk-based calculation	Risk-based calculation
Service areas financed by MSAs	Cost-intensive out-patient/less cost- intensive in-patient care	Out-patient services up to a deductible	All services up to a deductible
Coverage of population	2.71 Mio. (84%)	1.6-2.0 Mio. (4-5%)	150,000-300,000 (very low)
Annual interest payment	Ca. 2.5%-4% (depending on the market rate)	variable (ca. 7.5%)	variable

On the basis of the comparisons shown in the table above it is evident that the idea of Medical Savings Accounts is currently developing in two different directions. Singapore has chosen a social health insurance with income-dependent contributions as a form of financing high-risk insurance administered by the state. South Africa and the US, on the other hand, integrate Medical Savings Accounts into their private health insurance system combined with a high-risk insurance calculated on a risk basis.

The approach adopted in Singapore is, moreover, considerably more widely applied. As far as possible, it is intended to encompass the entire population. For this reason several million people already hold a Medical Savings Account. Medical Savings Accounts are used either to finance the deductible or for defined service areas as in Singapore. The payment of interest on capital stock contained in the Medical Savings Accounts differs widely based on how Medical Savings Accounts are structured in individual countries. Whereas in Singapore interest is paid on the capital at approximately market rate, the rate of interest paid in South Africa and in the US is dependent upon the individual insurance companies (Schreyögg 2003).

## **6. Conclusions**

It is difficult to judge whether Medical Savings Accounts can serve as a suitable option to finance health care in Europe. Although this concept seems to be successful in the Singaporean context it is certainly supported by cultural factors such as the Confucian family orientation and the savings culture. Even if it is not realistic to transfer these systems as a whole they all contain certain elements which

could be integrated into European health care systems in order to improve their performance.

The concept obviously has proven to be suitable for a diversity of strategies and aims by virtue of its high degree of flexibility. It can be utilized both to complement existing forms of funding at state level as well as on the market for private health insurance companies. At the state level, Medical Savings Accounts could complement existing systems funded by contributions or taxes in many European countries without the necessity for considerable changes in the systems as a whole. A similar approach has been successfully realized in Singapore, because the originally existing system of tax funding for health services has not been completely abolished but merely reduced in favour of Medical Savings Accounts.

One possible method of implementing the concept of Medical Savings Accounts could be the introduction of income graded deductibles which could be financed by Medical Savings Accounts. The respective sickness funds or the state would levy a certain sum monthly from the insured – in addition to insurance contributions – which would then be individually tailored and saved in the Medical Savings Account. The amount levied should be equivalent to the maximum annual amount to be set aside for the deductible, which would in this way be completely covered. It is to be expected that health care expenditures would be reduced significantly as a result of the deductible and the corresponding change in behaviour on the part of the insured and service providers. This should consequently mean that contribution rates or taxes could be reduced.

In addition to this possibility, primarily emphasizing the moral hazard aspect, there could also be mechanisms for accumulating reserves for old age in order to manage the demographic burden. Reserves can either be accumulated individually for each person as proposed by the concept of Medical Savings Accounts, or collectively, as practised by private health insurance in Germany or as proposed in a model for the German Statutory Health Insurance by HENKE ET AL. (2002) and JOHANNSEN (2003).

Finally, this concept may constitute a first step towards a sustainable reshaping of the financing structures of European health care systems. Several non-European countries (e.g., Australia, Canada, Malaysia and Hong Kong) are already considering the integration of Medical Savings Accounts into their health care systems.<sup>3</sup> In order to provide sustainable health care systems for the future, a discussion in Europe about Medical Savings Accounts and similar models is urgently needed.

---

<sup>3</sup> For more details: Hindle /McAuley 2000, Australian Health Insurance Association 1993; Commonwealth Department of Health, Housing, Local Government and Community Services 1993; Forget et al. 2002; Gratzer 1999 and 2002; Hurley 2000; Report of the Alberta Premier's Advisory Council on Health 2001.

## References

- ASHER, M. G., Compulsory Savings in Singapore: An alternative to the welfare state, NCPA Policy Report, No. 198, National Center for Policy Analysis, 1995.
- ASHER, M. G., Pension Reform in an Affluent and Rapidly Ageing Society: The Singapore Case, Paper prepared for the international Symposium on Pension Reforms in Asian countries, Asian Public Policy Programme, Hitotsubashi University, Tokyo, 1.2.2002.
- AUSTRALIAN HEALTH INSURANCE ASSOCIATION, Health Insurance: working with Medicare, Canberra 1993.
- BENKO, L. B., High interest rate: South Africa's experience with MSAs is worlds apart from America's, in: Modern Healthcare, Issue 13. November, Chicago 2000.
- BRUNNER, K., Partielle Selbstversicherung – Ein Konzept zur Stärkung der Eigenvorsorge der Patienten im schweizerischen Gesundheitswesen, Bamberg 1999.
- BUCKEYE INSTITUTE FOR PUBLIC POLICY SOLUTIONS, Medical Savings Accounts Study, Dayton (Ohio) 1999.
- BUNCE, V. C., Medical Savings Accounts – Progress and Problems under HIPAA, Cato Institute, Policy Analysis No. 411, Washington 2001.
- CARDON, J. H./SHOWALTER, M. H., An examination of flexible spending accounts, in: Journal of Health Economics, Vol. 20, 2001, pp. 935-954.
- CHOON, A. T./LOW, L., Health Care Provisions in Singapore, in: Affordable Health Care, Meng, Tan Teck Meng/ Chew Soon Beng, Singapore 1997, pp. 50-71.
- COMMONWEALTH DEPARTMENT OF HEALTH, HOUSING, Local Government and Community Services, Aged Care Reform Strategy Mid-Term Review, Stage 2, Report, Australian Government Publishing Service, Canberra 1993.
- DEPARTMENT OF THE TREASURY, Internal Revenue Service, Announcement 99-95, Internal Revenue Bulletin, No. 1999-42, October 18, Washington 1999.
- DEPARTMENT OF THE TREASURY, Internal Revenue Service, Publication No. 969, Medical Savings Accounts, Washington 2004.
- DIXON, A., Are Medical Savings Accounts a Viable Option for Funding Health Care?, in: Croatian Medical Journal, Vol. 43, No. 3, 2002, pp. 408-416.
- FELDMAN, R./ DOWD, B., A new estimate of the welfare loss of excess health insurance, in: American Economic Review, No. 81, 1991, S. 297-301.
- FORGET, E. L./DEBER, R./ROOS, L., Medical Savings Accounts: Will they reduce costs?, in: Journal of the Canadian Medical Association, Vol. 167, No. 2, 2002, pp. 143-147.

- GOODMAN, J./MUSGRAVE, G. L., Controlling Health Care Costs with Medical Savings Accounts, National Center for Policy Analysis, NCPA Policy Report No. 168, Washington 1992.
- GRATZER, D., Code Blue – Reviving Canada's Health Care System, Toronto 1999.
- GRATZER, D., It's time to consider Medical Savings Accounts, in: Journal of the Canadian Medical Association, Vol. 167, No. 2, 2002, pp. 151-152.
- HENKE, K.-D./BORCHARDT, K., Capital funding versus pay-as-you-go in health care financing reconsidered, in: CESifo DICE Report – Journal for Institutional Comparisons, Vol.1, 2003, No. 3, pp. 3-8.
- HENKE, K.-D./GRABKA, M. M./BORCHARDT, K., Kapitalbildung, auch im Gesundheitswesen? Auf dem Weg zu einer ordnungspolitischen Erneuerung der Krankenversicherung, in: Zeitschrift für Gesundheitswissenschaften, 10. Jg., Heft 3, 2002, pp. 196-210.
- HINDLE, D./MCAULEY, I., Would employment-based health saving Accounts help Medicare, in: Australian Health Review, Vol. 23, No. 4, 2000, pp. 3-7.
- HSIAO, W. C., The Chinese Health Care System: Lessons for Other Nations, in: Social Science and Medicine, Vol. 41, Issue 8, 1995, pp. 1047–1055.
- HURLEY, J., Medical Savings Accounts will not advance Canadian health care objectives, in: Journal of the Canadian Medical Association, Vol. 167, No. 2, 2002, pp. 152-153.
- JACOBZONE, S., Ageing and the challenges of new technologies: can OECD social and healthcare systems provide for the future?, in: The Geneva Papers of Risk and Insurance, Vol. 28, No. 2, pp. 254-274.
- JOHANNSEN, W., Demographic Developments, Full Funding and Self-Regulation: The Foundations of the Social Health Insurance of the Future, in: The Geneva Papers on Risk and Insurance, Vol. 28, 2003, No. 2, pp. 351-367.
- KEELER, E.B./MALKIN, J. D./GOLDMAN, D. P./BUCHANAN, J. L., Can Medical Savings Accounts for the Nonelderly Reduce Health Care Costs?, in: Journal of the American Medical Association, Vol. 275, No. 21, 1996, pp. 1666-1671.
- LADITKA, J. N., Providing Behavioral Incentives for Improved Health in Aging and Medicare Cost Control: A Policy Proposal for Universal Medical Savings Accounts, in: Journal of Health and Social Policy, Vol. 13, No. 4, 2001, pp. 75-90.
- LIM, M.-K., Health Care systems in transition II. Singapore, Part I, An overview of health care systems in Singapore, in: Journal of Public Health Medicine, Vol. 20, No. 1, 1998, pp. 16-22.
- LIU, Y., Reforming China's urban health insurance system, in: Health Policy, Vol. 60., Issue 2, 2002, pp. 133-150.
- LIU, X./HSIAO, W. C., The Cost Escalation of Social Health Insurance Plans in China: Its Implication for Public Policy, in: Social Science and Medicine, Vol. 41, Issue 8, 1995, 1095–1101.



- LOW, L./CHOON, A.T., Housing a Healthy , Educated and Wealthy Nation Through the CPF, Singapore 1997.
- LOW, L./PHUA, K. H./TOH M. H./TENG, Y, M., Projection of the National Health Expenditure in Singapore: The Effect of Ageing Population and Policy Implications, Study Presented at the Institute of Policy Studies (IPS), Forum on National Health Expenditure & Population Ageing, 2. August 1996, Singapore 1996.
- MANNING, W. G./MARQUIS, S, M., Health Insurance: tradeoffs revisited, in: Journal of Health Economics, No. 20, 2001, S. 289-293.
- MASSARO, T. A./WONG, Y.-N., Positive Experience with Medical Savings Accounts in Singapore, in: Health Affairs, Vol. 14, No. 2, 1995, PP. 267-272.
- MATISONN, S., Medical Savings Accounts in South Africa, National Center for Policy Analysis, Study No. 234, Washington 2000.
- MCINTYRE D., Health Care Financing and Expenditure in South Africa: an Economic Evaluation, Durban (S.A.) 1997.
- MINISTRY OF HEALTH SINGAPORE, Annual Report 2001, Singapore 2002.
- NICHOLS L. M., Medical Savings Accounts And Risk Segmentation, in: Health Affairs, Vol. 14, Issue 2, 1996, PP. 275-276.
- NICHOLS L. M./MOON, M./WALL, S., Tax-Preferred Medical Savings Accounts and Catastrophic Health Insurance Plans: A Numerical Analysis of Winners and Losers, Urban Institute, Study 96571-002, Washington 1996.
- NICHOLS L. M./PRESCOTT, N./PHUA K.-H., Medical Savings Accounts for Developing Countries, World Bank Diskussion Paper, No. 365, Washington 1997, PP. 233-245.
- PAULY M. V., An Analysis of Medical Savings Accounts – Do Two Wrongs Make a Right, Washington 1994.
- PAULY, M. V./Damon, Patricia/Feldstein, Paul/Hoff, John, A Plan For „Responsible Health Insurance“, in: Health Affairs, Vol. 10, Issue 1, 1991, PP. 5-25.
- PAULY, M. V./Goodman John, Tax Credits For Health Insurance And Medical Savings Accounts, in: Health Affairs, Vol. 14, Issue 1, 1995, PP. 126-139.
- PAULY, M. V./HERRING, B. J., An efficient employer strategy for dealing with adverse selection in multiple-plan offerings: an MSA example, in: Journal of Health Economics, Vol. 19, Issue 4, 2000, PP. 513-528.
- PAULY, M. V., Medical Savings Accounts in Singapore: What Can We know?, in: Journal of Health Politics, Policy and Law, Vol. 26, No. 4, August 2001, PP. 727-731.
- PHUA, K.-H., Privatization & Restructuring of Health Services in Singapore, Institute of Policy Studies (IPS) Occasional Paper No. 5, Singapore 1991.

- PRESCOTT, N./NICHOLS, L. M., International Comparison of Medical Savings Accounts, in: World Bank Discussion Paper No. 392: Choices in Financing Health Care and Old Age Security, Washington D.C. 1998, pp. 19-32.
- PUBLIC LAW 104-191, Health Insurance Portability and Accountability Act of 1996, Aug. 21, Washington 1996.
- RAMSAY, C., Medical Savings Accounts – Universal, Accessible, Portable, Comprehensive Health Care for Canadians, Fraser Institute, Vancouver B.C. 1998.
- RAMSAY, C., Beyond the public-private debate, Vancouver B.C. 2001.
- REPORT OF THE ALBERTA PREMIER'S ADVISORY COUNCIL ON HEALTH, December 2001.
- SCANDLEN, G., Medical Savings Accounts: Obstacles to Their Growth and Ways to Improve Them, National Center for Policy Analysis, Policy Report No. 216, Washington 1998.
- SCANDLEN, G., MSA's Can Be a Windfall for All, National Center for Policy Analysis, Policy Backgrounder No. 157, Washington 2001.
- SCHREYÖGG, J., Finanzierung des Gesundheitssystems durch Medical Savings Accounts, in: List-Forum für Wirtschafts- und Finanzpolitik, Band 28, Heft 2, 2002, pp. 157-173.
- SCHREYÖGG, J., „Medical Savings Accounts“ – eine internationale Bestandsaufnahme des Konzeptes der Gesundheitssparkonten und seine Implikationen für Deutschland, in: Zeitschrift für die Gesamte Versicherungswissenschaft, Jg. 92, Heft 3, 2003, pp. 507-532.
- SCHREYÖGG, J., Medical Savings Accounts – eine ökonomische Analyse von Gesundheitssparkonten unter besonderer Berücksichtigung des Gesundheitssystems in Singapur, Nomos Verlag, Baden-Baden 2003a.
- SCHULENBURG, J.-M. GRAF VON DER/GREINER, W., Gesundheitsökonomik, Tübingen 2000.
- SINGH, M., Health and Health Policy in Singapore, in: Asean Economic Bulletin, Vol. 16, No.3, 1999, pp. 330-343.
- SÖDERLUND, N./HANSL, B, Health Insurance in South Africa: An empirical Analysis of Trends in Risk-Pooling Following Deregulation, in: Health Policy and Planning, Vol.15, No. 4, 2000, pp. 378-385.
- SÖDERLUND, N./SCHIERHOUT, G./HEEVER, A. VAN DEN, Private Health Sector Care, in: South African Health Review, Durban (S.A.) 1998, pp. 141-156.
- THE STATE COUNCIL, Decisions on establishing the basic medical insurance system for the urban workers, Beijing 1998.
- TOH, M. H./LOW, L., Health Care Economics, Policies and Issues in Singapore, Occasional Paper, Centre for Advanced Studies, Singapore 1991.
- UNITED STATES GENERAL ACCOUNTING OFFICE, Comprehensive Study of the Medical Savings Account Demonstration, GAO/HEHS-98-57, Washington 1998.

- WEISBROD, B. A., The health care quadrilemma: an essay on technological change, insurance, quality of care, and cost containment, in: *Journal of Economic Literature*, No. 29, 1991, S. 523-552.
- YIP, W. C./HSIAO, W. C., Medical Savings Accounts: Lessons from China, in: *Health Affairs*, Vol. 16, No. 6, 1997, pp. 244-251.
- YIP, W./WANG, P. S./LIU, Y., Determinants of Patient Choice of Medical Providers: a Case Study in Rural China, in: *Health Policy and Planning*, Vol. 13, No. 3, 1998, pp. 311-322.