

Henke, Klaus-Dirk; Borchardt, Katja

Article

Capital Funding versus Pay-as-you-go in Health-care Financing Reconsidered

CESifo DICE Report

Provided in Cooperation with:

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Henke, Klaus-Dirk; Borchardt, Katja (2003) : Capital Funding versus Pay-as-you-go in Health-care Financing Reconsidered, CESifo DICE Report, ISSN 1613-6373, ifo Institut für Wirtschaftsforschung an der Universität München, München, Vol. 01, Iss. 3, pp. 3-8

This Version is available at:

<https://hdl.handle.net/10419/166772>

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.

REFORM PROPOSALS FOR HEALTH-CARE SYSTEMS

CAPITAL FUNDING VERSUS PAY-AS-YOU-GO IN HEALTH-CARE FINANCING RECONSIDERED

KLAUS-DIRK HENKE AND
KATJA BORCHARDT*

Financing the risks of life

In order to tackle problems associated with financing health care, a shift to a system that relies more on capital funding has often been proposed. This paper focuses on different options and tries to analyse the extent to which capital funding and pay-as-you-go systems represent appropriate solutions to the demographic challenge; it also discusses the strengths and weaknesses of both alternatives.

Financing the risks of life has traditionally been based on two fundamental principles in response to the basic needs of citizens: a system of voluntary individual insurance or a mandatory social welfare system. Surveying Europe, one can find a variety of

systems operating, including the Anglo-Saxon (Beveridge) universal, state-centred, tax-based social security system and the Continental Bismarckian model, stressing social insurance and corporatist elements (Chassard and Quintin 1992).

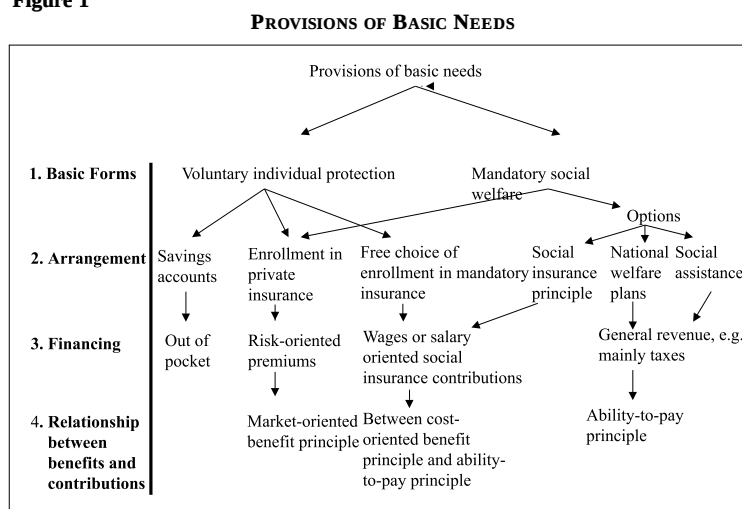
Generally, the foundation for financing the Bismarckian social insurance model is payroll tax contributions to social insurance funds, while a voluntary individual protection system is mostly based on risk-oriented premiums.

Figure 1 gives an overview of basic financing options and illustrates the scope of possible designs. It shows that risks can be either covered through voluntary individual protection or by a mandatory social welfare system. An obligatory enrolment in private insurances could be one of the mandatory welfare systems, as could an obligatory enrolment in the social insurance system.

Looking at the level of financing the different systems, the options range from out-of-pocket payments and risk-oriented premiums, to contributions on the basis of wages (salaries) or general tax revenues. A risk-oriented individual protection scheme is dedicated to the more market-oriented benefit principle, whilst payroll taxes are based on wages and often comprise some sort of redistribution. Social insurance contributions therefore are a mix between the cost-oriented benefit principle and the ability-to-pay principle



Figure 1



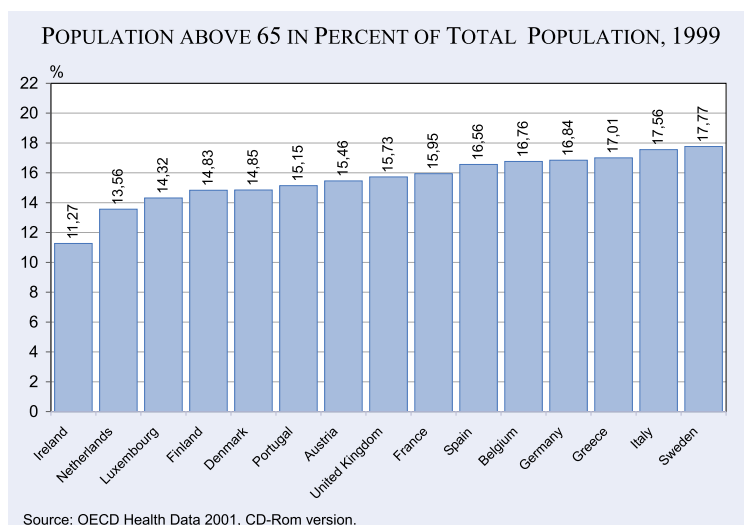
Source: Zimmermann, H./Henke, K.-D. (2002) Finanzwissenschaft. Eine Einführung in die Lehre von der öffentlichen Finanzwirtschaft, 8. Edition, München, p. 154.

Demographic changes and the impact on financing health care systems

Most recent reform discussions in Germany and other coun-

* Prof. Dr. Klaus-Dirk Henke and Katja Borchardt, Chair for Public Finance and Health Economics, Technical University Berlin (K.Henke@finance.wv.tu-berlin.de). The authors thank Prof. Robert F. Rich and Christopher Erb from the University of Illinois for comments.

Figure 2



tries have ascribed a high importance to the ongoing trend of an ageing population and the risks it poses to the existing system of financing. Pay-as-you-go social insurance systems are in danger, as the number of benefit recipients increases in proportion to contributors to the social insurance. As a result of the medical and technical progress in health care as well as many other factors, the population is getting older. For Europe and Japan, United Nations projections predict a doubling of the ratio of population above 60 as a percentage of the age group 15 to 59 by the year 2050. Even more dramatic will be the increase in the above 80 year-old population. Figure 2 illustrates that in 1999 the number of people above 65 years old reached an average of nearly 16 percent in Europe. At the same time, as a second trend, birth rates are declining all over Europe. Considering that the develop-

ment of demographic trends is a creeping process, one can think of society as experiencing a “doubling” in ageing. That means the current group of citizens between ages 20 and 60 is not large enough to financially sustain the social insurance system of the welfare states.

Likewise, expenditures for health care of the elderly are rising, as longer lifetimes are accompanied by more chronic diseases and greater need for care. In Germany, the contributions to the Social Health Insurance funds of the popula-

tion above 60 years old are half that of the population between twenty and sixty years old, but the costs for the over-60 group are three times as much (Figure 3).

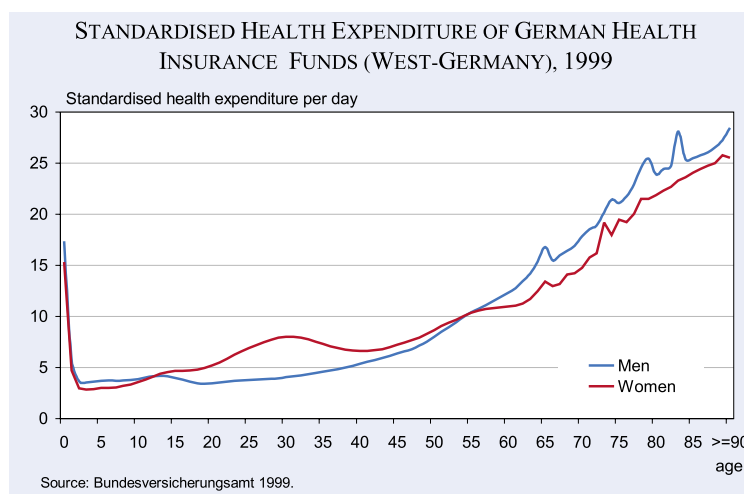
In addition to the demographic changes, there are several other key factors that are worsening the financing gap between revenues and expenditures. For some years unemployment has been rising all over Europe due to structural rigidities and an economic slow down. Especially social systems that are financed through payroll taxes are reaching their limits because the unemployed no longer pay into the social insurance systems but are still eligible to receive full benefits if they become ill. Additionally, the labour force potential of the age groups between 20 and 60 years is on the decline, which affects the sustainability of the current system. Furthermore, as

there is no or only a little economic growth, wages and salaries are not rising anymore. Consequently, when a person reaches retirement age, the system will almost certainly not have sufficient funds to offer the present level of benefits.

Capital funding versus pay-as-you-go systems

Pay-as-you-go systems are characterised by the fact that yearly expenditures are paid for with contributions or tax money collected in the same

Figure 3



year, without building up savings or reserves for the future. These systems are also characterised by significant levels of redistribution of income between sub-groups of the population. In short, the active working insurant supports the elderly and sick, persons that require treatment more often and for longer periods. A balance between healthy and sick people is the common characteristic of any insurance system. Most social insurance systems in addition use contributions as an instrument of redistribution beyond that dimension. In Germany, family members and children (until the age of 26) are covered without paying extra contributions, and retired people pay much lower absolute contributions compared to the working population. The latter represents an additional supplementation from the working population to the non-working population. Additionally, a redistribution of income is created by the fact that people below an income threshold pay a proportional part (average of almost 15 percent in 2003 of wages or salary). Above that threshold people pay a fixed amount into mandatory health insurance, which results in regressive effects with rising income.

Furthermore, as payroll taxes are not risk-based premiums and instead are seen as an instrument of redistribution of income, the separation between allocation (insurance) and distribution (redistribution) in health insurance is not existent, or is inefficient, according to Buchholz et al. (2001). In the German statutory health insurance scheme redistribution is estimated by Henke (2002) at 39 billion annually. For Wille (2000) this degree of redistribution means a lack of the market-oriented benefit principle and therefore is always subject to the reform discussion where economists struggle about the dichotomy between the ability-to-pay principle and the benefit principle.

Within the existing risk-sharing regulations, a reduction of redistributive mechanisms based on income and in relation to the co-insured dependants would result more and more in a system based on capitation fees or premiums. The government would then have to provide support to those private households that lack the personal means to purchase insurance coverage. An alternative that goes even further would be the introduction of “compulsory health insurance for all” based on risk-equivalent premiums. This possibility raises the issue of the appropriate scope of a state-defined minimum level of insurance coverage.

As long as the system has a large enough young and working population combined with a strong economy, the described redistributive mechanism through the payroll tax rates would work and would not need the accumulation of a capital stock for future expenditures. However, considering the intergenerational allocation, a pay-as-you-go system provides more advantages for the first generations because they do not have to pay for another previous generation. The “last generation” loses their benefits when there is no following generation to pay their contributions, as is increasingly the case.

In times of rising unemployment, a dramatically ageing society, and as a consequence of economic stagnation, pay-as-you-go systems have reached their limits. In other words, the system is no longer self-sustaining. Moreover, if the system is financed through employer and employee contributions, these contributions will have to be increased (Breyer and Haufler 2000). This increase of the payroll tax rate will create wage issues, as health insurance contributions are part of ancillary wage costs. Labour unions are focused during their wage bargaining on the increasing ancillary wage costs and demand pay increases as compensation. Furthermore, payroll tax rates become problematic, as they no longer represent an individual’s ability to pay. In terms of taxable income, personal revenues from capital investment and rental should be included. Taxable income may be seen as a new and broader tax base for social security contributions. In this case the existing progressive income tax would be supplemented by a “proportional income tax” to finance social security.

To evaluate the two schemes Figure 4 provides an overview. The advantages of one method of financing are disadvantages of the other, while some problematic trends, can be resolved – though differently – with both methods. However, the problem of the portability of claims – following a change in health insurer or when moving to another country – remains. The relevance of the latter issue will grow as European integration progresses.

Basically, a capital funded system describes the accumulation of reserves or savings in younger ages for future provisions. In doing so, there exists the possibility to collect individual or cohort-specific reserves or savings. From an intergenerational point of view one can say that each individual or

Characteristics for evaluating funded and non-funded (pay-as-you-go) insurance systems

Funded scheme	Non-funded scheme
Equivalence of per capita premiums and benefits over the life cycle	Balance of revenues and expenditures of the total collective per period, no funding
Separation of insurance (allocation) and redistribution	Combination of insurance (allocation) and redistribution
Capital stock must first be accumulated	No need to accumulate capital stock
More independence of demographic trends	Intergenerational redistribution due to demographic changes
Capital stock subject to inflation (risk reduced when funds are international)	Not affected by inflation
Capital in hands of insurance companies represents market strength and investment potential	Strong economic position of social insurance carriers
High administrative costs	Low administrative costs
Source: Advisory Council for the Concerted Action in Health Care (1997), p.63.	

generation would finance itself. A model could be a constant premium throughout life, which is higher for younger ages than the risk-oriented premium. The surplus will be used to build up an increasing-age reserve, which in the older ages could absorb the increasing expenditures. In this setting, premiums could still rise to cover administrative costs or to finance access to technical progress. This general scheme is illustrated in Figure 4 below.

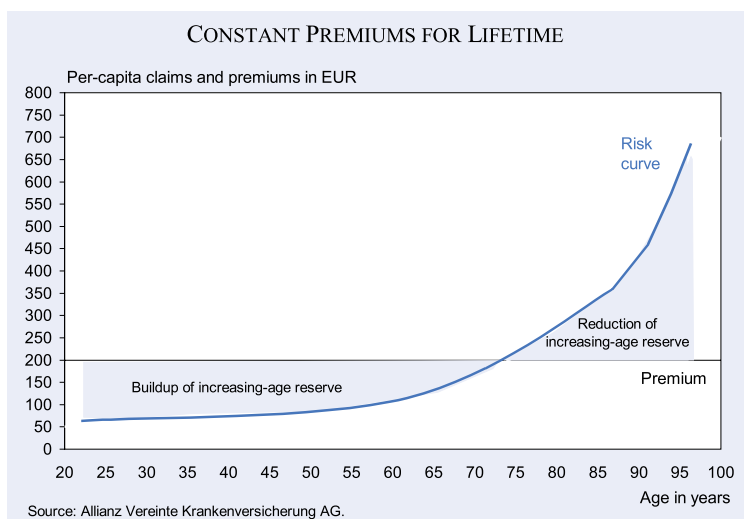
The demographic trends described above could also affect the stability of capital funded systems. For some time now there has been a wide controversy dealing with the future ratio of labour and capital as the two production factors. According to Leug, Ruprecht, Wolgast (2003) the neoclassical economic model implies that a decline in the num-

ber of active workers will lower the capital productivity in relation to the labour factor. The demand for young labour power as a key factor for innovation is higher than the offer. Hence, the labour factor will become more expensive in comparison to capital because, with falling birth-rates, there will be fewer young and productive people to hire. As a consequence, interest rates of the capital market could fall, which would negatively affect the savings of the health insurers. Alternatively, the decline of the labour factor can be disputed as it depends on the labour-force participation rate of women, the retirement age and productivity.

According to Heigl and Katheder (2001), another argument is the pessimistic asset-market-meltdown thesis, which argues that capital funded systems are

at risk if the large baby boomer generation needs to liquidate its investments by realising its stocks in the asset markets. Such a situation could provoke a fall in stocks. If many people and insurers liquidise their stocks, the prices of shares would go down, and this stock market trend could turn into an economic depression because there is not enough demand for stocks in times of low economic growth world-wide. With worldwide economy growth on the decline and a falling birth rate in Europe and Japan, there would be no corresponding

Figure 4



demand for purchasing stocks. Such a development would affect the interest rates of invested capital in the stock market by health insurances, and their savings to stabilise future costs could be lower as expected.

Critics of this thesis are denying this possibility, as not all people use their savings at the same time. Considering the global capital market historically, there have always been new emerging markets for investments. This implies that share prices could rise again. One should never forget that capital is, worldwide, the most flexible factor of all. Some authors like Mackenzie et al. (1997) and Neumann (1998) forecast economic growth through rising saving rates, contrary to the above-mentioned thesis of persisting future low economic growth.

Considering the balance between individuals' spending and saving (dissaving) habits, the discussion is controversial. The economic lifecycle hypothesis (Ando and Modigliani 1963) illustrates that individuals in younger ages create debt to finance their living, and with the beginning of the working years, they begin to save some money for the retirement period. However, according to Heigl and Katheder (2001) there is evidence that the retired do not act according to such a pattern. At least for Germany it can be illustrated that the older population is only using part of its savings, and has never spent all at once. Thus, share prices have not fallen dramatically.

Another more realistic and disconcerting possibility is the fact that capital stock is subject to inflation or can be lost due to a depression or even collapse of the stock markets, as was seen recently during the Asian Currency Crisis. As far as Europe is concerned, it can be assumed that this fear is unnecessary, as the European Central Bank's prior concern is inflation-targeting (Henke et al. 2002).

Focusing on institutional disadvantages in comparing the two basic systems, capital funding is always considered to be associated with higher administrative costs. However, the biggest question has to do with switching costs, if pay-as-you-go systems were to be converted into capital funding systems. Wagner et al. (1998) and Raffelhüschen (2000) argue that the so-called "pioneer generation" of a capital funding system has to bear the burdens of a discontinued system in addition to the requirements of the new system. In order to realise claims

of the old system, the two systems would have to run in parallel for some period of time after the conversion.

The fear that large Insurance companies will gain too much market power by investing large capital amounts can be handled through state regulation, which will guarantee the functioning of the market economy.

Nevertheless, capital funded systems can positively affect economic growth through a higher real savings ratio and investments, and can induce a higher national product as well as produce effects on employment. In an open economy capital exports are possible and savings can thereby be invested globally. The above-mentioned counter arguments (e.g. the asset-market-meltdown thesis) follow a pessimistic perception and imply that the future worldwide economy is on a general decline. However, it is notable that according to Schreyögg (2003), the potential disadvantages of a capital funded system (e.g. inflation risks, higher administrative costs, high switching costs and portability of savings) have not been confirmed by the experience of countries using that system.

Implications for health-care reform and trends in Europe

To changeover to a more capital funded system a great variety of reform options exists. The pay-as-you-go system could either be substituted by a capital funded system or displaced by implementing some kind of partially funded system, as suggested by Börsch-Supan (2000).

For Germany, Henke et al. (2002) and Grabka et al. (2003) have proposed a new financing scheme for the health insurance system based on capital funding. The changeover to the new capital funded health care system would be reached as follows: The working population, including new insurance entries and those younger than age 55 or 60, would be obliged to choose the new form of a capital funded health insurance. Individuals at the age of 55 or 60 and above would stay in the pay-as-you-go system, as would their co-insured dependants. Hence, the two systems would run in parallel to build up necessary savings. After a time period of about 50 years everybody would be insured in a fully capital funded system. To assure

the financing of the system via risk-related premiums, a tax transfer system would need to be established for the low-income households. As these transfers are relatively high, such a fully substitution of the system would not be acceptable. Thus, several partially capital funded systems have been proposed.

One alternative could be to impose a one percent extra charge for all insurants to build up capital. The extra charge is oriented on the standardised health expenditure of German health insurance funds (see Figure 3).

Another model would lie in introducing a minimum insurance coverage based on per capita premiums with a capital funded supplemental insurance. The proportion of benefits financed on the basis of pay-as-you-go could be gradually shifted to more capital funded benefits. After thirty years a ratio of one-third capital funding to two-thirds pay-as-you-go could be reached.

Conclusion

In conclusion, it is clear that capital funding provides certain advantages over the current pay-as-you-go system. In all cases the reform of health care financing has to be combined with necessary adjustments on the supply side of the system. Thus in addition to financing health care, the diversity of purchasing in health services would be a new topic (see in more detail Henke 2003). Eventually, the issue centres on introducing a partially capital funded system, maintaining the growth and employment potential of the growth sector in health care. For this purpose, building up savings as a safeguard for future needs, especially for an ageing population, makes sense and relieve some of the pressure of the demographic challenge. Nevertheless, it should be remembered that the medical technical progress and an increasing life expectancy are burdening both the capital funded systems and the pay-as-you-go systems.

References

- Advisory Council for the Concerted Action in Health Care (1997), *The Health Care System in Germany, Cost factor and branch of the future*, Volume II, Progress and Growth Markets, Financing and Remuneration, Special Report, Summary.
- Ando, A. and F. Modigliani (1963), "The Life-cycle Hypothesis of Savings: Aggregate implications and tests", *American Economic Review*, 53/1, 55-84.
- Börsch-Supan, A. (2000), "Rentabilitätsvergleiche im Umlage- und Kapitaldeckungsverfahren: Konzepte; empirische Ergebnisse, sozialpolitische Konsequenzen", *Beiträge zur angewandten Wirtschaftsforschung*, No. 585-00.
- Breyer, F.; Haufler, A. (2000) Health Care Reform: Separating Insurance from Income Redistribution, Discussion Paper No. 205, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin.
- Buchholz, W., B. Edener, M.M. Grabka, K.-D. Henke, M. Huber, H. Ribhegge, A. Ryll, H.-J. Wagner, G.G. Wagner (2001), Wettbewerb aller Krankenversicherungen kann Qualität verbessern und Kosten des Gesundheitswesens senken, Discussionpaper, No. 247, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin.
- Bundesversicherungsamt (1999), *Standardisierte Ausgaben der Gesetzlichen Krankenversicherung in Westdeutschland*.
- Chassard, Y. and O. Quintin (1992), "Social Protection in the European Community: Towards a Convergence of Policies," *Fifty Years after Beveridge*, vol. 2, York, pp.103-10.
- Grabka, M.M., H.H. Andersen, K.-D. Henke, K. Borchardt (2003), "Kapitaldeckung für die GKV ? Zur Berechnung der finanziellen Auswirkungen eines Umstiegs vom Umlage- auf das Kapitaldeckungs-system", forthcoming in: Schmollers Jahrbuch.
- Heigl, A., M. Katheder (2001), Age Wave – Zur Demographieanfälligkeit von Aktienmärkten, Hypovereinsbank Policy Brief, München.
- Henke, K.-D. (2002), "The Permanent Crisis in German Health Care", *Eurohealth*, vol. 8, no. 2, Spring 2002, pp. 26-28.
- Henke, K.-D., M. M. Grabka, K. Borchardt (2002), "Kapitaldeckung, auch im Gesundheitswesen? Auf dem Wege zu einer ordnungspolitischen Erneuerung der Krankenversicherung", *Zeitschrift für Gesundheitswissenschaften, Journal of Public Health*, 10/3, 194-210.
- Henke, K.-D., K. Borchardt, J. Schreyögg, O. Farhauer (2003), "Eine ökonomische Analyse unterschiedlicher Finanzierungsmodelle der Krankenversorgung in Deutschland: evaluating reform proposals for financing health care in Germany", forthcoming, in *Zeitschrift für Gesundheitswissenschaften, Journal of Public Health*.
- Henke, K.-D. (2003), "Financing and Purchasing in Health Services – A book with Seven Seals", in K.-K. Henke, R. F. Rich, H. Stolte (eds.) *Integrierte Versorgung und neue Vergütungsformen in Deutschland: Lessons learned from comparisons of other health care systems*, vol. 13, Baden-Baden, pp. 11-22.
- Leug, T., W. Ruprecht, M. Wolgast (2003), "Altersvorsorge und demographischer Wandel: Kein Vorteil für das Kapitaldeckungsverfahren?", in *GDV Volkswirtschaft – Themen und Analysen, Gesamtverband der Deutschen Versicherungswirtschaft (GDV)*, no. 1.
- Mackenzie, G.A., P. Gerson, A. Cuevas (1997), "Pension Regimes and Savings", IMF Occasional Paper no. 153, Washington D.C.
- Neumann, M. J. M. (1998), "Ein Reformvorschlag zur gesetzlichen Rentenversicherung", *Wirtschaftsdienst* 5, 259-64.
- OECD (2001), *Health Data, A comparative analysis of 30 countries*, CD-ROM version.
- Raffelhüsch B. (2000), "Aging and Intergenerational Equity: From PAVGO to Funded Pension Systems", in H.-G. Petersen and P. Gallagher (eds.), *Tax and Transfer Reform in Australia and Germany, Australia Centre Series*, vol 3, Berliner Debatte, Wissenschaftsverlag, p. 263-84.
- Rich, R.F., L. DeBrock, R. Kaestner, J.H. Knott, A. Patla, C. Rice, et al. (2003), "Rising Health Care Costs in the United States: Implications for Public Policy", Institute of Government and Public Affairs.
- Schreyögg, J. (2003), "Eine internationale Bestandsaufnahme des Konzeptes der Medical Savings Accounts und seine Implikationen für Deutschland", *Zeitschrift für die Gesamte Versicherungswissenschaft*, 92/3.
- Wagner, G., V. Meinhardt, J. Leinert, E. Kirner (1998), "Kapitaldeckung: Kein Wundermittel für die Altersvorsorge", *DIW Wochenbericht* no. 46, Berlin.
- Wille, E. (2000), "GKV: Reformbedarf bei der Beitragsgestaltung", *Wirtschaftsdienst* 5, 263-65.
- Zimmermann, H., and K.-D. Henke (2001), *Finanzwissenschaft. Eine Einführung in die Lehre von der öffentlichen Finanzwirtschaft*, 8th ed., München, p. 154.