MORE EFFICIENCY IN THE HEALTHCARE SYSTEM THROUGH COMPETITION

This is a translated version of the original German-language chapter "Über Wettbewerb mehr Effizienz im Gesundheitswesen", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

SUMMARY

The healthcare sector is gaining in importance for growth and employment. The ageing of society will further intensify this development in the coming decades. The currently positive financial situation must not hide the fact that the healthcare system is facing **major financial burdens** as a result of demographic change and medical-technical progress.

The efficient use of financial resources is therefore of great importance. However, there are indications of **excessive capacity** in the German healthcare system. This is shown in international comparisons, for example by the large number of hospital beds per inhabitant and comparatively long stays in hospital. More elements promoting competition should be introduced to address this excessive healthcare provision.

The **introduction of additional contributions** was a step in the right direction in this context. It has stimulated competition in the health insurance market and encouraged insured people to switch health insurance funds. The financing system in statutory health insurance should be further developed into a **citizens' lump-sum concept**. This provides income-independent lump-sum contributions with a uniform insurance market and social compensation outside the insurance; it would be funded by subsidies from taxation.

The necessary **structural improvements in the hospital sector** should be expedited. In addition, hospital financing should be reorganised from a dual to a one-tier financing system. The investment costs would then be borne not by the Länder, as they are now, but, like the operating costs, by the hospitals themselves from their service charges. In addition, the extensive separation of outpatient and inpatient sectors should be reduced, thus improving cross-sectoral healthcare provision.

The decline in the working population is likely to greatly exacerbate the **shortage of qualified healthcare professionals**, which is already partially visible today. Compared to 2016 there could be a shortfall of up to 1.3 million full-time employees by 2030. In order to counteract the shortage of skilled labour, the health professions should be made more attractive and the economic-policy framework improved to boost employment in this sector. In addition, immigrants should be actively recruited abroad for the health sector.

Digitisation can help cushion the shortage of skilled labour by reducing the demand for healthcare services through more targeted disease prevention. At the same time, it can help to maintain the employability of employees in the healthcare system by enhancing interaction between humans and machines. In addition, it can counteract inappropriate healthcare provision by making patient management more effective. In order to promote the expansion of telemedicine, which can represent a way to combat the threat of insufficient healthcare provision especially in rural areas, a critical review of the ban on remote treatment is to be welcomed. However, the potential of digitisation for achieving a more efficient healthcare system should not be overestimated.

I. HEALTHCARE SYSTEM FACES MAJOR CHANGES

772. Germany will face **major demographic changes** in the coming decade as the baby boomers of the 1950s and 1960s gradually reach retirement age. On the one hand, the statutory health insurance (SHI) system can expect financial consequences, since its **revenue** stems largely from the contributions of people in employment, and their number will tend to decrease in the future. In addition, medical technical progress and the ageing of society are likely to reinforce demand for healthcare services and thus increase **expenditure**. On the other hand, fewer **employees** will be available to the healthcare sector on the labour market in the future. The shortage of healthcare professionals, which can already be observed in some areas, is then likely to increase.

773. This makes it all the more important to make efficient use of the resources available to the healthcare system. At present, however, the provision of important areas of **healthcare** is **not optimal**; rather, there are numerous indications of excessive, insufficient and inappropriate provision. The reasons for this are manifold. For example, the healthcare market is dominated by powerful interest groups that effectively defend their accrued privileges, not least at the expense of **innovation**. In addition, the Länder, which are the responsible authorities in this context, are not by any means meeting their obligations sufficiently and are not making enough funds available for **investment** in the hospital structure. The separation of the outpatient and inpatient sectors is an example of how **structural barriers** prevent the realisation of the healthcare system's full efficiency potential.

774. In view of these obstacles to an efficient healthcare system, the foreseeable challenges over the coming decade are particularly serious. This chapter discusses **three approaches** for responding effectively to them. First, it is urgently advisable to gear the organisation of the healthcare system more towards elements of **competition**. Second, it is important to ensure an adequate supply of **skilled professionals** so that the future demand for healthcare services can be met. Third, full and consistent use should be made of the potential of **digitisation**.

In the following, the focus is on healthcare provision in general and the **inpatient sector** in particular. Outpatient healthcare and the pharmaceutical sector are only examined briefly; nursing, too, is only mentioned briefly and only examined in detail in the discussion on securing enough professional staff.

II. DEMOGRAPHIC CHANGE: A CORE CHALLENGE

775. Similar to other highly developed economies, the healthcare sector in Germany is gaining in importance for growth and employment. The ageing of society will further intensify this development in the coming decades. However, the sustainable organisation of healthcare is anything but assured. For example, **staff shortages** in particular are likely to increase and jeopardise the smooth provision of healthcare in the short and medium term. Although the healthcare system is currently in a good financial position, in the longer term it is likely to face **major financial burdens** as a result of demographic change and medical-technical progress. Thus, there will be less willingness to tolerate maintaining redundant capacity or efficiency losses in the use of financial resources.

1. The growing importance of the healthcare system

776. The healthcare system plays an **increasingly important role in employment and economic growth**. Measured in terms of gross value added, only the information and communications industry grew significantly more strongly between 2000 and 2016. In this period, the number of people employed in the healthcare sector rose by almost 30 % from 2.5 million to 3.2 million. Only corporate service providers recorded higher growth rates of employment and volume of work during this time. ↘ CHART 98 LEFT In this period, about a sixth of total employment growth in the service sector was in healthcare. Healthcare accounted for 7.5 % of gross value added and for 7.4 % of all employees in 2016, up from 6.2 % in 2000.

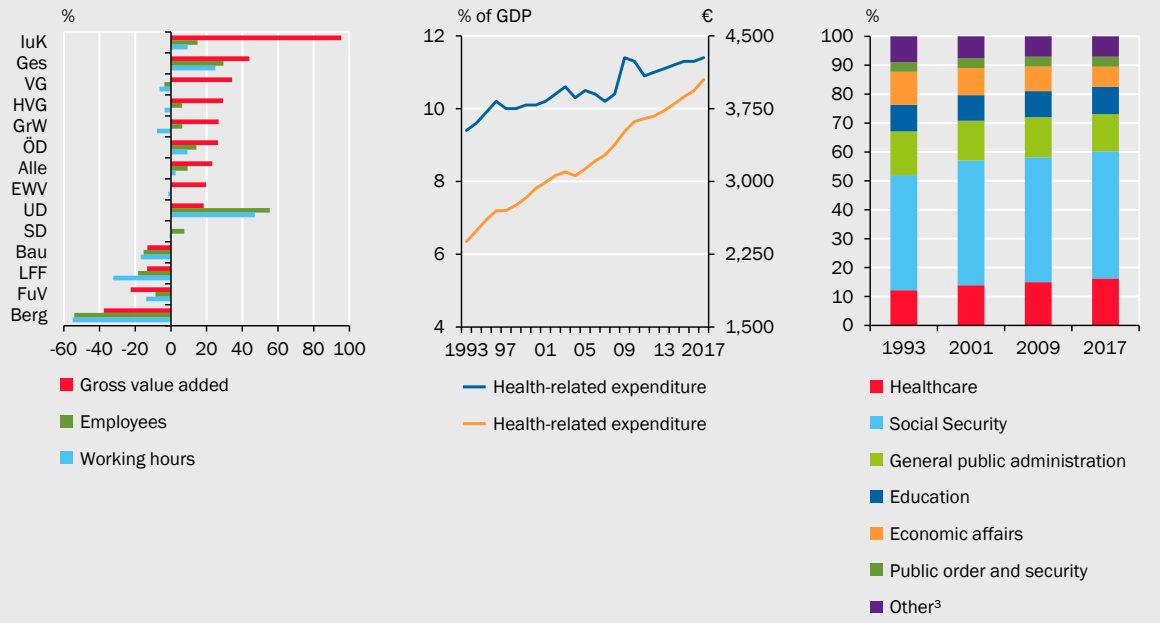
777. According to the Federal Statistical Office, healthcare expenditure as a percentage of gross domestic product (GDP) increased from 9.4 % to 11.4 % between 1993 and 2017. Per capita health expenditure (at 2010 prices) rose from just over €2,380 to over €4,000 in the same period. ↘ CHART 98 MIDDLE While total nominal government expenditures increased by just over 70 % during this period, **state spending on healthcare** rose by 130 % to over €230 billion, raising its share of public spending from 12 % to 16 %. After social security, particularly retirement provision, the healthcare system formed the largest item of state expenditure in 2017. ↘ CHART 98 RIGHT

778. The proportion of people in the population over the age of 65 has been rising continuously for decades. The contributory factors here are a low birth rate and a **higher life expectancy**, not least due to decades of rising prosperity and (technological) improvements in the healthcare sector. This development will increase in the coming decade, when the baby boomers of the 1950s and 1960s pass this age limit.

Although the high level of **immigration** in the last few years has ensured that Germany's population has risen and not shrunk, it can only slightly slow the age-

↘ CHART 98

The growing importance of the healthcare system



1 – IuK-information and communication, Ges-healthcare, VG-manufacturing, HVG-commerce, transport, hospitality, GrW-housing and real estate, ÖD-public service providers (including homes and social welfare, excluding healthcare), Alle-all industrial sectors, EWV-energy and water supply, UD-corporate service providers, SD-other service providers, Bau-construction, LFF-agriculture, forestry, fisheries, FuV-financial and insurance service providers, Berg-mining and quarrying. 2 – Deflated using the GDP deflator; 2010 prices. 3 – Defence, environmental protection, housing and community facilities, recreation, sport, culture and religion.

Sources: Federal Health Reporting, Federal Statistical Office, own calculations

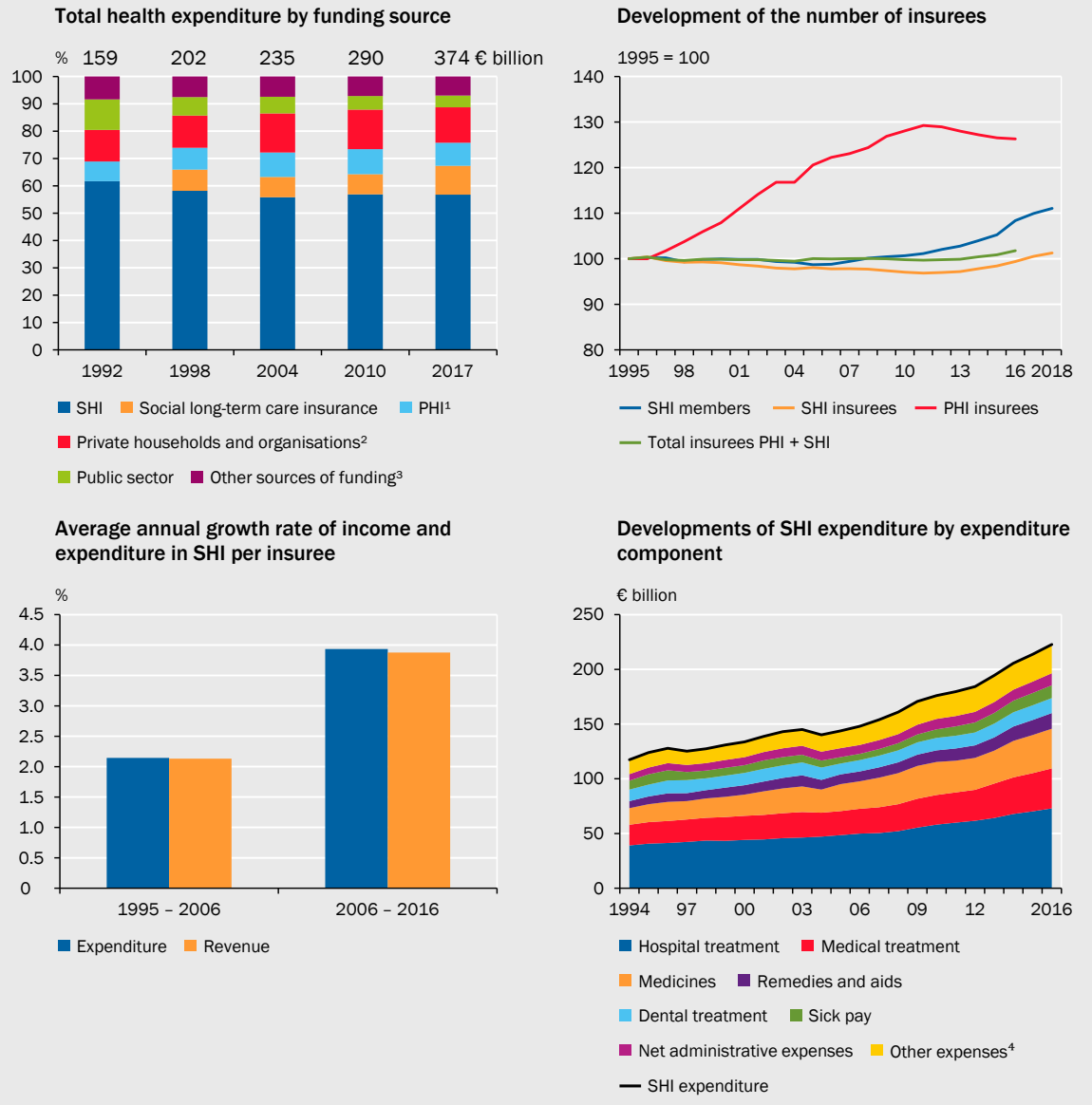
ing of society; it cannot prevent it. Furthermore, up to now the fertility level of immigrants has gradually adjusted to the lower level in Germany (Stichnoth and Yeter, 2016).

779. Since the burden of disease tends to rise as people grow older, the **ageing of society** is likely to further boost the importance of the healthcare system in the future. ↘ ITEMS 786 FF. Consequently, employment in this sector will probably continue to rise in the coming years; its role in the overall economy and importance for total expenditure will increase further. It is therefore important to ensure that the healthcare system is sustainably funded and that its resources are used efficiently.

Dynamic development of the SHI system

780. Total **health expenditure** in 2017 amounted to €370 billion. The statutory health insurance (**SHI**) system accounted for the largest share with 57 %. ↘ CHART 99 TOP LEFT Further major items of expenditure were social long-term care insurance (11 %), private health insurance (PHI, 8 %), as well as private households and private non-profit organisations (13 %), such as churches and associations. Overall, almost 40 % of total expenditure in the healthcare sector is on **inpatient treatment**, around 30 % on outpatient treatment, and approximately 22 % on medical products, machinery and equipment.

↘ CHART 99
Financial developments in the healthcare sector



1 – Including private compulsory long-term-care insurance. 2 – Non-profit. Including churches, clubs and political parties. 3 – Including employers, statutory accident insurance and statutory pension insurance. 4 – Including preventive and rehabilitation services, standard home nursing, travel expenses, pregnancy and maternity benefits, social services and disease prevention, screening, medical service and experts, company support and home help.

Sources: Association of Private Health Insurance, Federal Health Reporting, Federal Ministry of Health, Federal Statistical Office

781. **SHI** is therefore **very much in the focus of fiscal policy**. In 2018, approximately 72.8 million people, almost 90 % of all insured persons, were covered by statutory health insurance, 16.3 million of whom were exempt from contributions. In 2016, about 8.8 million people were privately insured, around half of whom were aid beneficiaries (GKV-Spitzenverband, 2018a). Between 1995 and 2011, the number of SHI-insured people declined compared with an increase in people with private insurance. This trend has since been reversed. ↘ CHART 99 TOP RIGHT One reason for this might be that the number of self-employed persons, most of whom are probably privately insured, has also declined after increasing until 2011. Furthermore, the number of people switching from SHI to PHI has declined significantly (Albrecht, 2018).

782. The development of **SHI expenditure and revenue** has been **extremely dynamic** in recent years. While the respective annual nominal growth rate per insured person was slightly above 2 % on average between 1995 and 2006, it has averaged nearly 4 % per year since then. ↘ CHART 99 BOTTOM LEFT Expenditure in the inpatient field has grown to a similar extent as in the outpatient sector since 2006. Hospital treatment accounted for the largest share of spending with roughly a third of expenditure. ↘ CHART 99 BOTTOM RIGHT

783. Expenditure on sickness benefit, which usually begins after the six-week period of paid sick leave and amounts to 70 % of regular gross pay, has risen particularly dynamically since 2006. **Structural factors**, which can hardly be influenced by health policy, have made a considerable contribution here (SVR Gesundheit, 2015). The number of employees – and thus the circle of potential recipients of sickness benefit – has increased markedly. In addition, wages have noticeably risen, and with them the potential level of sickness benefit.

784. These two factors were about equally responsible for the strong increase in SHI's real revenue also observed in recent years. ↘ CHART 100 LEFT The currently **extremely good labour-market situation** has probably greatly benefited the development, because the overwhelming majority of SHI's revenue comes from its members' social insurance contributions. By contrast, the federal subsidy for non-insurance benefits, amounting to €14 billion, makes up only a relatively small proportion of the revenue. ↘ CHART 100 RIGHT

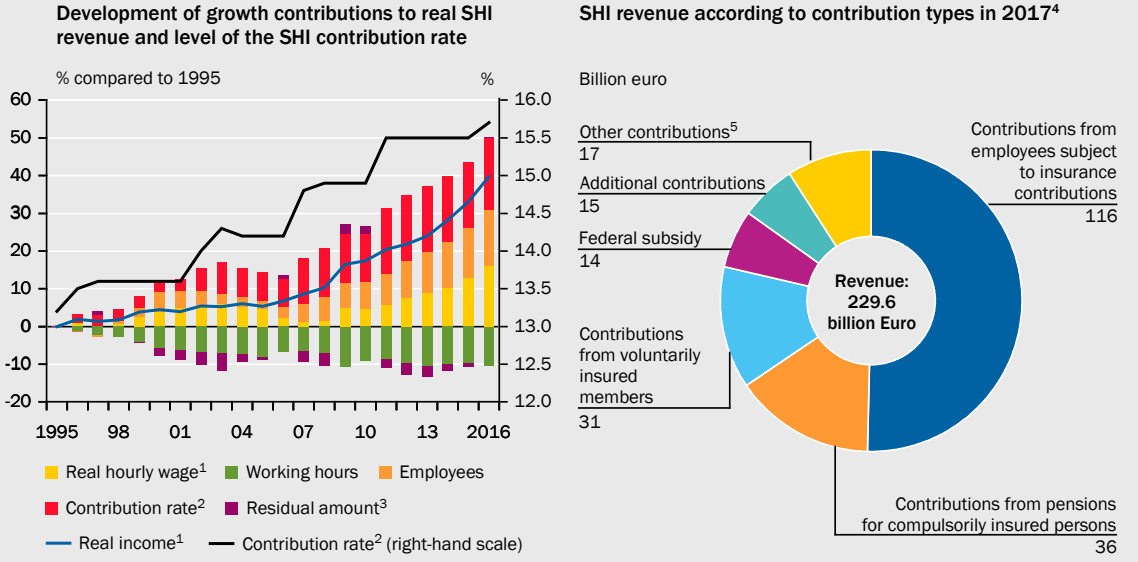
785. In order to keep revenue permanently stable and promote competition between health insurance funds, all insurance funds have been levying **additional contributions** since 2015. ↘ ITEMS 830 FF. These totalled around €14 billion in 2017. Overall, the rising expenditure in SHI was more than offset in 2017 by high revenues amounting to nearly €230 billion. The **Health Fund**, which bundles the income from all contributions and distributes it to the health insurance funds, had a liquidity reserve of €9.1 billion at the beginning of 2018 (BMG, 2018a).

Future financial burdens

786. The significance of **elderly people** for the healthcare system has been increasing markedly for a long time. For example, in the period from 1999 to 2016 no other medical department increased the number of hospital beds as much as

↘ CHART 100

Development and structure of revenue in SHI



1 – Price-adjusted using the consumer price index. 2 – From 2015 contribution rate plus the average additional contribution. 3 – A residual exists because the calculation does not take federal subsidies into account. In addition, all employees are treated as contributors. The fact that some of the employees earn wages above the income threshold or are not obliged to pay is thus not taken into consideration. 4 – Forecast figures for 2017 from the Federal Insurance Office. 5 – For example, contributions for insured recipients of Unemployment Benefit II or contributions from pensions.

Sources: Federal Insurance Office, Federal Health Reporting, Federal Statistical Office, own calculations

geriatrics (Augurzky et al., 2018). The incidence of **chronic diseases** increases with age, especially since many older people have been exposed to various risk factors such as smoking or noise for years or even decades (GBE, 2009). As they grow older, employees' periods of incapacity to work grow longer (DAK, 2018). Furthermore, some diseases, such as cancer, usually occur in later adulthood (GBE, 2009).

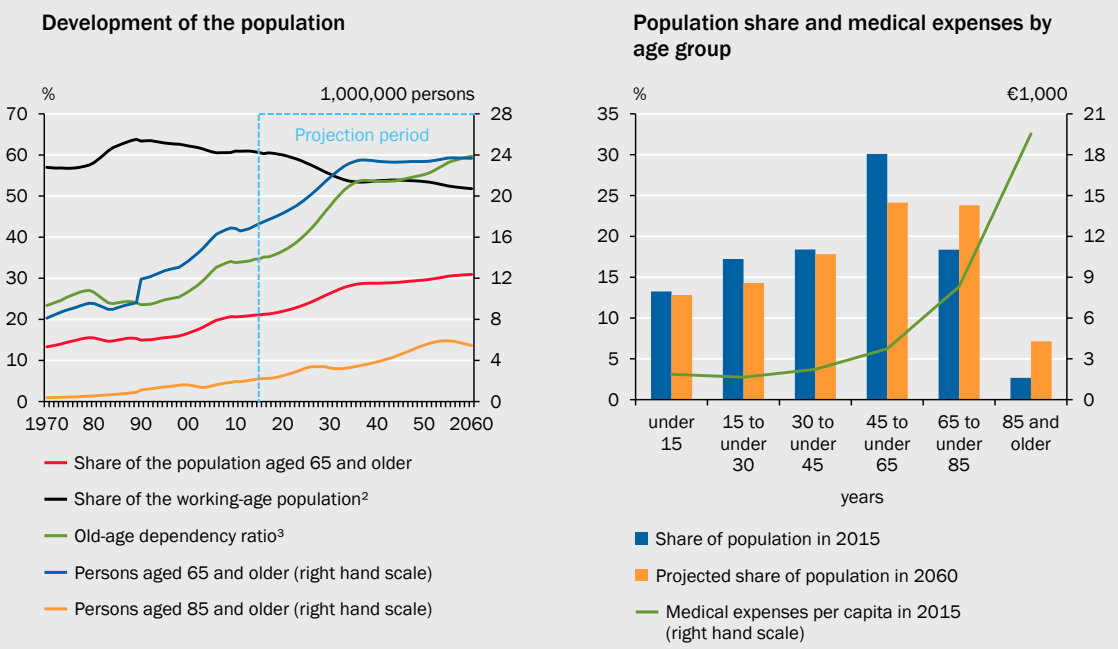
787. For decades, the old-age dependency ratio has illustrated the continuing development toward a **much older society**: according to projections by the Federal Statistical Office, for every 100 people of working age between 20 and 64 years there will be 48 (60) people aged 65 or older by the year 2030 (2060) instead of the present 35. The number of people aged 65 and over is likely to rise by an average of around 300,000 per year from currently just under 18 million to 23.5 million by 2035, before stabilising at this level. The number of over-85s is expected to more than double to around 5.5 million people by 2060. ↘ CHART 101 LEFT

788. On average, older age is associated with **higher medical costs**. ↘ CHART 101 RIGHT If age-specific medical costs remain stable at the 2015 level in the long term, the average annual medical expenses per capita are likely to increase by around 25 % to over €5,000 by the year 2060, solely on the basis of the demographic changes. Overall medical costs, however, are likely to be reduced slightly by 2060 in view of the expected shrinking population.

789. Demographic ageing in Germany is likely to further accelerate growth in overall per capita expenditure in SHI (Breyer, 2015). How the demographics-related increase in expenditure develops more concretely in the future will depend, among

↘ CHART 101

Demographic change and medical costs by age[1]



1 – Projections from 2015 based on the 13th coordinated population projection, variant 2-A. 2 – Population aged 20 to 64. 3 – People aged 65 and older as a percentage of the population of working age between 20 and 64 years.

Sources: Federal Statistical Office, own calculations

other things, on how increasing life expectancy impacts on the age-specific morbidity risks. According to the **medicalisation hypothesis**, a rise in life expectancy is accompanied by an increase in the utilisation of the healthcare system compared to the status quo. This means that services are used increasingly and over a longer period of time, for example because disease-prone people are living longer due to technical progress.

By contrast, the **compression hypothesis** assumes that increased morbidity is limited to a brief phase before death and is thus only delayed in the event of an increase in distant life expectancy. The increase in costs is therefore correspondingly lower than in the case of the medicalisation hypothesis. To date there is no clear-cut empirical evidence for either of the two hypotheses (Expertise 2011, Box 10). Using data from the SHI risk structure compensation scheme, Breyer et al. (2015) show that an 80-year-old in 2040 is likely to be treated in a similarly intensive way to a 75-year-old today, if both have about the same remaining life expectancy.

790. Certainly, the expected **demographics-related increase in costs** is likely to significantly increase the financial pressure on the health insurance system over the coming decades. In principle, a declining working population leads to a **smaller increase in revenue from contributions** for SHI. Although pensioners who are insured with a statutory health insurance fund do not pay pension contributions, they do continue to pay health insurance contributions. However, their contributions are usually likely to be much lower than for work-

ing people, since individual statutory pensions are usually significantly lower than previous earnings.

791. Simulations on the future development of contributions have a considerable bandwidth. According to calculations by Aretz et al. (2016), by 2080 demographic effects will increase public spending on SHI alone by almost 2 percentage points to over 8 % of GDP. This makes it more difficult overall to ensure the **long-term sustainability** of general government public finances, which can be depicted using a sustainability gap (GCEE Annual Report 2016, items 692 ff.). The sustainability gap indicates the improvement in the primary balance (net lending/net borrowing) which would immediately and permanently be mathematically required to meet the governments' intertemporal budget constraint despite the significant impact of demographic ageing on public expenditure.

792. For a projection period up to 2080, Aretz et al. (2016) determine a **sustainability gap of 4.2 % of GDP** (GCEE Annual Report 2016, chart 79). About one percentage point corresponds to increases in SHI expenditure. Only statutory pension insurance contributes a higher share to the sustainability gap. In this simulation, expenditure by social long-term care insurance only increases the sustainability gap slightly, by 0.1 percentage points. However, burdens caused by increasing nursing care are ignored in this model calculation.

793. There are **considerable uncertainties** concerning the long-term development of health expenditure (Werding, 2018). These result from the fact that SHI offers an insurance policy for benefits in kind in line with the respective medical knowledge base, without knowing the content or cost of the future service package. Assuming declining age-specific morbidity and increasing life expectancy, e.g. because society is ageing more healthily, the sustainability gap could fall by 1.6 percentage points. On the other hand, if the expenditure-raising effects of medical-technical progress observed in the past lead to a rise in expenditure on age-specific services, the sustainability gap could approximately double to over 8 % of GDP (Aretz et al., 2016).

2. Inefficient allocation of resources

794. The additional financial burdens on the healthcare system resulting from demographic change and medical-technical progress accentuate the importance of an **efficient use of resources**. In many areas there are already cases of insufficient or inappropriate healthcare provision observed. ↘ ITEMS 801 FF. Various restrictions on competition, false incentives and structural barriers contribute to this.

Characteristics of the German healthcare system

795. The standard of healthcare is comparatively high in Germany (OECD and European Observatory on Health Systems and Policies, 2017). All citizens have the **freedom to choose** which doctor and which hospital they consult in the event of illness. Access to healthcare is facilitated by an **above-average level of ca-**

pacity. Given these overall conditions, it is surprising that the average life expectancy of women and men is only slightly above the OECD average. ↘ CHART 102 LEFT This could at least partly be due to the fact that the proportion of people with high health risk factors, especially smoking, alcohol consumption and obesity, is comparatively high in Germany (OECD, 2017a).

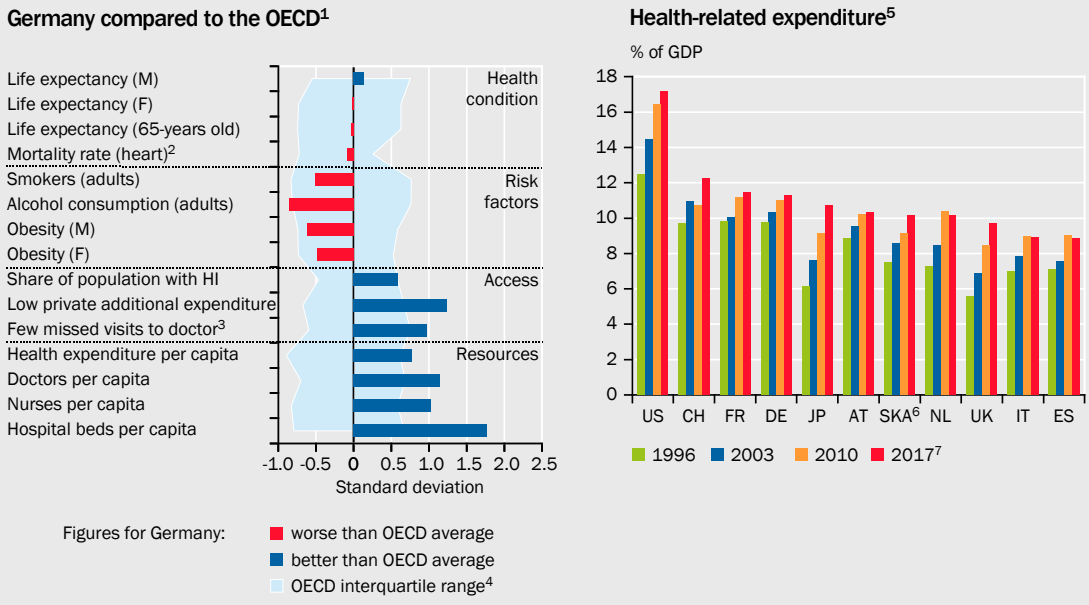
796. In SHI, everyone who has statutory health insurance jointly bears the individual risk of illness-related costs. Although all citizens are legally obliged to take out a health insurance policy, there are separate healthcare schemes for civil servants and the self-employed, who therefore do not participate in the SHI system. In addition, people whose income is above a certain limit are free to choose between statutory or private insurance. This can contribute to a **worsening of the risk structure** since more people with a high risk of disease remain in the statutory system. Against this background, the coexistence of statutory and private health insurance has been the subject of considerable controversy. ↘ BOX 22

797. The healthcare system is currently financed mainly by **income-related contributions** by insured employees and the employers. This distinguishes the German healthcare system from, for example, the tax-funded systems in the United Kingdom or Sweden. In the United States, by contrast, many employees are insured privately or not at all and are themselves responsible for treatment costs and loss of earnings due to illness.

In the United States, **health expenditure** as a percentage of GDP is by far the highest of all industrial countries at over 17 %; this is because of the comparatively high cost of doctors, treatments, medicines and administration (Papanico-

↘ CHART 102

Indicators in the healthcare sector by international comparison



1 – M-men, F-women, HI-health insurance. Data sources vary between 2011 and 2017, depending on the variable and country. Without Lithuania. 2 – Ischemic heart disease. 3 – For cost reasons. 4 – Interquartile range without outliers (standard deviation from average exceeds 3). 5 – US-United States, CH-Switzerland, FR-France, DE-Germany, JP-Japan, AT-Austria, SKA-Scandinavia, NL-Netherlands, UK-United Kingdom, IT-Italy, ES-Spain. 6 – Unweighted average of the four countries Denmark, Finland, Norway and Sweden. 7 – Preliminary figures or figures predicted by OECD.

Sources: OECD, own calculations

las et al., 2018). Germany's expenditure on health is also comparatively high at more than 11 % of GDP in 2017. This figure has increased slightly in the last few decades. ↘ CHART 102 RIGHT

↘ BOX 22

The coexistence of statutory and private health insurance

The German healthcare system, with its coexistence of statutory and private health insurance, developed historically and is **without precedent in the world** (Breyer, 2018). The most important achievement of SHI, which was founded in 1883, was the continued payment of wages in the event of illness. Restricting obligatory membership to employees below a certain income level therefore had its justification at the time. With the new 1969 law regulating paid leave, however, the burden of sick pay was shifted largely to the employers. Over time, PHI systems were established for groups that were not covered by the compulsory insurance under SHI. In contrast to SHI, PHI schemes differentiate their premiums according to observable risk characteristics.

PHI differs from SHI, among other things, by the services they offer and how – and to what extent – they are reimbursed. As a result, general practitioners can charge people with private insurance several times the amount stipulated for people with SHI for the same service. This also means that privately insured patients enjoy preferential treatment over people with SHI, at least when it comes to arranging an appointment. This **unequal treatment** includes i) longer waiting times for an appointment for people with SHI, ii) longer waiting times in the doctor's surgery for those with SHI, and iii) more and perhaps better – but possibly unnecessary or even harmful – medical services for private patients with the same state of health (Breyer, 2018).

Advocates of the status quo regard the existing parallel systems as a **competition of systems** that can contribute to progress in the provision of healthcare for the population. However, most people cannot freely choose their type of insurance. Wherever a choice is possible, it is largely dependent on personal characteristics, such as a person's state of health or how many members there are in a household.

From a sociopolitical point of view, it would be fundamentally desirable to gradually abolish the coexistence of SHI and PHI. For example, it would be conceivable in principle to bring **SHI and PHI fees more into line with each other**. However, this could lead to raising fees – and thus contributions – in SHI. This in turn would happen at the expense of people with SHI and seems hardly feasible politically. This year, the Federal Ministry of Health (BMG) set up a commission for a modern remuneration system with the task of working out proposals for reforming the SHI outpatient fee structure (EBM) as well as the PHI fee structure (GOÄ) by the end of 2019.

In September 2018, the government passed **a draft law on doctors' appointments and healthcare** to enable people with SHI to get appointments faster in the future. One of its provisions is that doctors must extend their minimum consultation hours from 20 to 25 hours per week. Furthermore, appointment service centres are to be further developed into service centres for outpatient care and emergencies. For this purpose, a new 24-hour, uniform, nationwide emergency telephone number 116117 is to be set up.

A much further-reaching project would be to establish a uniform insurance system covering the entire residential population. Special medical services that go beyond basic healthcare could be covered by a private supplementary insurance policy. Two models in particular have been the subject of intensive public discussion over the past years. A **citizens' insurance** (**Bürgerversicherung**) scheme would not differentiate contributions according to the risk, but according to people's income, and all types of income would be included. However, this involves considerable legal obstacles. For example, peo-

ple who already have a private insurance could not be forced into SHI, since their provisions for old age are protected by Germany's constitution (Breyer, 2018).

In any case, it would be more effective to completely transfer the existing redistribution of income in the health insurance system into the tax system; after all, up to now this redistribution has not included all citizens or all types of income, so that its fairness is at least partly open to question. In this context, the German Council of Economic Experts (GCEE) already submitted a proposal on the idea of the **citizen's lump-sum model (Bürgerpauschale)** some time ago (GCEE Annual Report 2004, items 511 ff.). Its basic idea is to charge each adult citizen the same contribution for membership in a certain health insurance fund without taking individual risks into account. The current redistribution of income that exists in the SHI system would be achieved by a social compensation component financed by the federal budget.

Although insurees with higher incomes would then pay the same contributions as insurees with low incomes, unlike under the present scheme this system would ensure that all taxpayers made a contribution as part of the solidarity-based system to finance social services within the health insurance. In the past, there has been considerable **political resistance** to such a far-reaching change in the system. It would, therefore, be sensible to seek a long-term, gradual transition from income-related to income-independent health insurance contributions (Kallweit and Kohlmeier, 2012; GCEE Annual Report 2012, items 611 ff.). ↘ ITEMS 825 FF.

798. High levels of health expenditure can be socially desirable if the quality of healthcare is correspondingly high. However, special characteristics of the healthcare market lead to a **number of false incentives**, which can lead to higher expenditure than necessary. For example, the cost of a service received by an insured person is borne by the community of insurees. Insurees could therefore be inclined to behave in a risky manner or to use the healthcare system more often than necessary. The lack of transparency regarding the costs of medical treatment encourages this 'moral hazard'.

799. In addition, **competition** on the market for health services is **restricted** in a variety of ways. ↘ ITEMS 841 FF. Among other things, the statutory guarantee to provide services demands that medical care must come up to a reasonable standard everywhere. Furthermore, an increase in the number of medical service providers, particularly general practitioners, raises spending per insuree more than on normal goods markets due to the supply-induced demand for medical care. Patients are typically not as well informed about the necessary medical care as the treating physicians and are therefore more willing to follow suggestions for treatment made by their doctor.

800. Further economic distortions are based on the special structure of the German healthcare system. For example, breaking up the hitherto extensive **separation of the outpatient and inpatient sectors** could generate considerable efficiency gains. ↘ ITEMS 870 FF. Furthermore, due to a lack of voting rights some stakeholder groups, such as industry and patient representatives, are underrepresented on the Joint Federal Committee (G-BA), the supreme **joint self-administration** body. This could lead to innovations being blocked at the expense of institutions not represented in the G-BA (Haucap et al., 2016).

Existing overcapacity

801. As a result of the existing false incentives and restrictions of competition in the healthcare system, the resources deployed on healthcare provision are not always used efficiently. By international comparison, Germany maintains a **high level of capacity** in the health sector. Germany was top of the table throughout Europe in 2016 with about 800 hospital beds per 100,000 inhabitants. Many countries in Europe have less than half as many hospital beds per inhabitant. ↘ CHART 103 LEFT At the same time, the average time spent in hospitals is with more than seven days higher in Germany than anywhere else in Europe.

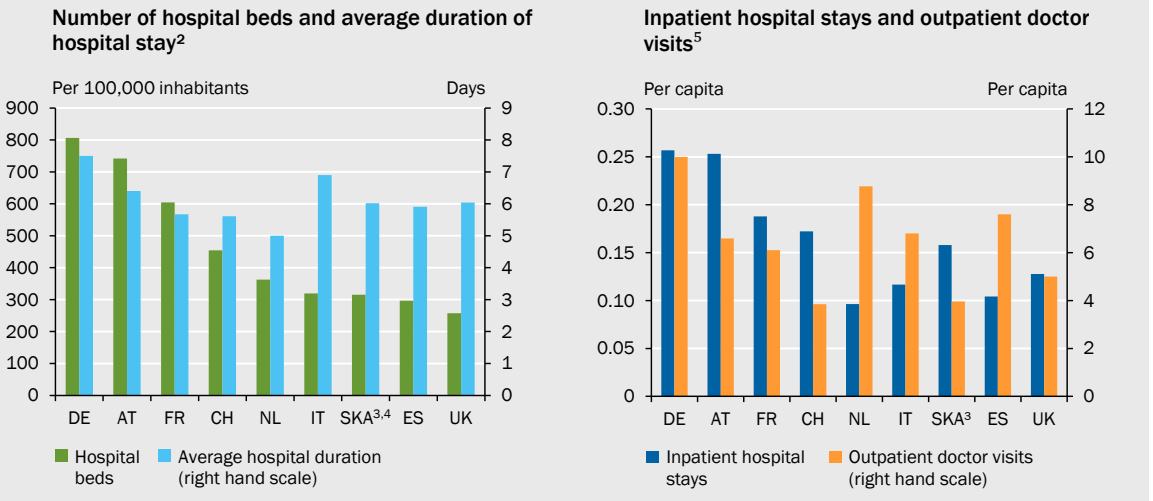
802. In Germany, patients not only spend a lot of time in hospitals by comparison, they also use them relatively frequently. On average, people in Germany go to hospital for inpatient treatment every four years, in the Netherlands, for example, only every ten years. The **utilisation rate is also high** when it comes to outpatient consultations. People in Germany go to see a doctor ten times per year on average, more than twice as frequently as in Scandinavien countries or Switzerland. ↘ CHART 103 RIGHT

803. However, the high level of capacity has been **partly reduced** in recent years. Compared to 1991, the number of beds per inhabitant has fallen by almost 30 %; the number of hospitals has also been reduced. ↘ CHART 104 LEFT This led to a polarisation in the size of the hospitals: the number of medium-sized hospitals (50 to 600 beds) declined between 2005 and 2017, while the number of small hospitals (less than 50 beds) and large hospitals (more than 600 beds) increased. ↘ CHART 104 RIGHT

804. The **growing number of inpatient cases** is not least the result of the changes in the incentive structure caused by the transition of the remuneration system

↘ CHART 103

Indicators on capacity in the healthcare sector by European comparison in 2016[1]



1 – DE-Germany, AT-Austria, FR-France, CH-Switzerland, NL-Netherlands, IT-Italy, SKA-Scandinavia, ES-Spain, UK-United Kingdom. 2 – FR: hospital duration (data from 2015); IT: data from 2015: 3 – Unweighted average of the four countries Denmark, Finland, Norway and Sweden. 4 – Average hospital duration without Denmark. 5 – CH: data from 2013; IT: data from 2013; Norway: inpatient hospital duration: data from 2015; ES: data from 2014; UK: data from 2012.

Sources: Eurostat, OECD

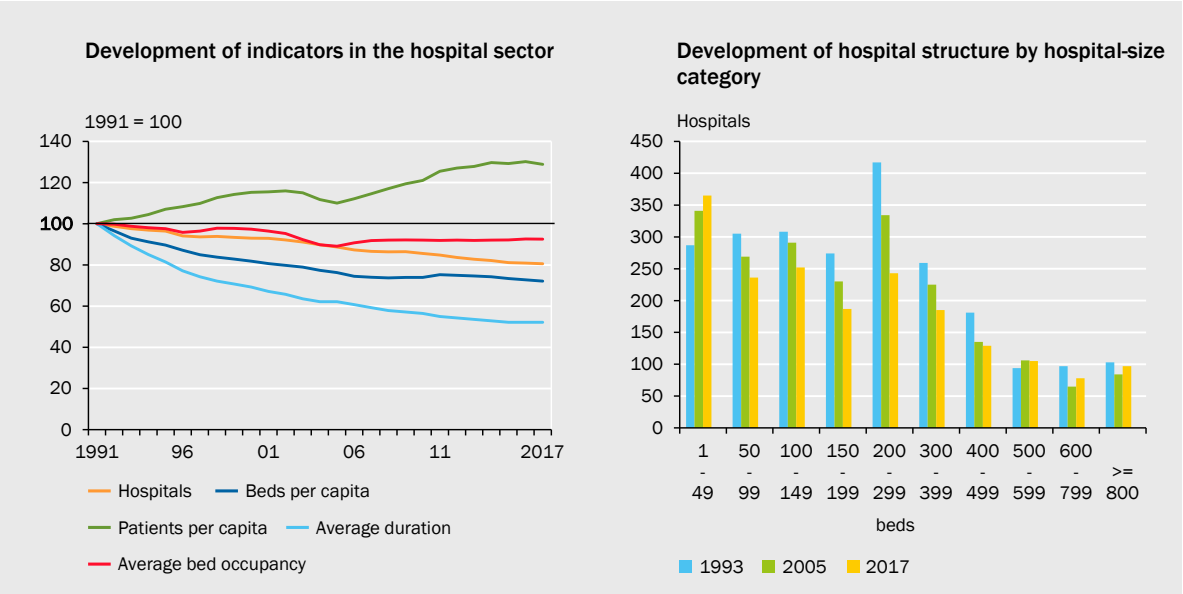
(Schreyögg et al., 2014) and cannot be justified medically alone (Busse et al., 2016). ↘ ITEM 845 This development was associated with a significant **reduction in the average length of stay** in hospital. ↘ CHART 104 LEFT

805. Nevertheless, the capacity indicators are among the highest in Europe. There is evidently still overcapacity in the hospital sector. Moreover, studies indicate **excessive healthcare provision** in some parts of the healthcare system, although it is difficult to distinguish clearly between a proven quality feature and inefficient structures. In a comparison of OECD countries conducted by Kumar and Schoenstein (2013), the number of cases per capita was highest or second highest in Germany in seven out of 15 types of medical treatment examined. Orthopaedic procedures like artificial hips or knee-joint replacements were strikingly common. In none of these 15 types of treatment was Germany below the OECD average. ↘ CHART 105 TOP LEFT

806. A further indication that possibly too many operations are being performed in Germany is the marked **regional discrepancy** in the number of surgical procedures undertaken. In 2014, for example, disc surgery was performed on about 500 patients per 100,000 inhabitants in some counties of Hesse, compared to fewer than 100 in some parts of Saxony (Zich and Tisch, 2018). Surveys among chief physicians also suggest excess capacity in parts of the healthcare system. For example, almost 40 % of the approximately 1,400 respondents state that the economic conditions in their respective field lead to an **excessive number of procedures**. In cardiology, the percentage was with over 60 % even higher (Reifferscheid et al., 2015).

807. The **standard of medical facilities in hospitals** varies greatly. In 2016, 19 % of the hospitals incorporated into the official planning process had no intensive care beds, and 34 % did not have a computer tomograph of their own

↘ CHART 104
Developments in the hospital sector in Germany



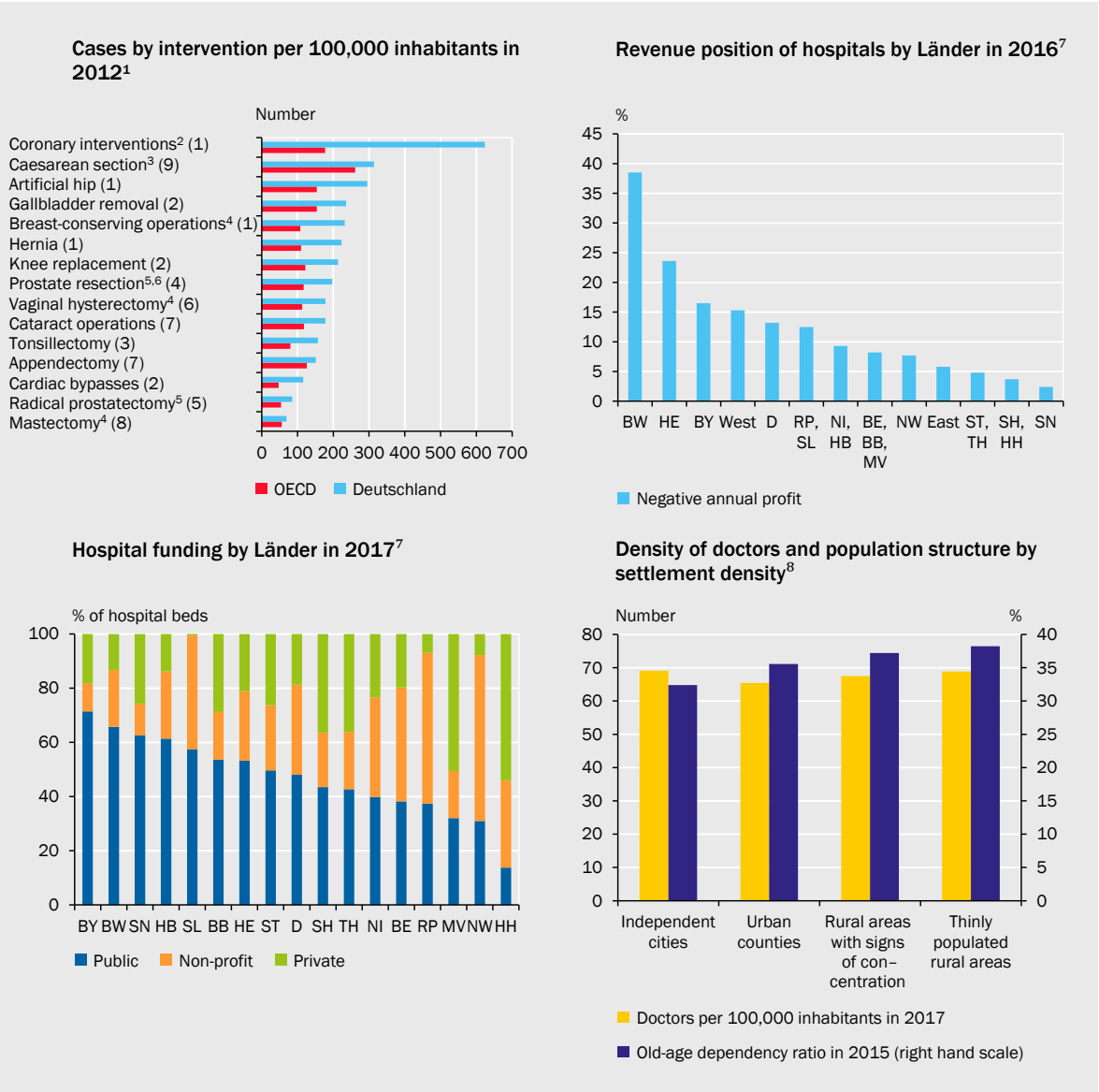
Sources: Federal Health Reporting, Federal Statistical Office, own calculations

(Scientific Advisory Board to the BMF, 2018). In 2014, as many as 40 % of all hospitals surveyed stated that they did not have a heart catheter laboratory. Yet almost one in ten heart attacks were treated in such hospitals (Mansky et al., 2017). About one in four hospitals dealing with heart attack cases treated fewer than 34 heart attacks per year. Less than 20 % of these clinics had a heart catheter laboratory (Mansky et al., 2017).

808. These are only a few indications that there are **many small and less specialised hospitals** in Germany. For many hospitals it is probably hardly economical to provide facilities for highly specialised healthcare. International studies

↘ CHART 105

Regional indicators in the healthcare sector



1 – Figures in parentheses: OECD ranking among 34 countries. 2 – Percutaneous. 3 – Per 1,000 live births. 4 – Per 100,000 women. 5 – Per 100,000 men. 6 – Transurethral. 7 – BW-Baden-Wuerttemberg, HE-Hessen, BY-Bavaria, West-former West Germany excluding Berlin, D-Germany as a whole, RP-Rhineland-Palatinate, SL-Saarland, NI-Lower Saxony, HB-Bremen, BE-Berlin, BB-Brandenburg, MV-Mecklenburg-Western Pomerania, NW-North Rhine-Westphalia, East-new Länder, ST-Saxony-Anhalt, TH-Thuringia, SH-Schleswig-Holstein, HH-Hamburg, SN-Saxony. 8 – According to the definition of settlement-structural district types by the Federal Institute for Research on Building, Urban Affairs and Spatial Development.

Sources: Augurzky et al. (2018), Federal Employment Agency, Federal Statistical Office, KBV, Kumar and Schoenstein (2013), OECD

suggest that, as a rule, hospitals with fewer than 200 beds cannot be operated cost-effectively (Kristensen et al., 2008; Giancotti et al., 2017).

In Germany, more than **one in eight hospitals posted losses** in their annual results in 2016. It is striking that the economic situation of hospitals was particularly poor in Länder with a comparatively strong economy like Baden-Wuerttemberg. ↘ CHART 105 TOP RIGHT At the same time, a relatively high proportion of hospitals in these Länder are public (Augurzky et al., 2018). ↘ CHART 105 BOTTOM LEFT Regions and local authorities that are financially better off apparently tend to be more willing to offset their hospitals' losses.

809. Inappropriate use of funds is not limited to unnecessary or excessive facilities, but also applies to possible cases of insufficient or inappropriate healthcare provision. Moral hazard is a classic example of **inappropriate healthcare provision** if patients use services unnecessarily and tie up capacity that could be better used elsewhere. Furthermore, inappropriate healthcare provision can also be triggered by poorly informed patients, for example when they attend emergency departments when there is no acute emergency, thus monopolising resources required elsewhere. Other examples of inappropriate healthcare provision are long waiting times and unnecessary multiple examinations. The digitisation of the healthcare system could help reduce such inefficiencies in the future. ↘ ITEMS 894 FF.

810. Even in a healthcare system where there is overcapacity in some areas, healthcare provision for the population can simultaneously be **insufficient** in certain locations or disciplines. To date, however, this only applies in exceptional cases, according to the Advisory Council on the Assessment of Developments in the Health Care Sector (SVR Gesundheit, 2014, 2018). In the coming years, insufficient healthcare provision could increase in scale, however, if the shortage of healthcare professionals in the healthcare sector were to escalate. Especially in rural areas, demographic developments could pose serious problems for the healthcare system, not least because these regions tend to have an older population structure. ↘ CHART 105 BOTTOM RIGHT This will make it all the more important in the coming years to take appropriate measures to forestall any impending insufficient healthcare provision. ↘ ITEMS 874 FF.

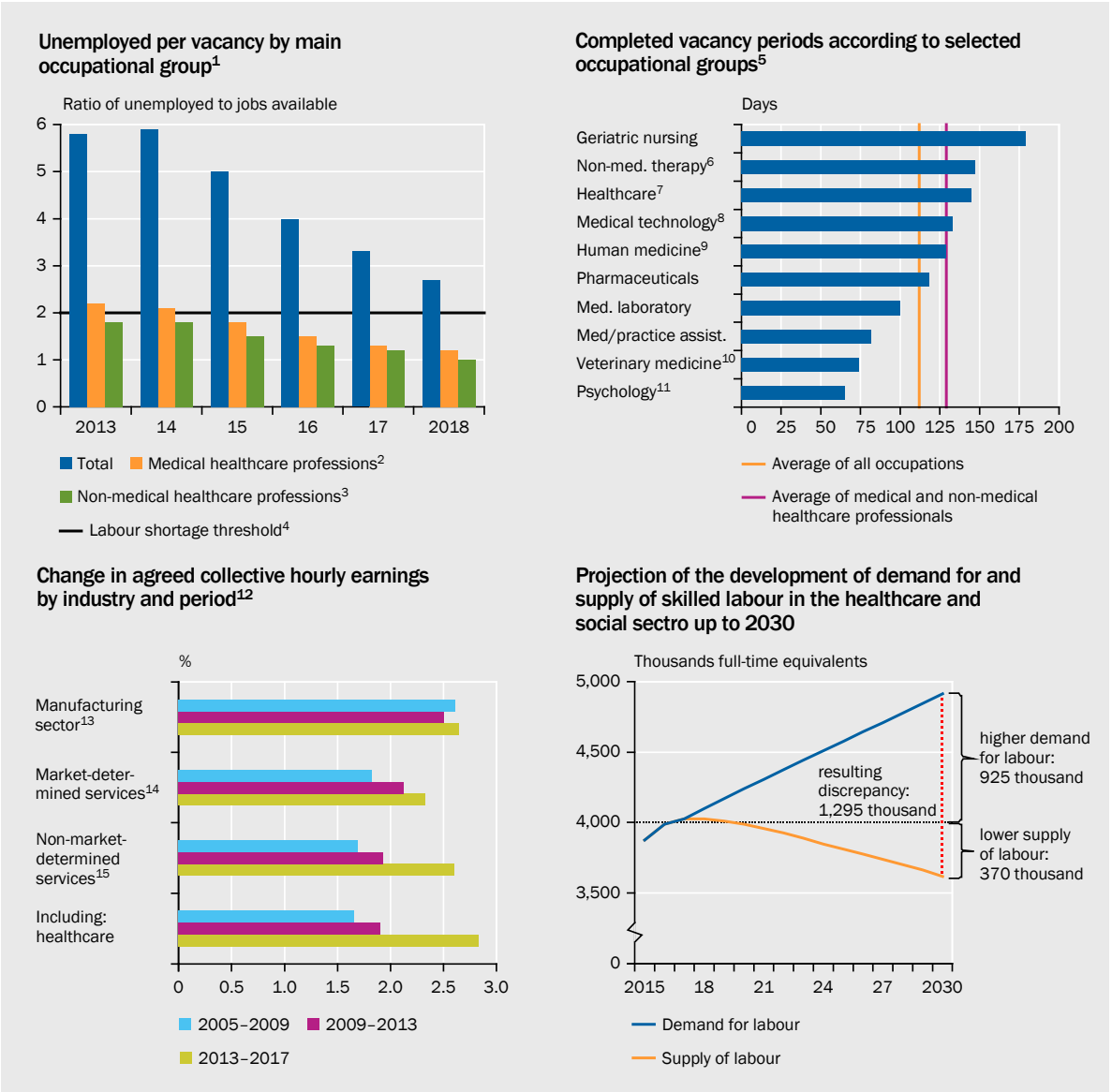
3. Escalating shortage of skilled labour

811. The **sustained high demand for healthcare professionals** poses a major structural challenge for the healthcare system. The great increase of almost 90 % in the number of employees between 1991 and 2017 shows that the healthcare and social service sector has succeeded in attracting skilled individuals up to now. However, even the already sharply risen number of people working in healthcare is hardly enough today to meet the demand for healthcare professionals.

812. The **ratio between unemployment and vacancies** in the healthcare professions has **fallen** in recent years. In 2018, there were only 1.2 (1.0) unemployed people for every vacancy in medical (non-medical) healthcare occupations. These figures were well below the national average of 2.7 – and below the threshold of 2 unemployed people per vacancy under which the Federal Employment Agency speaks of a labour shortage. ↘ CHART 106 TOP LEFT The shortage of skilled staff is particularly pronounced in Bavaria, Baden-Wuerttemberg and Rhineland-Palatinate, which are also the Länder with the lowest unemployment rates. In these regions there are already more vacancies in the medical and non-

↘ CHART 106

Labour market development in the healthcare sector in Germany



1 – From May of the previous year until April respectively. The qualification level of "helper" is not included. 2 – Including medical and practice assistant, medical laboratory, general healthcare and nursing, ambulance service, obstetrics, human and dental medicine, veterinary medicine and alternative medicine, psychology and non-medical psychotherapy, non-medical therapy and alternative medicine, pharmaceuticals. 3 – Including geriatric nursing, nutritional and health advice, wellness, body care, funeral services, medical, orthopaedic and rehabilitation technology. 4 – As defined by the Federal Employment Agency. 5 – Sliding annual results from October 2017 to September 2018. 6 – Including alternative medicine. 7 – Including nursing, ambulance services and obstetrics. 8 – Including orthopaedic and rehabilitation technology. 9 – Including dentistry. 10 – Including veterinary medicine. 11 – Including non-medical psychotherapy. 12 – Annual average change. Without special payments. Classification of Economic Sectors, 2008 edition (WZ 2008). 13 – Sectors B to F. 14 – Sectors G to N. 15 – Sectors O to S.

Sources: Augurzky and Kolodziej (2018), Federal Employment Agency, Federal Statistical Office, own calculations

medical healthcare professions than people registered as unemployed in these occupations (Federal Employment Agency, 2018a).

813. Eight of the 24 occupational groups listed in June 2018 by the BA as having **nationwide skill shortages** are in the healthcare sector (Federal Employment Agency, 2018b). These occupations include professions with high qualification requirements, such as doctors, specialist physicians and pharmacists, as well as jobs with medium (e.g. in physiotherapy, or orthopaedic and rehabilitation technology) or low requirements (e.g. occupations in geriatric nursing). Accordingly, the vacancy duration, the period from the date on which the employer would like to fill the vacancy until the job advertisement is withdrawn or the post is actually occupied, can be as long as 179 days in these occupational groups, e.g. in geriatric nursing care, which is much higher than the national average of 112 days. ↘ CHART 106 TOP RIGHT

814. The growing scarcity of workers is increasingly reflected in **rising agreed hourly earnings**. While in the period from 2005 to 2013 increases in earnings were weak in healthcare compared to manufacturing and other service sectors, in the years from 2013 to 2017 the healthcare sector recorded higher growth rates than almost any other sector of the economy with an average annual rate of 2.8 %. ↘ CHART 106 BOTTOM LEFT Particularly since 2016, the increases have been far above average by sectoral comparison (Augurzky and Kolodziej, 2018). This finding suggests rising wage dynamics, even though, according to the Federal Statistical Office (2016), only around 48 % of healthcare employees worked in facilities with collective agreements in 2014.

The minimum wage in nursing, which was introduced on August 1, 2010, is currently €10.55 in western Germany and €10.05 in the east. Accordingly, even before the introduction of the general minimum wage in Germany, the proportion of establishments in healthcare and social services with an hourly wage of less than €8.50 was only 8 % in 2014 (Low Pay Commission, 2016).

815. Further wage increases could counteract the future shortage of skilled labour. But even if wages continue to rise, **shortages of skilled workers** will probably **intensify further** in the coming years for two reasons. First, the working-age population is likely to decline significantly over the next decade as more and more baby-boomers retire; as a result, the workforce as a percentage of the total population will decline. ↘ CHART 101 LEFT Secondly, the demand for healthcare services increases with age. An ageing society is likely to require more healthcare services – thus triggering a greater demand for healthcare professionals.

816. Demand for the profession of geriatric nursing care, which is already experiencing a shortage of skilled workers nationwide according to the BA, is likely to increase further. One reason is that, because of demographic change, there will probably be fewer nursing relatives. Other factors – such as changes in partnership forms, rising employment among women, longer working lives and greater distances between the homes of parents in need of care and their adult children – could lead to a shift towards more professional nursing and thus further increase the **demand for professional nurses** (RKI, 2015).

↘ TABLE 26

Gross monthly earnings of full-time employees subject to social insurance contributions in hospital and geriatric nursing by qualification level in 2017

Qualification level	Type of occupation	Full-time employees	Monthly earnings in euros	Difference in euros
Helper[1]	Geriatric nursing (without specialisation)	64,105	1,944	
	Healthcare and nursing (without specialisation)	54,632	2,502	558
Skilled employee[2]	Geriatric nursing (without specialisation)	120,372	2,744	
	Healthcare and nursing (without specialisation)	302,732	3,337	593
Specialist[3]	Geriatric nursing (other specific activity)	1,288	2,920	
	Specialist nursing	37,650	3,740	820

1 – Helper/trainee activities. 2 – Skilled activities. 3 – Complex specialist activities.

Source: Federal Employment Agency

817. Specifically in **geriatric nursing**, one important reason for the pronounced shortage of qualified staff is the **comparatively low rate of pay**. The remuneration of geriatric nurses currently lags far behind that of hospital nurses. For full-time employees with the qualification level of helper or skilled worker, the difference between the gross monthly earnings of hospital and geriatric nurses in 2017 was almost €600; specialists in hospital nursing earn over €800 per month gross more than specialists in geriatric nursing. ↘ TABLE 26 This remuneration difference becomes problematic if the geriatric care sector loses staff to the hospital sector as a result. However, the comparatively high level of demand for nurses in geriatric care is likely to lead to a relatively high rate of wage growth.

818. Judging by the specifications of current capacity planning, the **supply of general practitioners** and psychotherapists in Germany seems very good (SVR Gesundheit, 2018). Based on doctor density relative to settlement density, there are no signs yet of insufficient healthcare provision in rural areas. ↘ CHART 105 BOTTOM RIGHT Accordingly, worries about a shortage of doctors seems exaggerated at present. However, there are striking regional differences between the Länder. For example, the outpatient sector in Baden-Wuerttemberg is the best developed in Germany, while the eastern Länder are relatively poorly covered (Augurzky and Kolodziej, 2018). However, this seems not least to be an adaptation to demand, since patients can largely choose between outpatient and inpatient healthcare. Alarmist statements like the one issued by the German Medical Association that almost 25 % of the currently registered general practitioners will be retiring in the next five years probably reflects not least the decline in demand in some regions.

819. The German Council of Economic Experts (GCEE) has commissioned an expert report to estimate the **scale of the need for healthcare professionals** in 2030 (Augurzky and Kolodziej, 2018). The underlying projection model shows the future supply and demand situation on the labour market in healthcare and social services in stylised form; the aim is to deduce any discrepancy between the demand for and the supply of healthcare professionals projected for 2030 for scenarios based on different political decisions.

820. On the assumption that the development of available skilled worker from the starting year 2016 is determined essentially by population development, and that no specific policy measures are taken, this **discrepancy among healthcare professionals up to 2030** will increase to around **1.3 million people** in terms of full-time equivalents. In 2030, according to this scenario, demand for full-time equivalents is likely to be around 930,000 higher, while around 370,000 fewer employees will be available than in 2016 (Augurzky and Kolodziej, 2018). ↘ CHART 106 BOTTOM RIGHT

Appropriate, targeted decisions could at least reduce this impending increase in labour shortages and the associated **insufficient healthcare provision**. These include measures to reduce the demand for healthcare services, further increase the domestic labour force potential in healthcare, and recruit foreign professionals. ↘ ITEMS 879 FF.

III. ENSURE FUNDING, REDUCE OVERCAPACITY

821. The development of expenditure in SHI since 2011 has roughly been in line with forecasts made by the GCEE in previous years (most recently in GCEE Annual Report 2012). By contrast, the revenue side has developed much better in recent years than the GCEE had predicted. Contributory factors here include the many years of economic upswing with record employment, as well as **structural improvements**, such as the structurally lower unemployment rate (GCEE Annual Report 2017, Box 5). ↘ ITEM 336 SHI's high growth rates on the revenue side will be difficult to maintain if economic momentum weakens over the coming years.

On the other hand, expenditure is likely to rise faster than revenue in the future, mainly due to demographic developments. The government should therefore take **measures to secure revenue and cut expenditure** in order to ensure the sustainable financing of the health insurance system. On the revenue side, the focus is mainly on whether health insurance contributions should be income-dependent or income-independent.

822. In order to curb expenditure, the aim is not least to use the available resources in the healthcare system as efficiently as possible. Above all, there should be more emphasis on the principle of competition. Existing **overcapacity** should be further reduced, for example by further cutting the number of small hospitals. Hospital funding should be reorganised – from a dual to a one-tier financing system in which investment costs are borne not by the Länder as they are now, but by the hospitals themselves. In addition, the extensive separation between the outpatient and inpatient sectors should be reduced and cross-sector healthcare improved.

1. Measures to secure revenues

823. SHI expenditure is likely to increase significantly in the coming decades; in the longer term it will hardly be possible to cover it with SHI revenue (GCEE Annual Report 2012, items 599 ff.). One possible way to **finance the rising expenditure** in the health insurance system would be to elevate the contribution rate to health insurance to the same extent. However, this would increase the tax wedge, i.e. the difference between gross remuneration and net earnings, which would reduce work incentives. It would also be conceivable to increase the federal subsidy. This would also require a higher tax burden, with corresponding efficiency losses.

824. Against this background, the GCEE reaffirms its assessment that the **concept of the citizens' lump-sum health insurance (Bürgerpauschale)** is a suitable instrument for permanently securing SHI's revenue. This concept was discussed in the early 2000s, among others by the Rürup Commission, the Bertelsmann Foundation (Leinert et al., 2004) and the GCEE (most recently in detail in GCEE Annual Report 2012, items 598 ff., originally in GCEE Annual Report 2004, items 511 ff.). The introduction of **additional contributions** was a first step in this direction, although they are now no longer levied as absolute amounts, but depend on income, which is far less effective. ↘ ITEMS 830 FF. The decision to return to a parity of health insurance contributions on 1 January 2019 is a move in the wrong direction from the point of view of the citizens' lump-sum concept.

Citizens' lump-sum model as the goal

825. The essence of the citizens' lump-sum concept is **income-independent contribution assessment**. Here, assessment is no longer based on income-dependent contributions by employers and employees as currently. Rather, under the fully revamped system, the employer's contribution would be fixed, and the employee's contribution would be independent of income. The amount of these contributions would differ for each health insurance fund. It would be based on the average health costs per insuree in the respective fund. However, the contributions would not differ according to individual disease risks, age or gender. The transition to income-independent employee contributions could be carried out step-by-step (GCEE Annual Report 2012, items 611 ff.).

826. In this health insurance system, the **entire population** would **be subject to compulsory insurance**. All health insurance funds that provide basic coverage in the sense of the citizens' lump-sum concept would be subject to a statutory obligation to contract. However, this regulation would need to be backed up by a **comprehensive morbidity-oriented risk-structure compensation** scheme between all health insurance funds that are active in the market for basic coverage in order to ensure undistorted competition between providers. That this is not a simple task is shown by the discussions on the present risk-structure compensation scheme, which is evidently still unable to ensure the functioning of price competition because of risk-selection-determined distortions. ↘ BOX 23

827. The citizens' lump-sum concept provides an external **social compensation** for people with a lower income. It would be granted when the health insurance flat rate exceeds a certain percentage of a household's total income. The contributions for children and the subsidies required for social compensation would be financed from taxation. According to calculations by the GCEE, social compensation is likely to account for about 20 % of the total revenue of SHI up to 2060 in the event of a step-wise implementation of the income-independent (additional) contribution (GCEE Annual Report 2012, items 611 ff.).

The citizens' lump-sum concept could be offered by both the statutory and the private health insurance funds. In this way, both would be in competition with each other on a **uniform insurance market**. This should lead to a convergence between private and statutory health insurance with regard to this insurance product.

828. In the event of a step-wise implementation of the income-independent (additional) contribution, according to calculations made by the GCEE in 2012, the average monthly income-independent contribution for an employee (at constant prices) would rise from €260 per year in 2016 to €365 in 2040 and €505 in 2060 (GCEE Annual Report 2012, item 614), although the amounts would differ among insurance funds. An income-independent employee contribution would therefore emit clear price signals. A transition of the health insurance system to a citizens' lump-sum model is therefore likely to considerably intensify the **competition between health insurance funds**, and thus help curb expenditure.

829. During this process, the number of SHI funds might decline further. There have already been many mergers and closures on the SHI market in the last few decades, not least after insurees were given greater freedom to choose their insurance fund in the 1990s. This reduced the number of SHI funds from over 1,100 in 1990 to 110 in 2018 (GKV-Spitzenverband, 2018b). The fact that **no new funds entered the market** during this period was probably due not least to legal requirements, which were excessively restrictive according to the Monopolies Commission (Monopolies Commission, 2017). In the field of PHI, there has been neither a large number of mergers nor market entries in the past few years.

↘ BOX 23

Potential of price competition on the health insurance market

In a health insurance system based on risk-sharing – with a free choice of provider for insurees, risk-independent contributions and simultaneous obligation to contract for health insurance funds – the aim is to distribute **SHI**'s contribution income in a way that facilitates efficiency competition between health insurance funds. A key element here is the **risk adjustment scheme** (RSA) which, when allocations are made to the health insurance funds from the Health Fund, takes into account the fact that the funds differ in terms of the disease-risk structure of their insurees. Since 2009, the process of calculating the RSA has taken into account the number of insurees with a cost-intensive chronic or serious disease – in addition to such characteristics as age, gender, receipt of a reduced-earning-capacity pension, and entitlement to sickness benefits.

However, this morbidity-oriented RSA, which is more accurate than the previous non-morbidity-oriented arrangement, is still not able to completely prevent **distortions of competition caused by risk selection**. For example, there are no incentives for health insurance funds to invest in preventive healthcare provision, because even morbidity differences caused by worsening morbidity among existing insurees are reimbursed (Monopolies Commission, 2017). Furthermore, there is apparently evidence of manipulative activities by health insurance funds with regard to the level of allocations from the Health Fund (Board of Academic Advisors RSA, 2017).

In addition, a tendency toward a **self-reinforcing risk segregation** of insurance portfolios has been emerging since 2009 (Albrecht, 2018). Although the Scientific Advisory Board on RSA (Scientific Advisory Board RSA, 2017) has not found a significant correlation between the morbidity burden measured by the RSA and the coverage ratios of the health insurance funds, health insurance funds whose insurees' morbidity increases over time tend to have a slight shortfall; by contrast, funds with decreasing morbidity reveal a small amount of surplus cover. At the same time, health insurance funds with a growing number of insurees tend to have surplus cover; shrinking funds are more likely to have a shortfall (Board of Academic Advisors RSA, 2017).

In addition, regional differences in expenditure levels lead to systematic shortfalls in regions with high expenditure levels and to surplus cover in areas with low expenditure levels (Monopolies Commission, 2017). Therefore, a further development of the RSA is under discussion: the **introduction of a regional factor** (Monopolies Commission, 2017; Board of Academic Advisors RSA, 2017). This could increase the incentives of the health insurance funds for regional risk selection. However, only a relatively small part of the current coverage differences are caused by the financial effects of the way the insurees are regionally distributed (Board of Academic Advisors RSA, 2018). A regional factor could reduce the incentives to improve cost efficiency through selective contracts with regional service providers (Albrecht, 2018).

Distortions of competition already exist as a result of the coexistence of regional health insurance funds and nationwide health insurance funds; this is because regional funds in lower-cost regions benefit permanently from contribution advantages. In contrast to health insurance funds offered nationwide, direct internal compensation with more expensive regions is not necessary. An alternative to a regional factor in the RSA that is in line with competition would therefore be to **open all health insurance funds nationwide,** combined with **uniform supervision** of the statutory health insurance funds (Albrecht 2018). To date, the Federal Insurance Agency is only responsible for supervising the health insurance funds that operate nationwide, while the supervisory authorities in the Länder supervise the regional funds. At present this results in distortions of competition, since the supervisory authorities allow different degrees of leeway in relation to certain statutory benefits.

The system of **private health insurance** (PHI) is fundamentally different in design from SHI. PHI is not subject to an obligation to contract, nor do insurees pay risk-independent contributions. Furthermore, privately insured people settle their accounts directly with their insurance company according to the principle of cost reimbursement. **Price competition** exists **mainly among new customers**. A change of insurance company is generally not attractive for existing customers, since they can only take a small proportion of their ageing provisions with them. The proportion of insurees who terminated their insurance contracts in 2016 was thus estimated at only 1.5 % (Albrecht, 2018).

In order to increase competition for existing customers, insurance companies would have to allow their customers to take a higher proportion of their ageing provisions with them when they change providers. However, a situation should be avoided in which insured people make a switch dependent on their risk of disease, because in such a case healthy people especially might have an incentive to switch, possibly leading to risk segregation between the insurance companies. However, insurance companies could determine a **prospective individualised ageing provision**, which individually takes into account the expected future healthcare costs for each insuree (Monopolies Commission, 2017).

Such individualised ageing provisions have been under discussion for a long time; one reason why they have not yet been introduced is the possibility that the insurance companies participating in a change might make different risk assessments (GCEE Annual Report 2002, item 530).

Additional contributions stimulate competition between health insurance funds

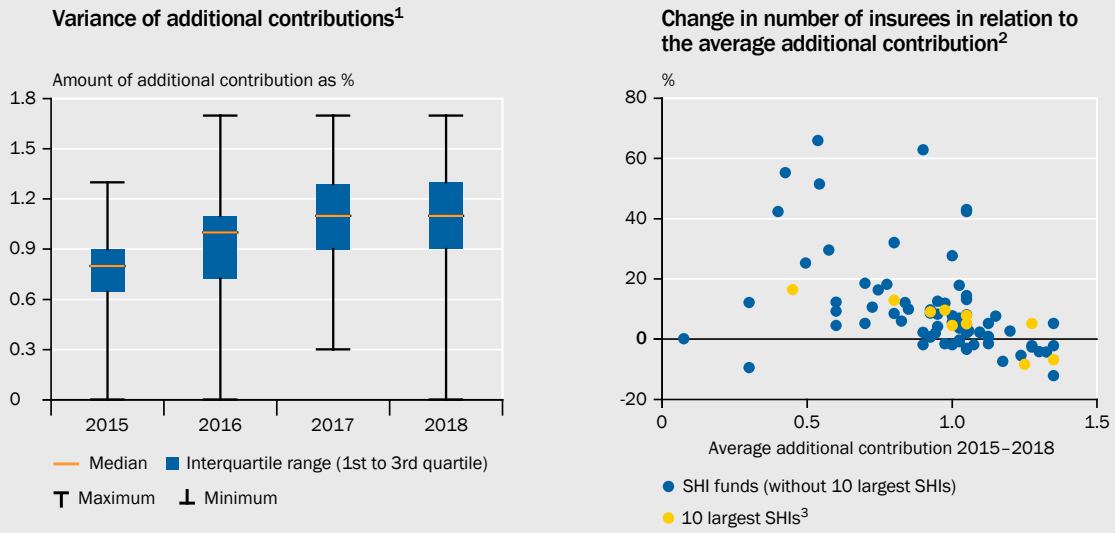
830. The Health Fund and a uniform nationwide contribution rate of 15.5 % were introduced in 2009. In addition, health insurance funds were able to charge absolutely assessed and thus **income-independent monthly additional contributions**, and to grant **discounts**. As a result, differences in the level of health insurance contributions between the health insurance funds were shown more transparently than before. This has contributed to an increase in competition between the health insurance funds. Although only a small proportion of them made use of the possibility to deviate from the uniform nationwide contribution rate, on the basis of the Socio-Economic Panel (SOEP) Schmitz and Ziebarth (2017) calculate that the likelihood of a switch from one health insurance fund to another was three times higher after this change in the system than before. If a health insurance fund raised its contributions between 2009 and 2011 by €10 more than the average of all funds, the likelihood of their insurees leaving the fund rose from 5 % to 15 %.

831. When the general health insurance contribution was lowered to 14.6 % in January 2015, **income-dependent additional contributions** were introduced across all health insurance funds. The additional contribution is determined individually by the health insurance funds and paid by the insurees alone. The changeover thus led to higher costs for insurees if the additional contribution charged by their respective health insurance fund amounted to more than 0.9 % of the income subject to contributions. The mean additional contribution has risen slightly in recent years from 0.8 % of income subject to contributions in 2015 to 1.1 % in 2018. ↘ CHART 107 LEFT The variance in the additional contributions across the health insurance funds has increased over time. In 2018, the range of additional contributions lies between 0 % and 1.7 %.

832. The introduction of additional contributions is a first step towards a citizens' lump-sum model, since it ensures that the funding deficits in SHI are offset exclusively by these additional contributions. The price signal sent out by the level of the additional contributions is likely to be a much more important component than quality when people **choose a health insurance fund**. Because, since the health insurance funds do not negotiate individually on remuneration with service providers, the quality of healthcare does not differ across the health insurance funds (Schmitz, 2017). On the basis of an econometric analysis using SOEP data, Bünnings et al. (2017) determine that the range of optional tariffs and additional services is quantitatively less relevant than the price. It seems that offices, telephone service, or coverage of natural remedies have no measurable effect on people's choice of health insurance fund.

↘ CHART 107

Development and effects of additional contributions by health insurance fund



1 – Data available for 109 of the 110 health insurance companies. 2 – Data available for 82 of the 110 health insurance companies with 95% of all insurees. Change in the number of insurees from 2015 to 2018, mean value of the additional contribution of the respective health insurance fund from 2015 to 2018. Not shown in chart: Metzinger BKK (average contribution: 0.08%; percentage increase in insurees: 288%). 3 – AOK Baden-Württemberg, AOK Bayern, Barmer, DAK Gesundheit, Techniker Krankenkasse, AOK PLUS, IKK classic, AOK Rheinland/Hamburg, AOK Nordwest, AOK Niedersachsen.

Sources: GKV Spitzenverband, reports of SHIs, own calculations

833. The across-the-board additional contributions and their strong price signal should therefore stimulate competition between statutory health insurance funds. There are clear **indications of increased competition** between health insurance funds. According to the GCEE's calculations taking the average of the years 2015 to 2018, the number of insurees increased more in health insurance funds that charged a comparatively low additional contribution. This finding is confirmed when the analysis is limited exclusively to the ten largest insurance funds that together account for around two-thirds of all insurees. ↘ CHART 107 RIGHT

834. The financial reserves of the health insurance funds rose to nearly €20 billion at the end of March 2018. On average, this is equivalent to more than one month's expenditure and is therefore more than four times the statutory minimum reserve (BMG, 2018b). The GCEE is **critical** of statutory projects that provide for a **compulsory reduction in the financial reserves**, e.g. by lowering the additional contribution. This would mean an unnecessary intervention in the market that can influence member migration between the insurance funds. Instead, the surpluses should be used to stabilise the insurance contributions in the long term.

835. In the future, the additional contributions should be further developed in such a way that, taking social compensation into account, the income-independent contribution gradually rises as a percentage of the total employee contribution. Such a **further development of the additional contributions** can be expected to have long-term positive growth and employment effects. A faster transition to income-independent financing on the part of employees is likely to lead more quickly to favourable macroeconomic effects. In addition, the non-insurance re-

distribution flows within the SHI system would increasingly shift to the tax system (Kallweit and Kohlmeier, 2012; GCEE Annual Report 2012, items 598 ff.).

836. However, current health policy runs counter to such a further development. Following the **return to equal financing of SHI** adopted by the Federal Government in June 2018, as from 1 January 2019 the additional contribution will no longer be paid by the employees alone, but equally by both employees and employers. Instead of decoupling the contributions from wages, equal financing leads to a higher tax wedge, which is likely to reduce work incentives. It also increases the burden on statutory pension insurance, which has to pay a higher proportion of the contributions for pensioners.

837. In response to this measure, employees and employers are moreover likely to settle on **lower wage agreements**, according to the calculations conducted by Groll (2018) using a macroeconomic simulation model based on Gadatsch et al. (2016). As a consequence of the resulting adjustment processes, production and employment could increase minimally in the long term, while the gross wage per employee reaches a slightly lower level. Although, according to Groll (2018), the macroeconomic consequences of the return to equal financing are likely to be small, this measure sends the wrong signals in a period of ongoing demographic change.

838. Competition between health insurance funds could lose importance for employees as a result of the return to joint funding, since they now only have to pay half of the additional contribution. However, businesses are likely to return to a **more active role against excessive tax burdens** if they again have to pay the full contribution rate of health insurance in the future. This could make it more difficult for policy-makers to raise the contribution further in the future.

2. Potentials from competition in the inpatient sector

839. Competition between health insurance funds is limited almost exclusively to a small part of the services, such as administrative costs, customer support and additional health services. However, when it comes to limiting the expected increases in expenditure, there is likely to be more potential efficiency gains among service providers. While it is true that there would also be opportunities for competition in the outpatient sector, the **focus** in the following is **on the inpatient sector**. However, points of contact do exist with the outpatient sector, particularly on issues such as how greater use can be made of selective contracts between health insurance funds and service providers, and how cross-sector healthcare between outpatient and inpatient sector can be expanded.

840. In the inpatient sector, there is likely to be **considerable potential for efficiency gains on the supply side** in particular. The aim must be to minimise barriers to competition that hinder the reduction of excess capacity, to give hospitals full responsibility for hospital funding, and to actively forge ahead with the overdue structural improvements in the hospital sector. For this purpose, the GCEE has commissioned an expertise on the ‘Potential for more competition in

the healthcare sector' (Albrecht, 2018), which will be referred to repeatedly in the following.

Efficiency deficiencies require a stronger focus on competition

841. In the last few years, various studies have drawn attention to the overcapacity in the inpatient sector (Busse et al., 2016; OECD, 2017b; Board of Academic Advisors to the BMF, 2018). At the same time, many hospitals have poor facilities. ↘ ITEM 807 The coexistence of overcapacity at the aggregate level and often insufficient investment at the level of individual institutions indicates that **hospital requirements planning is not needs-based**. This requirements planning is conducted at the Länder level and usually regards future needs per inhabitant as a constant. In line with this logic, an increase in the number of inhabitants automatically leads to a higher number of treatment cases, which in turn requires more hospital beds.

However, this assumption cannot be proved empirically. It rather seems to be the case that the number of hospital services increases with healthcare capacity (Roemer, 1961; Kopetsch, 2006). Every newly installed hospital bed will ultimately be used, and a significant proportion of the demand observed in practice is probably induced by supply.

842. More specialisation and a greater spatial concentration of available treatment options and cases would be possible in Germany without greatly restricting the availability of hospitals (Loos et al., 2016). However, a hospital closure leads to high costs of up to 2.5 times the hospital's annual budget (Preusker et al., 2014). Above all, **market exits** by individual hospitals are often likely to encounter **political resistance** at the **municipal** level, because hospitals are often regarded as an important part of the regional economic structure.

It is not surprising, therefore, that the reduction in the number of beds observed over the past few years only involved market exits by hospitals in a small number of cases. Rather, the dominant role in the reduction of capacity was done within hospitals that still exist and by hospital mergers.

843. In addition, the fact that there are not more inefficient hospitals bowing out of the market, especially in urban areas, thus pushing forward the reduction of excess capacity, is probably due to the health insurance funds' **de facto obligation to contract** with hospitals incorporated into the planning regime: they are obliged to pay for inpatient treatment of their insurees in any hospital that is part of the Länder-specific hospital plan, even if there might be quality defects. Up to now, **quality differences have hardly been used as parameters of competition**, not least because of the difficulties of quality measurement and comparisons between hospitals.

844. Similarly, the price does not represent a competition parameter in the hospital sector. For example, the system of **diagnosis-related case-based lump-sum payments** (diagnosis related groups, DRGs) defines fixed prices for each procedure. The withdrawal from the principle of cost coverage by the compulsory

introduction of the DRG system in 2004 led to a significant improvement in the transparency of healthcare and remuneration in the hospital sector. This increased the incentives to use resources prudently and thus reduce costs. However, case-based lump-sums involved other false incentives, and there is still need for reform with regard to the design of the DRG system, which is constantly changing already. ↘ BOX 24

845. In a situation where prices are uniformly regulated via the DRG case-based lump-sum payments and transparency on quality is lacking, competition between hospitals takes place largely via the amount of services provided. The **distinct increase in inpatient cases** since 2007 evidently cannot be justified only medically (Busse et al., 2016). ↘ CHART 104 LEFT It can be attributed partly to the changing incentive structures (Schreyögg et al., 2014). Furthermore, in the sense of a supply-induced demand, **preference** could be given to **performing surgical treatments** in order to increase remuneration. This can result in inappropriate healthcare provision if less expensive treatment methods would lead to comparable results.

846. In addition, hospitals often offer **services** that are **usually provided in the outpatient sector**. For example, international studies indicate that a significant proportion of the above-average frequency of hospital treatment in Germany relates to inpatient treatments that are usually provided by outpatient services in other countries. In cases of diabetes, for example, a stay in hospital is taken into consideration far more often than in other OECD countries (OECD, 2017b).

↘ BOX 24

Options for a further development of the DRG system

Since 2004, hospital services have been remunerated by diagnostic-related case-based lump-sum payments (DRGs). The **DRG system** is based on a classification of patients. It brings together hospital cases according to diagnosis, severity of disease and type of treatment in groups that are, from an economical point of view, as homogeneous as possible. Remuneration for a case is calculated by multiplying two factors: (i) a relative weight representing the value of the DRGs relative to each other, and (ii) the Länder-specific value of the reference case, which reflects the average cost of a representative case. In this way, the DRG system aims to integrate all providers in a **uniform remuneration system**.

Because cases can be highly complex, the lump-sum payments per case became highly differentiated over time. As **more and more special circumstances were covered**, the number of DRGs defined annually by the Institute for the Hospital Remuneration System (InEK) rose from 664 in 2003 to 1,292 DRG in 2018. In addition, there are around 200 additional fees as well as discounts and surcharges – for example the payments for hospital centres and 'lighthouse' hospitals in thinly populated areas as defined by the Hospital Structures Act (Krankenhausstrukturgesetz), which came into force in 2016. The original intention of a lump-sum system is therefore being increasingly undermined.

Via the lump-sum reimbursement of services under the DRG system, all personnel costs are covered by the DRG system. This involves an incentive to keep staff costs low. This can be done by concentrating work for existing staff, which can have negative effects particularly on patients who need time-

intensive care. For this reason, the coalition agreement plans to remunerate nursing staff costs independently of case-based lump-sums and to remove these costs from the DRG calculations. This would represent a significant departure from the DRG system. A nursing budget that remunerates the cost of care according to the principle of full cost coverage, such as existed before the DRG system, would be likely to unnecessarily extend the patients' stay in hospital. It would be better to **attach greater importance to nursing costs within the DRG system** (SVR Gesundheit, 2018).

In order to reduce existing false incentives and to put a stricter limit on the number of DRGs, the DRG system should be reformed in such a way that it explicitly distinguishes between different stages of healthcare provision. This would be a return from a procedure-related to a more diagnosis-related design of the DRGs in the true sense of the word (SVR Gesundheit, 2018). It would require defining **new nationwide uniform stages of care** which should be located at the specialist departmental level. A multiplier could then be applied to the relative weight for each stage of care.

As an evolving system, the DRG system allows modifications and further improvements on an annual basis. In this way, the relative weights are re-calculated every year by the InEK using a changing sample for their calculation. However, the relative weights are sometimes subject to major fluctuations. These have a direct impact on the turnover and the hospitals' incentive structure. Hospitals respond to changes in the relative weights from one year to the next by changing their number of cases (Schreyögg et al., 2014). If the calculation were more representative over time, the **fluctuations could be reduced**, facilitating a stable calculation of hospitals' remuneration (SVR Gesundheit, 2018).

The existing **differences in the base-case values** across the Länder are mainly based on historical differences that have no economical reasoning (Augurzky and Schmitz, 2013). A uniform nationwide base-case value with an automatic regional component that takes regional price developments into account could make remuneration more transparent. Furthermore, abandoning the existing corridor around the federal base-case value would reduce administrative costs, because time-consuming negotiations between the Länder on adjustments to the Länder-specific base-case values would no longer be necessary (SVR Gesundheit, 2018).

The DRG system occupies a comparatively dominant position in hospital remuneration. For example, the DRG revenue budget accounts for 74 % to 90 % of the entire hospital remuneration, depending on the calculation – far more than in other OECD countries with a comparable revenue system (Schreyögg, 2017). Costs that are not directly related to the number of cases could be removed from case-related renumeration and reimbursed at a flat rate (SVR Gesundheit, 2018). This would **increase the proportion of lump sum remuneration elements outside the DRG system** and thus counteract the existing false incentives in the DRG system which are reflected in an expansion of services provided and increased expenditure.

847. Although the expansion of services may be partially intended by legislators in the sense of creating stronger links between the outpatient and inpatient sectors, a considerable number of hospital cases can be identified on the basis of a list of selected diagnoses that could have been treated in the outpatient sector if timely and effective healthcare action had been taken. Sundmacher et al. (2015) estimate such **outpatient-sensitive hospital cases** at 27 % of all 18.6 million hospital cases in 2012. Almost three quarters of these cases (over 3.7 million) – i.e. 20 % of all inpatient cases – can be classified as avoidable. This is particularly severe since inpatient treatment is usually more expensive than identical treatment in the outpatient sector. In the case of diabetes mellitus, for example, Albrecht and Al-Abadi (2018) calculate an outpatient remuneration of just under

€140, while one-day (two-day) inpatient treatment costs 3.8 (16.6) times as much.

848. In their analysis, Albrecht and Zich (2016) identify almost 3.5 million outpatient-sensitive hospital cases from 21 disease groups for 2013. Outpatient-sensitive emergencies alone, which make up about half of these hospital cases, cost on average slightly above €2,700 per case and add up mathematically to a **revenue volume of around €4.8 billion for the hospitals**. A high number of inpatient hospital stays seems to go hand in hand with a high proportion of outpatient-sensitive cases, as Augurzky and Kolodziej (2018) ascertain using a regional comparison at the district level.

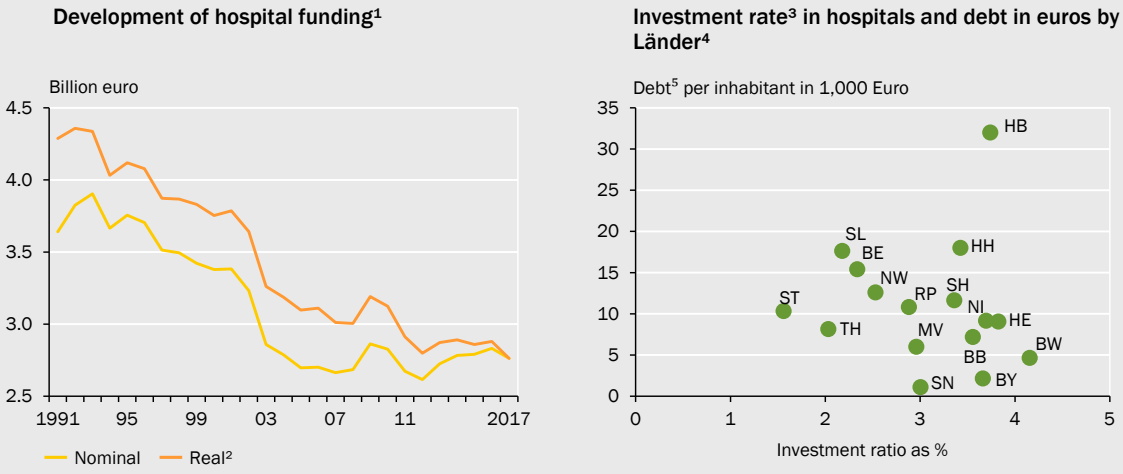
Make single-source hospital funding possible

849. The economic pressure on hospitals is reinforced by **structurally inefficient hospital financing** based on a dual funding system. Derived from the state's obligation to make provision for elementary requirements, it is the responsibility of the Länder to finance hospitals' investment costs. Their total funding in this area amounted to around €2.8 billion in 2017. The operating costs, by contrast, are financed by the hospitals via the health insurance contributions. The operating costs are largely reimbursed via the DRG system and account for the largest share of hospital financing. In 2017, SHI paid around €75 billion to finance the operating costs (GKV-Spitzenverband, 2018c), while the private insurance companies paid around €7.4 billion.

850. The financing of investment costs in the Länder does not follow uniform rules. There is basically a distinction between a flat-rate and individual funding. **Flat-rate funding** consists of a bed-related basic flat rate and a case-related service flat rate, while **individual funding** is applied for larger-scale investments, such as constructing or equipping a hospital, or replacing fixed assets. Particularly in the case of individual funding, there often seems to be a lack of transparency, possibly involving distortions of competition. In 2015, the Länder paid out €1.5 billion via individual funding and €1.3 billion via flat-rate funding (SVR Gesundheit, 2018).

851. The **volume of funding** has been **declining for decades**. In 1991, total funding at 2017 prices was still around €4.3 billion. By 2017, the amount had fallen by approximately 36 % in real terms. ↘ CHART 108 LEFT Even taking into account the fact that there are fewer hospital beds today than there were then, the decline in funding is significant (SVR Gesundheit, 2018). Funding only stopped falling in real terms in 2012. At €34 per capita, funding was considerably lower than in other countries such as France, Denmark, the Netherlands or Switzerland (Augurzky et al., 2017a).

↘ CHART 108
Hospital financing in Germany



1 – Funding under the Hospital Financing Act (KHG). 2 – Deflated by the deflator for gross fixed capital formation in healthcare at 2017 prices. For 2017, deflator with gross fixed capital formation for healthcare and social services. 3 – The investment ratio corresponds to the KHG grants in 2015 in relation to the adjusted hospital costs in 2016 including expenditure on the training fund. 4 – BW-Baden-Wuerttemberg, BY-Bavaria, BE-Berlin, BB-Brandenburg, HB-Bremen, HE-Hesse, HH-Hamburg, MV-Mecklenburg-Western Pomerania, NI-Lower Saxony, NW-North Rhine-Westphalia, RP-Rhineland-Palatinate, SL-Saarland, SN-Saxony, ST-Saxony-Anhalt, SH-Schleswig-Holstein, TH-Thuringia. 5 – As per 30.06.2018.

Sources: Federal Health Reporting, Federal Statistical Office, German Hospital Association, Association of the Substitute Funds

852. Funding varies greatly between the Länder. In Baden-Wuerttemberg it amounted to more than 4 % of hospital costs, compared to less than 2 % in Saxony-Anhalt. A higher debt level per inhabitant tends to be associated here with a lower rate of investment by the Land. ↘ CHART 108 RIGHT Although the current investment requirement is difficult to estimate, there are at least indications that the majority of Länder do not sufficiently meet their obligation to provide adequate funding. On the basis of hospital annual accounts, Augurzky et al. (2017b) estimate the nationwide annual **funding gap** at about €2.6 billion. Overall, the Länder funding gap is thus approximately as large as the total funding they provide.

853. The low level of public investment increases the pressure on hospitals to raise additional funds of their own from service charges – e.g. the proceeds from DRGs and optional services – in order to be able to make investments. But even the funds for investment topped up in this way are not enough to completely close the funding gap, so that the hospital buildings cannot be maintained in the long term. The GCEE has a critical view of this **creeping trend towards the single-payer principle**, the increasing financing 'from a single source', which goes hand in hand with a deterioration of structural quality. Instead, single-payer financing should be consistently implemented. This would mean that the Länder would have to give up their responsibility for planning in the hospital sector.

854. Against this background, the decisions made in the coalition agreement to maintain Länder responsibility for hospital planning and their obligation to finance investment are moving in the wrong direction. A transition to **single-payer hospital financing** would mean that the hospitals alone would be in charge of

financing investment and operating costs. Such a system would be less dependent on the financial strength of the Länder and their political willingness to finance hospitals – and thus less dependent on political cycles (Galli and Rossi, 2002).

855. The transition to a single-payer financing system would promise significant efficiency gains. The fact that hospitals are unable to coherently plan and negotiate the financing of investment and ongoing operating costs jeopardizes their business profitability (GCEE Annual Report 2008, item 687). Delayed investment decisions resulting from red tape is likely to further exacerbate this effect. In addition, a change of system could reduce the misallocation of capital. In a dualistic system, investment decisions are not assessed on the basis of an overall view of investment costs and subsequent maintenance costs, but are greatly influenced by the availability of different funding instruments (Augurzky et al., 2017a).

856. The system conversion could be financed by performance-oriented **investment surcharges** via the DRG system (GCEE Annual Report 2008, item 690), which would organise the allocation of investment resources competitively. In this way, an improvement in a hospital's cost-effectiveness would tend to result in a higher availability of investment funding. However, conflicts of objectives could arise in structurally weak regions if the target of providing universal, conveniently located healthcare services in line with structural-policy objectives stands in the way of the cost-effectiveness of hospitals. A tax-funded **infrastructure fund** would be conceivable in such a case (GCEE Annual Report 2008, item 692).

857. For a long time, the GCEE (most recently in the GCEE Annual Report 2012), the Monopolies Commission (2008) and lately the SVR Gesundheit and the Scientific Advisory Board of the Federal Ministry of Finance (SVR Gesundheit, 2018; Scientific Advisory Board to the BMF, 2018) have been calling for a switch to single-payer hospital funding. The exact design of such a system differs, for example, regarding the form of remuneration and the degree to which the Länder's role in hospital planning would be reduced. However, in the past, the idea of switching to single-payer hospital financing has met with massive resistance from the Länder, since they appear to fear a loss of influence on hospital planning and capacity (Augurzky et al., 2017a).

Structural adjustment in the hospital sector

858. The Hospital Structures Act (KHSG), which came into force at the beginning of 2016, explicitly addresses the structural deficiencies on the hospital market for the first time (GCEE Annual Report 2015, items 583 ff.). The KHSG contains explicitly different competitive stimuli in order to bring about **structural changes**, particularly by means of closures, specialisations and hospital mergers. The KHSG moves the emphasis of capacity planning away from regional decision-making towards a form of nationwide market regulation (Albrecht, 2018).

859. The Federal Government is increasing its spending on structural improvements within the framework of the **Structural Fund**. However, its ever-greater in-

volvement in Länder areas of jurisdiction is not unproblematic. Mixed financing using resources from both the Federal Government and the Länder strengthens the incentives for the latter to increasingly evade their responsibility. The Federal Government should therefore demand co-financing by the Länder and require them to link the provided Länder funds to specific structural objectives, in order to avoid deadweight effects. This should give the Länder an incentive to carry out structural projects and would make an important contribution to reducing excess capacity. In addition, the effect of the funds spent should be scientifically evaluated.

In order to improve the structure of the hospital landscape, the **Structural Fund** was set up in 2016 with a total volume of €1 billion up to 2018. €500 million is provided by the liquidity reserve of the Health Fund, the other half by the Länder. Particularly eligible for funding are measures to reduce excess capacity in acute inpatient care, to concentrate efforts on fewer sites, and to convert hospitals into non-acute inpatient healthcare facilities. Utilisation rates of the Structural Fund are high indicating a growing momentum towards structural adjustment in the hospital sector. Up to now, many funding applications have been made especially for efforts to concentrate on a smaller number of sites (Augurzky et al., 2017b). The current coalition agreement seeks to continue the Structural Fund for four more years with €1 billion per year.

860. In the future, the Structural Fund's resources should be used mainly to reduce overcapacity in the hospital sector. This would promote the necessary structural improvement and reduce hospital capacity, which is extensive by international comparison. The resources of the Structural Fund are currently provided by the Health Fund and are thus financed by people with SHI. As **privately insured citizens** are also beneficiaries of the funding, they should **contribute to the Structural Fund**, for example via a mandatory contribution. An alternative would be to finance the Structural Fund from federal tax revenue.

861. Regional factors must be taken into account when reducing overcapacity. For example, hospitals in sparsely populated areas that cannot cover their costs because of the low demand for healthcare services could be classified as indispensable for nationwide basic services. In this case, the hospitals affected can agree with health insurance funds on corresponding **surcharges** (**Sicherstellungszuschlag**). Uniform nationwide criteria for doing so have been laid down in the meantime by the KHSG and a corresponding decision by the G-BA (G-BA, 2016). Conversely, these regulations make it possible to identify reliably dispensable locations (Leber and Scheller-Kreinsen, 2018). Furthermore, hospital specialisation is to be promoted by **centre surcharges (Zentrumszuschläge)**.

862. The increase in numbers treated in hospitals has had the effect that a hospital's fixed costs are distributed over a larger number of cases, generating quantity-related cost advantages. In order to absorb such cost advantages, the KHSG has moved responsibility for the remuneration-reducing consideration of additional services from the Länder to the hospital level (Albrecht, 2018). A **fixed-cost degression deduction** was introduced to take this into account. Since so far the health insurance funds have not been able to agree with the hospitals on the

amount to be deducted, the deduction was uniformly fixed nationwide by legislators at 35 % for a period of three years. This probably contributed to the recent slight fall in the number of inpatient cases.

863. Furthermore, the KHSG has created the basis for allowing planning-relevant quality indicators to decide on acceptance into or remaining within the hospital plan. The **increase in quality transparency** is an essential step in this context for patient-oriented quality competition in which patients set greater store by quality differences in their choice of hospital. Up to now, hospital-specific quality indicators – such as deaths classified as preventable, treatment frequency and patient satisfaction – have only played a minor role among the reasons for choosing a hospital (Geraedts, 2018). However, as quality transparency increases, false incentives may arise. The danger of false documentation and low-risk patient selection could increase as a result (SVR Gesundheit, 2018).

Allow more selective contracts in the inpatient sector

864. In principle, health insurance funds and service providers compete with and against each other for healthcare contracts. However, in SHI the **overwhelming proportion of healthcare provision** is regulated **by collective agreements**, in which health insurance funds associations jointly and uniformly agree with the relevant service-provider organisations on the principles of outpatient and inpatient care and the remuneration of services. However, this greatly restricts competition on the contract market.

865. In the 2000s, efforts were stepped up to achieve a greater orientation towards competition on the contract market, although the outpatient sector was the main target of efforts to promote competitive ideas. The 2007 Act to Strengthen Competition in SHI **extended the possibilities of offers by selective contracts**. For example, selective agreements on healthcare provision centred around primary care doctors were decoupled from specifications relating to collective contracts; a new, selective form of contract was introduced for services provided by specialists; and collective remuneration was adjusted to avoid double funding.

866. Selective contracts have had the biggest effect so far in the form of discount agreements in the supply of pharmaceuticals. According to SHI financial statistics, this resulted in savings amounting to just over €4 billion in 2017 and reduced SHI's drug expenditure by around 10 %. **More competition-oriented control has not**, however, **been achieved** in outpatient healthcare provision up to now. Nor has the hoped-for increase in efficiency been reached hitherto through quality improvements or process innovations. According to SHI financial statistics, outpatient care based on selective contracts only accounted for 6.4 % of SHI expenditure in 2017 (Albrecht, 2018).

Frequent and incoherent changes to the overall legal framework, as well as a **target overload among forms of healthcare provision based on selective contracts** are likely contributory factors (Albrecht, 2018). On the one hand, these are expected to improve the quality of patient care and reduce ex-

penditure by the health insurance funds. At the same time, participation in selective contracts is supposed to be motivated by better remuneration conditions.

867. In the **inpatient sector**, **selective contracts** between health insurance funds and hospitals are hitherto **not possible**. Hospitals can only be part of a selective form of healthcare provision in the context of integrated cross-sector healthcare. The Länder in particular appear to be an inhibiting factor here: selective contracts in the inpatient sector directly affect the Länder's responsibility for investment and planning, they thus require the consent of the hospital planning authorities (GMC, 2014). From the point of view of the Länder, however, comprehensive and cost-effective hospital care can only be assured by an obligation to contract for all payers (AOLG, 2007).

868. Since the health insurance funds finance inpatient care for the most part, they would be justified in having a stronger influence on capacity planning, which is currently the domain of the Länder. Although an **easing of the obligation to contract** for health insurance funds vis-à-vis hospitals would be in conflict with the current system of securing healthcare provision, such an easing could make selective contracts possible and thus increase the pressure on poorer-quality hospitals. Health insurance funds would be able to direct their insurees specifically to hospitals that meet certain standards. This would be likely to **strengthen competition on quality**. At least in urban areas with a high hospital density, the option of easing the obligation to contract should therefore be considered.

869. Selective contract options would also **allow more price differentiation**, since hospitals would be able to make individually different price agreements with the payers. Up to now, the case-based flat rates in the DRG system do not allow price differences, despite potential differences in the quality of treatment. It would be conceivable in the future, however, to expand pricing opportunities step-by-step in a controlled fashion. In this context, price discriminations by a hospital vis-à-vis individual health insurance funds should be possible according to a system that applies equally to all its contractual partners (Albrecht, 2018). Selective contracts are likely to contribute to reducing overcapacity in the hospital market by boosting elements promoting quality and price competition.

Expand cross-sector healthcare provision

870. Selective contracts and investments in new forms of healthcare provision can provide an opportunity to strengthen links between the outpatient and inpatient sectors. For historical reasons, a **strong sectoral separation** exists in the German healthcare system. It affects, for example, requirements planning, remuneration, quantity control and quality assurance. As a result, possibilities for cooperation are restricted, coordination between the two sectors is made more difficult, and different incentives are created in the selection and implementation of services.

Approaches that **improve cross-sector healthcare provision** therefore have great potential for raising the effectiveness of the healthcare system. In view of the considerable barriers to closer interaction between the outpatient

and inpatient sectors, **integrated healthcare provision** should be promoted particularly at the outpatient-inpatient interface.

871. Emergency care represents an obvious example here. Three separate areas are currently involved in **emergency healthcare provision**: (i) general practitioners when their surgeries are open and the SHI on-call service outside opening hours, (ii) the ambulance service, and (iii) hospital emergency departments. The SVR Gesundheit (2018) proposes integrated emergency centres in the future. After an initial assessment by qualified personnel, such a centre would decide whether patients should receive outpatient treatment by on-call doctors or inpatient treatment by on-site clinicians. An integrated control centre could furthermore bundle all acute emergency calls and, with the help of a qualified initial evaluation by experienced professionals, already decide on the phone what form of further treatment should be given. Given their currently rising frequency of use, such integrated measures would be likely to substantially increase the effectiveness of emergency healthcare.

872. In recent years, legislators have made it easier for hospitals to provide outpatient care services. As a result, SHI expenditure on the provision of **outpatient services by hospitals** rose disproportionately up to 2017, increasing their share of SHI expenditure on hospital treatment to almost 5 % (Albrecht, 2018). Focusing more on outpatient services could effectively curb expenditure on outpatient treatment as a result of the lower costs.

873. One hope of the competition approach based on selective contracts – which was not fulfilled because of the relatively low level of utilisation – was to develop innovative and cross-sector forms of healthcare provision and associated novel remuneration models (Albrecht, 2018). Legislators set up an **Innovation Fund** in 2015 to encourage this idea further. €300 million will be spent between 2016 and 2019 on promoting new forms of healthcare provision that go beyond the present standard care, as well as on healthcare research projects to improve existing care. Whether the Innovation Fund will actually become an effective source of stimuli should be determined by independent evaluation studies.

IV. FORESTALLING INSUFFICIENT HEALTHCARE PROVISION

874. More efficient structures and a high quality of healthcare provision can only be guaranteed with an adequate number of sufficiently qualified staff. However, in the future, demographic change and medical-technical progress are likely to be increasingly reflected in **shortages of skilled staff** and might thus contribute to **insufficient healthcare provision**. Although policy-makers are already taking measures to counteract the existing shortages of health professionals, the full extent of the practical challenge and the resulting need for action can only be **determined approximately** at best. The effects of shifts in the wage structure

↘ TABLE 27
Scenario analysis on the development in the supply of and demand for skilled labour in the healthcare and social sector until 2030[1]

Adjustment variables		"Forward projection" scenario[2]	"Counter-measure" scenarios[3]	Isolated amount[4] in thousand people
Annual growth rate of staff requirements[5]	%	1.15	0.58	403
Employment rate in the overall economy	%	79.6	83.7	184
People employed in GuS[6] as % of the overall economy	%	14.7	15.5	192
Proportion of average working hours in GuS relative to a full-time equivalent employee in GuS	%	66.5[a]	70.7[b]	231
Sick leave in GuS	%	5.8	5.3[c]	19
Proportion of early retirees	%	11.2	3.7[d]	44

1 – Based on Augurzky and Kolodziej (2018). The "forward projection" scenario corresponds to the 'worst-case' scenario, the "countermeasure" scenarios correspond to the variants of the "best-case S*" scenario. 2 – Based on the starting year 2016. The growth rate or share is extrapolated, depending on the specified adjustment variable. 3 – Final value in 2030 after linear approximation to this figure. 4 – To reduce the discrepancy between demand and supply. 5 – For the exact calculation, see Augurzky and Kolodziej (2018). 6 – GuS-healthcare and social services. a – The growth of the share is extrapolated; starting at 70.2% per year, it falls by 0.25 percentage points to 66.5% in 2030. b – The decline in the share of 0.25 percentage points per annum observed between 2010 and 2015 is continued until 2020, after which the share stagnates until 2025. From 2025, the share will rise by 0.25 percentage points per year to 70.7% in 2030. c – Decrease to the final figure in 2022. d – Decrease to the final figure in 2020.

Source: Augurzky and Kolodziej (2018)

in favour of specialist staff in the healthcare and social services are difficult to predict.

875. In order to at least determine the relevant scale of the demand for and supply of staff in the healthcare and social sector, and to determine the potential effect of possible adjustment variables, Augurzky and Kolodziej (2018) use a **stylised simulation model** on behalf of the GCEE. ↘ TABLE 27 As their starting point, they discuss a scenario 'forward projection' without any countermeasures. They then explore the **size of the isolated contributions** of individual adjustment variables in several variants of a 'countermeasure' scenario. Each row in ↘ TABLE 27 stands respectively for the results of the isolated variation of one adjustment variable. Although the plausibility of the respective variation of the adjustment variables is discussed in this context, evaluation studies need to be conducted to determine to what extent these adjustment variables can in practice be moved in the desired direction by economic policy interventions.

876. According to the 'forward projection' scenario, there will be a **shortfall of** around **1.3 million skilled staff** (in terms of full-time equivalents) in the healthcare and social sector **in 2030** compared to the 2016 base year. ↘ CHART 106 BOTTOM RIGHT In 2015, a qualified employee in healthcare and social services corresponded on average to around 0.7 full-time equivalents. If this ratio were to remain constant until 2030, approximately 1.85 million additional healthcare professionals would be needed to meet this increased demand for staff. The isolated contributions of possible adjustment variables are also shown in full-time equivalents in ↘ TABLE 27.

877. On the **demand side**, the focus is on options that reduce personnel requirements. To this end, future medical-technical progress would have to generate more **labour-saving process innovations** instead of demand-raising prod-

uct innovations (Augurzky and Kolodziej, 2018). The increasing financial restrictions in the healthcare and social sector could be the catalyst for this change in focus of technical progress. The digitisation of the healthcare sector could support this process. If the currently observed pace of demand growth could be halved by 2030 through such measures, the discrepancy between the supply of and the demand for healthcare professionals could be reduced by around 400,000. ↘ TABLE 27

878. On the **supply side,** there are various starting points for **increasing the potential labour force** in the sector of healthcare. A key element here is a continued increase in the employment rate (Augurzky and Kolodziej, 2018). Further promising measures would include a rise in the healthcare sector's share of the economy as a whole, an extension of the working hours of employees in the healthcare sector, and an increase in skilled immigration. In addition, the **healthcare professions** should be made **more attractive** to encourage the recruitment of young skilled staff.

Increase the potential labour force in the healthcare sector

879. Various measures could be considered to achieve an increase in the **employment rate**. The primary aim would be to attract to this field staff who have previously not been employed or are unemployed. If the increase in the average growth in the employment rate of 0.5 percentage points per year observed between 1993 and 2017 continues until 2019, and rises by a further 0.25 percentage points per year in the following years, the employment rate would increase from 79.6 % to 83.7 % between 2016 and 2030. According to the calculations made by Augurzky and Kolodziej (2018), an additional skilled labour-force potential of 184,000 could be gained in the healthcare and social sector in this way. ↘ TABLE 27

880. The skilled labour-force potential in healthcare and social services could be additionally improved if the share of **people employed in this sector** within total employment could be further **increased**. If the annual growth rate of this share observed in recent years continues at a slower rate up to 2030, the figure could rise from 14.7 % in 2016 to 15.5 % in 2030. Thereby, the number of skilled staff in the healthcare and social sector would increase by 192,000, according to the calculations by Augurzky and Kolodziej (2018). ↘ TABLE 27

881. Creating good overall conditions in the healthcare sector could prove to be an especially promising course of action. Expanding full-day child care could make it easier for **part-time employees** to reconcile work and family life and thus **extend their working hours**. In 2016, more than half of staff in the healthcare sector (51 %) were employed part-time or in marginal employment – which is much higher than the average for all sectors of the economy at 29 %. Furthermore, in 2016, three out of four employees in healthcare were women.

If the **average number of hours worked** by employees were to fall from 70.2 % of a full-time employee's working week in 2015 by a further 0.25 percentage points per year, as it has done in recent years, it would result in 66.5 % of a

full-time employee's hours by 2030 on average. In contrast, if the trend reverses in 2020 and the average number of hours worked rises to 70.7 % of a full-time employee's by 2030, the discrepancy between the demand for and the supply of skilled staff would, according to the calculations, be reduced by about 230,000 compared to the 'forward projection' scenario. ↘ TABLE 27 Additional potentials could be found among staff returning to work after parental leave; barriers need to be reduced here.

882. The gradual increase in the statutory retirement age up to 67 by 2031, which has already been taken into account in the 'forward projection' scenario, is likely to have a positive impact on the **participation of older employees in the labour force**. If the retirement age of 65.5 years from 2018 would instead stagnate, the number of qualified staff in the healthcare and social sector would actually fall further by about 140,000 vis-à-vis the 'forward projection' scenario (Augurzky and Kolodziej, 2018). According to the calculations, 44,000 employees would be additionally available to healthcare and social services by 2030 if the proportion of people taking early retirement fell from 11.2 % in 2017 to 3.7 % from 2020 onwards. ↘ TABLE 27 A reduction in the amount of sick leave from 5.8 % to 5.3 % from 2022 would have a similarly small effect. Further potential would probably become available if there were a stronger focus on age-appropriate working conditions, such as mixed-age teams (Boockmann et al., 2018) or flexible working-hours models (Fujisawa and Colombo, 2009).

883. Another option to reduce the discrepancy between labour demand and supply is to recruit **skilled staff from abroad**. This has increasingly been done recently in the long-term care sector. Compared to 2013, when around 80,000 people from abroad were employed as nurses, the number rose to around 134,000 in 2017 (Deutsche Bundestag, 2018). The percentage of foreign nurses, thereby, increased in this period from 7 % to 11 % (Federal Employment Agency, 2018c). Overall, the proportion of foreign employees subject to social insurance contributions was 6 % in the healthcare system at the cut-off date 30 June 2017; this was below the average of all sectors of the economy (11 %) (Federal Employment Agency, 2018d). A larger proportion of foreign skilled employees who came to Germany in recent years tended to settle in economic sectors such as the hospitality industry, manufacturing and temporary-employment agency work – not least due to lower language barriers. ↘ ITEM 288

884. In the model of Augurzky and Kolodziej (2018), immigration represents the adjustment variable that, arithmetically speaking, can gradually bring the demand and supply of healthcare professionals into equilibrium. Even if all the other adjustment variables changed simultaneously in the manner assumed in the individual calculations on the scale of their possible contributions, **additional skilled staff from abroad** would still be needed up to 2030 for the healthcare and social services. Augurzky and Kolodziej (2018) estimate their number in this case at a total of 177,000 – in addition to the annual net immigration of 200,000 people already assumed in the model based on the population extrapolation.

Not least in view of the currently high levels of immigration, which are well above the long-term assumptions made in the Federal Statistical Office's ad-

vance population calculation, this does not seem entirely unrealistic. Last year, the number of foreign employees subject to social insurance contributions in the healthcare and social sector already grew by around 15,000, according to the BA. However, **immigration** of skilled staff would have to **increase even more** if contributions from the other adjustment variables assumed in the calculations turned out to be lower.

885. The planned **Law on the Immigration of Skilled Workers**, which, among other things, is aimed at easing immigration for vocationally qualified professionals from non-EU states, is already a first step towards recruiting additional skilled staff in the healthcare and social services. Efforts made by the Federal Ministry of Health (BMG, 2018c) to specifically recruit qualified nurses from south-eastern Europe, particularly from Albania and Kosovo, are another relevant measure.

886. People in rural areas have to travel further to general practitioners, and filling vacancies for doctors is often more difficult there than in cities. One reason for such discrepancies could be that doctors have a financial incentive to set up where large numbers of patients of the private insurance scheme live (Breyer, 2018). Remuneration bonuses and a family-friendly environment could be effective methods of ensuring the provision of healthcare everywhere (SVR Gesundheit, 2014). Furthermore, higher payments for the longer travel times demanded of doctors in rural areas could make the position of country doctor more attractive. In addition, the incentives for new doctors to re-occupy or take over doctor's practices in rural areas could be improved (SVR Gesundheit, 2018).

887. **Capacity planning should be subjected to a general review** in order to reduce the number of vacant doctors' practices. For example, only the number of doctors is decisive for requirements planning, not their full-time equivalent. Yet the number of part-time posts among doctors is currently growing markedly. On the other hand, the demand for healthcare provision by general practitioners could decline if an increase in digitisation makes the use of telemedicine feasible. ↘ ITEM 911 It is also possible that future demand could be estimated with a certain degree of overcapacity – as in the Netherlands.

Make the healthcare professions more attractive

888. To boost the future recruitment of skilled staff, the healthcare professions should be made noticeably more **attractive**. Rising competition for skilled staff is expected between different sectors – and here the healthcare sector needs to assert itself. An expansion of its share of employment could be achieved in particular through better pay and a number of other factors.

889. Especially in geriatric nursing, a **lack of financial incentives** is likely to be one reason for a particularly serious shortage of skilled staff. ↘ ITEM 817 Important contributions to making the healthcare professions more attractive could also be made by **non-monetary factors** such as reducing the level of bureaucracy, making duty rosters easier to plan, and achieving a higher ratio of personnel to

patients needing nursing care. The Federal Government is already addressing some of these measures with its **'concerted action on nursing care'**.

890. The **Law on Nursing Professions** (PflBG) passed in June, which fundamentally reforms nursing training and brings together the occupations of geriatric and medical nursing, could significantly improve conditions for future qualified nurses. Starting in 2020, trainees will first receive a **general training** for two years; in the third year they can decide which vocational qualification they wish to pursue: medical nursing, geriatric nursing or paediatric nursing. This increases the graduates' flexibility, since it will be easier for them to switch between the fields of work. In addition, the trainees will not be charged tuition fees in the future.

891. Furthermore, the law on nursing regulates for the first time specific occupational activities which may be carried out only by personnel with the appropriate training. This could help to increase the level of appreciation for the work done by nurses and **broaden the range of expertise of nursing staff**. In the United States, Switzerland, the Netherlands and the United Kingdom, nursing staff are responsible for a larger range of duties than in Germany, with the result that the profession is more attractive and, at the same time, the pressure on doctors is reduced. There is therefore a risk that immigrant qualified staff might be disappointed in their expectations of a similarly high degree of expertise of the nursing profession in Germany and, in the worst-case scenario, return to their home country because of this.

Upgrading the status of the nursing profession is therefore a positive development. It remains to be seen to what extent the **introduction of a nursing degree**, enacted in the Law on Nursing Professions, will work effectively in practice in the interaction between doctors and nurses. The need for an additional qualification level seems to be given in principle. After all, nurses already bear a high degree of responsibility. It therefore makes sense to provide for more career options in the nursing sector. However, additional qualifications ought to involve added value in terms of the nursing services provided in order to justify higher remuneration (Augurzky et al., 2018).

892. Sickness levels among nursing staff could probably be significantly reduced by **easing** both the mental and physical **pressure on staff**. A starting point for improved psychological working conditions would be seminars on how to deal with aggressive patients, sickness and death. A reduction in sickness levels could be achieved through preventive physical measures such as lifting aids and exoskeletons (Augurzky and Kolodziej, 2018).

In view of the above-average sickness levels in healthcare and social services, the introduction of **partial sick leave** according to the Scandinavian model should be considered (SVR Gesundheit, 2015). Instead of the regulation currently practised in Germany, under which employees are regarded as either fit to work or unable to work, this concept would allow a gradual differentiation of incapacity for work. This could in particular make it easier for employees who have been off

sick for long periods of time to return, and perhaps reduce the number of early retirements.

893. It is questionable whether **lower staff-level limits** to be introduced from 1 January 2019 in the four nursing-sensitive hospital departments of intensive care, geriatrics, cardiology and casualty is an appropriate measure to relieve the pressure on healthcare staff and prevent an insufficient level of medical healthcare. They are likely to reduce hospital services such as intensive care, and make staff planning more difficult.

V. DIGITISATION AS A MOTOR OF INNOVATION

894. Medical-technical innovations have led to an increase in life expectancy and a better quality of life. When comparing the costs of new technologies and their health benefits, **massive welfare gains** can be observed, e.g. in the case of cardiovascular diseases or infants with a low birthweight (Cutler and McClellan, 2001). Similar potential can be expected from improvements in information and communication technology. Above all, the **digital transformation** of the healthcare sector promises to create more efficient structures.

For example, more efficient patient management could reduce expenditure, and closer interaction between humans and machines at the workplace could extend the employability of staff in general, and healthcare staff in particular. The development of telemedicine, especially in rural areas, is a way to combat the threat of insufficient healthcare provision. On the other hand, the potential should not be overestimated. In addition to problems of societal acceptance, regulatory and currently excessively high technological barriers are likely to restrict the use of digitisation.

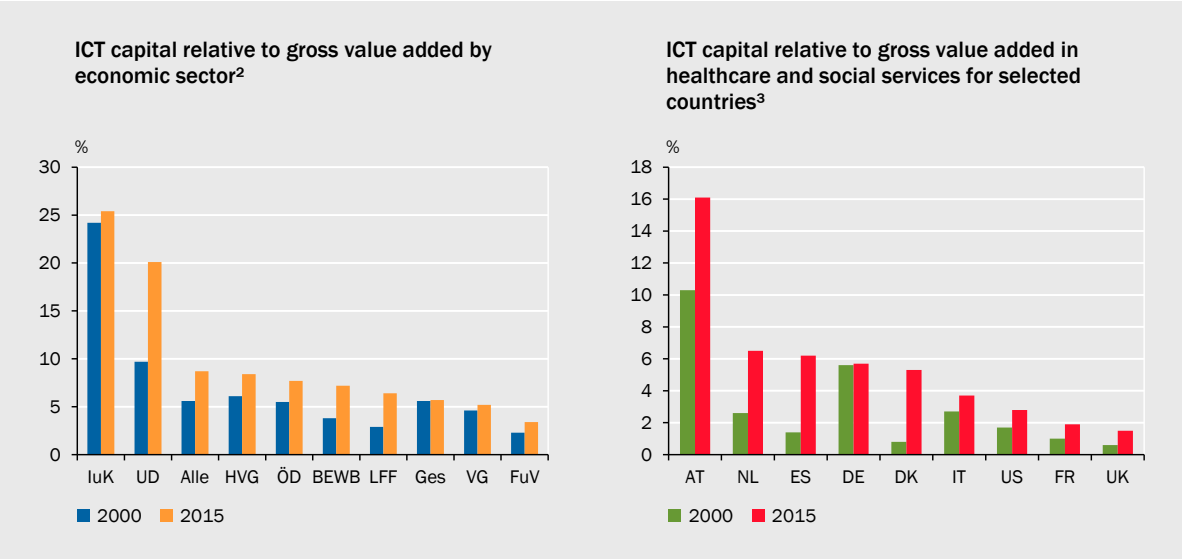
More efficient structures through digitisation

895. Germany only ranks around mid-table in international comparisons regarding the **dissemination of digitisation** (GCEE Annual Report 2017, item 800). In the healthcare sector, the position is even worse. In the application of e-health – i.e. information and communication technologies affecting the healthcare sector – Germany is below the EU average, according to international comparative surveys conducted in 2013 (OECD and EU, 2016). This applies to surveys among primary care physicians and hospital doctors. Surveys conducted to determine the EMRAM Score, which assesses digital progress in hospitals, comes to similar conclusions. ↘ CHART 18 Germany regularly occupies one of the bottom places in this international comparison (HIMSS Analytics, 2017).

896. Similarly, the healthcare system only reaches a low position in a sectoral comparison of the information and communications capital stock (ICT capital) as a percentage of gross value added within Germany. Its figure of 5.7 % remained virtually unchanged between 2000 and 2015. ↘ CHART 109 LEFT This put Germany

↘ CHART 109

Information and communication capital (ICT) for Germany and selected countries[1]



1 – Real ICT capital stock (computer hardware and software, telecommunications technology and databases) and gross value added measured at 2010 prices. 2 – IuK-information and communication, UD-corporate service providers (including other service providers), Alle-all industrial sectors, HVG-commerce, transport, hospitality, ÖD-public service providers (excluding healthcare), BEWB-mining, electricity, water and construction, LFF-agriculture and forestry, Ges-healthcare and social services, VG-manufacturing, FuV-finance and insurance services and real estate. 3 – AT-Austria, NL-Netherlands, ES-Spain, DE-Germany, DK-Denmark, IT-Italy, US-United States, FR-France, UK-United Kingdom.

Sources: EU KLEMS, own calculations

in the middle of the table in the international comparison of 2015. In the same period, this percentage increased significantly in all countries considered here apart from Germany. ↘ CHART 109 RIGHT

897. The high level of fragmentation of the German healthcare system and its strong lobby groups are likely to be a major reason for the country's need to catch up in digitisation (Elmer, 2016; Dörries et al., 2017). Furthermore, to date there is still no **nationwide telematics infrastructure** enabling the introduction of the electronic patient record, an instrument that has been under discussion since the 1990s (Haas, 2017). This infrastructure is necessary to support cross-sector interoperability and digital communication between the various actors.

898. Digitisation creates possibilities for a more intensive and efficient interaction between citizens, physicians and institutions. According to the OECD's definition, e-health covers a wide range of digital applications, processes and platforms. Schemes for electronic health records and telemedicine systems are also included in this definition, as are smartphone health applications, remote monitoring devices and analytical decision-making tools for doctors and patients. The **spectrum of e-health** extends across all levels of the healthcare system, from the private use of health services to clinical use (e.g. in diagnoses and therapies) and higher-level areas of application such as communication between actors at different levels.

899. This broad spectrum illustrates the potential associated with more digitisation in healthcare. The use of digital technology to collect, exchange and evaluate data and information can help make life easier for patients by reducing the journey time needed. It can also help **diagnose symptoms more quickly** and in this

way actively prevent illnesses. This preventive aspect can thus avoid costs before they arise. Furthermore, clinical decision-support systems can improve the quality of healthcare (Elmer, 2016). This can cut costs and save time by reducing waiting times and avoiding multiple examinations, unnecessary medication – and thus, inappropriate healthcare provision. In the long run, the amount of harm caused by wrong medications can be limited, and the treatment of rare diseases improved, through a larger number of statistically recorded cases (Lux und Breil, 2017).

900. In view of the threat of worsening shortages of health professionals in the coming decades, potential also lies in the expansion of telemedicine applications, making in particular **remote treatment** possible. For example, doctors can give medical advice directly online with the help of home measuring instruments or health apps with reminder and monitoring functions. In the longer term, digital processes can also counteract a possible lack of healthcare provision for patients. It is conceivable, for example, that self-driving vehicles might be used for transporting patients in a few years, or medical supplies be distributed to patients by drone.

901. Yet telemedicine has played a comparatively minor role in Germany up to now. Important reasons here include the existing ban on remote treatment and the high density of hospitals. Therefore, **potential for expanding telemedicine** is more likely to be found in less populated areas of Germany, although agglomeration considerations suggest that expansion will be implemented faster in urban areas. Based on a comparison of countries, it is also evident that decentralised structures and a sectoral separation between the outpatient and inpatient sectors tend to stand in the way of the realisation and implementation of telemedicine measures (Riedler, 2016).

902. Another way of countering a growing shortage of skilled staff is to extend the employability of healthcare professionals. Digitisation can make a contribution in this context by using networked machines, e.g. assistance systems, that support staff at the workplace. **Employees could be relieved of heavy physical work**, especially in the sector of geriatric nursing. This could lead to longer working lives and fewer days lost due to sick leave. However, implementation is likely to be slow because of the high costs involved. Even a considerable improvement in employability is unlikely to adequately cushion the threat of a shortage of healthcare professionals over the next decade.

Take justified concerns into account

903. The European Union's **General Data Protection Regulation (GDPR)**, which is in force since May 2018, uniformly regulates the protection of personal data in particular. Health data are particularly sensitive. Universal implementation of health-related digital applications must therefore first be accepted by society. It is up to policy-makers and businesses to build confidence in the digital infrastructure and transparency in the use of data to enable rapid progress on digitisation.

904. **Networked patient data** are generated in different ways, for example via the planned electronic patient record or the electronic 'patient pigeonhole', which records individual documentations such as diaries on blood sugar measurements outside the doctor's practice. These data can lead to more feedback, transparency and control over treatments. However, there could be a risk of this being misunderstood by the medical profession as merely a monitoring system (Rebitschek et al., 2017). In order to safeguard against the risk of possible individual errors, physicians could be tempted to be over-defensive, for example by increasing the number of unnecessary tests (Gigerenzer et al., 2011).

905. Personal data can be used in the health insurance market to create incentives for health-conscious behaviour. Insurees who implement health-promoting measures can already receive financial benefits today. Since 2004, health insurance funds have been able to offer bonus programmes for health-promoting activities and health check-ups (Consumer Advice Centre NRW, 2015).

However, this can lead to undesirable results and **market failure**. The aim must therefore be to exclude the risk that the growing possibilities of evaluating and networking patient data be misused for determining individual risk profiles and practising complete price discrimination. If a critical mass of insurees is reached who agree to data analysis for risk profiling, this could lead to generalisations about the health of those insurees who refuse to give their consent. Assuming that overall societal costs remain the same, individuals could thus be placed in a worse position (Villeneuve, 2005). However, this would contradict the principles of SHI, which levies risk-independent contributions (Weisbrod-Frey, 2015, Rebitschek et al., 2017).

Change should be accepted, not hindered

906. The increased use of digital processes in the healthcare system is evidently a high priority for the BMG. The Law on Secure Digital Communication and Application in the Healthcare Sector (E-Health Law), with its aim of more networking of players in the healthcare market, is a step in the right direction. The electronic patient record is a key component in this context. The coalition agreement stipulates that the exchange of data and information requires a trustworthy telematics infrastructure, especially when the electronic patient record is introduced. This needs to be created in order to **achieve interoperability among all actors**. There are deficits, especially in the creation of interoperability standards (Haas, 2017).

907. The BMG's ambitious goal of connecting all pharmacies, hospitals and medical practices to the telematics infrastructure by the end of 2018 is unlikely to be met. The coalition agreement provides for a number of measures for the further development and continuation of the E-Health Strategy. A **federal-Länder working group** has been set up for their design and implementation. Its remit is to develop proposals for the structure of the healthcare professions by 2020, for example with regard to requirements planning, fees, licensing and quality assurance, taking the telematics infrastructure into account. It has furthermore been agreed that the electronic patient record should be introduced by 2021.

908. While the potential of digitisation to reduce healthcare expenditure is likely to be manifold, numerous pitfalls lurk when it comes to its implementation. The availability of information has increased greatly in recent years through the internet. Although this development potentially makes it possible to reduce information asymmetries between doctors and patients and to strengthen overall health literacy, information is usually poorly channelled, so that it is not easy to separate misinformation and selective health reports from useful information. The **establishment of a national health portal**, as provided for in the coalition agreement, is therefore to be welcomed.

909. **Effective patient management** is needed in order to make optimum use of hospital capacity (SVR Gesundheit, 2018). The planned extension of doctors' consultation hours and the further development of the appointment service centres are possible efficiency-enhancing measures; these would have to be scientifically evaluated. Patient management should not limit patient choice unnecessarily. A high level of health literacy is essential to ultimately maintain individual self-determination. Efforts in this field should therefore already begin in the education system.

910. The evaluation of large and networked pools of personal data by algorithms generates risk profiles based on human behaviour. They therefore often do not contain confirmed facts, but only probabilities for their occurrence (Wambach and Müller, 2018). Affected people may not know this information themselves. Processing and disseminating such information is therefore particularly delicate; a suitable **regulatory framework for the use of this data** is therefore urgently needed. The decisive factor is who is allowed to use which data.

When introducing the **electronic patient record**, it should be borne in mind that different products based on binding standards could be offered on the market, among which patients should be **free to choose** (Lux and Breil, 2017).

911. The expansion of telemedicine and the **telematics infrastructure** requires investment in information technologies. Potential cost savings from digitisation are partly offset by the higher cost of operational IT infrastructure. Financing can come from the collective body of insurees or from taxation. For example, the infrastructure for the electronic patient record could be financed from tax revenue, its operation from contributions (Haas, 2017).

912. Digitisation facilitates the exchange of information between doctors and patients and promises significant efficiency gains and better healthcare provision. The use of video consultations is a step in the right direction; even so, the **ban on remote treatment** (section 7 (4) of the MBO-Ä) makes it impossible to perform treatments exclusively via communication media. Baden-Wuerttemberg launched a model project in 2016 in which online treatments are possible with the approval of the regional medical association. This initiative, together with resolutions to relax the ban on remote treatment passed at the 121st German Medical Assembly in 2018, suggest that the ban is gradually being eased.

913. Another area where action is needed is competition among pharmacies. The coalition agreement envisages strengthening local pharmacies by banning mail-order sales of prescription medicines. This is a step in the wrong direction. **Online pharmacies** are associated with risks such as self-medication misuse, lack of emergency services and possible longer delivery times. However, they probably increase competition and allow greater specialisation. Furthermore, online pharmacies can contribute to the security of healthcare provision and raise consumer satisfaction through lower prices. A ban on the sale of prescription medicines would also be at least questionable under European law in view of a ruling of the European Court of Justice from October 2016 (European Court of Justice, 2016).

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