FFA Working Paper No. 25

July 2022

Healthcare expenditure projections up to 2050: ageing and the COVID-19 crisis

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Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Finance FDF
Federal Finance Administration FFA
Economic Analysis and Policy Advice EAPA

Publishing information

Text Economic Analysis and Policy Advice Unit
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Layout Webteam FFA, SPK
ISSN 1660-7937
Languages Also available in German and French

Contents

List of abbreviations

AHV: Old-age and survivors' insurance

AHV HA: AHV allowance for the helpless

AWG: Ageing Working Group of the European Union (Economic Policy Committee and European Commission – Directorate-General for Economic and Financial Affairs)

CHI: Compulsory health insurance

DRG: Diagnosis-related groups, i.e. «product»-based rates or costs per case; the Swiss system of rates per case is called the Swiss DRG

EU: European Union

FDF: Federal Department of Finance

FDHA: Federal Department of Home Affairs

FFA: Federal Finance Administration, FDF

FOPH: Federal Office of Public Health, FDHA

FSO: Federal Statistical Office, FDHA

FTE: Full-time equivalents

GDP: Gross domestic product

HeL: Healthcare excluding long-term care

HIA: Federal Act on Health Insurance

IPR: Individual premium reductions

IV: Disability insurance

IV HA: IV allowance for the helpless

LTC: Long-term care for persons aged 65 and over

Obsan: Swiss Health Observatory

OECD: Organisation for Economic Co-operation and Development

SB: Supplementary benefits

Abstract

Even before the COVID-19 crisis, rapidly growing healthcare expenditure was calling the sustainability of public finances into question. The pandemic has reinforced these concerns and also underlined the importance of resilient healthcare systems. To highlight the need for economic policy action in the healthcare sector, this paper provides expenditure projections for Switzerland up to 2050. The expenditure projections take into account the financial impact of the COVID-19 crisis and foreseeable ageing of the population. The projections show that while COVID-related healthcare expenditure is a burden on public budgets in the short term, the ageing of the population will put continued and growing pressure on public budgets and compulsory health insurance until 2050. In the medium to long term, however, healthcare expenditure is driven not only by demographic change, but also by non-demographic factors such as rising income, medical advances and Baumol's cost disease. The projections also suggest that long-term care will be affected by higher cost growth than the rest of the healthcare system. The sensitivity analyses show that the strongest cost pressure comes from alternative assumptions about the effect of the non-demographic cost drivers. In addition, a policy scenario discusses the cost-dampening effects of cost targets.

Keywords: healthcare expenditure growth, population ageing, long-term projections, sustainability, public finances, health insurance, budgetary target, Baumol's cost disease

JEL code: H51, I13, I18

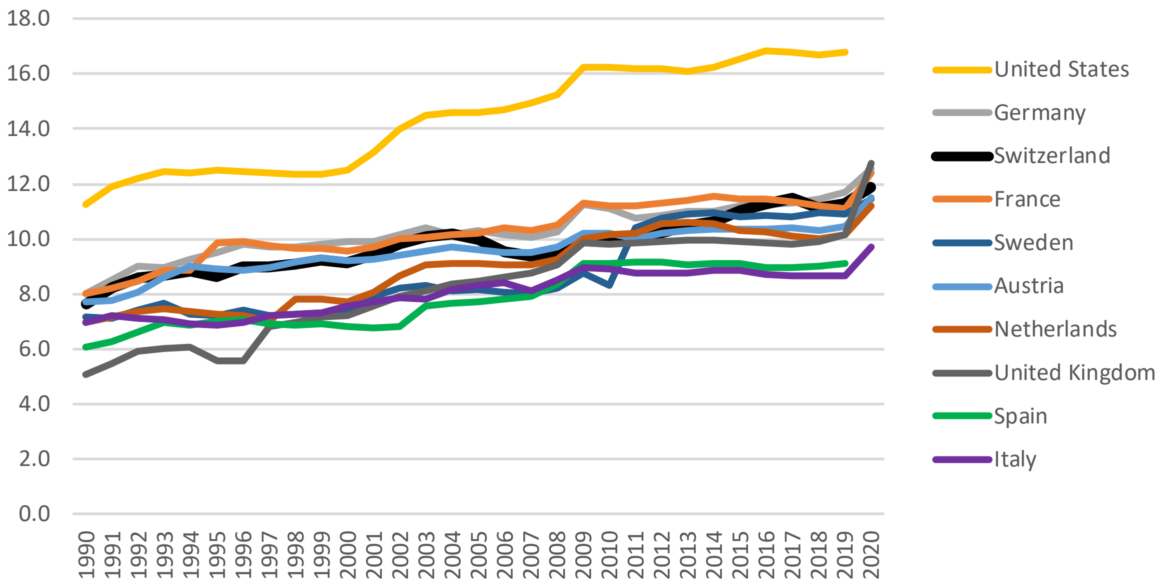
1 Introduction

The COVID-19 pandemic has shown that the challenges for healthcare systems are likely to increase in the future. A high-quality healthcare system should be accessible to all as well as efficient and resilient in times of crisis. To achieve this, it must be able to respond to the various trends such as an ageing population or medical advances. It is also essential that healthcare policy prepare for potential health crises such as recurrent pandemics, antimicrobial resistance or the effects of climate change.

A key element of a forward-looking policy is the question of the sustainable financing of the healthcare system. Even before COVID-19, the majority of OECD countries identified the continuing pressure on spending in their healthcare systems as one of the key economic policy challenges of the coming decades. The pandemic has given even more importance to the issue of sustainable financing of health systems, with an additional focus on resilience (see OECD 2021).

Even before the COVID-19 crisis, healthcare expenditure had risen sharply in many developed economies (see Figure 1). In Switzerland, healthcare expenditure as a percentage of gross domestic product (GDP) had increased from 7.6% in 1990 to 11.3% in 2019, a similar development to that in Germany and France. Thus, economies are spending a steadily increasing share of their income on healthcare. The COVID-related additional expenditure for the healthcare system with a simultaneous slump in economic performance accentuated this development in 2020.

Figure 1: Healthcare expenditure in an international comparison (in % of GDP)*****



Source: OECD
Note: In some countries the data for 2020 is not yet available in an internationally comparable form.

Irrespective of pandemic-related additional spending on healthcare, an ageing population demands more healthcare services and has a higher need for care. In addition to this steady increase in demand for healthcare services due to an ageing population, some specific features of the healthcare system are also important for the rising healthcare expenditure. In particular, market failures can occur in the healthcare system due to insurance-related incentives to increase spending ("moral hazard") and asymmetrically distributed information between patients and doctors.[1] As a result of doctors' better level of information, the latter can lead to supplier-induced demand, which is higher than the medically necessary level of treatment. Aspects such as medical advances and the growing demands of the population linked to greater incomes are just as important. All these factors contribute to a high level of complexity in the healthcare sector, with a multitude of actors and the associated cost-driving incentives.

As the high spending dynamics and the associated financing burden are an increasingly important field of action in economic and financial policy, the healthcare sector is also included in the calculations on the sustainability of public finances (AWG 2021, FDF 2021). The present expenditure projections provide an in-depth analysis of the long-term sustainability report of public finances in Switzerland and, against the backdrop of the COVID-19 crisis, are intended to illustrate the future additional burden on public budgets and compulsory health insurance due to the expected cost pressures in the healthcare system. The aim is to show how healthcare policy can influence the development of expenditure in Switzerland.

The projections are characterised by considerable uncertainties regarding the assumed economic performance, the size of the cost effects and the modelling of non-demographic influencing factors in the healthcare system. Accordingly, the projections are not to be understood as forecasts, but represent an extrapolation of long-term trends and their effects on healthcare expenditure. The projections cannot and are not intended to give any indication of exactly how high healthcare expenditure will be in 30 years' time. In fact, the aim is to provide a rough orientation for expenditure development and to illustrate how sensitively expenditure reacts to various cost drivers. Therefore, scenarios are created with different assumptions about the effect of the cost drivers. For the projections, it is assumed that the political framework conditions do not change compared to the status quo ("no policy change"). In other words: How will healthcare expenditure increase under the assumptions made if no measures are taken?

As well as the immediate effects of an ageing population, we focus on alternative assumptions about the state of health (morbidity) with advancing life expectancy. In addition, the aim is to reveal the effects of important non-demographic cost drivers. First, the relationship between income development in the economy as a whole and the rise in healthcare expenditure is taken into account. The corresponding income elasticity captures both demand- and supply-side effects, such as the demands of the population and medical advances. In addition, it can be observed that price developments in the healthcare sector are above average compared to the national economy. This can be attributed to inefficiencies and Baumol's cost disease. The latter describes the connection between a presumed low productivity progress and price growth in the healthcare system.

1 On market failures in the healthcare system and their macroeconomic significance, see, for example, Hsiao and Heller (2007). Glied and Smith (2013) provide an overview of the various challenges in the healthcare system

In the reference scenario of the present projections, total healthcare expenditure increases from 11.3% of GDP in the baseline year 2019 to 15% in 2050. Expenditure on long-term care (from the age of 65) increases significantly more dynamically than expenditure on health without long-term care up to 2050. Expenditure on long-term care is proportionately more important for public budgets than for the healthcare system as a whole. In the reference scenario, public healthcare expenditure (with IPR) rises from 3.8% of GDP in 2019 to 5.1% in 2050. The increase in expenditure is primarily at the expense of the cantons. In the short term, the federal government will be affected by the additional expenditure due to COVID-19. In the area of compulsory health insurance (without IPR and without cost sharing), expenditure growth from 3.6% of GDP to 4.9% in 2050 can also be observed.

Section 2 describes the bases for the expenditure projections. Section 3 presents the results of the projections for the entire healthcare system, the public sector and CHI. We then use these to suggest levers for health policy. Furthermore, we compare these results with the previous study and the work of the OECD and the EU. Section 4 focuses on the discussion of cost containment and presents a policy scenario in which the effects of cost targets in CHI are presented on the basis of the expenditure projections for the healthcare system.

2 Projection bases

This section discusses the central cost drivers in the healthcare system in the medium to long term and describes the different scenarios. The assumptions on demographics and economic performance and the projection methodology are then presented. Finally, we briefly discuss how the development of costs in the healthcare system during the COVID-19 pandemic years is taken into account.

2.1. Cost drivers in the healthcare sector

The main structural drivers of healthcare expenditure in developed economies discussed in the literature are an ageing population, the population's state of health (morbidity), the proximity to death (mortality), income development, medical advances, changes in relative prices, and institutional framework conditions such as insurance coverage of the population. However, the extent of the relationship between the influencing factors and healthcare expenditure is often not clear.[2]

Ageing and state of health of the population

In addition to the immediate repercussions of demographic change for healthcare expenditure, the aim is to highlight those effects that can have an expenditure impact as a result of a change in the health situation (morbidity) of an ageing population. Here, the question arises as to whether the morbidity of the population changes in line with increasing life expectancy. Essentially, three competing hypotheses have emerged. According to the thesis of a pure morbidity expansion, "pure ageing", the additional years of life gained will not be spent in good health (Gruenberg 1977). The population's state of health deteriorates. The thesis of the relative reduction of morbidity, "healthy ageing", states that the period of life spent in illness or in need of care does not change. However, the time gained is spent in good health (Manton 1982). The thesis of an absolute reduction in morbidity with increasing life expectancy is advocated by Fries (1980; 1989). Due to better technology and better prevention, the time of life spent in illness or in need of care can even be compressed. The length of life spent in good health then increases faster than life expectancy. As there are no clear empirical findings on the interaction between increasing life expectancy and the morbidity trend, scenarios with different assumptions regarding the change in morbidity are put forward.

Income development, medical advances and Baumol's cost disease

The first non-demographic factor to be taken into consideration is the empirically observable relationship between national income development and healthcare expenditure growth. In the past, the latter grew disproportionately to national income. This relationship covers both supply-side and demand-side effects, such as the population's growing demands in terms of healthcare services and medical advances.

Since medical advances are very difficult to quantify empirically (see Marino and Lorenzoni 2019), it is assumed in the present projections that the cost effect of medical advances can be captured indirectly with the help of the overall economic income development. According to Smith et al. (2009), there are close interdependencies between medical advances and overall economic in-

2 For an overview, see Martín et al. (2011), De la Maisonneuve and Oliveira Martins (2014), Gerdtham and Jönsson (2000), and De la Maisonneuve et al. (2016)

come: As a society becomes more prosperous, it can be assumed that the demand for medical innovation will increase ("demand pull"). At the same time, the sales opportunities for healthcare services expand with growing prosperity, which increases the incentive to invest in research and development ("supply push"). In this context, Chandra and Skinner (2012) emphasise that medical advances can be converted into productivity gains if innovations are very cost-effective and new procedures are not overused. At the same time, however, more complex treatments can also slow down productivity growth and lead to rising costs.

A central question is whether the demand for healthcare services (and thus healthcare expenditure) increases disproportionately to income and thus whether healthcare services represent a so-called luxury good. At the individual level, the level of income elasticity depends strongly on insurance coverage. The larger this is, the less sensitively the demand for healthcare services reacts to changes in income. In the case of insurance coverage, the budget restriction applies only at the level of the insurance pool. Since many developed economies have compulsory insurance, a strong positive correlation can be found empirically only at the aggregate, macroeconomic level. Furthermore, individual income captures medical advances only incompletely - this changes when overall economic income is considered.

Early empirical work suggests that healthcare services are a so-called necessary good at the individual level and a luxury good at the aggregate level (see Gerdtham and Jönsson 2000). However, there is no clear consensus on the level of income elasticity at the aggregate level. More recent studies are often based on more extensive data and use advanced empirical methods to address problems such as bias due to the neglect of important drivers or unclear causality. These studies usually suggest an income elasticity slightly below 1.[3] In an international comparative perspective, there is also talk of a bell-shaped distribution of income elasticities depending on the level of development of the economy, so that rather lower income elasticities are to be expected for economies with high and low GDP.

For Switzerland, in a time series analysis for total healthcare expenditure, Colombier (2018) shows a positive partial correlation with total economic income, with an income elasticity around 1. For a cantonal panel dataset for the 1970-2012 period, and in line with the results of recent research literature, Brändle and Colombier (2016) find a robust partial correlation between income and cantonal healthcare expenditure, with an estimated income elasticity between 0.7 and 0.8. Vatter and Rueffli (2003), who examine the drivers of healthcare expenditure for a cross-section of cantons and communes for 1994 to 1999, find a positive partial correlation between cantonal income and public healthcare expenditure. For CHI expenditure, the authors find a positive but not significant partial correlation. Crivelli et al. (2006) and Reich et al. (2012) examine the sum of cantonal healthcare expenditure and CHI expenditure at the cantonal level. Using much shorter periods, 1996 to 2002 and 1997 to 2007 respectively, these studies are unable to show a positive correlation between cantonal income and healthcare expenditure.

3 See Baltagi et al. (2017), Baltagi and Moscone (2010), Hartwig and Sturm (2014), De la Maisonneuve and Oliveira Martins (2014) for OECD panel analyses, Medeiros and Schwierz for the European Union (2013), Moscone and Tosetti (2010), Acemoglu et al. (2013) and Murthy and Okunade (2016) for analyses in the USA, and Costa-Font et al. (2011) for a meta-regression analysis

The second factor concerns the development of productivity in the healthcare sector and thus the change in relative prices. This is difficult to measure empirically, and may differ from area to area. For example, productivity advances in labour-intensive long-term care may be minimal, whereas in the more capital-intensive and technology-intensive hospital sector, productivity gains could be expected. Lower productivity growth relative to the economy as a whole gives rise to cost pressure if wages in the healthcare sector keep step with wage growth in the remainder of the economy over the longer term. If demand for healthcare services is relatively inelastic, prices rise more than in the rest of the economy. In the jargon of healthcare economics, this relative price effect is known as the Baumol effect (Baumol 1967). Significant importance is attached to this effect in the case of long-term care in particular. Empirical estimates for Switzerland suggest that this effect has a partial impact on healthcare (see Colombier 2018). Panel analyses for OECD countries (Hartwig 2008; Hartwig and Sturm 2014; Colombier 2017) and for US states (Bates and Santerre 2013) underline the importance of the Baumol effect for healthcare expenditure growth.

Drivers and trends not considered

The thesis that it is not an ageing population itself but proximity to death that drives up healthcare costs has received considerable attention in the healthcare economics literature ('red-herring' hypothesis).[4] According to this, the expenditure per capita for people who are close to death (deaths) is significantly higher than for those who live longer (survivors). According to the 'red-herring' thesis, expenditure projections that do not distinguish between deaths and survivors overestimate the effect of an ageing population.[5]

However, the corresponding empirical analyses neglect both the temporal and the macroeconomic dimension, which leads to altered conclusions. Breyer et al. (2015) show that the 'red-herring' literature neglects the effects of steadily increasing life expectancy on healthcare expenditure. Thus, with increasing life expectancy, interventions, e.g. hip operations, become worthwhile even at a higher age. Breyer et al. (2015) have been able to demonstrate the increase in expenditure due to an ageing population through this effect, which they refer to as 'Eubie-Blake', for a statutory health insurance dataset in Germany. Colombier and Weber (2011) also show for Swiss data that expenditure per death falls below expenditure per survivor at old age (from about 90 years).

Consequently, it is not clear a priori whether death costs have a dampening or exacerbating effect on total expenditure. According to the demographic scenarios of the FSO, the number of very old people rises steadily with increasing life expectancy. Accordingly, in an earlier edition of the expenditure projections, the effect of an ageing population was hardly weaker when deaths and survivors were taken into account than without this distinction (see Colombier and Weber 2011). Van Baal and Wong (2012) come to a similar conclusion for the Netherlands and show that the projections are not very sensitive to the inclusion of death costs.[6] In view of the additional data and modelling effort, the present projections do not take into account the cost of death.

4 According to this hypothesis, population ageing has sent healthcare policy down the wrong track. See Zweifel et al. (1999), for example.
5 See Stearns and Norton (2004), Polder et al. (2006) or Breyer and Felder (2006)
6 For a discussion, see Felder (2013); Breyer and Lorenz (2021)

Furthermore, institutional and political framework conditions play a role in the development of healthcare expenditure. Comparative healthcare economics literature features a multitude of institutional differences. Prominent examples here are the effects of different insurance and financing regimes, different remuneration systems for service providers or the role of general practitioner models. However, clear (empirical) conclusions regarding their cost impact are often not possible (see De la Maisonneuve et al. 2016).

In addition, trends such as the steady shift away from caring for older persons in the family due to the increasing employment of women, which is accompanied by an increasing burden on institutional care (care homes and Spitex), or medical innovations that mean a shift in favour of the outpatient healthcare sector, such as micro-invasive operations, remain unconsidered. Uncertainty about the extent and duration of these trends is very high. Thus, in the FSO reference scenario (A-00-2020), it is assumed that the employment rate of women will increase between 2020 and 2050. However, the uncertainty is high, and we therefore refrain here from making a statement about a clear trend away from the care of older persons in the family and towards institutional care.

Despite the present cost-side consideration, it must be emphasised that a functioning healthcare system is of great benefit to society by contributing to the maintenance and improvement of the population's state of health. Through the latter, the healthcare sector can have a positive impact on economic growth (Suhrcke et al. 2006). Thus, good health can promote human capital formation and thus productivity growth. Furthermore, a good healthcare system contributes to a better utilisation of the labour potential, for example by reducing absences due to illness.

2.2 Scenarios

Due to different influencing factors, the scenarios are calculated separately for the areas of health without long-term care and long-term care from the age of 65. The projections are characterised by considerable uncertainties regarding the assumed economic development, the size of the cost effects and the modelling of non-demographic influencing factors in the healthcare system. The latter is particularly true of medical advances. Therefore, the following scenarios are created for the healthcare sector excluding long-term care.

- Reference scenario: In the reference scenario, the population develops according to the SFSO's medium population scenario until 2050. The population›s state of health improves with increasing life expectancy. That means that, medically speaking, people born in any given year are half a year younger and correspondingly healthier with every extra year of life. In the area of healthcare excluding long-term care, expenditure grows by a factor of 1.1 as income increases (income elasticity: 1.1). This disproportional income effect causes the population to want more from the healthcare system, medical advances and increased non-medically indicated care. Relative inflation in healthcare excluding long-term care is 50% higher than general inflation. The above-average inflation can be attributed to inefficiently high tariffs and the Baumol effect (relative price effect).[7]

7 Regarding existing inefficiencies in the Swiss healthcare system, Brunner et al. (2019) presented a study which estimated the existing efficiency potential at 16-19% of services under the HIA

- In the **pure ageing scenario**, it is assumed that the population experiences the additional years of life in poor health (morbidity expansion).
- In the **healthy ageing scenario**, the population spends the extra years of life gained in good health (relative decrease in morbidity).
- **Relative price effect scenario**: In the sector of healthcare excluding long-term care (HeL), an inflation effect of 75% instead of 50% is assumed, which results from the Baumol effect and tariff inefficiencies. Productivity gains in the HeL sector thus lag behind productivity gains in the economy as a whole by 75%.[8]
- **Cost pressure scenario**: in this scenario, it is assumed that non-demographic cost drivers – such as medical advances, an increase in doctor densities as a result of the incentives that exist in the healthcare system, and the increasing degree to which the population draws on healthcare services – trigger significantly stronger expenditure growth. This in turn translates into expenditure rising more strongly in the event of rising income. Based on the corresponding European Commission scenario, income inelasticity of 1.4 is assumed (see AWG 2021).

For the long-term care scenarios, just like healthcare excluding long-term care, the same assumptions are made with respect to demographic development and morbidity, i.e. the need of the population for care. However, the relative price effect is particularly pronounced in the area of long-term care from the age of 65. For this reason, inflation is generally assumed to be 75% higher there than in the economy as a whole. This order of magnitude is based on the share of personnel costs in the care home sector (see Credit Suisse 2015). An exception is the relative price effect scenario, in which even a relative price effect of 100% is assumed. In other words, the long-term care sector does not experience any productivity gains in this scenario. In contrast, the income effect plays no role in long-term care, as the need for care is not correlated to income. Accordingly, no cost pressure scenario is constructed for long-term care.

2.3 Projection methodology

Demographic and economic development assumptions

To capture population trends, the reference scenario of the Federal Statistical Office (A-00-2020) for the 2020-2050 projection period is used in line with the long-term outlook for public finances in Switzerland (FDF 2021) (see Table appendix, Table A1). With the selected time period, the costs of an ageing population – especially due to the "baby boomers" who will retire in the coming years – can be captured. The lack of available data at the time of calculation meant that, unlike the macroeconomic and financial effects of the COVID-19 pandemic, the demographic impact could not be included. The demographic impact is not supposed to influence the long term (FSO 2021b).

The FSO assumes that Switzerland's population will increase from 8.7 million in 2020 to just under 10.4 million in 2050, corresponding to a mean annual growth rate of 0.6%. The reason for this is the positive immigration balance. The FSO reference scenario assumes net migration of 50,500 people in 2020. Net immigration increases to 55,000 people up to 2029, before falling to 35,000

8 According to an empirical analysis for Switzerland, it can be concluded that Baumol's cost disease, considered in isolation, can lead to a relative inflation effect of 50% at most (see Colombier 2018)

people by 2040 and then remaining constant up to 2050. In the long term, therefore, immigration experiences a decline, which according to the demographic scenarios of the FSO is explained by the decline in the working-age population in European countries, which is in turn attributable to the low birth rates. Population growth slows down accordingly over the projection horizon. While a cumulative population increase of 12.3% is expected in the years up to 2035, an increase of only 7% is assumed from 2035 to 2050. Overall, the population continues to "age" due to the relatively low birth rate and increasing life expectancy. As a result, the old-age dependency ratio, i.e. the ratio of people aged 65 and over to the working-age population, rises from just under 30.4% in 2019 to 46.5% in 2050 (see Table appendix, Table A1).

For the expenditure projections, assumptions must be made about future economic performance (see Table appendix, Table A1). A distinction must be made between short-term forecasts, which are intended to map the macroeconomic effects of the COVID-19 crisis, and long-term projections. For the economic projections after the COVID-19 pandemic (from 2024), no cyclical fluctuations are taken into account, so that the values are trend values, e.g. of GDP. Until 2021, the actual GDP performance including the COVID-related slump in 2020 is taken into account. For 2022 and 2023, the forecast of the government's expert group and the preliminary key figures of the Confederation's financial plan for 2024 to 2026 are incorporated (status: March 2022). According to these forecasts, real GDP will grow at an annual average rate of 1.6% and overall economic productivity at 1.1% from 2019 to 2026. The GDP growth rate from 2027 onwards is expressed as the product of the assumed macroeconomic productivity progress (1.2% p.a.) and the resulting development of the labour force in full-time equivalents (FTEs) according to the assumed population scenarios. This results in an annual real GDP growth rate of 1.5% between 2027 and 2050.

Healthcare expenditure projections

For the projections, it is assumed that, with the exception of the policy scenario in section 4, the policy framework conditions in the healthcare system do not change compared to the status quo ("no policy change"). Since, in different areas of the healthcare system, different cost drivers are at work or the same cost drivers have different effects, a distinction is made according to the areas of healthcare without long-term care (HeL) and long-term care of the 65+ age group (LTC) for the expenditure provisions. The remaining category is long-term care for the under-65s. Based on this breakdown, the total expenditure of the respective area is projected in a first step. In a second step, the shares of the public sector and the CHI in healthcare expenditure are extrapolated with the expenditure projected in this way for the entire healthcare system.[9]

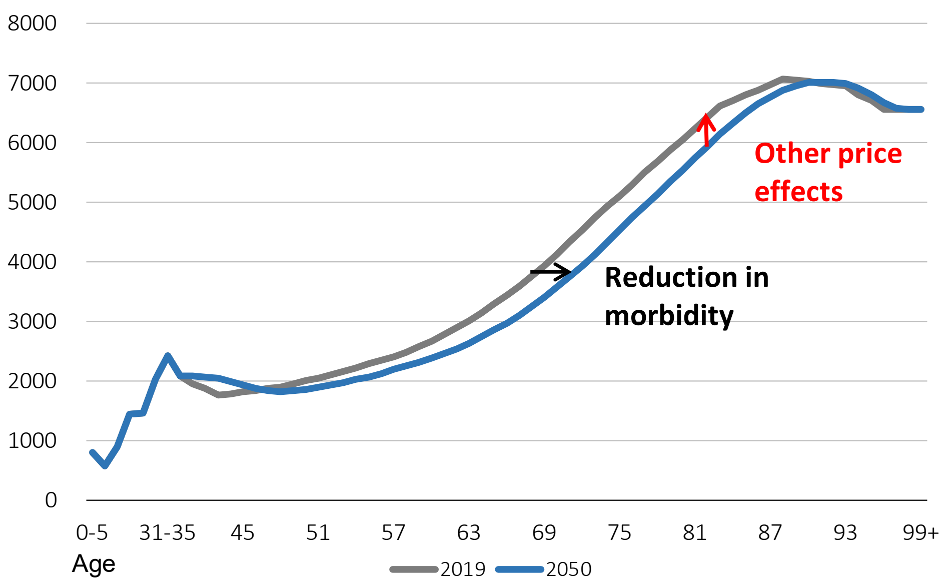
The healthcare expenditure figures are taken from the statistics of the FSO "Costs and services of the healthcare system". The latest data available at the time the projections were made is from 2019, so this is the baseline year for the projections. For the public sector, depending on the level of government, data is available for healthcare expenditure until 2021. For the federal government and the cantons, public finance statistics data is available until 2020, for the communes until 2019 (see FFA 2021). In addition, data for the individual premium reduction (IPR) and pandemic expenditure from the 2021 account is used at the federal level.

9 For a detailed description of the projection methodology, see Colombier (2012). The technical presentation of the projection methodology can be consulted in the Formula appendix.

The graphical representation of expenditure per head of population as a function of age for a given year is called the expenditure profile. As an example, Figure 2 shows the expenditure profile for outpatient treatment in the HeL of women for the baseline year and for the year 2050 in the healthy ageing scenario. In order to extrapolate the healthcare expenditure for HeL and LTC, the expenditure profiles are further differentiated by gender as well as outpatient and inpatient treatment. The latter distinction is needed for public healthcare expenditure projections. If the per capita expenditure for the age cohorts of such expenditure profiles for the baseline year is multiplied by the projected development of the population in the respective age cohorts, the effect of the change in age structure and population size on healthcare expenditure can be read.

Per capita expenditure can be seen as a quasi price for a given level of provision of healthcare services to the population. Expenditure per capita can be broken down into the price of services per patient and the scope of services (e.g. therapies, medicines) per capita.[10] This assumes that demographic change does not influence either the cost side or the scope of services per inhabitant. Consequently, the cost effect of demographic change expresses how a change in the age structure of the population and the number of inhabitants in Switzerland changes the overall demand for healthcare services. For simplicity's sake, expenditure on long-term care for the under-65s is extrapolated using GDP.

Figure 2: Expenditure profile for women by age in the baseline year and 2050 in the healthy ageing scenario (in CHF)



10 Per capita expenditure by age cohorts can be decomposed into a price and quantity effect per patient treated and the probability of becoming ill: expenditure per service ("price") x utilisation per patient x patients per capita of an age cohort, whereby the product of utilisation per patient and patients per capita of an age cohort yields the scope of services per capita of an age cohort.

The starting point for the projections are the expenditure profiles broken down by age, gender and outpatient and inpatient services. The FSO breaks down these profiles into 5-year age cohorts. According to some epidemiological theories, the increase in life expectancy assumed in the demographic scenarios is closely related to the development of the population's state of health or the need for care (morbidity). However, in order to adequately capture changes in morbidity in the projections, healthcare expenditure must be annualised. Furthermore, in order to analyse the effects of morbidity, the probability of the people born in each year falling ill or needing care would have to be known. However, only incomplete information is available for these disease frequencies, so that the change in expenditure per inhabitant is used as an approximation for the change in morbidity. In contrast to the present study, the EU and the OECD use long-term care rates to extrapolate LTC expenditure.

If the population's state of health improves over the projection period, the expenditure per capita of an age cohort decreases and the expenditure profile shifts to the right (see Figure 2). The assumption is that the probability of falling ill or needing care decreases. At the same time, this means that a change in morbidity influences neither the expenditure for a medical or care service nor the utilisation per patient. However, as the probability of falling ill or needing care decreases, the scope of services per capita of an age cohort is reduced. The cost pressure from non-demographic cost drivers such as medical advances manifests itself in rising expenditure per capita of an age cohort. Since an equal effect of the non-demographic cost drivers on all age cohorts is assumed, the expenditure profile shifts upwards accordingly.[11] This increase in expenditure is caused either by increasing expenditure per service or by increasing utilisation per patient, or both, and increases the price of providing healthcare services. Changes in the quality of service provision are not taken into account in this approach.[12]

For the HeL area, the annualisation of the expenditure profiles is only carried out from the age of 41. This is because the per capita expenditure of the baseline year 2019 up to the age of 40 is relatively low, shows a comparatively weak increase and morbidity is a problem especially in old age. For the annualisation, it is assumed that the average expenditure for a 5-year age cohort corresponds in each case to the expenditure for the mean age year of this cohort. For age 96 and older, it is assumed that expenditure per capita remains constant. Due to large differences in life expectancy between the different cohorts and between women and men, the change in life expectancy, differentiated by age and gender, rather than the change in the average life expectancy of the entire population has been used to determine the morbidity effects.

Breakdown of healthcare expenditure in the baseline year

In the baseline year 2019, 80% of healthcare expenditure is made up of healthcare without long-term care (HeL), 15% of long-term care from the age of 65 (LTC) and 5% of long-term care under the age of 65 (see Table appendix, Table A2).

11 There is evidence that the expenditure profile steepens over time and thus the age cohorts are affected to different degrees by the cost pressure of non-demographic cost drivers such as medical advances (e.g. Gregersen 2014). This may imply, for example, that research efforts to develop new medicines are particularly targeted at medicines for older age cohorts, as the elderly are disproportionately affected by serious diseases such as cancer or cardiovascular disease.

12 In the case of a price increase due to medical advances, it is not clear to what extent the level of care will increase due to quality improvements. Possible quality improvements would have to be offset against the price effect in order to measure the effective price increase. This is already very challenging for the past development of healthcare expenditure and goes beyond the methodological approach chosen here.

The HeL sector includes expenditure on outpatient treatment (in doctors' surgeries and hospitals, physiotherapy, psychotherapy, medicines, therapeutic apparatus, support services such as laboratory services) (53% of HeL expenditure), inpatient treatment in hospitals (hospitals, psychiatric clinics, medicines and therapeutic apparatus, support services such as transport and rescue) (32% of HeL expenditure), administration, prevention and dental treatment. Expenditure on administration and prevention (8% of HeL expenditure) is extrapolated using GDP, as these activities are not subject to the same cost drivers as the other areas of healthcare. For the sake of simplicity, the same procedure is followed for dental treatment expenditure (7% of HeL expenditure), which is negligible for public sector and CHI expenditure.

The long-term care sector includes expenditure on inpatient services in care homes and outpatient services provided by non-residential care (Spitex). It should be noted that the long-term care sector is divided according to age, for persons aged 65 and over and persons under 65. The focus is on long-term care from the age of 65. In this area, 81% of expenditure in the baseline year 2019 is for services in care homes and 19% for Spitex services.

Expenditures for pandemic-related services are allocated to the HeL area, as they are either preventive measures, e.g. COVID-19 tests, vaccinations or/and acute treatments including care, e.g. in hospital.

2.4 Healthcare expenditure in the years of the COVID-19 pandemic

The CHI statistics are used to estimate the cost development in 2020 due to the availability of data. For 2021, the Monitoring of Health Insurance Cost Development (MOKKE) is used as the basis. These statistics are published with a slight time lag and therefore allow an estimate of the 2021 cost development for this report. The MOKKE suggests above-average cost growth for CHI. This cost growth is incorporated into the projections for other demographic-dependent healthcare expenditure, such as cantonal contributions to hospitals. The pandemic-related federal healthcare expenditure is not included. This pandemic-related federal healthcare expenditure is incorporated into the present expenditure projections, as shown in Table 1 for 2020 to 2022. It mainly comprises expenditure for protective measures (incl. vaccines) and tests.

The evidence available does not indicate that significant increases or decreases in expenditure are to be expected for 2022[13]. Therefore, with the exception of the federal government's pandemic-related healthcare expenditure, the demographic-dependent expenditure in the area of healthcare is extrapolated from 2022 using demographic change and the other central cost drivers for the healthcare system until 2050.[14]

13 See Swiss Confederation (2021)

14 In view of the official orders to postpone non-urgent treatment in spring 2020, reported revenue was down in the hospital sector (PWC 2021). In this context, there was also talk of possible catch-up effects in the second half of 2020 or in 2021. The reports mentioned above do not find any clear evidence for this, although catch-up effects at a later date are also conceivable.

Table 1: COVID-19 healthcare expenditure of the Confederation (in CHF mn)

	Actual expenditure 2020	Actual expenditure 2021	Approved funds 2022
Healthcare	**856**	**2026**	**2304**
Procurement of medical, materials, e.g. masks, vaccines, etc.	618	666	550
Assumption of costs for COVID-19 tests	194	1190	1615
Medicinal products, additional FOPH expenses, health protection	45	170	139

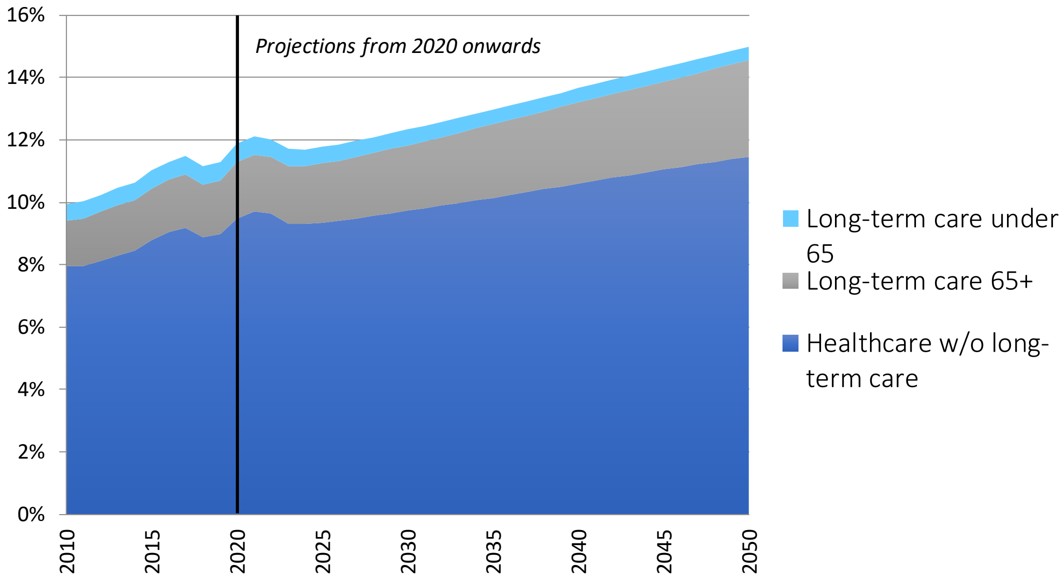
Source: FFA

3 Healthcare expenditure projections

3.1 Total expenditure on healthcare

As shown in Figure 3, healthcare expenditure increased from 10% to 11.3% of GDP from 2010 to 2019. Due to the COVID-19 pandemic, healthcare expenditure temporarily rises to 12.1% of GDP by 2021 before falling to a level of 11.7% in 2023. Over the entire period until 2050, healthcare expenditure increases from 11.3% to 15% of GDP. Compared to the past decade, expenditure growth is expected to accelerate. The annual average growth is 3.4% instead of 3.1%.[15] Thanks to significantly higher growth in nominal GDP (2.5% vs. 1.5%) compared to the last decade, the increasing cost pressure in the healthcare sector will be mitigated. The acceleration in expenditure growth can be explained by the more rapid ageing of the population. For example, the old-age dependency ratio, the ratio of the number of people over 65 to the number of people of working age, will rise particularly sharply from 30% to 42% between 2019 and 2035 due to the retirement of the "baby boomer" generations (see FDF 2021). In comparison, the increase in the old-age dependency ratio over the past 15 years was barely half that figure. In addition, the share of people aged 80 and over in the population will more than double over the projection period, rising from 5% to 11%.

Figure 3: Healthcare expenditure by area from 2010 to 2019 and in the reference scenario (in % of GDP)



Source: FOPH, FFA, SECO

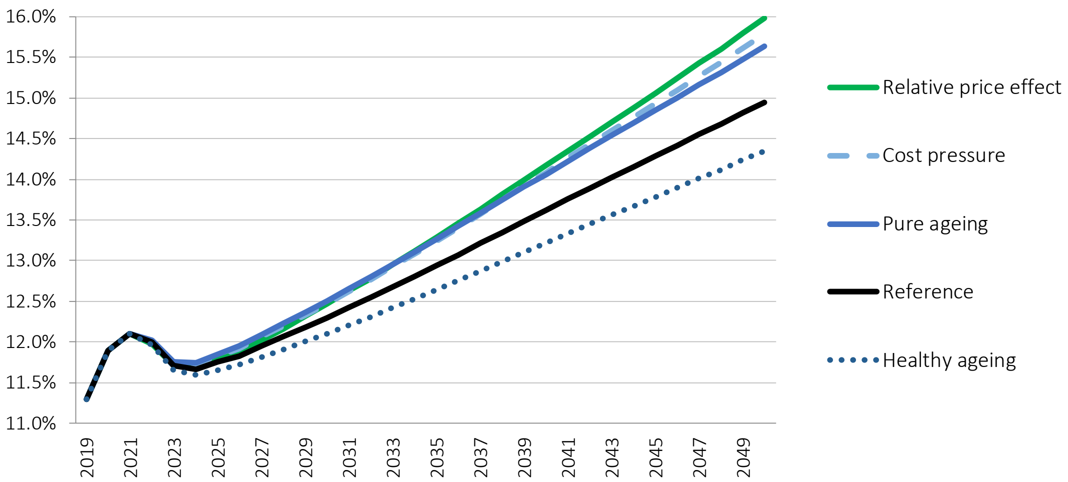
HeL spending increases significantly from 9.0% of GDP in 2019 to a peak of 9.7% in 2021 due to the pandemic. The expenditure level falls to 9.3% of GDP in 2023, since from this point onwards only follow-up costs are assumed to arise from the pandemic ("long COVID"). LTC expenditure is not directly affected by the pandemic. Only due to the slump in nominal GDP in 2020 can a slightly accelerated increase in LTC expenditure as a share of GDP from 1.7% in 2019 to 1.8% be observed.

15 The term "expenditure" in this paper refers to "nominal expenditure"; otherwise the term is specified more precisely

The long-term effects of ageing affect both sectors, but to a very different extent. While demographic change contributes 36% to the average annual growth of real HeL expenditure in the reference scenario, the growth contribution of demographic change in the LTC sector is more than twice as high at 77% (see section 3.2, Figures 7 and 9). This is reflected in the growth rate of expenditure in the two sectors, which is significantly lower in the HeL sector, with an annual average of 3.4% compared to 4.4% in the LTC sector. Due to the less pronounced ageing between 2010 and 2019, the growth rates of expenditure in both sectors are significantly lower than in the reference scenario, at 3.0% in HeL and 3.5% in LTC. Thus, according to the reference scenario, HeL expenditure increases from 9.0% to 11.5% of GDP from 2019 to 2050, which is equivalent to an increase of almost 30%. LTC spending as a share of GDP almost doubles, from 1.7% to 3.1%. This corresponds to an increase of almost 80% (see Table appendix, Table A1 for a detailed presentation of results).

In order to show the uncertainty regarding the effects of the different healthcare expenditure factors, scenarios with different assumptions about the efficiency of the factors have been formed for HeL and LTC. The analysis shows that healthcare expenditure reacts most strongly to the change in assumptions about the effect of the non-demographic cost drivers (relative price effect and cost pressure scenarios; see Figure 4). An accelerating relative price development in the healthcare system compared to the reference scenario, which can be explained by Baumol's cost disease and tariff inefficiencies, has the most significant effect on expenditure development. Accordingly, expenditure for 2050 in the relative price effect scenario is 16% of GDP, slightly more than 1% percentage point above the level of the reference scenario, which is 15% of GDP.

Figure 4: Development of public healthcare expenditure in various scenarios
(in % of GDP)



Source: FFA

A similar effect results if instead of an income elasticity of 1.1 as in the reference scenario, a significantly higher elasticity of 1.4 is assumed as in the cost pressure scenario. This assumption can be justified by, say, greater inefficiencies, for example due to supply-driven demand or the approval of new drugs or therapies with an unfavourable cost-benefit ratio. The assumption can also be justified with faster growing demands of the population on the healthcare system compared to the reference scenario. The difference between the cost pressure scenario and the reference scenario is +0.8% of GDP in 2050.

The difference in expenditure compared to the reference scenario is somewhat weaker, +0.7% of GDP, if the population does not become healthier with increasing life expectancy as assumed in the reference scenario (pure ageing scenario). Conversely, the increase in expenditure compared to the reference scenario can be slowed down if, as assumed in the healthy ageing scenario, the state of health improves more strongly with increasing life expectancy than in the reference scenario (-0.6% of GDP).

The nevertheless comparatively high expenditure sensitivity with regard to morbidity development can be explained by the very dynamic LTC sector, and hence by ageing. Thus, according to the reference scenario, the share of LTC for people aged 65 and over in total healthcare expenditure increases from 15% in 2019 to 21% in 2050, while the share of HeL decreases from 80% to 76%. The remaining expenditure is used for long-term care under 65 years of age.

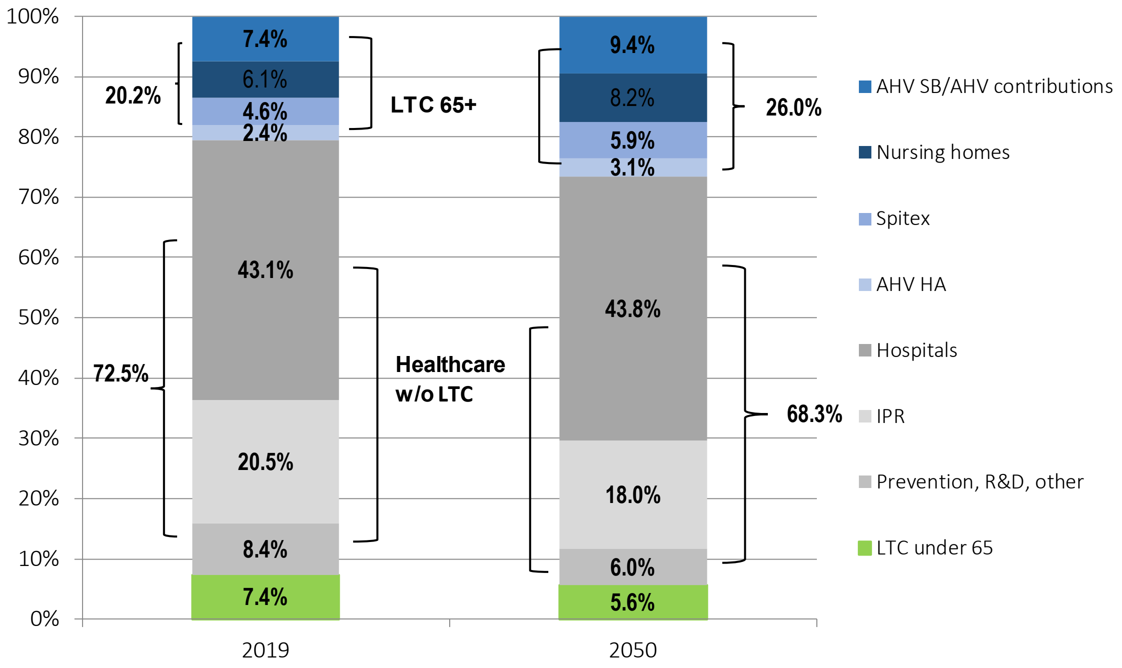
3.2 Public healthcare expenditure

Public healthcare expenditure encompasses all contributions paid by the Confederation, cantons, communes and social security funds to finance the Swiss healthcare system. For each of the three levels of government, the expenditure figure in question is that contained under the "Health" section of the financial statistics (FFA, 2021). These also include national transfers to private households designed to finance healthcare benefits, such as individual premium reductions (IPR) and cantonal AHV supplementary benefits (AHV SB). In the case of social insurance, those areas are taken into account which, according to the national accounts, belong to the government sector and receive contributions from the government. This essentially narrows the circle to AHV and disability insurance (IV).[16]

Just like total expenditure, public expenditure on healthcare is broken down into healthcare excluding long-term care and long-term care from the age of 65. As IV expenditure impacts on the financing of long-term care below the age of 65, IV contributions to healthcare are extrapolated on the basis of projected IV expenditure development. Other public sector contributions to healthcare, such as preventive measures and administration, are extrapolated using GDP.

16 Unlike the terminology of the Health Insurance Act, HIA, (particularly Art. 1 of the HIA), CHI is not included under social security funds in the national accounts. Consequently, CHI is not subsumed into social security funds in this report.

Figure 5: Breakdown of public healthcare expenditure by function in 2019 and 2050 in the reference scenario (in %)



Source: FFA

As shown in Figure 5, the public sector allocates the greatest proportion of healthcare expenditure to hospitals (43%), followed by IPR (21%) and other expenditure such as prevention (8%), AHV supplementary benefits for care (7%), care homes (6%) and Spitex (5%). It is striking that, in the reference scenario, the public sector has to spend a far greater proportion of its expenditure on long-term care from the age of 65 in 2050 than in the baseline year. This is due to the fact that long-term care expenditure is more affected by ageing than HeL expenditure (see Figures 7 and 9). Adjusted for inflation, average annual government expenditure on long-term care from the age of 65 is growing more strongly, at 3.6%, than in the HeL sector, at 2.5%. Instead of 20% at present, the share for care expenditure will be 26% in 2050 according to the reference scenario. The share of healthcare expenditure excluding long-term care is correspondingly lower in 2050. It drops from 73% to 68%. IV expenditure on healthcare is reduced from 7% to 6%.

Table 2: Public healthcare expenditure by level of government in the reference scenario for 2019, 2035 and 2050 (in % of GDP)

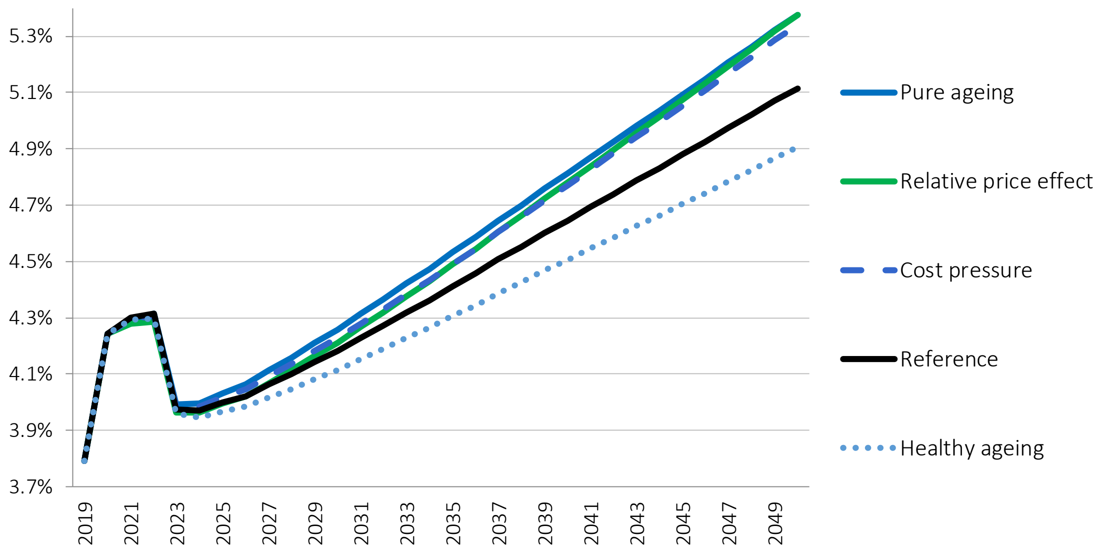
	2019	2035		2050	
	Ratio	Ratio	Δ 2019–35	Ratio	Δ 2019–50
Total healthcare	11.3	13.0	+1.68	15.0	+3.68
General government (incl. social security)*	3.8	4.4	+0.62	5.1	+1.32
Confederation	0.5	0.5	-0.01	0.5	+0.06
Cantons	2.5	3.1	+0.58	3.7	+1.11
Communes	0.4	0.5	+0.08	0.6	+0.17
Social security funds*	0.4	0.4	-0.03	0.4	-0.01
AHV HA/AHV contributions**	0.1	0.1	+0.03	0.2	+0.07
IV HA/ IV contributions**	0.3	0.2	-0.06	0.2	-0.08

* Social security funds include AHV HA, AHV contributions, IV HA and IV contributions
** Contributions to medical services and therapeutic apparatus.

In the reference scenario, government expenditure including social services increases in relation to GDP from 3.8% to 5.1% from 2019 to 2050 (see Table 2). It is thus growing 35% faster than GDP. Most of this additional burden falls on the cantons, which finance 67% of government healthcare expenditure in the baseline year. For the cantonal finances, expenditure on hospitals (share in 2019: 58%), IPR (11%) and AHV supplementary benefits for care (10%) are of particular importance. The respective share of Spitex and care home expenditure is significantly lower at around 4% each.

Two thirds of the remaining additional burden of the increase in expenditure is borne by the communes and one third by the federal government. Communal expenditure as a percentage of GDP increases relatively significantly at 50%, which is due to the LTC. Federal expenditure grows slightly due to the IPR. The healthcare-related expenditure of the social insurance funds remains stable. This reflects structural shifts due to ageing. Thus, the proportion of IV pensioners (persons under 65) in the total population is decreasing, while the corresponding proportion of AHV pensioners (persons aged 65 and over) is increasing (see FDF 2021).

Figure 6: Public healthcare expenditure in various scenarios (in % of GDP)



Source: FFA

Figure 6 shows that from 2020 to 2022, government healthcare expenditure as a share of GDP will be dominated by the pandemic. On the one hand, this can be explained by the increase in federal expenditure due to the pandemic, especially for protective measures (incl. vaccinations) and tests, and on the other hand by the economic performance during the pandemic. For example, between 2019 and 2022, expenditure increases from 3.8% to 4.3% of GDP in all scenarios, before declining to 4.0% of GDP in 2023. Consequently, the COVID 19 crisis has no impact on the long-term development of public healthcare expenditure.

In 2023 the structural cost drivers become more relevant. It is striking that the pessimistic scenarios, i.e. relative price effect, pure ageing and cost pressure, are relatively close to each other in 2050.

If a relative price effect of 75% instead of 50% is assumed for the HeL and a relative price effect of 100% instead of 75% is assumed for LTC from the age of 65, the increase in expenditure is more than a quarter higher (+0.3% of GDP) than in the reference scenario (relative price effect scenario). The effect is just as strong if it is assumed that the population will be older in the future than at present, but neither healthier nor less in need of care (pure ageing scenario). In the cost pressure scenario, which assumes an income elasticity of 1.4 compared to 1.1 in the reference scenario, expenditure increases by 0.2% of GDP compared to the reference scenario.[17] By contrast, if the population lives out its additional years of life in good health and does not require care during these years (healthy ageing scenario), the increase in expenditure is 0.2% of GDP lower than in the reference scenario.

17 The additional expenditure increase in the cost pressure scenario compared to the reference scenario occurs exclusively in the area of healthcare excluding long-term care. For long-term care from the age of 65, the reference scenario is used as the basis for both scenarios, which implies an income elasticity of 0.

Overall, demographic change plays a greater role in public healthcare expenditure than in total healthcare expenditure. The reason for this is that in the baseline year, the share of expenditure for long-term care from the age of 65 is higher at 19% than in the overall healthcare system at 15%. In addition to ageing, the non-demographic cost drivers have a significant influence on government expenditure, as the public sector spends 43% of its expenditure on hospitals alone according to the baseline year.

3.2.1 Public healthcare expenditure excluding long-term care

Public healthcare expenditure excluding long-term care has been captured by taking the expenditure items listed in the "Health" section of the public financial statistics with the exception of the items "Convalescent, retirement and nursing home services" and "Outpatient care" (FFA, 2021). In addition, IPR expenditure, which is included under the function "Social security" in the financial statistics, has been included. This is because IPR expenditure is heavily influenced by healthcare expenditure. For the sake of simplicity, IPR expenditure has been subsumed into national healthcare expenditure. Accordingly, the healthcare expenditure of the public sector now comprises three items: hospitals, IPR expenditure and other healthcare expenditure such as prevention, administration, and research and development.

According to Art. 49 para. 1 of the HIA, the cantons finance the flat rates per case for inpatient hospital services (DRG) together with the CHI. A minimum cantonal share of 55% is prescribed by law (Art. 49a para. 2ter of the HIA). Public expenditure on hospitals is therefore linked to the development of inpatient hospital services.[18] The remaining healthcare expenditure is extrapolated in proportion to nominal GDP. The development of IPR expenditure is dependent on the development of CHI expenditure. For the IPR, the division between the Confederation and the cantons in the baseline year is continued for reasons of simplicity. Accordingly, the federal government finances 59% and the cantons 41% of the IPR.

Table 3: Public healthcare expenditure excluding long-term care by level of government and function in the reference scenario (in % of GDP)

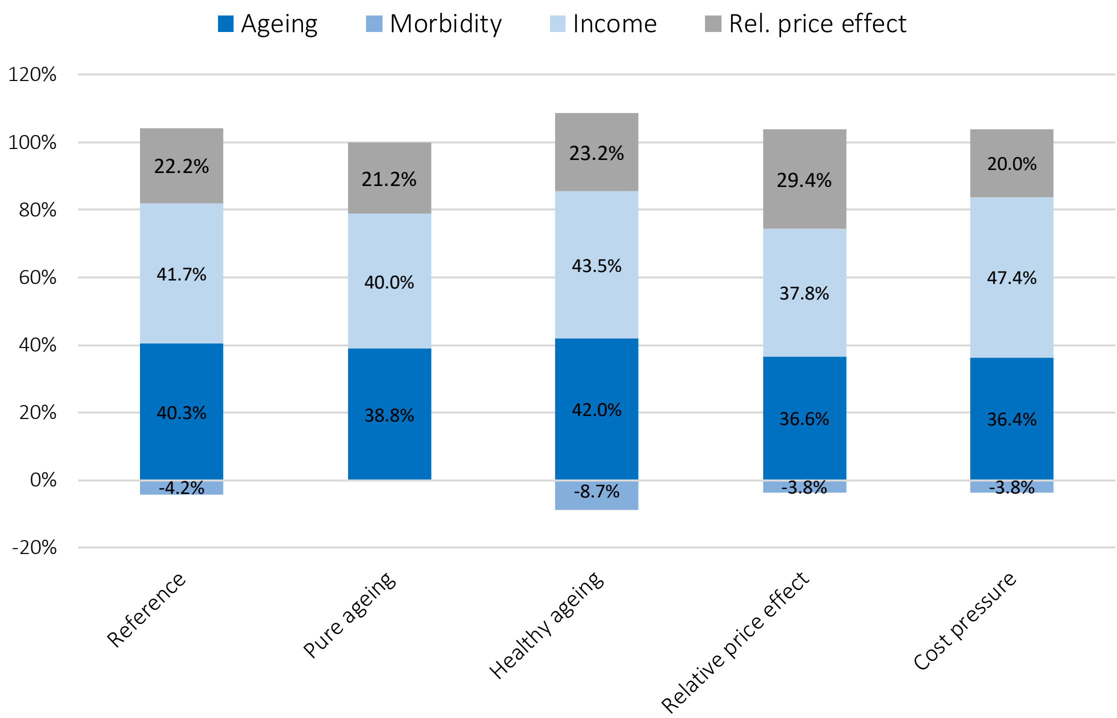
	2019	2035		2050	
	Ratio	Ratio	Δ 2019–35	Ratio	Δ 2019–50
Healthcare excluding long-term care	9.0	10.1	+1.18	11.5	+2.49
General government	2.5	2.9	+0.39	3.3	+0.81
Confederation	0.5	0.5	-0.01	0.5	+0.06
Cantons	1.9	2.3	+0.39	2.7	+0.73
Communes	0.1	0.1	+0.01	0.1	+0.01
Functions					
Hospital	1.5	1.8	+0.34	2.1	+0.63
IPR	0.7	0.8	+0.05	0.9	+0.16

18 Part of the cantonal hospital expenditure is used for public services, which serve regional policy purposes and research and university teaching. This part may be subject to other cost drivers. However, this is not further considered in the present projections.

Public expenditure on HeL increases from 2.5% to 3.3% of GDP from 2019 to 2050 in the reference scenario. The increase in public HeL expenditure mainly affects the cantons, which have to bear an additional burden of 0.7% of GDP. This additional burden is made up of an increase in hospital expenditure of 0.6% of GDP and cantonal IPR expenditure of 0.1% of GDP. With an increase in its IPR expenditure of 0.1% of GDP, the federal government is little affected. In contrast, the additional burden on the communes (+0.01% of GDP) is hardly noticeable, as their expenditure on hospitals in the baseline year amounts to only 0.03% of GDP. The breakdown of expenditure by function shows that three quarters of the increase is attributable to inpatient hospital services and one quarter to IPR (see Table 3).

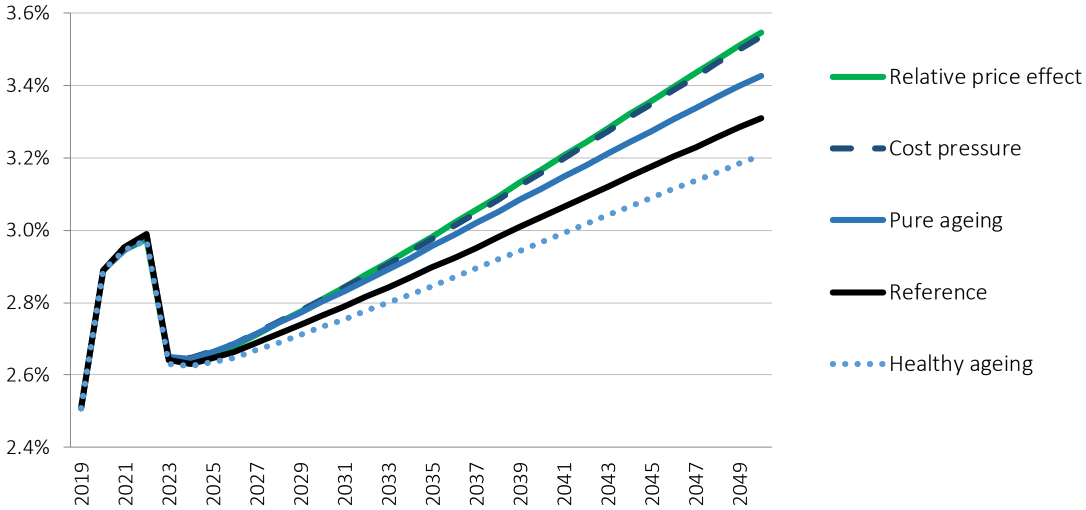
Around 64% of this increase in expenditure can be explained by non-demographic cost drivers such as medical advances, the population's increasing need for medical services as incomes rise, the Baumol effect and inefficiencies (see Figure 7). The remaining growth contribution of about 36% is due to demographic change (ageing plus morbidity).

Figure 7: Contributions of cost drivers to the rise in healthcare expenditure (excluding long-term care) **2019–2050** (in %, at 2019 prices)



Source: FFA

Figure 8: Public healthcare expenditure excluding long-term care in various scenarios (in % of GDP)



Source: FFA

The rapid increase in public HeL spending between 2019 and 2022 can be attributed to the COVID-19 crisis (see Figure 8). Thus, regardless of the scenario assumed, expenditure as a percentage of GDP increases from 2.5% to 3.0%. This development is significantly influenced by the pandemic-related increase in federal expenditure. From 2023, the situation normalises and expenditure falls to 2.6% of GDP.

The sensitivity analysis shows that the non-demographic cost drivers exert a stronger influence than the demographic factors. Assuming that either the relative price effect or the non-demographic cost pressure is more pronounced than in the reference scenario, expenditure increases by 1.0% of GDP in both the relative price effect scenario and the cost pressure scenario instead of 0.8% of GDP in the reference scenario. In the pure ageing scenario, expenditure increases by 0.9% of GDP. However, if the state of health and the need for care develop more favourably with increasing life expectancy than in the reference scenario (healthy ageing scenario), expenditure growth is slowed from 0.8% of GDP to 0.7%.

3.2.2 Public expenditure for long-term care from the age of 65

According to the financial statistics, public expenditure in the area of long-term care from the age of 65 comprises the proportion of expenditure of the cantons and communes allocated to convalescent, retirement and care home services, as well as outpatient care (Spitex), where this care is provided to people aged 65 and over (FFA, 2021). Here, it is assumed that the proportion of public expenditure accounted for by people aged 65 or more corresponds to their share of total care expenditure. According to the estimates used here, the share of long-term care expenditure for people aged 65 and over in total long-term care expenditure is 75%. In addition, public expenditure on long-term care includes the cantons' AHV supplementary benefits (AHV SB) for care services, which are subsumed under the «Social security» function in the financial statistics, and the AHV allowance for the helpless (AHV HA).

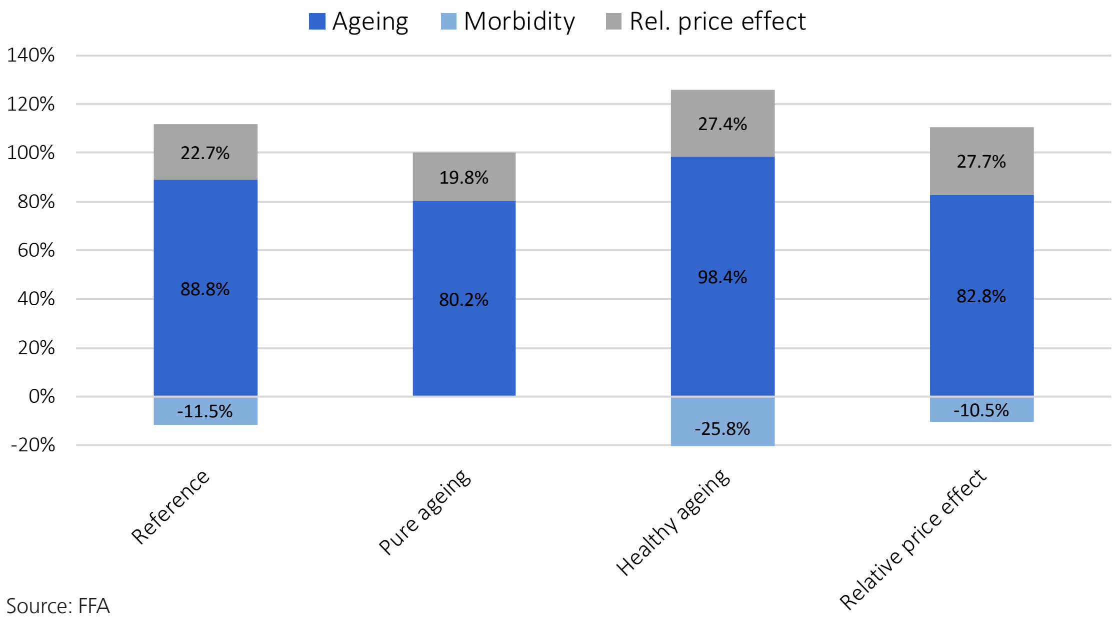
Table 4: Expenditure on long-term care from the age of 65 by level of government and function in the reference scenario (in % of GDP)

	2019 Ratio	2035 Ratio	2035 Δ 2019–35	2050 Ratio	2050 Δ 2019–50
Long-term care 65+	1.7	2.3	+0.62	3.1	+1.36
General government	0.7	1.0	+0.28	1.3	+0.58
Cantons	0.4	0.6	+0.18	0.8	+0.36
Communes	0.2	0.3	+0.07	0.4	+0.15
AHV HA	0.1	0.1	+0.03	0.1	+0.06
Function*					
Nursing homes	0.2	0.3	+0.09	0.4	+0.19
Spitex	0.2	0.2	+0.07	0.3	+0.13
AHV SB	0.3	0.3	+0.09	0.5	+0.20

* For the sake of simplicity, the AHV HA function is omitted, as this expenditure item already appears in the breakdown by level of government

Public LTC expenditure almost doubles over the projection period in the reference scenario, rising from 0.7% of GDP to 1.3% (see Table 4). This dynamic development is due to the fact that ageing is the decisive cost driver in LTC and explains 89% of the increase in inflation-adjusted LTC expenditure at baseline year prices (see Figure 9). However, the fact that people require less care on average as their life expectancy increases has a dampening effect on costs. Including this effect, demographic change (ageing plus morbidity) still explains 77% of the increase in expenditure. The remaining part of the inflation-related increases in expenditure is due to Baumol's cost disease in care (relative price effect).

Figure 9: Contributions of cost drivers to the rise in expenditure on long-term care (65+) **2019–2050** (in %, at 2019 prices)

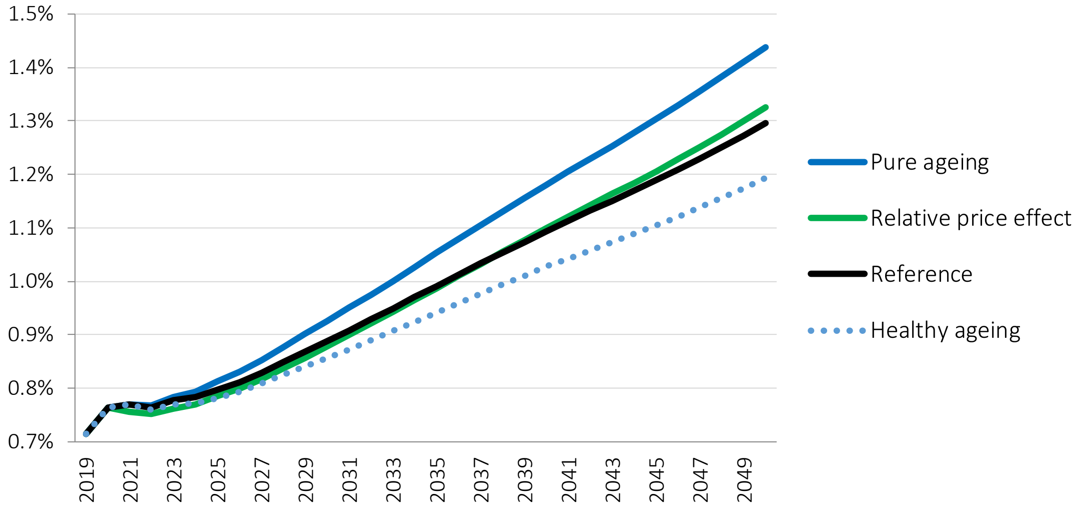


Source: FFA

Just under two thirds of the increase in expenditure in the reference scenario of 0.6% of GDP is financed by the cantons, a quarter by the communes and a tenth by AHV-HA. The increase in expenditure for care homes and cantonal AHV-SB for care burden the public budgets with an increase of 0.2% of GDP each.

As explained in section 2.4, LTC expenditure is not directly affected by the COVID-19 crisis. Nevertheless, LTC spending as a share of GDP initially rises between 2019 and 2020 as nominal GDP slumps by 3.1% due to the COVID-19 crisis. By 2022, expenditure stabilises thanks to high nominal GDP growth rates of 5.1% in 2021 and 4.6% in 2022.

Figure 10: Public healthcare expenditure on long-term care in various scenarios
(in % of GDP)



Source: FFA

The sensitivity analysis in Figure 10 illustrates the importance of demographic change for the development of LTC expenditure. If it is assumed that the need for long-term care remains unchanged as life expectancy increases (pure ageing scenario), expenditure increases most significantly over the projection period, by 0.7% of GDP, which is 0.1% of GDP higher than in the reference scenario. If a more optimistic development of the need for long-term care is assumed with increasing life expectancy, the cost increase weakens by 0.1% of GDP. The relative price effect scenario leads to a barely noticeable increase in expenditure of +0.03% of GDP compared to the reference scenario. This is due to the relatively low growth contribution of the relative price effect (see Figure 9).

3.3 Compulsory health insurance expenditure

For the purposes of the projections, CHI expenditure in the areas of healthcare excluding long-term care and long-term care from the age of 65 is also broken down into outpatient and inpatient services. The breakdown of expenditure for the baseline year is taken from the statistics "Costs and financing of the healthcare system by services and financing regimes 2019" (FSO 2021). In order to avoid the problem of duplicating general government expenditure, CHI expenditure is presented after deduction of IPR expenditure. In addition, the cost contributions of private households (deductible, excess) has been deducted.

CHI expenditure is extrapolated using projected expenditure development for healthcare excluding long-term care and long-term care from the age of 65. Accordingly, the differing expenditure developments in healthcare excluding long-term care and in long-term care from the age of 65 feed through into the CHI projections.

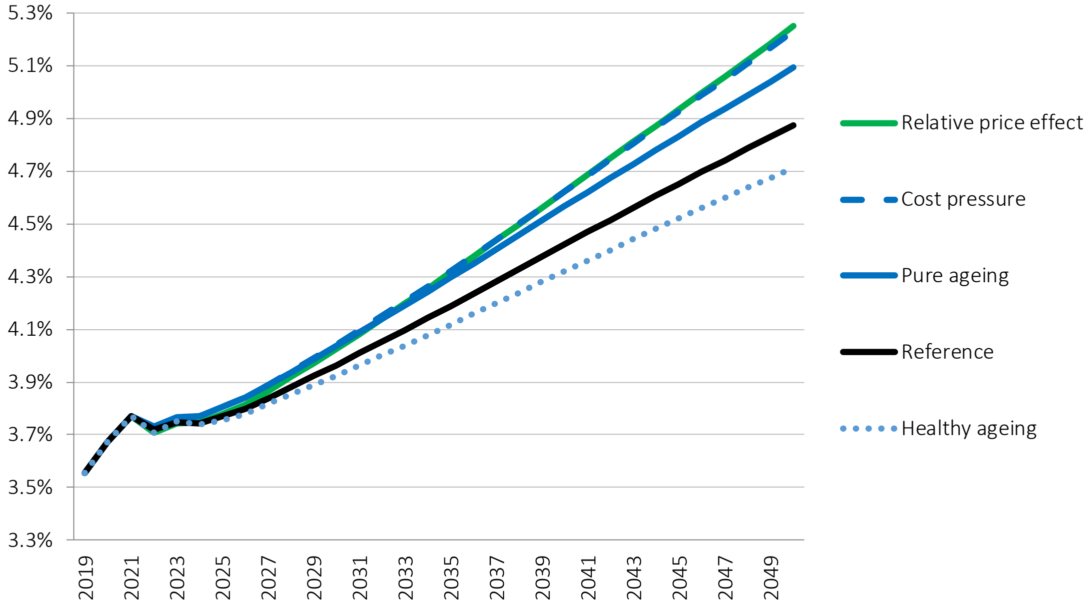
Table 5: CHI vs. total and general government expenditure on healthcare
(in % of GDP)

	2019 Ratio	**2035** Ratio	Δ 2019–35	**2050** Ratio	Δ 2019–50
Total healthcare	11.3	13.0	+1.68	15.0	+3.68
General government (incl. social security)	3.8	4.4	+0.62	5.1	+1.32
CHI	**3.6**	**4.2**	**+0.63**	**4.9**	**+1.32**
Healthcare excluding long-term care	9.0	10.1	+1.18	11.5	+2.49
General government (incl. social security)	2.5	2.9	+0.39	3.3	+0.81
CHI	**3.0**	**3.4**	**+0.49**	**4.0**	**+1.01**
Long-term care 65+	1.7	2.3	+0.62	3.1	+1.36
General government (incl. social security)	0.7	1.0	+0.28	1.3	+0.58
CHI	**0.4**	**0.5**	**+0.14**	**0.7**	**+0.30**

In relation to GDP, the expenditure of CHI and the public budgets are almost equal at 3.6% and 3.8% in the baseline year. Their projected development in the reference scenario is also identical, with an increase in expenditure of 1.3% of GDP by 2050. The breakdown of these additional burdens between HeL and LTC shows that the main source of the additional burden is HeL, +1.0% of GDP. The HeL sector accounts for 83% of CHI expenditure in the baseline year, while the share of HeL in public expenditure is significantly lower at 66%. In contrast, the share of LTC expenditure in CHI corresponds to 11% in the baseline year, whereas for public expenditure it is 19%. Since the HeL sector plays a noticeably larger role than LTC for CHI, ageing is less significant, and non-demographic cost drivers more significant, than for the public sector.

The course of CHI expenditure (less cost sharing by private households and IPR) between 2019 and 2021 is strongly influenced by the COVID-19 crisis. Thus, CHI expenditure rises from 3.6% of GDP to 3.8%. On the one hand, the GDP trend is responsible for this (slump in 2020, rapid recovery in 2021). On the other hand, elective medical services and doctor's visits were postponed in 2020 due to the pandemic, meaning that CHI expenditure practically stagnated compared to 2019 (+0.1% of GDP). In 2021 the situation normalises, which is reflected in high growth in CHI expenditure compared to 2020. The zigzag movement of expenditure from 2022 to 2024 can be explained by the assumed overall economic wage development, which is passed on to expenditure via the Baumol effect.

Figure 11: CHI expenditure in various scenarios (in % of GDP)



Source: FFA

The sensitivity analysis in Figure 11 shows that the strongest effect comes from the non-demographic cost drivers. Thus, in the relative price effect and cost pressure scenarios, the CHI expenditure figures of 5.3% and 5.2% of GDP, respectively, in 2050 are clearly above the figure of 4.9% of GDP in the reference scenario. In both scenarios, it is assumed that the non-demographic cost drivers such as the Baumol effect, medical advances or inefficiencies have a stronger impact on expenditure than in the reference scenario. The effect is somewhat less pronounced in the pure ageing scenario. In this case, expenditure rises to 5.1% of GDP by 2050. In the healthy ageing scenario, cost growth is slowed down compared to the reference scenario and expenditure increases to 4.7% of GDP by 2050.

3.4 Conclusions on the expenditure projections

The expenditure projections indicate that public healthcare expenditure is equally affected by ageing and non-demographic cost drivers such as Baumol's cost disease, inefficiencies and medical advances. A breakdown of public expenditure by sector shows that the non-demographic cost drivers have a stronger influence on HeL expenditure for inpatient hospital services and IPR, and that ageing has a greater effect on LTC. CHI expenditure, like government HeL expenditure, is more affected by non-demographic cost drivers than by ageing.

CHI expenditure and government HeL expenditure for hospitals and IPR are determined by the HIA. This means that they are HIA services. Important levers for curbing the growth of this expenditure are, for example, to better exploit the existing efficiency potential of services subject to the HIA, to take greater account of cost-benefit considerations for the approval of medical innovations and to slow down the relative price effect.

Various reform packages from the Federal Council aim to curb cost growth in CHI. These reforms would simultaneously relieve the cantonal finances, via the co-financing of the hospitals' per-case flat rates, and the burden on the cantons and the federal government, via IPR expenditure.[19] Measures already adopted by parliament that can help to reduce inefficiencies in the healthcare system include the promotion of flat rates for outpatient services and the introduction of an experimentation article in the HIA that allows the cantons to try out measures that promote efficiency and quality as well as digitalisation in the CHI sector. In this way, best-practice examples could become more established than before. The additional measures introduced by the Federal Council, such as controlling costs via the tariff partners and strengthening coordinated care, can help to reduce organisational inefficiencies. Finally, the Federal Council's imposition of cost targets to curb cost growth in the healthcare system sets incentives for greater cost awareness, more transparency and improved coordination of healthcare actors, and can thus promote efficiency in the healthcare system (see section 4).

In addition to efficiency-enhancing measures, preventive measures such as promoting healthy dietary and exercise behaviours and strengthening the healthcare literacy of the population can contribute significantly to the prevention of chronic diseases such as cardiovascular diseases, diabetes, cancer and musculoskeletal disorders. These measures have the potential to achieve an improvement in the population's state of health as life expectancy increases. This would have a dampening effect on the expenditure dynamics both in long-term care (from the age of 65) and in HeL.

In long-term care (from the age of 65), due to the much lower costs of Spitex, a strengthening of outpatient care compared to inpatient care, combined with measures to relieve the burden on family carers, would contribute to cost containment.[20] This would also bring great efficiency gains, since according to the Federal Office of Public Health, about 30% of all care homes are currently overcrowded. In view of the large number of funding entities in long-term care (from the age of 65) (CHI, cantons, AHV supplementary benefits, AHV helplessness allowance, private households), a bundling of funding could also enable better cost control and clearer responsibilities in long-term care.[21]

Finally, in view of high drop-out rates (especially in the care sector), a growing need for healthcare workers and long training periods, forward-looking human resource planning is necessary. This would counteract medium-term staff shortages and thus the risks of underprovision and sharply rising wage costs (see Obsan 2022).

19 See FOPH (2022)
20 See Ricka et al. (2020); Obsan (2022)
21 The inclusion of care services in the planned reform to standardise the financing of outpatient and inpatient medical treatments represents a step in this direction (see Federal Council 2020). Moreover, an earlier postulate report discussed further options for a reform of long-term care financing, including the introduction of compulsory long-term care insurance (Federal Council 2016)

3.5 Comparison with other studies

First, a brief comparison is made with the last edition of the healthcare expenditure projections from 2017. A comparison is then made with the work of the OECD and the European Union.

2017 healthcare expenditure projections

The comparison with the results of the third expenditure projections done as part of the 2017 development scenarios shows that the demographic pressure on healthcare expenditure continues.[22] The breakdown by funding entity also paints a very similar picture. In the current reference scenario, an income elasticity of 1.1 is assumed for the HeL sector, as before. However, a relative price effect is now assumed in the reference scenario to reflect the Baumol effect and existing inefficiencies. The resulting picture and dynamics are similar. In the present projections, total healthcare expenditure increases by 3.7% of GDP in the reference scenario – from 11.3% in the baseline year 2019 to 15% (2050). For a comparable projection period of 32 years, the reference scenario of the latest expenditure projections shows a slightly lower increase from 10.8% (2013) to 14% (2045), which can be explained by the different assumptions on the relative price effect for HeL in the reference scenario.

OECD expenditure projections

The projections of healthcare expenditure for OECD member countries presented by De la Maisonneuve and Oliviera Martins (2014) were methodologically revised by Lorenzoni et al. (2019). Lorenzoni et al. (2019) present expenditure projections for the period up to 2030. The authors thus choose a significantly shorter projection period and a correspondingly different baseline year than in the present projections for Switzerland. The OECD uses the population scenarios of the United Nations (UN World Population Prospect, 2017) to ensure the greatest possible comparability. Moreover, the OECD projections were made before the COVID-19 crisis, which limits comparability. Unlike the present projections, the expenditure for CHI, which is offered in Switzerland by private insurers, is attributed to public healthcare expenditure for better international comparability.

For total healthcare expenditure, Lorenzoni et al. (2019) project an increase from 11.9% of GDP in 2015 to 14.5% in 2030 for Switzerland. However, the present projections only project an increase from 11.3% of GDP in the baseline year 2019 to 12.3% in 2030. For public expenditure on the entire healthcare system (government and CHI, HeL and LTC), the OECD projections are also higher than in the present projections for Switzerland. Under the OECD's baseline scenario, public expenditure increases from 7.7% of GDP (2015) to just under 10% for 2030. However, the present projections only show an increase from 7.4% of GDP in 2019 to 8.2% in 2030 for the government and CHI sectors.

In addition to different baseline years and population scenarios, the slightly different projection approach is also responsible for the differences in results. An essential point is the modelling of medical advances: in the present projections, medical advances are indirectly captured by income elasticity (1.1 in the reference scenario HeL) and thus linked to projected economic development. In

22 The 2017 development scenarios were produced as part of the 2017–2019 legislature financial plan (Federal Council 2017). For a detailed presentation, see Brändle and Colombier (2017) and Colombier and Brändle (2018)

contrast, the OECD assumes an empirically estimated income elasticity of 0.73 in the baseline scenario. The cost-driving effect of medical advances is approximated with an empirically estimated time effect of 0.4% as a mark-up on the average annual expenditure growth rate. For the HeL sector, this contributes to a significantly higher increase in expenditure. The OECD assumes an empirically estimated Baumol effect of 0.27 in the baseline scenario. The present projections assume a relative price effect of 0.5, which represents the Baumol effect and further tariff inefficiencies in the healthcare system. Another difference is the assumed change in morbidity: The OECD assumes "healthy ageing" and explicitly considers death-related health costs in the last years of life. The present projections, on the other hand, assume a combination of "pure ageing" and "healthy ageing".[23]

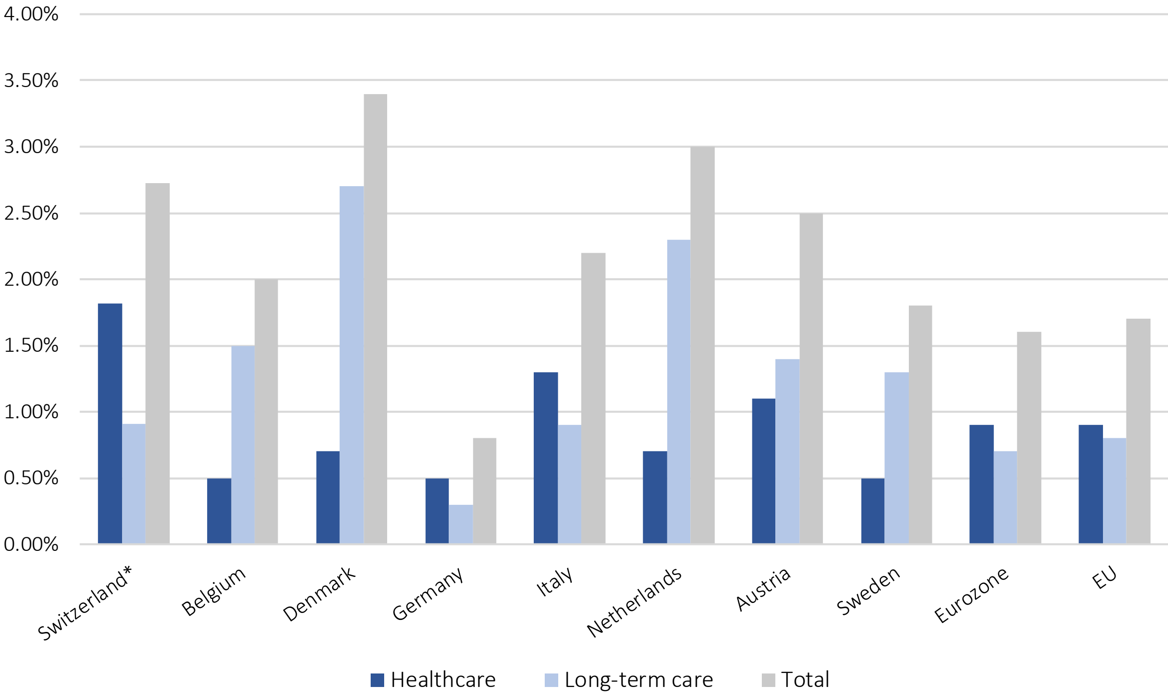
European Union expenditure projections

The Ageing Working Group of the European Commission and the Economic Policy Committee (AWG) regularly examines how the ageing of the population affects demography-related government expenditure. In its latest projections (AWG, 2021), the AWG also takes 2019 as the baseline year and projects expenditure development until 2070. The present projections are strongly oriented towards the work of the Ageing Working Group with regard to the chosen methodological approach as well as the selection of scenarios. For example, the assumptions in the reference scenario regarding morbidity development and assumed income elasticity are based on the work of the EU, in particular the AWG reference scenario and the AWG risk scenario used. The AWG assumes the same prerequisites as the present work with regard to the consideration of pandemic costs. Thus, both the costs and the macroeconomic consequences of the pandemic are taken into account, but not the demographic effects.

With regard to the assumed demographic development, both the EU and Switzerland show a strongly ageing population structure, whereby for the EU a population shrinking by 5% and a significantly stronger decline in the working-age population by 2070 is assumed. Potential economic growth in the EU as a whole is assumed to be relatively stable in the long term, and is very much compatible with the developments assumed in these projections. Estimates for the EU average 1.3% economic growth over the entire projection period. For Switzerland, an average of 1.5% per year is assumed.

23 In a recent working paper (Lorenzoni 2021), the OECD presents updated projections up to 2040. Updated parameters are also presented. An income elasticity of 0.87, a Baumol effect of 0.47 and a mark-up on the growth rate for medical advances of 0.4% are assumed. However, the results were not broken down by country.

Figure 12: Increase in public expenditure on healthcare and long-term care in an international comparison, 2019–2050 (in % of GDP)



Note: *including compulsory health insurance expenditure.
Source: AWG reference scenario (see AWG 2021, pp. 118, 148, 252 and 258).

According to EU projections, public expenditure on health and long-term care increase by 1.7% of GDP in the EU as a whole by 2050 (see Figure 12). If, for better comparability, the increase in CHI expenditure is added to public expenditure in Switzerland, Switzerland is higher than the average, higher than Germany (+0.8% of GDP) and between Austria (+2.5% of GDP) and Denmark (+3.4% of GDP), with an increase in expenditure of 2.7% of GDP.

For the purposes of comparison, it should be noted that the projections differ with regard to both the demographic and the economic developments assumed for the individual states. Further differences can be attributed to the level of healthcare expenditure in the baseline year, the expenditure profiles and institutional arrangements for the national healthcare systems (e.g. special financing regimes). Furthermore, it should be noted that in the present projections a constant income elasticity of 1.1 is assumed for the HeL sector, while in the EU projections in the AWG reference scenario, the elasticities of 1.1 assumed in the baseline year are assumed to converge towards 1.0 by 2070. In addition, in contrast to the AWG, a relative price effect is assumed in the reference scenario. For the long-term care sector, it is assumed in the AWG scenarios that only some of the services are subject to increased cost pressure in the sense of Baumol's cost disease. These two divergent assumptions lead to comparatively lower expenditure increases in the EU projections.

4 Policy scenario: Cost targets for the compulsory health insurance

Compulsory health insurance (CHI) is characterised by strong expenditure growth. Thus, gross CHI expenditure (including cost sharing by private households and IPR) increased by an annual average of 3.8% between 1999 and 2019, adjusted for inflation. In relation to GDP, the increase in gross CHI expenditure was 1.5%. The mean CHI premium increased by 3.3% annually in the same period, adjusted for inflation.[24]

The present projections show that the dynamics of CHI expenditure will continue. In addition, the public services provided for by the HIA are directly affected by CHI development. These include the IPR, which is borne by the federal government and the cantons, and the hospital flat rates per case (Swiss DRG), which are financed jointly by the cantons and CHI. With a share of 77%, the cantons bear the main public expenditure burden. The Confederation finances around 23% of public expenditure. The strong cost growth raises the question of whether the financial viability of CHI and the HIA services borne by the public sector, as well as the equal access of the population to health services, can be guaranteed in the long term.

CHI channels 86% of its expenditure to healthcare excluding long-term care. The HeL sector is dominated by non-demographic factors such as the disproportionate income effect and medical advances, as well as possible inefficiencies due to misaligned incentives such as supply-driven demand. A study commissioned by the Federal Office of Public Health estimates the efficiency potential in the HIA sector at between 15% and 19% (see Brunner et al. 2019).[25]

A group of experts appointed by the FDHA in 2017 sees starting points for curbing cost growth primarily on the supply side of the healthcare system and proposes, in particular, a target for curbing cost growth in CHI (see FDHA Expert Group 2017). A target is a budgetary restriction that sets an upper limit for the growth of CHI expenditure. International experience suggests that a target increases the budgetary responsibility of key health actors and encourages them to focus more on cost-benefit considerations, increase cost transparency, cooperate more frequently and exploit efficiency reserves. Concerns about a target relate particularly to a possible rationing of services, the shift to areas not covered by the budget target or incentives for service providers to prioritise some treatments to the detriment of certain patient groups (see Brändle et al. 2018; Brändle and Colombier 2020).

To counteract these possible adverse effects, the main structural cost drivers, i.e. economic and demographic development, morbidity and medical advances, continue to be factored into the calculation of the target. Moreover, the target is comprehensive, so that shifting to other areas is hardly possible. According to the regulatory impact assessment, in view of social pressure due to e.g. treatment guidelines and a high level of professional ethics, systematic evasive behaviour by doctors is not to be expected (see Mattmann et al. 2021; Swiss Economics and Slembeck 2021).

24 This is the average premium for all insured persons across all forms of insurance
25 The observed efficiency potential is static. By applying an upper bound for cost growth in the HIA area, inefficiencies can be steadily reduced, so that the inefficiencies directly influence the growth in HIA expenditure (see Fries et al. 2020)

According to these findings, the expenditure growth in CHI and state HIA services can be curbed without running the risk of significant losses in quality. The Federal Council has taken up the proposal of the expert group and in November 2021 submitted a dispatch on setting targets for the maximum cost development in CHI (cost targets) to parliament as an indirect counter-proposal to the CVP initiative "For lower premiums – cost brake in the healthcare system (cost brake initiative)" (see Swiss Parliament 2022; FOPH 2021).[26] Under the Federal Council's solution, it first sets a cost target based on medical requirements, i.e. an upper bound for total CHI cost growth. The Federal Council issues a target recommendation with a tolerance margin for each canton. On that basis, the Federal Council and the cantons then set cost targets for the cost blocks in their areas of responsibility (cantons: e.g. hospital and outpatient treatment by doctors; Confederation: medicines, analyses, apparatus and implements). If the cost targets are breached, the Federal Council and the cantons are obliged to check their areas of responsibility for undesirable developments and examine whether corrective measures are necessary.

With the help of the expenditure projections, it will be shown here by way of example how efficiency increases within a cost target framework can have an effect on the HIA services financed by CHI and the public sector (IPR and hospital flat rates per case) and what this means for the development of premiums. In the policy scenario – in contrast to the reference scenario – it is assumed that the cost targets make it possible to limit the income effect to a proportional increase in expenditure (income elasticity of 1), in order to ensure the long-term financial viability of HIA benefits. Furthermore, the relative price effect can be reduced to only the Baumol effect, which is rather difficult to influence. Relative inflation in the HeL sector is therefore set 25 percentage points lower than in the reference scenario, i.e. the relative price effect is only half as strong as in the reference scenario. The drop in income and relative price effects means that inefficiencies such as an expansion of medically unnecessary services or excessive tariff settlements can be reduced.

For the LTC sector, it can be assumed that the actors experience hardly any false incentives such as supply-driven demand (see Brunner et al. 2019). It is therefore estimated that less than 5% of the total efficiency potential of HIA services can be ascribed to LTC. Thus the efficiency potential is almost exclusively in the HeL area. Therefore, for the care sector of CHI, it is assumed for simplicity's sake that the cost target corresponds to the expenditure growth of LTC in the reference scenario. Moreover, the growing need for care personnel as a result of ageing will lead to a shortage of available care professionals, so that the risk of a lack of supply should increase (see Obsan 2022).

In addition to the reference scenario, the cost pressure scenario is also used for comparison. In this scenario, greater inefficiencies are assumed in the HeL sector (income elasticity of 1.4). Due to a higher magnitude of medically unjustifiable volume expansions and overpriced tariffs, the pressure on healthcare expenditure is even stronger than in the reference scenario.

26 The CVP initiative «For lower premiums – cost brake in the healthcare system (cost brake initiative)» aims to ensure that the costs in the healthcare system do not grow faster than the Swiss economy as a whole or average wages. If the average costs grow too much over two years, the Confederation and the cantons should decide on effective cost containment measures for the following year. The initiative falls short of the Federal Council's proposal because neither the age/morbidity criteria nor medical advances should be taken into account in the upper limit for cost growth.

Table 6: Healthcare expenditure in a cost target scenario versus the reference and cost pressure scenarios (in % of GDP)

Level	2019	2035			2050		
	Ratio	Ratio	Δ target		Ratio	Δ target	
			reference	cost pressure		reference	cost pressure
HIA expenditure *	5.9	6.7	+0.23	+0.44	7.5	+0.63	+1.21
Financing entity							
General government**	1.7	1.9	+0.07	+0.25	2.1	+0.18	+0.34
Confederation	0.4	0.4	+0.02	+0.03	0.4	+0.04	+0.12
Cantons	1.3	1.5	+0.05	+0.22	1.6	+0.14	+0.22
CHI (excl. IPR)	4.2	4.9	+0.08	+0.23	5.4	+0.34	+0.75
CHI (excl. cost sharing; excl. IPR)	3.6	4.1	+0.06	+0.19	4.6	+0.28	+0.63
Cost sharing private households CHI	0.6	0.7	+0.02	+0.04	0.9	+0.06	+0.12

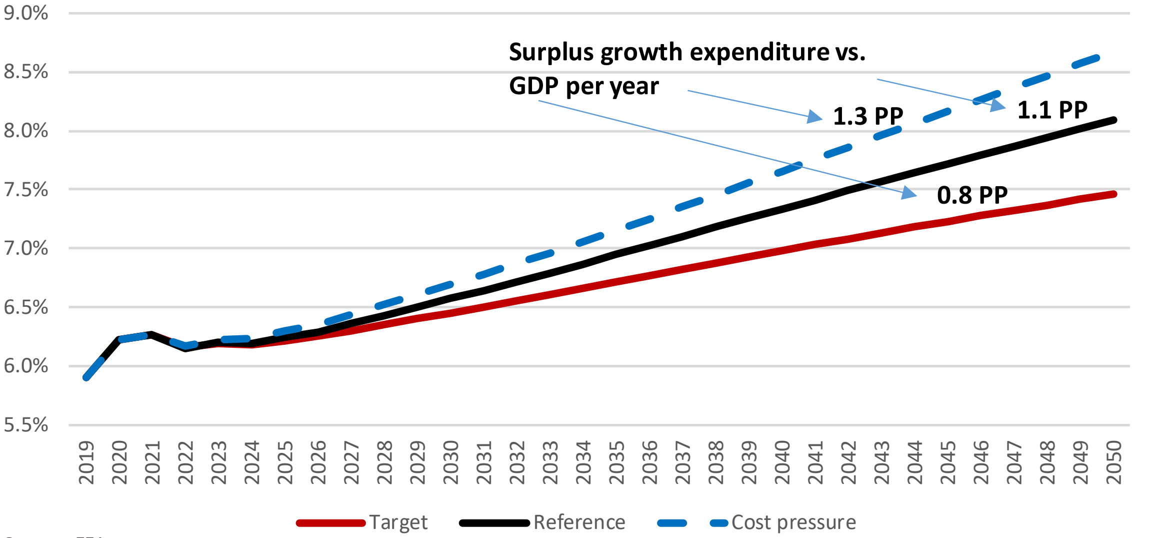
* Expenditure incurred by the state, CHI and private households on the basis of the Federal Health Insurance Act (HIA). HIA expenditure is approximated by the sum of gross CHI expenditure and an estimate of the cantonal contributions for DRG flat rates per case to the hospitals. CHI expenditure is partly financed through IPR.
** Government expenditure based on HIA, i.e. co-financing of per-case flat rates for hospitals and IPR approximated. There is no expenditure for communes and social insurance under the HIA.

CHI (without IPR) currently finances 72% and the public budgets 28% of the (approximated) HIA expenditure. Both funding agencies can realise substantial savings by adopting a cost target (see Table 6). This also includes savings in cost sharing by private households.

With cost targets, the increase between 2019 and 2050 is 0.6% of GDP lower than in the reference scenario. At 2019 prices, this means an increase of CHF 43 billion to CHF 116 billion instead of CHF 126 billion. This corresponds to savings of around CHF 10 billion, or 8% of HIA expenditure in 2050. Of this, savings of CHF 2.1 billion are attributable to the cantons (0.14% of GDP). In addition, the Confederation can realise minor savings of CHF 0.6 billion due to IPR. In the case of CHI (without IPR), expenditure is reduced by CHF 5.3 billion (0.5% of GDP).

If the healthcare system is characterised by greater inefficiencies than in the reference scenario (cost pressure scenario), HIA expenditure in 2050 will be 1.2% of GDP or CHF 18.8 billion higher, adjusted for inflation. This corresponds to 16% of HIA expenditure in 2050. The state and CHI are affected in proportion to their shares of HIA expenditure (28% and 72%). The comparison with the cost pressure scenario shows that cost targets are particularly effective when there is a high degree of inefficiency.

Figure 13: Development of HIA expenditure in a cost target scenario versus the reference and cost pressure scenarios (in % of GDP)*

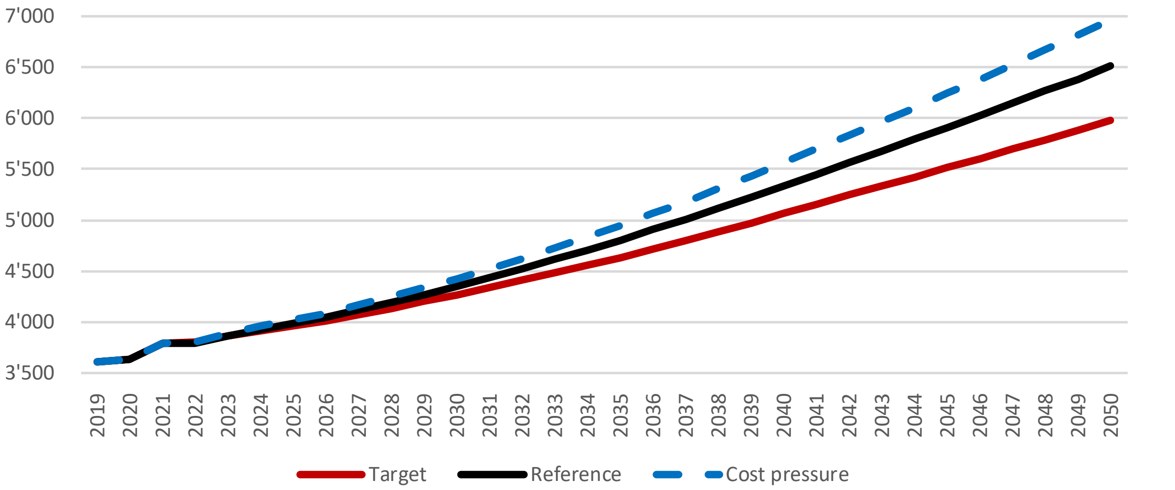


Source: FFA

* HIA expenditure is approximated by the sum of gross CHI expenditure and an estimate of the cantonal contributions for DRG flat rates per case to the hospitals. CHI expenditure is partly financed through IPR.

Figure 13 shows that HIA expenditure growth can be slowed down significantly with cost targets. Thus, from 2019 to 2050, expenditure increases by an annual average of 0.8 percentage points more than nominal GDP. In the reference scenario, expenditure growth exceeds GDP growth by 1.1 percentage points annually and in the cost pressure scenario by 1.3 percentage points. Thus, with cost targets the mean growth rate of HIA expenditure is around 3.3%. In the reference scenario, growth accelerates to 3.6% and in the cost pressure scenario, growth is 3.8%.

Figure 14: Development of net CHI expenditure per capita in a cost target scenario versus the reference and cost pressure scenarios (in CHF, at 2019 prices)*



Source: FFA

* Net expenditure: = gross expenditure less cost sharing by private households

From the perspective of a CHI insured person, the future development of CHI premiums is significant. A suitable approach is to look at the net expenditure per insured person, which in the long term corresponds to the average premium as reported by the Federal Office of Public Health. In the baseline year 2019, net expenditure per insured person was CHF 3,610, close to the average premium of CHF 3,772.

According to projections, compared to the reference scenario, cost targets can slow the expenditure dynamics by 0.3 percentage points annually and average annual inflation-adjusted growth of 1.7% can be achieved. Compared to the reference scenario, this results in a saving of CHF 530 per insured person in 2050 (see Figure 14). This allows CHI insured persons to save one monthly premium as a result of the cost targets. Compared to the cost pressure scenario, the savings double to almost CHF 1,000 and thus to two monthly premiums per CHI insured person.

Overall, the greater the inefficiencies in the system, the more effective cost targets will be. Thus, according to the projections, annual inflation-adjusted premium growth in CHI can be reduced from 2.2% to 1.7% per capita compared to the cost pressure scenario. Compared to the reference scenario, annual premium growth per capita would still be slowed down by 0.3 percentage points. In addition to CHI, the cost targets primarily benefit cantonal finances. The Confederation's burden is also reduced.

5 Conclusions

Even before the COVID-19 crisis, rapidly growing healthcare expenditure was calling the sustainability of public finances into question. The pandemic has reinforced these concerns and also underlined the importance of resilient healthcare systems.

The present projections show that healthcare expenditure is expected to increase in relation to total economic income in the future as well. While COVID-related health expenditure is a burden on public budgets in the short term, population ageing is projected to exert sustained and growing pressure on public budgets and compulsory health insurance until 2050. In the medium to long term, however, healthcare expenditure is driven not only by demographic change, but also by non-demographic factors such as rising income, medical advances, Baumol's cost disease and inefficiencies in the healthcare system. In the public sector, the cantonal budgets, which currently finance two thirds of government expenditure, come under the greatest pressure. The Confederation is mainly affected via IPR and the communes via care expenditure.

A breakdown of public expenditure shows that the non-demographic cost drivers have a greater influence on HeL expenditure for inpatient hospital services and IPR (HIA expenditure) and that ageing has a greater effect on LTC. LTC expenditure develops more dynamically than HeL expenditure. CHI expenditure, like government HeL expenditure, is more affected by non-demographic cost drivers than by ageing. The sensitivity analyses show that in CHI and in the public HeL sector, the strongest cost pressure comes from the relative price effect and factors such as medical advances and inefficiencies. By contrast, the need for long-term care associated with increasing life expectancy is significant for public LTC.

For long-term care, prevention is an important key to curbing cost growth. For the CHI sector, the Federal Council has presented parliament with various packages of measures to curb cost growth, such as the promotion of flat rates in the outpatient sector and the imposition of targets for cost growth. They address the cost levers identified in this paper. A slowdown in CHI spending can have a direct cost-reducing effect on hospital and IPR spending by the public sector.

The hotly debated measure of imposing cost targets is based on the premise that more cost responsibility is assumed in the healthcare system and, in particular, that service providers are encouraged to focus more on cost-benefit considerations. The policy scenario for the cost targets shows that savings are possible in the area of CHI and public HIA expenditure, and that private households can also be relieved via lower premiums and cost sharing.

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Table appendix

Table A1: Key figures for population and economic development

	2019	2035	2050
Population development according to FSO scenario A-00-2020			
Permanent resident population (in mn)	8 688 215	9 758 502	10 440 621
Net migration	50 000	45 000	35 000
Average number of children per woman	1.5	1.6	1.6
Life expectancy at birth			
Men	81.9	85.2	87.2
Women	85.5	87.8	89.6
Old-age dependency ratio*	30.4%	41.8%	46.5%
Youth dependency ratio (0–19)	20.0%	19.8%	19.3%
Real old-age dependency ratio**	37.7%	50.5%	56.1%
Labour force participation rate in FTEs	85.2%	84.7%	85.0%
Labour force in FTEs (thou.)	4 262	4 564	4 761
Economic growth (mean. p.a.) (in %)		**2027–2050*** **	
Nominal GDP		2.5%	
Real GDP		1.5%	
Labour productivity		1.2%	
Real wages		1.2%	
Labour force		0.3%	
Inflation		1.0%	

* Old-age dependency ratio: number of people over 65 relative to the working-age population
** Real old-age dependency ratio: number of people over 65 relative to the labour force (FTEs)
*** For 2022 and 2023, the forecast of the Federal Expert Group is assumed, and from 2024 to 2026, the key figures of the Financial Plan 2024–26 are assumed.

Table A2: Healthcare expenditure in the reference scenario by area and financing entity (in % of GDP)

Ratio	2019	2035		2050	
		Ratio	Change 2019–2035	Ratio	Change 2019–2050
Total healthcare*	11.3	13.0	+1.68	15.0	+3.68
Healthcare excl. long-term care	9.0	10.1	+1.18	11.5	+2.49
Long-term care (65+)	1.7	2.3	+0.62	3.1	+1.36
Financing entity					
General government (incl. social security)	3.8	4.41	+0.62	5.1	+1.32
Confederation	0.5	0.5	-0.01	0.5	+0.06
Cantons	2.5	3.1	+0.58	3.7	+1.11
Communes	0.4	0.5	+0.08	0.6	+0.17
AHV/ IV**	0.4	0.4	-0.03	0.4	-0.01
Healthcare excl. long-term care	2.5	2.9	+0.39	3.3	+0.81
Confederation	0.5	0.5	-0.01	0.5	+0.06
Cantons	1.9	2.3	+0.39	2.7	+0.73
Communes	0.1	0.1	+0.01	0.1	+0.01
Long-term care (65+)	0.7	1.0	+0.28	1.3	+0.58
Confederation	-	–	–		–
Cantons	0.4	0.6	+0.18	0.8	+0.36
Communes	0.2	0.3	+0.07	0.4	+0.15
AHV HA	0.1	0.1	+0.03	0.1	+0.06
Compulsory health insurance (CHI)***	3.6	4.2	+0.63	4.9	+1.32
Healthcare excl. long-term care	3.0	3.4	+0.49	4.0	+1.01
Long-term care (65+)	0.4	0.5	+0.14	0.7	+0.30
Remaining expenditure**	3.9	4.4	+0.42	5.0	+1.04
of which: private households*****	2.8	3.1	+0.37	3.5	+0.77

* The remaining category in total healthcare is expenditure on long-term care under 65.
** Helplessness allowance; contributions to medical services and therapeutic appliances.
*** Excluding public sector participation in the form of the individual premium reduction, which is attributed to the government sector. The breakdown does not include expenditure for long-term care under 65 and for administration, prevention and dentistry.
**** "Remaining expenditure" includes the expenditure of private households, compulsory accident insurance, private supplementary insurance and private foundations
***** CHI cost sharing, out-of-pocket payments (OOP) & cost sharing for priv. SI

Formal representation of the projection methodology

Formula appendix

The projections of expenditure per capita of age cohort j for year t can be represented using the following equation, the basic formula for the expenditure projections.

(A1.1)

$$\frac{A(t,j)}{Bev(t,j)} =$$

$$\overbrace{\left(\frac{\frac{12-\lambda}{12} * A(0,j-\tau)}{Bev(0,j-\tau)} + \frac{\frac{\lambda}{12} * A(0,j-\tau-1)}{Bev(0,j-\tau-1)}\right)}^{morbidity} * \prod_{i=1}^{t} \overbrace{\big(1+(1+\eta(i)) * y(i)\big)}^{income\ effect} \overbrace{(1+\mu * \omega)^t}^{Baumol\ effect} (1+\pi)^t$$

with:

- $t = 1,\ldots,31$ and 0:= baseline year.
- A(t,j):= expenditure (nominal) on healthcare excluding long-term care or long-term care (65 years and older) per capita of age cohort j in year t, in each case for men and women separately.
- Bev(t,j):= number of men or women of age cohort j in year t according to the FSO demographic scenario A-00-2020.
- Morbidity parameter: Additional lifetime of age cohort j in better health (morbidity) in year t compared to age cohort j in the baseline year.
  - τ(t,j): Number of years in better health.
  - λ(t,j): Intra-year life in better health, measured in months.
  - For health excluding long-term care, health is assumed to improve from age 41, j>41, and for long-term care (over 65-year-olds) from age 66, j>65.
- y(i):= growth rate of real GDP per capita in year i, i≤t.
- 1+η(i):= "income elasticity" in year i, η(i)≥0, i≤t.
- π:= long-term inflation rate.
- ω:= long-term growth rate of the average annual real wage.
- μ:= Baumol parameter; complete Baumol effect if μ=1, i.e. no productivity progress in the healthcare sector; μ=0: no Baumol effect. It must be taken into account that price increases exceeding the macroeconomic inflation rate π can have other reasons than the Baumol effect, such as price inefficiencies (see below).

The **right-hand side of the basic formula (A1.1)** can be read as follows:

- The **first factor** describes the relationship between increasing life expectancy and the change in morbidity of an age cohort j in year t. Here it is assumed that with an increase in life expectancy, the probability of becoming ill or needing care at a certain age will change compared to the baseline year. For example, assume that the life expectancy of 50-year-old women in 2050 is 1 year and 8 months higher than in the baseline year 2019 and that the 50-year-old women spend these additional years of life in better health than 50-year-old women in the baseline year (healthy ageing scenario). Then, for simplicity, we can assume that 50-year-old women in 2050 have the same state of health as women 1 year and 8 months younger in the baseline year, i.e. women aged 48 years and 4 months. Accordingly, the morbidity parameter is τ (31.50)=1.[27] Since only annual data is available for expenditure per capita, the annual expenditure for the age cohorts of 48- and 49-year-old women in the baseline year must be weighted by the number of months. In this example, λ(31.50) equals eight. De facto, there is a shift to the right in the expenditure profile in year t compared to that in the baseline year (see Figure 2). This approach is chosen for health without long-term care for all age cohorts from 41 years and for long-term care for all age cohorts from 65 years.

- The **second factor** describes the demand and supply effects triggered by the increase in national income, which are assumed to affect only healthcare expenditure excluding long-term care. If $\eta>0$, an increase in real GDP per capita is assumed to have a disproportionate effect on the expenditure per capita of an age cohort. Since expenditure per capita is expressed in nominal terms, the inflation rate π is also taken into account. In both cases, the expenditure profile in any year t shifts upwards compared to the expenditure profile in the baseline year (see chart 2).

- The **third factor** can capture other relative price effects besides the Baumol effect, such as price inefficiencies and/or labour supply shortages. For the Baumol effect, it is assumed that (real) wage growth in the health sector (or in a sub-sector of the healthcare sector) and in the economy as a whole coincide. Furthermore, the average real wage growth of the economy as a whole corresponds to the productivity gain. If no productivity gains are made in the healthcare sector, the Baumol effect plays out completely and μ equals one in the absence of other relative price effects. In a full Baumol effect, wage growth is fully reflected in a price effect and leads to an above-average inflation rate in the healthcare sector. If $0< \mu <1$ applies, the Baumol effect can be described as incomplete because productivity progress in the healthcare sector is positive but lower than in the economy as a whole. Thus, wage growth is not fully passed on to prices. If, for example, there are inefficiencies in pricing in the healthcare system, such as market dominance by drug manufacturers or service providers, and/or a shortage of healthcare professionals, this can also cause a disproportionate increase in healthcare prices. Yet, in the first case, real wage growth is not the trigger. For the applied calculation methodology of the relative price effect, however, the exact effect mechanism is not relevant.

28 Since the baseline year is 2019 (t=0), t=31 corresponds to 2050.

After determining the expenditure per capita of an age cohort j for each year t, the total expenditure for year t is calculated. To determine the total expenditure, the expenditure per capita of an age cohort is first multiplied by the population number of the respective age cohort and then summed over all age cohorts (see equation (A1.2)). This is done separately for men and women before the total healthcare expenditure is calculated.

$$A(t) = \sum_{j} \frac{A(t,j)}{Bev(t,j)} * Bev(t,j)$$

(A1.2)

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