



Analysing the impact of health-care system change in the EU member states – Germany

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Summary

The core of the German health-care system is the statutory health insurance (SHI). Coverage of the SHI has remained fairly constant at about 90% whereas the rest of the population is insured for the most part with private health insurance. The primary goal of health-care reforms since the 1990s has been to contain the expenditure of the SHI. The primary measures to do this have been the introduction of budgets and a shift of expenditure towards private households mainly in the form of benefit exclusions and increased co-payments. So far these measures did not have a negative effect on broad outcome measures such as life expectancy, which continued to rise, and self-assessed health of the population, which remained stable in the period 1992–2002. Besides cost containment another leitmotif of reform have been attempts to increase competition both between sickness funds and providers of care. These two strands of reforms also affected the incentive structures for both insurers and providers in various ways which this article describes. The immediate future of health-care reform will concern the mode of financing of the SHI which centres on the question if contributions proportional to income shall be maintained or if there shall be a radical shift towards flat-rate health premiums. Copyright © 2005 John Wiley & Sons, Ltd.

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The structure of the health-care system

The most important component of the German health-care system is the statutory health-insurance (SHI), which is financed by contributions. Its essential features were introduced in 1883 under Chancellor Otto von Bismarck (for an historical overview of the German health-care system see [1]). For people in gainful employment these contributions are financed jointly by employers and employees. For employees up to a certain income threshold (in 2004: €3863 per month) it is mandatory to insure with the SHI. People whose

earnings are above the income threshold have the choice to insure with the SHI, with private health insurance (PHI) or to not insure at all.

The Social Code Book V is the regulatory framework for Germany's SHI system. It defines the goals of the system and the rules that guide it. The stated goals and fundamental principles of the SHI can be summarized as follows:

- The SHI has the task to maintain, restore or improve the health of the insured.
- The insured have to take responsibility for their health.

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- The provision of services and their financing has to be based on the principle of solidarity. The principle of solidarity has the following features:
 - contributions proportional to income up to an income threshold and free insurance of family members who are not gainfully employed;
 - no differentiation of contribution rates according to age, sex or health risk;
 - provision of medically necessary services according to the principle of appropriateness in a sufficient and efficient way.
- Sickness funds and service providers have to guarantee a needs-based and consistent provision of services which meets the standards of medical knowledge. Healthcare for the insured has to be sufficient and expedient, must not be in excess of what is medically necessary, and has to be provided efficiently, humanely, and up to the required quality.
- Sickness funds and service providers have to provide services in such a way that the contribution rates for the SHI remain stable (the principle of contribution rate stability).
- The service guarantee for the medical outpatient treatment lies with the Federal Association of SHI Physicians and the regional physicians' associations, and the service guarantee for the inpatient medical treatment lies with the federal states (Bundesländer).

Figure 1 presents the financing and delivery flows in the German health-care system.

The statutory sickness funds as payers for healthcare are legally divided into seven groups. On the 1st January 2004 there were 292 sickness funds in the following seven groups:

- 17 general regional funds,
- 229 company-based funds,
- 20 guild funds,
- 14 farmers' funds,
- ten 'substitute' funds (divided into 'white-collar' and 'blue-collar')
- one miners' fund and
- one sailors' fund [1].

Since 1996 there has been free choice of statutory sickness fund with the exception of miners',

farmers' and sailors' funds and also some company-based and guild funds. As far as the latter two are concerned it is their choice if they open themselves to other insurees or if they remain closed only for their respective company or guild [1]. The insurees in the SHI have the legally guaranteed right to freely choose an ambulatory care physician. The usual way into hospitals for patients is by referral by the ambulatory care physician. SHI-accredited physicians have a quasi-monopoly on outpatient medical treatment. With minor exceptions hospitals are not allowed to conduct outpatient treatment. The cost-intensive hospital sector is financed jointly by the federal states which finance investment costs and the sickness funds which finance the running costs [1].

Coverage of the SHI has remained fairly stable over the last 20 years: It covers approximately 87.8% of the population, while 9.7% are insured privately, 1.9% in 'particular systems' (e.g. members of the police or the Federal Armed Forces and also recipients of welfare benefits), and 0.2% not at all [2, data refer to the year 2003]. In 1980, coverage of the SHI was 90.3%, 7.5% were insured privately, 2.0% in 'particular systems' and 0.2% not at all [3, data refer to West Germany only].

PHI offers two sorts of policies, comprehensive and complementary (in addition to SHI coverage – e.g. for rooms with two beds in hospitals) health plans both of which are mainly offered by about 50 private health insurers which are united in the Association of Private Health Insurance Companies. As stated above, about 10% of the population have comprehensive PHI. They consist of three main groups; (1) persons covered formerly by SHI and have opted out, (2) self-employed people who are excluded from SHI, and (3) public employees such as civil servants or teachers. While the SHI is financed on a pay-as-you-go basis comprehensive PHI financing is based on capital cover. Premiums are risk-related and there is no free co-insurance for spouse or children – consequently single people or double-income couples have an incentive to purchase comprehensive PHI [4].

The private sector plays an important role in the provision of health-care services. All physicians in the ambulatory sector work on a private-for-profit basis. In the year 2001 there were 723 public acute hospitals with 276 754 beds (53.6% of all acute hospital beds), 804 private not-for-profit acute hospitals with 198 205 beds (38.4% of beds)

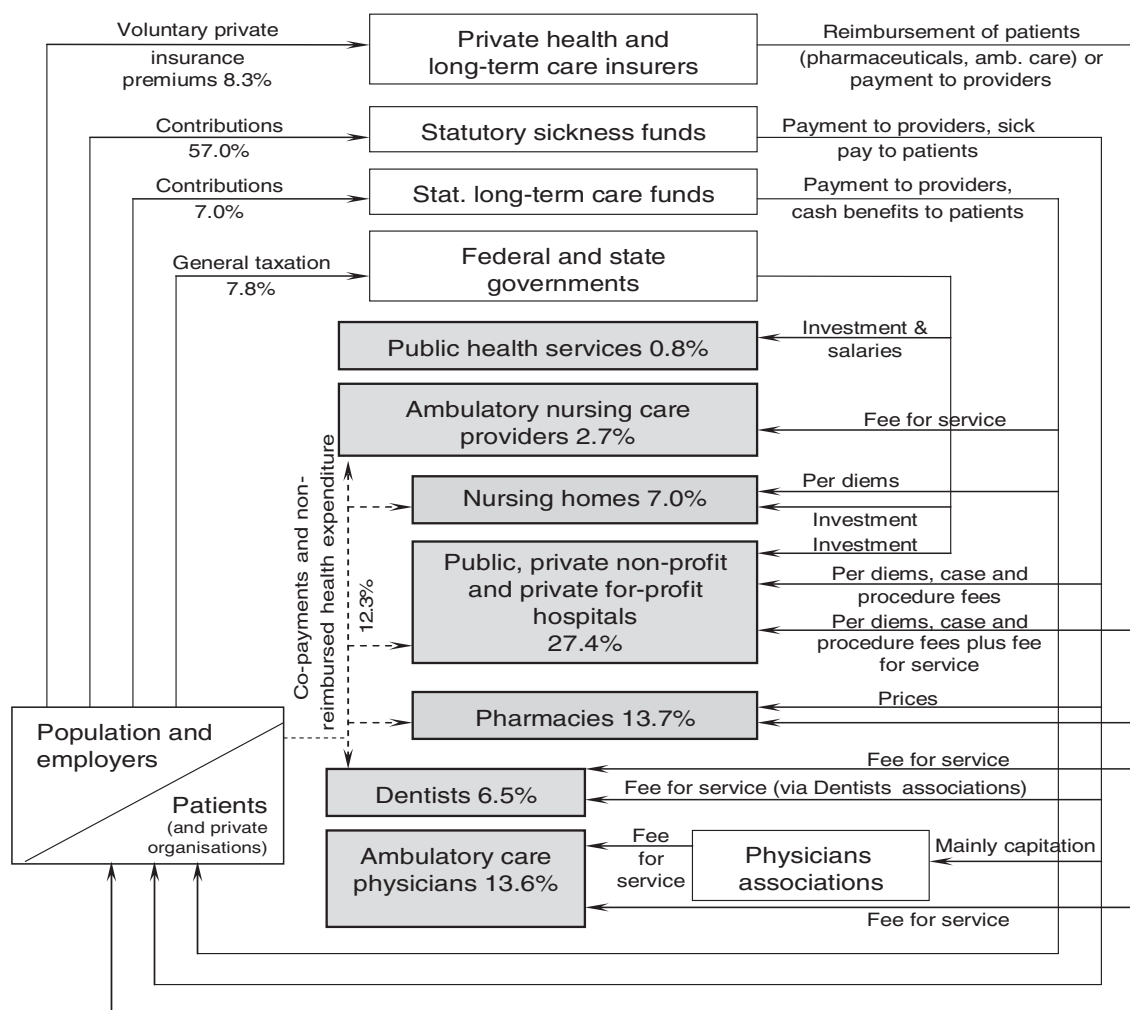


Figure 1. Flow chart of the German health-care system, 2001. *Source:* [1] percentages of sources of finance not presented in the chart: employers 4.1%, statutory pension insurance 1.8%, and statutory accident insurance 1.7%. Providers not visualised: practices of non-physicians receiving 2.4% of total expenditure on health, health sector trade handicraft 7.1%, other ambulatory providers 0.5%, preventive and medical rehabilitative care institutions 3.3%, occupational and social rehabilitation providers 0.6%, transportation providers 1.0%, administration 5.7%, investments 2.7% and all other providers 5.1%

and 468 private for-profit acute hospitals with 41 283 beds (8.0% of beds) [5]. The bed share of the latter has more than doubled over the past 10 years and will continue to increase in the future because of the precarious financial situation of many local authorities which own hospitals and are often interested to sell them to private investors. As far as providers of rehabilitative and long-term care institutions are concerned, the private-for-profit sector is already much larger.

The powers to regulate the health-care system are distributed between the state and the

self-governing bodies that include the associations of the sickness funds and the associations of providers (most notably the associations of physicians and the organisations of hospitals). For both the state and the self-governing bodies these powers are executed at the central (federal) and regional (Bundesland) levels. The most important competencies (in particular the regulation of the SHI, the regulation of the social long-term care insurance, and the regulation of hospital financing) are executed at the federal level (for a detailed description of the organisation of the

German health-care system and the distribution of regulation competencies see [1]).

Regarding the benefit catalogue, there was one important extension. In 1994 the Social Long-Term Care Insurance Act was passed. It offers benefits for both inpatient (since 1996) and outpatient (since 1995) long-term care. However, costs are reimbursed only up to a legally defined maximum amount. Although there were benefits for ambulatory long-term care in the SHI catalogue before the introduction of the social long-term care insurance (these were cancelled after the introduction of the new scheme), they were not very generous and most long-term care services were financed out-of-pocket or by social assistance and therefore through taxes. The benefits provided for by social assistance were not based on an insurance relationship, but were subject to means-testing.

Since 1977 the main objective of health-care reforms has been cost containment [1]. One important kind of cost containment policy was benefit cuts. These took predominantly the form of successive increases in user charges and exclusions of minor benefits which resulted in a noticeable increase of the amount of privately financed healthcare (see below). More far-reaching benefit cuts were only implemented during the last phase of the Christian Democratic–Liberal Government in 1996/1997. Amongst other things, operative dental treatment and dentures for people born after 1978 were removed from the benefit catalogue and for the rest of the insured only a fixed grant for these services was given instead of former proportionate financing by sickness funds (for a detailed description of this reform period see [6]). Most of these benefit cuts were reversed by the incoming Social Democratic–Green Government in 1998/1999. However, the latest health-care reform by this Government, the SHI Modernisation Act passed in October 2003, constitutes a shift in direction. Whilst the present Government in previous reforms tried to avoid placing explicit burdens on insurees or consumers of health-care services, the SHI Modernisation Act contains many charges and restrictions for insurees and consumers. This act cuts minor benefits, increases user charges and shifts the mix of financing of the SHI from the employers to the insured. Since July 2005 insurees have to pay the full costs of dental replacement and sickness allowance (which is technically realised by creating a ‘special’ contribution rate of 0.9 percentage points paid only by

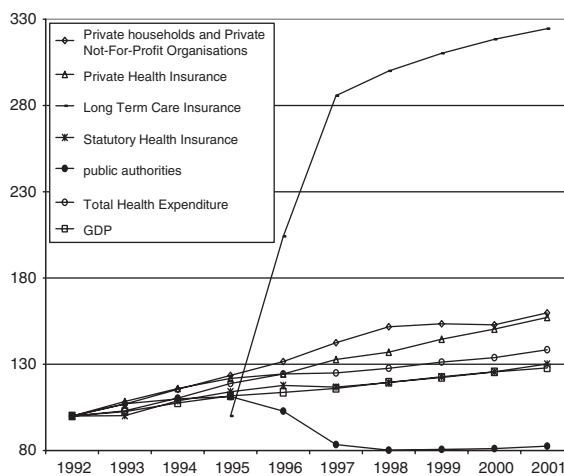


Figure 2. Development of GDP, health expenditure and its main components according to source of funding between 1992 and 2001 (1992 = 100 – in current prices). Sources: [9,10, and own calculations, 11,12]. For reasons of clarity the health expenditure of employers, statutory pension insurance and statutory accident insurance are not included. These sources of finance are of minor importance in quantitative terms (compare Figure 1 for their shares on total health expenditure in 2001). Income benefits are also not included

the insurees). Whilst there has been parity in financing of the SHI between employers and employees since 1949 [7], the shift in payments for dental replacement and sickness pay will lead to a financing mix of approximately 54% for employees and 46% for employers [8].

Figure 2 shows the indexed development of nominal GDP and nominal total health expenditure and its different components according to sources of funding between 1992 and 2001 (older figures are not applicable due to the German reunification and changes in the accounting methods of the Federal Statistical Office – because of the lack of an adequate deflator for healthcare, expenditure is not deflated). Total nominal health expenditure rose slightly more than nominal GDP between 1992 and 1996, but from 1997 nominal GDP rose faster than total nominal health expenditure (with the exceptions of 1999 and 2001, predominantly due to moderate increases in GDP in those years).

Health-care reforms did have an impact on the development of expenditure. The introduction of the social long-term insurance led to an increase in health expenditure which contributed to the high growth rates between 1994 and 1996. The very

moderate increases in health-care spending in 1997 and, to a lesser extent, 1998, are due to the benefit cuts passed in 1996 and 1997. The expenditure of the SHI even declined between 1996 and 1997 [9].

A difficult question concerns equity in the financing of health care. Wagstaff *et al.* [13] compared the progressivity of health-care financing in 12 European States and the United States of America. The Kakwani index was calculated for each country based on household data. The Kakwani index is a measure of the progressivity of the financing system. A positive, respectively, negative value of the Kakwani Index indicates a progressive, respectively, regressive financing system, the greater the value the greater the progressivity/regressivity. Germany emerged as a rather regressive health-care financing system with the following Kakwani indexes (these data refer to the year 1989): General taxes (0.1100), social insurance (-0.0977), total public (-0.0533), private insurance (0.1219), direct payments (-0.0963), total private (-0.0067), and total payments (-0.0452). The regressiveness of the social insurance system is due to the fact that people above the income threshold can opt out of the SHI while private insurance is progressive because it is bought by those high-earners who opted out of the SHI [13].

While it is beyond the scope of this paper to recalculate the Kakwani index for Germany based on the same method as that employed by Wagstaff *et al.* for more up to date figures, one can make some informed judgements about how progressivity has developed since then under *ceteris paribus* conditions. Wagstaff *et al.* state the following distribution of the financing mix for healthcare (in %): general taxes (17.7), social insurance (65.0), private insurance (7.1), and direct payments (10.2). The Kakwani index for total payments was weighted according to these shares. Health expenditure data indicate the following proportions (in %) for 1992/2001: public funding (13.0/7.0), social insurance (64.7/67.6), PHI (7.4/8.3), employers (4.3/4.1), and private households (10.7/12.3) [9,10]. Under the assumption that the progressiveness/regressiveness of the respective financing source did not change one can conclude that German health-care financing has become more regressive since the shares of the regressive financing sources have increased compared to the progressive sources. Most importantly, public financing has decreased which is mostly due to the introduc-

tion of the social long-term care insurance and a successive shift of financing from social assistance to the social long-term care insurance [9].

Resource allocation, incentives and appropriateness of care

Budget allocation (the macrolevel)

In the 1990s the resource allocation method of the German SHI changed from an employment-based insurance plan to a competitive insurance plan [14]. Before 1996 there was an assignment system which meant in essence that health insurance equated to compulsory membership in a certain sickness fund (in particular for workers). As far as the assignment procedure to a sickness fund was concerned the following basic rules applied (amongst others):

- the general regional funds insured everybody covered by SHI unless the insurance was the responsibility of another sickness fund (the so-called 'basic function' of the general regional funds);
- when a person worked for a company that had its own insurance fund, then the company-based fund superseded the general regional fund (the same applied for guild funds);
- farmers', miners', and sailors' funds were (and still are) special kinds of statutory sickness funds;
- membership in a substitute fund was restricted to certain occupational groups – primarily white-collar employees [15].

Before 1994 every statutory sickness fund had to finance virtually all the expenses of its non-pensioner insurees. However, since 1977 there had been complete financial compensation for pensioners' expenditure between the sickness funds [7]. This situation of forced assignment to sickness fund for many insurees and financial compensation only for the expenditures of pensioners changed completely with the passage of the Health Care Structure Act in 1992 (the various measures which are described below came into force between 1994 and 1996).

More competition between the sickness funds was created by allowing the vast majority (approximately 97%) of SHI members the freedom to choose their sickness fund, before that reform measure roughly 50% of the members had at least a partial choice (mainly between substitute and regional funds) [1]. The forced assignment to a sickness fund was retained for farmers, miners, and sailors. In order to counteract incentives for risk selection, this measure was accompanied by the introduction of a risk-adjustment scheme among sickness funds. Until 2002 only the following risk-adjusters were used (besides equalising for differences in contributory income): age, sex, disability insurance recipient, and entitlement for sickness allowance [16]. The risk-adjustment scheme was put into effect for the first time in 1994 (risk adjustment was performed in 1994 without pensioners and since 1995 including pensioners), but the freedom to choose the sickness fund was only implemented from 1996. The introduction of both free choice for the insured and the risk-adjustment scheme had three main effects. These were that they led to more harmonisation of the contribution rates between the sickness funds, to momentous insuree mobility between the sickness funds and to a tendency of de-mixing of the risk structures of the insurees of the respective sickness funds. We explain these three effects in more detail in what follows.

Prior to the introduction of the risk-adjustment scheme and the free choice of the insurance fund, the range of contribution rates between some sickness funds varied between 8 and 16.8% of gross income [17]. The range of contribution rates between the five largest sickness funds groups (general regional funds, company-based funds, guilds funds, substitute blue collar, and substitute white-collar funds) has narrowed. Whereas the range of average contribution rates was 2.19 percentage points in 1993 (the year before the risk-adjustment scheme was introduced) it fell to a low of 1.02 in 1998 and was 1.19 in 2000. However, since 1999 there has also been a tendency for the average contribution rate of the company-based funds to be considerably lower than the other funds [18,19].

Choice was exercised to a considerable and increasing degree. In the period between the beginning of 1999 and Spring 2000 alone, 4.7% of all insured persons changed their sickness fund [20,21]. The obvious winner of the right to choose are the company-based funds which gained an

additional 5.1 million members (this corresponds to an increase of 98%, i.e. membership virtually doubled) whereas the general regional funds lost 3.3 million and the white-collar substitute funds lost 2.1 million members (respectively -14.9% in the former case and -11.6% in the latter case) in the period between 1st October 1996 and 1st January 2004. The changes in membership of the other sickness funds over the same time period were less pronounced. Both the guild funds and the blue-collar substitute funds gained a small proportion of members (+57 000 or +1.9% in the former case and +17 000 or +1.8% in the latter case) [18,22, these figures not only contain change from one statutory sickness fund to another; they also include exit to PHI, deaths of insurees, and new insurees]. Empirical research shows that the prime motif for changing sickness funds is the level of the contribution rate [21,23]. As far as personal characteristics are concerned those insurees who changed their sickness fund are in better health than people who do not change [21,24].

Until 2002 the risk-adjustment scheme did not compensate for chronic illnesses, or for general cost-inducing illnesses that are not connected to the risk adjusters of income, age, sex, receipt of disability insurance, or entitlement to sickness allowance. Consequently, sickness funds had an incentive to attract new members without chronic illnesses; this is one important reason for the contribution rate advantage of the company-based funds – since their primary insurance clientele is employed and therefore healthier. The government has acknowledged this problematic aspect of the risk-adjustment scheme and has introduced measures to counteract the tendency. Since 1st January 2002, a high risk pool has been introduced which compensates sickness funds that have insurees who incur costs above € 20 450 per year: 60% of the costs incurred above that amount are compensated for by the high-risk pool, while the sickness funds have to bear the remaining 40% themselves [25]. In addition, the so-called Disease Management Programmes (DMPs) were introduced. DMPs are basically a managed care instrument, which provide the opportunity for sickness funds to offer structured treatment on the basis of evidence-based guidelines for the chronically ill. In 2002 DMPs were recommended for diabetes, coronary heart diseases, asthma/COPD and breast cancer. However, before a sickness fund can offer DMPs the Federal Insurance Office has to accredit them. Up to October 2004, programmes for breast

cancer, diabetes, and coronary heart diseases have been accredited. Insurees subscribed in a DMP have become an additional category in the risk-adjustment scheme. Therefore DMPs are combined with a financial incentive for the SHI funds to insure people with chronic illnesses and to enroll them in the DMPs. This again alters the incentives for sickness funds transforming those enrolled in DMPs from former financial 'bad risks' into 'good risks'. One has to stress, however, that DMPs are not only a means to compensate for the deficiencies of the risk-adjustment scheme but an end in itself since DMPs are meant to improve the care of the chronically ill. Unfortunately, it is too early to assess if these measures have contributed towards a fairer functioning of the risk-adjustment scheme or in improved care for the chronically ill (for more details on German DMPs see [26]).

Payment of providers (the microlevel)

Payment of doctors, dentists and pharmacists. Since the 1960s ambulatory care physicians are reimbursed mainly via a fee-for-service system (the payment of dentists in the ambulatory sector is similar to that of ambulatory physicians and will not be treated separately). The remuneration is a two-step process. First, the regional associations of the sickness funds pay a so-called *total remuneration* to the regional associations of the SHI-affiliated doctors. This total remuneration is usually negotiated as a capitation per insured in the SHI. The capitation varies both between sickness funds and between the Länder. It covers basically all services provided by all SHI-affiliated physicians in all specialties [1]. The second stage consists in distributing the total remuneration amongst SHI-affiliated physicians. The total remuneration is distributed by the physicians' associations according to a *uniform-value scale* which lists all services which are reimbursable by the SHI. Every service gets a number of points assigned which indicates the relative value of the service compared to other services. The reimbursement that a physician obtains for a medical service is derived from the multiplication of the number of points with a point value. The point values are set by the regional physicians association. However, since 1989 (and even more strictly since 1993) the total budget for ambulatory care physicians has had an upper limit linked to the wage increases of the insured in the SHI. The combination of a fee-for-service reimbur-

sement with a fixed upper limit leads to a declining revenue for individual services if quantities increase. Physicians in the ambulatory care sector, therefore, find themselves in a typical prisoner's dilemma situation, independently of how other physicians behave, an individual physician can maximise his/her share of the total payment by expanding services. Therefore his/her dominant strategy will be to provide more services to patients [27]. In fact, the monetary value of the point value declined since 1992 and in particular between 1995 and 1996 [28]. In order to stop the decline of the point value, the so-called *doctors' practice budgets* were introduced in July 1997, which limited the number of reimbursable points per patient. The practice budgets were abolished taking effect in July 2003 following a decision of the Federal Social Court that their calculation base is not valid any more. However, the self-governing bodies did not reach agreement upon the modification of the calculation base. Although there is no scientific evaluation on the impact of the practice budgets it is very likely that they stabilized the point value since it did not decline any more after 1997 [28].

Since only the budgets of the SHI have limits, physicians have an incentive to look for alternative sources of income, the most important being patients with PHI. Perhaps surprisingly, recipients of social assistance benefits were also an additional source of income until 2003 because their health-care expenditure was paid out of taxes and was remunerated according to the fee schedule mainly used for PHI. Although health-care expenditure for recipients of social assistance benefits continues to be financed out of taxes, since 1st January 2004 this expenditure has been included in the budgets of the SHI and there is no longer an incentive for physicians to treat recipients of social assistance benefits preferably. In 1998 the Federal Association of SHI Physicians introduced the so-called *individual health benefits*. Individual health benefits are not reimbursed by the SHI. Therefore the patient has to pay these benefits out of his/her own pocket. Although it was already possible before 1998 to buy such services from the physician, these are now actively promoted and marketed to complement the benefit package of the SHI. The initiative can be seen as an attempt by the Federal Association of SHI Physicians to strive for additional income. Table 1 also shows that the year 1996–1998 were particularly hard for ambulatory physicians, since expenditure per case declined in nominal terms. The period of decreas-

Table 1. Indicators for the ambulatory care sector – changes in the number of SHI-affiliated physicians, services provided, and remuneration, 1980–2001 (in current prices)

	Number of SHI physicians	Remuneration for all SHI physicians in billion Euro	Remuneration per SHI physician in Euro	Expenditure per insured member in Euro	Expenditure per case ^c in Euro
1980 ^a	55 743	7.41	132 932	209.8	29.4
1985 ^a	63 056	9.61	152 404	264.9	35.7
1990 ^a	71 218	12.48	175 237	329.0	38.9
1995 ^a	88 165	16.72	189 644	412.4	41.7
1996 ^b	107 071	20.14	188 100	396.3	39.6
1997 ^b	108 734	20.45	188 074	401.9	39.0
1998 ^b	110 339	20.61	186 788	406.7	38.7
1999 ^b	122 604	21.68	176 830	425.7	39.3
2000 ^b	128 670	22.50	174 866	440.7	40.3
2001 ^b	128 333	23.20	180 780	455.5	41.1
Change in %, 1996–2001	+ 19.9	+ 15.2	–3.9	+ 14.9	+ 3.9

Source: [29, and own calculations].

^aWest Germany.

^bGermany.

^cA case is defined as one or more patient contacts with one and the same physician per quarter.

ing SHI remuneration per physician even lasted until 2000.

In 2000 there were 563 hospital pharmacies and 21 592 privately run pharmacies outside hospitals – the so-called public pharmacies. Pharmacies can only be owned and run by a pharmacist [30,31]. Three sorts of pharmaceuticals are sold in pharmacies: prescription and non-prescription drugs, both of which can only be sold in pharmacies, and pharmaceuticals which can be sold freely and are not bound to pharmacies. In 2000, sales in pharmacies of prescription pharmaceuticals as a share of all pharmaceuticals were 72.1%, for non-prescription drugs 26.3% and for freely sellable pharmaceuticals 1.6%. The share of pharmaceuticals of total sales at pharmacies was 93.3% [30].

Prices of pharmacy-only drugs are regulated in the Drug Price Regulation. Pharmaceuticals are distributed from manufacturers to retailers via wholesalers. Wholesalers are allowed to add a mark-up to the price of the manufacturer. These mark-ups are determined in the Drug Price Regulation and vary inversely with the manufacturer's price [32]. Retail pharmacists add a fixed mark-up to the maximum wholesalers' price. Until 2003, this mark-up was a percentage which decreased with increasing ex-factory price. These regulations guaranteed uniform prices for pharmaceuticals throughout Germany. Hence, there

was resale price maintenance for both prescription and non-prescription pharmaceuticals sold only in pharmacies, and there was no price-competition between pharmacies [30,32]. In spite of degressive mark-ups, profits in absolute terms were higher with more expensive pharmaceuticals, and therefore pharmacists had an incentive to sell expensive pharmaceuticals [30,31].

The SHI Modernisation Act which came into force on 1st January 2004 changed this incentive structure. Whilst degressive mark-ups added by wholesalers have been maintained, however, cut by half, mark-ups added by retail pharmacists are now proportional (3%) plus a fixed sum of €8.10 per package. This is meant to stop the incentive for pharmacists to sell expensive drugs (but provides a strong incentive to sell more smaller packages which may outweigh the benefit). Resale price maintenance for non-prescriptive drugs for sale in pharmacies only not reimbursed by the SHI is abolished and therefore price competition has been introduced in this segment. This is supposed to lead to lower prices but evidence from the first half of 2004 is not (yet) supporting this assumption.

Payment of hospitals. There have been three reform steps in the way hospitals are paid in Germany since 1985. In chronological order these reforms have become increasingly radical in their

Table 2. Hospital indicators – changes in current expenditure compared to the preceding year in % and average length of stay in days

	Expenditure/day			Expenditure/case			Average length of stay		
	Total	West	East	Total	West	East	Total	West	East
<i>Acute and special hospitals</i>									
1981		+ 10.1%			+ 7.5%			19.1	
1982		+ 8.8%			+ 6.0%			18.7	
1983		+ 3.6%			+ 2.8%			18.6	
1984		+ 2.8%			+ 2.0%			18.4	
1985		+ 6.5%			+ 4.1%			18.0	
1986		+ 4.3%			+ 1.6%			17.5	
1987		+ 3.5%			+ 1.1%			17.1	
1988		+ 4.4%			+ 1.6%			16.6	
1989		+ 4.0%			+ 1.5%			16.2	
Average rate of change, 1980–1989		+ 5.4%			+ 3.1%			–2.1%	
<i>General and psychiatric hospitals</i>									
1992	+ 13.4%	+ 10.0%	+ 37.3%	+ 7.9%	+ 6.5%	+ 20.5%	13.9	13.9	14.1
1993	+ 9.3%	+ 7.8%	+ 19.2%	+ 3.7%	+ 2.9%	+ 9.9%	13.2	13.2	13.0
1994	+ 7.3%	+ 6.1%	+ 14.6%	+ 2.8%	+ 2.2%	+ 7.6%	12.7	12.7	12.2
1995	+ 7.8%	+ 7.6%	+ 9.2%	+ 3.1%	+ 2.9%	+ 4.4%	12.1	12.2	11.7
1996	+ 5.4%	+ 5.4%	+ 5.6%	–0.5%	–0.7%	+ 1.1%	11.4	11.5	11.2
1997	+ 2.7%	+ 2.5%	+ 3.8%	–1.1%	–1.3%	–0.1%	11.0	11.1	10.8
1998	+ 1.9%	+ 1.8%	+ 2.7%	–0.9%	–1.0%	–0.3%	10.7	10.8	10.5
1999	+ 3.2%	+ 3.3%	+ 2.4%	0.0%	+ 0.1%	–0.6%	10.4	10.4	10.1
2000	+ 3.1%	+ 3.1%	+ 3.3%	+ 0.6%	+ 0.5%	+ 1.1%	10.1	10.2	9.9
2001	+ 5.2%	+ 5.3%	+ 5.2%	+ 2.0%	+ 2.0%	+ 2.2%	9.8	9.8	9.7
Average rate of change, 1991–2001	+ 5.9%	+ 5.3%	+ 9.9%	+ 1.7%	+ 1.4%	+ 4.4%	–3.9%	–3.7%	–4.9%

Source: [5,19,35–38, and own calculations]. The Federal Statistical Office changed the classification for hospitals in 1990. Therefore the presentation of coherent time series is not possible. Prior to 1990 the official classification consisted of acute hospitals and 'special hospitals', including psychiatric and rehabilitation clinics, whereas the new classification differentiates general and miscellaneous hospitals (psychiatric, neurology and day clinics) from rehabilitation and preventive institutions (data for 1990 are only available for the new statistical recording and for the West German states and are therefore left out).

approach to altering the payment method of hospitals. Until 1985 hospitals were paid by per diems which were set for each hospital by the ministries of the federal states. The so-called full-cost cover principle applied; i.e. hospitals were eligible for full reimbursement of their costs. This method of payment obviously did not contain any financial incentives for cost consciousness.

In 1985, the method of payment was changed slightly in that prospective budgets negotiated between hospital owners and the sickness funds were introduced. These budgets were reimbursed by per diems and procedure fees (the latter covering expensive costs incurred in the operating room). *De facto*, however, hospitals were still reimbursed for their full costs as costs lower or higher than those negotiated were accounted for in

the following year. This minor change in the payment method did not lead to cost savings in hospitals [33,34]. As can be seen in Table 2, expenditure per case in 1985 rose quite substantially, although this was not due to the changes in the payment method but to other reform measures passed in 1984/1985 [33].

In 1992, a more far-reaching reform concerning the payment method of hospitals was introduced with the passing of the Health Care Structure Act. With this act the full cost cover principle was abolished and budgets were calculated on an individual hospital level initially for the period 1993–1995. Increases in the budget were limited to increases in the growth rate of the contributory income to the sickness funds. Although these budgets were intended to last only until 1995 there

are still budgets in use today. However, whereas budgets between 1993 and 1995 were fixed, budgets since then have been based on negotiated targets between hospitals and sickness funds with a certain compensation for deviations from the target. The new payment method had two components. As of 1993, hospital services were reimbursed by a two-tier system of per diem charges: a hospital-specific basic per diem covering non-medical costs and a department-specific per diem covering medical costs including nursing, pharmaceuticals and procedures [34]. The second component was made mandatory in 1996 when case fees (covering the costs for the whole hospital stay of a patient) and procedure fees (paid on top of slightly reduced per diems) were introduced in order to produce a more performance-related payment method for hospitals. However, case fees and procedure fees accounted for the reimbursement of less than one quarter of all hospital services. Overall there were about 70 case fees and 140 procedure fees, and case fees were unevenly distributed between specialities. On the one hand, there were no case fees for medical, paediatric and psychiatric patients; on the other hand, more than 50% of cases in gynaecology and obstetrics and approximately two thirds of ophthalmologic cases were reimbursed via case fees [34].

Due to this new incentive structure, the following effects were anticipated (in particular in areas where case and procedure fees were applied): increased efficiency of service provision because of more cost-consciousness, cream skinning, (too) early discharges of patients who are paid via case fees, a decrease of average length of stay in general, and increased service specialisation of hospitals, since they will concentrate on case fees which they can provide profitably.

Scientific evidence is rather scant on whether these expected effects have materialised. There is evidence that hospitals introduced various measures to increase efficiency [39] and that overall efficiency of the hospital sector improved [40]. Table 2 also shows that costs per case *decreased* in the period 1996–1998; however, nothing can be said on whether or not quality remained constant. The beginning with reduced expenditure per case coincided with the introduction of prospective case fees (from 1st January 1996) but also with the introduction of institutional benefits from the long-term care insurance (from 1st July 1996). There is some evidence that patients were transferred more frequently and earlier to rehabilitation

clinics [39] and that costly patients were transferred more frequently to university hospitals that have virtually no possibility to transfer costly patients, since they are the providers of last resort [39,41]. The average length of stay decreased disproportionately in departments where case fees were applied above average [34,39]. As Table 2 shows overall average length of stay decreased during the whole period covered. Decreases were particularly pronounced in the years in which fixed budgets for hospitals (1993) and prospective case fees (1996) were introduced. Although it has been assumed that there would be more specialisation in hospitals following the passage of the Health Care Structure Act there is no evidence for this [39].

The original intention of the government to extend gradually the scope of services reimbursed via case fees to 100% did not materialise. In the year 2000, therefore, a new approach was chosen. The government committed the self-governing bodies (the German Hospital Organisation and the associations of the statutory sickness funds and private health insurers) to introduce a universal (that is for *all* hospital services with the major exceptions of psychiatry and psychosomatic medicine) performance related case fees system based on Diagnosis-Related Groups (DRG). The self-governing bodies opted for the Australian Refined DRG system and adapted it into the German-DRG (G-DRG) Version, which is modified annually. In 2005 there are 878 reimbursable case fees. However, the G-DRG System will become effective as a price system only gradually, beginning in 2005. As of 2009, G-DRG shall become fully effective as a price system. Until then the final legal frame of reference of the price system has to be set which will condition to a large degree its incentive effects. Therefore it is rather speculative to make statements concerning the incentive effects that this price system will finally produce. An important issue at stake, however, is whether the price system will apply fixed or ceiling prices. If DRGs are applied within the system of fixed hospital budgets, then the price per DRG might vary inversely with utilisation. Then hospitals will find themselves in a similar prisoners' dilemma situation as ambulatory care physicians [42].

Appropriateness of care. Both for the ambulatory sector and the inpatient acute hospital sector there are policies to regulate the supply side. In 1993 the

self-governing bodies issued a guideline which regulates the number and geographical allocation of SHI-affiliated office-based physicians. According to this guideline all planning areas are classified into one of ten groups. These groups range from large metropolitan to rural areas. The 'need' (i.e. population per GP or specialist) per group is defined as the average actual ratio of SHI-affiliated office-based physicians working in that group per population in 1990. No other factors (e.g. age, gender, morbidity, socioeconomic status or supply of hospital beds) are taken into account [1].

The competency for hospital planning lies with the federal states. Whereas there is considerable variance between the procedures applied in each state, it is common to all that hospital planning only refers to the planning of capacities (hospitals, departments and beds) [43,44]. There is no central planning of personnel. It is up to every individual hospital to plan and employ staff. Therefore, for both ambulatory physicians and acute hospitals the regulations to provide appropriate care only refer to 'instrumental density indicators' (physicians, hospitals, hospital departments and beds per inhabitants) [43].

A topic which has gained increasing importance in Germany is the regulation of medical errors (e.g. [45–47]) even though there are virtually no policies which affect medical errors. In particular there are no federal policies for the reduction of medical errors and the improvement of patient safety. It has been noted that medical errors, understood as 'procedures that were not performed correctly or were performed inappropriately under the given circumstances' are of imminent importance for the German health-care system [46]. Although data on the number of suspected or actual medical errors are difficult to obtain, it is estimated that there are currently 40 000 suspected and documented medical errors in Germany per year and the number of acknowledged damage claims is approximately 12 000. However, because of data problems it might be that these figures are only the 'tip of the iceberg'. If results of studies in the USA were applicable to German circumstances, there would be between 31 000 and 83 000 fatalities due to the undesired effects of medical interventions in hospitals, which would mean that more people would die as a result of medical errors than from colon cancer, breast cancer and traffic accidents combined [46].

Access and outcomes

General issues

As noted earlier virtually the whole German population has some kind of health-care coverage and about 88% of the population are insured in the SHI. Therefore, in principle, the whole population has access to the health-care system. The question remains if there are differences in access in relation to different socioeconomic strata. van Doorslaer *et al.* in their study on the relationship between economic status and the utilisation of health-care services (physician contacts) found the following for East and West Germany [48]: lower-income groups are more intensive users of the health-care system than higher income groups for both parts of Germany (data refer to 1992, the respective indices for both East and West Germany were not significant [48]). However, if the data were standardised for age, sex, self-assessed health and chronic illness, then a significant pro-rich inequity was measured for East Germany whereas the indicator for West Germany remained pro-poor, although not significant [48]. The same data used by van Doorslaer *et al.* [48] for Germany were analysed with other methods. This other approach, although also standardised for self-assessed health and chronic illness, resulted in a higher utilisation of health-care services by those in lower economic groups and therefore suggested a slight pro-poor inequity [49, the article does not show if measures were significant].

These results tend to be confirmed in more recent studies. For example, one study showed that with respect to men, the lower the socioeconomic status, the higher the utilisation of ambulatory physician services. This relationship was not found for women [50]. An analysis of two representative surveys for the entire Federal Republic of Germany conducted in 1998 and 2000 revealed higher utilisation of health-care services by lower socioeconomic groups. This relationship was more pronounced with inpatient services than with outpatient services, but, there was no differentiation according to sex in this analysis [51].

There is one study which differentiates between GP and specialist visits. It concludes for Germany that, although standardised for factors affecting need, there is a pro-poor inequity concerning the

GP visits and a pro-rich inequity concerning the specialist visits (data refer to 1996, results were significant). These findings hold true for virtually all 12 European countries studied. As far as the degree of inequity is concerned, Germany ranks about in the middle of the countries studied [52].

User charges

There have always been some user charges in Germany [53]. However, substantial increases in and introductions of user charges have been passed since the beginning of the 1980s [8]. There were six major reforms between 1982 and 2003 which increased user-charges. Most of these reforms were accompanied by extensions in hardship regulations. In 1980 user charges' share of total SHI expenditure was 3.1% (West Germany only). It increased from 3.6% in 1992 to 4.3% in 2001 [10, 53, own calculations]. The latest health-care reform passed in 2003 once again notably increased user charges. For example, for the first time a user charge of €10 for the first contact with ambulatory physicians and dentists per quarter was introduced on 1st January 2004. Furthermore, hardship regulations were tightened. Before the reform it was possible to be totally exempt from co-payments if income fell below a certain income threshold. With the SHI Modernisation Act, however, everybody (including recipients of means-tested benefits like social assistance and some pensions) will have to pay 2% of his/her gross income for co-payments and will be exempted from co-payments only above that amount. For people with chronic illnesses the threshold is 1% of gross income. It is estimated that these increases will lead to additional aggregate user charges revenue of 3.2 billion Euros per year [54] which would amount to 2.4% of SHI expenditure in 2003. There was, and still is, controversy about the impact of user charges on health-care utilisation. While proponents of user charges consider them a useful steering tool in order to enhance efficiency, competition and consumer sovereignty, opponents argue that there is virtually no price elasticity for health-care goods and therefore user charges will not lead to more competition and efficiency and that they will lead simply to a delay in treatment [53]. There is not much research in Germany on whether or not user charges deterred people from accessing the health-

care system. An important question in this context concerns hardship regulations. In Germany, children below 18 years are exempted totally and, until 2003, people below a certain income threshold were exempted either totally or partially. The number of people exempted totally from user charges rose from 7.4 million in 1993 to 9.3 million in 2000 (children are not included in these figures). This corresponds to 10.2% in 1993, respectively, 13.0% in 2000 of all insured persons and co-insured children [18, own calculations, 55]. Preliminary research results indicate that there was limited knowledge of the details of the hardship regulations amongst the target groups and therefore under utilisation of these options and a need for improved information policies [56,57]. With the passage of the SHI Modernisation Act, the question of whether user charges deter low-income people from accessing health-care services gains momentum since it is the first health-care reform in Germany which substantially and simultaneously increased user charges and reduced exemptions. However, one has to stress that in international comparison, also after the implementation of the reforms of the SHI Modernisation Act, Germany ranks in the middle as far as the burden on the population with co-payments is concerned [58,59].

Waiting lists

Germany is one of those countries where waiting lists are not considered to be an issue [60,61]. There is, however, no obligation to report on waiting lists with the exception of transplantations – where there are waiting lists. In a report which analysed the impact of the introduction of budgets and the new reimbursement system for hospitals, 13% of all hospitals in 1996 and 20.8% of all hospitals in 1997 declared that they have waiting lists. However, there were no data on which services have waiting lists, how many people were on the lists, or how long was the average duration [39].

Outcomes

Table 3 shows the development of life expectancy at birth in East and West Germany from 1980 to 1999. The difference in life expectancy between East and West to the detriment of almost all East

Table 3. Life expectancy in years at birth in West and East Germany, 1980–1999

Base years	Male			Female		
	West	East	E–W diff.	West	East	E–W diff.
1980	69.9	68.7	–1.2	76.8	74.6	–2.2
1986/1988	72.2	69.8	–2.4	78.6	75.8	–2.8
1988/1990	72.6	70.0	–2.6	79.0	76.2	–2.8
1991/1993	73.1	69.9	–3.2	79.5	77.2	–2.3
1992/1994	73.4	70.3	–3.1	79.7	77.7	–2.0
1993/1995	73.5	70.7	–2.8	79.8	78.2	–1.6
1994/1996	73.8	71.2	–2.6	80.0	78.6	–1.4
1995/1997	74.1	71.8	–2.3	80.2	79.0	–1.2
1996/1998	74.4	72.4	–2.0	80.5	79.5	–1.0
1998/2000	75.1	73.5	–1.6	80.9	80.3	–0.6

Source: [19,62,63,64, and own calculations].

German age groups started in the middle of the 1970s [62]. The immediate period before and after unification (1989–1990) was associated with a declining life expectancy in the East of almost 1 year among men and 0.1 years among women [65]. This was mostly due to an increase in deaths from injuries, traffic accidents and also from cardiovascular and digestive diseases [65,66]. Since then, life expectancy has grown rapidly in the East. The increasing equalisation of life expectancy at birth between East and West is explained by a variety of factors. One important factor, however, is the contribution of medical care which changed considerably after unification due to the adaptation of both the western SHI system and the availability of new therapies. Based on the concept of ‘avoidable’ mortality, Nolte *et al.* have shown that conditions which are responsive to medical care contributed to 14% (men) and 27% (women) of the gains of 1.4 years (men) and 0.9 years (women) in life expectancy between birth and age 75 in the period 1991–1997 in East Germany [67].

There is longitudinal panel data on self-assessed health status, but not on objective indicators of health. Self-assessed health is, however, a valid indicator for morbidity [51]. A representative panel survey shows that average satisfaction with health in the time period 1992–2002 remained stable. On a scale from 0 to 10, where 10 indicates maximum satisfaction, average satisfaction was 6.6 both in 1992 and 2002, although it has been down to 6.3 in 1999, but then increased again [68–70]. In general men are more satisfied with their health than women. With increasing age, satisfaction with health status decreases. These results are

predominantly confirmed by other time series data which are not based on panel but on replicate surveys [71].

Up to now health-care reforms have not had an observable effect on mortality and morbidity. In spite of cost containment, life expectancy has continued to rise and average satisfaction with health remained the same between 1992 and 2002.

There are no studies which tried to relate changes in average health outcomes and the distribution of health outcomes to health-care reform policies. The work of Nolte *et al.* [65, 67] and Nolte [72], for example, examines the impact of the political transition of East Germany on mortality, and therefore examines a change in ‘polity’ (since this transition affects the political, societal, and health-care systems in entirety) rather than a change in ‘policy’. Another study which analyzes the assimilation process of old-age mortality between East and West Germany after unification also stresses a plurality of factors explaining this process, in particular improvements in the health-care system, individual economic resources and life-style factors [73]. It is methodologically difficult to relate changes in health outcomes and the distribution of health outcomes to health-care policy changes, since there are so many other variables to explain changes in health outcomes (and changes in health-care policies may not be the most important explanatory factors). Since the beginning of the new decade there are health-care policies which are explicitly intended to influence certain health outcomes: Disease management programs were introduced to directly address the management and provision of care for people with chronic

illnesses, and an initiative was started in December 2000 to implement health targets on the federal level [26,74].

The future

The next major issue in the reform of the German health-care system will concern its funding. There are two competing paradigms for its reform which were put forward in August 2003 by the so-called Rürup Commission, a commission of experts appointed to make recommendations for the achievement of financial sustainability in social security. These two paradigms are a citizens' insurance scheme and a system of flat-rate health premiums. The former approach would embrace the whole population and would be financed by all citizens in accordance with the principle of the ability to pay by means of income-related contributions. Therefore, the interpersonal redistribution of income would remain an integral part of this system. All types of income (and not only income derived from gainful employment) up to ca. €5100 per month would be subject to contributions. The wage-related contribution component would continue to be financed jointly by employers and employees. The role of PHI would be to provide supplementary insurance for non-vital medical insurance.

The system of flat rate health premiums, on the other hand, is primarily motivated by the complete decoupling of contributions to the SHI from labour costs. In this system the division between statutory and PHI could be maintained (or opened for complete competition – although it must be stated that premiums for PHI would continue to be risk-related, hence PHI and SHI would not compete on equal terms). Interpersonal redistribution of income would not be internalised within the SHI but would be the responsibility of the tax system. The flat rate premium would only be paid by the insured. Employers would pay their current contribution to employees as taxable income. In the proposals made by the Rürup commission both paradigms adhere to the conventional way of pay-as-you-go financing [75].

The major political parties are at odds with each other about the future of the funding of the health-care system. The governing parties of Social Democrats and Greens are in favour of the citizens' insurance scheme. The Free Democratic

Party wants to transfer all SHI funds into PHI funds and therefore undertake a complete privatisation of the system [76].

The Christian Democratic Union (CDU) originally was in favour of a pure flat-rate health premium whereas its Bavarian sister party, the Christian Social Union (CSU), rather preferred retention of wage related contributions. The common election programme of these parties reflects these different positions in a compromise [77]. According to the concept, each adult (including the current family members) pays a community-rated premium while the employers continue to pay income-related contributions. Health insurance for children would be paid out of general taxes. The programme of CDU and CSU as well as the programmatic proposals of other major parties referring to health-care financing leave many questions unanswered. It is very likely that there will be federal elections in September 2005 and the next legislative period will probably nevertheless witness major reforms concerning the financing mode of health insurance.

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