Fundación MAPFRE

HEALTH SYSTEMS: A GLOBAL ANALYSIS

MAPFRE Economic Research

Health systems: a global analysis

International comparison of selected healthcare systems

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Presentation

Health is a fundamental individual right, and its protection is generally entrusted to the public authorities. In recent decades, one of the main preoccupations of national governments and international bodies has been to progress toward universal healthcare coverage for the entire population, meaning that everyone can receive quality healthcare services without having to cope with economic difficulties. Although important advances have been made in this regard, it is estimated that half of the world's population are still unable to access the health services they need.

In addition to universal access to health services, health systems face various problems to which governments are seeking to find a solution. In this regard, and in order to contribute to the debate around the issues that affect health systems, MAPFRE Economic Research has produced this report now published by Fundación MAPFRE, which examines the current situation of the health systems and the future challenges they face, emphasizing the role that private insurance can play in taking care of citizens' health, whether through participation in public policy-making or by supplementing and expanding the basic mandatory coverage. To this end, the study performs a comparative analysis of healthcare systems for a group of selected countries representing models which, due to their different characteristics, can serve as a reference for the design of public policies on this issue.

The main objective of Fundación MAPFRE is to promote the well-being of society and citizens, and to improve the economic, social and cultural conditions of the population, particularly of the least privileged. With the publication of this report, Fundación MAPFRE aims to continue disseminating knowledge and the culture of insurance and social protection, and thus to contribute to the achievement of that great goal of the foundation.

MAPFRE Foundation

Introduction

Health systems represent a fundamental element in the design of the institutional framework of our societies. From a public policy perspective, preserving sustainability and improving the effectiveness of healthcare models is a factor of major importance for raising levels of well-being and, ultimately, for maintaining social equilibrium.

In the effort to adapt the health models, the traditional templates previously used to characterize them – from the Bismarckian and Beveridgian to the free-market type – appear to have begun to blur. In this regard, we see a trend toward extending healthcare coverage universally to the entire population, employing to this end variants of the original models or a combination of them. Against this backdrop, health insurance policies and the insurance companies that manage them can play a significant complementary role in the context of variants that contemplate public-private partnerships aimed at supporting the sustainability of the healthcare systems and improving their effectiveness.

In this study, we have analyzed a selection of health systems in different regions of the world, including models that incorporate some feature differentiating them from the others and that can be used as a reference when designing public policies related to healthcare systems. We also propose an indicator of the effectiveness of health systems, which has been estimated for a total of 180 countries and makes it possible to obtain a comparative global view of those systems.

Having an adequate and sustainable health system is an essential component of the public policy scheme of any government. However, healthcare systems around the world, regardless of the specific scheme on which they are based, face enormous challenges for the future. We hope this study will contribute to the understanding of this complex challenge for modern societies, as well as to the discernment of public policy alternatives that help in facing up to that challenge.

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Executive Summary

Health systems represent a fundamental element in the institutional design of modern societies. From a public policy perspective, preserving sustainability and improving the effectiveness of healthcare models is a factor of major importance for raising levels of well-being and, ultimately, for maintaining social equilibrium.

In this context, the role of health insurance and the insurance companies is largely determined by the specific healthcare model concerned. In this study, we analyze a selection of healthcare systems in different regions around the world, including models that incorporate some feature differentiating them from the others and that can be used as a reference when designing public policies related to health systems.

In the analysis of each system, an idea of the healthcare model is given by following a pillar structure: a first pillar relating to mandatory healthcare coverage, a second relating to voluntary coverage through an employment relationship, in which companies choose to supplement their workers' healthcare coverage, and a third relating to individual voluntary coverage, as explained in the conceptual framework of the report. In addition, for each system analyzed, we include a review of the evolution of the penetration of private insurance (insurance premiums relative to GDP), total healthcare expenditure and, when sufficient information has been provided, the market shares of the main insurance companies or groups that operate in this line of business

For each of the countries covered in the study, we have analyzed a series of indicators for expenditure, sources of funding, capacity, usage, status, risks to health and quality of the systems, with the aim of facilitating comparison between them and giving a reference for the countries' situation relative to the average value of these indicators for the member countries of the Organization for Economic Cooperation and Development (OECD).

After analyzing the main characteristics of the sample of healthcare models selected for the purposes of this study, we observe that the traditional templates previously used to characterize them (Bismarckian, Beveridgian or free-market) currently appear to be blurring. In this regard, we see that there is a trend toward the extension of healthcare coverage universally to all the residents of each country (as recommended by various international organizations, including the World Health Organization), employing to this end variants of the original models or a combination of them.

Against this backdrop, and regardless of the specific health model, the public sector plays a fundamental role in establishing the necessary public policies to ensure that providers of healthcare services (public or private) fulfill their obligation to provide adequate healthcare to the people who are entitled to it. The manner in which this coverage is provided follows different patterns, with a diversity in the typology and participation of healthcare institutions and providers, in the sources of funding and even in the very scope of the coverage.

Indicator of Effectiveness of Health Systems

As part of this study, an evaluation exercise was proposed, based on the construction of an ad hoc indicator (Indicator of Effectiveness of Health

Systems, IEHS), with the goal of obtaining an overview of the effectiveness of health systems at global level. By using this indicator, the aim is to have a comparative view of the effectiveness of the different health systems around the world, based on an evaluation of key indicators reflecting the positive effects of their operation.

In the construction of the IEHS, three variables were used that are available for the 180 countries analyzed: (i) the life expectancy at birth; (ii) the percentage of mortality among children between the ages of 0 and 4 years, (iii) the mortality due to non-communicable diseases among people between the ages of 30 and 70 years attributable to cardiovascular diseases, cancer, diabetes or chronic respiratory diseases (NCDs). Generally speaking, the behavior of these variables offers an overview of the effectiveness of the health systems by measuring three demographic phenomena directly linked to them.

The ranking is headed by Japan, Switzerland, South Korea, Singapore and Iceland. The healthcare systems of the countries analyzed in this report (in addition to Japan and Singapore, placed first and fourth in the ranking, respectively), appear in the following positions: Spain (9), Australia (10), France (14), Netherlands (19), United Kingdom (21), Chile (29), United States (31), Brazil (58) and Mexico (67).

Analysis of selected countries:

Japan

Japan occupies first place among the eleven countries analyzed in this report (as well as being first in the global ranking), ahead of Singapore, according to the IEHS. In terms of healthcare expenditure relative to GDP, the percentage was around 10.7% in 2017, and the penetration of private health insurance in that year was 2.7% of GDP.

The Japanese healthcare model is of the Bismarckian type, in which healthcare coverage is linked to an employment relationship and funded by contributions deducted from salaries. However, it has features of the Beveridge system in that it extends the coverage universally to all the country's residents, with a national health insurance scheme for unemployed people. The coverage is not free, but covers around 70% of healthcare costs, with additional support for those on low incomes. The system is funded mainly through insurance premiums subsidized by taxes. The cost of the insurance is deducted from the employee's pay, and a contribution is also made by the employer.

There are two mandatory employment-based health insurance programs: one for the public sector and employees of large companies, and the other for employees of small and medium-sized enterprises (with five or more employees), administered respectively by the Health Insurance Society and by the Japan Health Insurance Association (managed health insurance). These institutions are publicly owned insurance bodies, in other words they belong to the State, although they use the infrastructure of insurance companies, including pricing and claim management. Companies with 700 or more employees can set up their own health insurance society.

The coverage provided by Japan's public health insurance system means that the relative size of voluntary private expenditure is reduced. The insurance industry generally markets voluntary private medical insurance as a complement to Life insurance, in the form of insurance for the reimbursement of costs, covering chronic illnesses and hospitalization, offering the insured a global sum at the time of the diagnosis or hospitalization. There is also coverage taken out independently of Life insurance, but this is less common.

Singapore

Singapore occupies second place among the eleven countries analyzed in this report (fourth in the global ranking), ahead of Spain and behind only Japan, according to the IEHS. In terms of healthcare expenditure, the indicator was around 4.3% of the country's GDP in 2015, the lowest level among the selected sample, making this the best of the systems from the point of view of efficiency. The penetration of private health insurance in 2016 was 0.8% of GDP.

Singapore's healthcare system is novel as regards its form of funding, which

includes a comprehensive and mandatory social security savings scheme (Central Provident Fund, CPF) for its residents to cover their future health needs. This is a system that combines a state subsidy of up to 80% of hospital costs for serious illnesses with a citizen savings scheme (called "MediSave"). Through this mechanism, the citizens have a fund that is built up while they are healthy in order to meet future healthcare costs.

In Singapore, insurance companies authorized to operate in the Life segment can offer renewable temporary health and accident policies without the need to have an additional license. Thus, many Singaporeans choose to supplement the mandatory coverage in order to pay large hospital bills and cover costly outpatient treatment. Companies occasionally offer this type of supplementary coverage to their employees.

Spain

Spain occupies third place among the eleven countries analyzed in this report (ninth in the global ranking), ahead of Australia and behind Singapore, according to the IEHS. In terms of healthcare expenditure, the percentage was around 8.8% of GDP in 2017, and the penetration of private health insurance in that year was 0.7% of GDP.

The Spanish healthcare system corresponds to the so-called wide-coverage Beveridge model. However, despite this, out-of-pocket health expenditure is relatively high compared with other systems, representing 24.2% of total healthcare expenditure in 2015, fifth place in the selection of analyzed countries.

The penetration of voluntary private health insurance, meanwhile, is lower than in other countries where part of the cost is shared, but a slight upward trend has been maintained, even in the worst times of the economic crisis in 2008 and 2012. A large part of the health insurance business is in the hands of insurance companies specializing in this line of business (monoline companies).

Within the coverage of voluntary private health insurance, individual insurance accounts for the larger proportion, around 72%, while the rest is provided by group insurance (28% of premiums). Some companies offer their employees supplementary health insurance in addition to the mandatory coverage, as a work incentive.

The tax regime applicable to this form of remuneration currently offers tax advantages, since exemption from personal income tax is granted for the income in kind entailed for the employee, on the sums paid for him/her, his/her spouse and his/her offspring, subject to certain quantitative limits.

Australia

According to the IEHS, Australia occupies fourth place among the eleven countries analyzed in the report (tenth in the global ranking), ahead of France and behind Spain. In terms of healthcare expenditure, the indicator was around 9.4% of GDP in 2017, while the penetration of private health insurance in that year was 1.3% of GDP.

In general terms, the Australian health system corresponds to the Beveridge model of universal coverage funded through taxes. Public healthcare coverage for Australians and other permanent residents is provided through the Medicare program, which includes primary care costs, hospital costs and 85% of specialists' costs. It also covers certain services provided by opticians, nursing personnel, obstetricians and dentists. This coverage is funded by applying a 2% surcharge on income tax.

In addition to Medicare, and with the aim of alleviating the burden on the public system, a system of incentives has been established to encourage people to take out additional Private Health Insurance (PHI). The incentivization of private health insurance is achieved by applying a penalty through income tax, with a progressive surtax on the Medicare rate if private insurance is not taken out. This means that only people with low income levels would be exempt from penalization.

Those who have taken out private medical insurance can choose either to take advantage of their Medicare coverage by using

public hospitals (without the ability to choose the specialist who will treat them, and subject to the public healthcare waiting lists), or to use their private insurance (with the ability to choose the specialist and avoid the public system's waiting lists).

The Australian federal government has an online comparator to facilitate price and coverage comparisons when taking out private health insurance. Help is also available from the federal government, which may subsidize part of the private insurance premiums depending on the scope of the coverage and the financial means of the policyholder.

France

France occupies fifth place among the eleven countries analyzed in this report (fourteenth in the global ranking), ahead of the Netherlands and behind Australia, according to the IEHS. In terms of healthcare expenditure, the percentage was around 11.4% of GDP in 2017, the second-highest in the sample, behind only the United States. The penetration of private health insurance in that year was 1.6% of GDP.

The French system is a Bismarckian model, with funding based on the withholdings made on employees' wages and employers' contributions, but with features of the Beveridge system in that it provides universal coverage and obtains additional revenue from specific taxes such as those on tobacco and alcohol, among others.

Most of the coverage is provided through mandatory health insurance plans (*Assurance Maladie*), linked to an employment relationship. Workers are automatically subscribed to one of the schemes according to their status, without the possibility of choosing for themselves. The scheme with the largest number of subscribers is the *Caisse Nationale d'Assurance Maladie des Travailleurs Salariés* (CNAMTS), which covers workers in the industrial and trade sectors, together with their family members. Residents who do not have coverage via a mandatory health insurance scheme are also covered by the public system (*Couverture Maladie Universelle*, CMU).

Despite the wide coverage of the French public health system, the penetration of private health insurance is significant. The main reason for this is that although the public coverage is considered to be universal (in that it reaches virtually the entire population), it does not cover the full cost incurred, but only around 70%, with the exception of the least privileged people, and it is common to take out supplementary private health insurance in order to achieve full coverage. This means that the percentage of out-of-pocket costs in healthcare expenditure per capita is low (6.8%), indeed the lowest in the sample of systems analyzed in the report.

The Netherlands

According to the IEHS, the Netherlands occupies sixth place among the eleven countries analyzed in this report (nineteenth in the global ranking), ahead of the United Kingdom and behind France. In terms of healthcare expenditure relative to GDP, the indicator was around 10.1% in 2017, and the penetration of private health insurance in that year was 5.9% of GDP.

The Dutch health system is a mixed liberal model with elements of the Beveridge system. This is a model that provides universal coverage through mandatory medical insurance managed by private insurance companies. The insurance premium breaks down into two parts: the first is a standard amount that must be paid by each insured person over the age of 18 years, while the second is a variable amount that depends on the person's income level. For children and young people up to the age of 18 years, the government pays the cost of the insurance out of public resources.

Insurance companies that decide to take part in the mandatory coverage system must ensure that the services included in a basic package of coverage are available to all their insured parties. They are obliged to accept all applicants and cannot differentiate premiums according to the risks to the health of the insured person. Furthermore, the insured person can change insurer each year.

There is a deductible for medical treatment costs that is applied to most of the healthcare services in the basic package. The deductible is an amount that must be paid by the recipient of the medical care before

the insurer begins to bear the cost. However, there are medical services for which the deductible is not applied, for example the general practitioner. In addition, for certain medical costs in the basic package, a personal contribution or copayment must be paid.

On the other hand, in the Netherlands it is common for insurance companies to offer supplementary health insurance to cover the costs not covered by the mandatory private insurance.

Despite the predominant role of the insurance companies in the Dutch health system, it should be noted that the percentage of average healthcare expenditure per capita for the public system is significant, mainly due to long-term care programs funded through taxes.

United Kingdom

The United Kingdom occupies seventh place among the eleven countries analyzed in this report (twenty-first in the global ranking), ahead of Chile and behind the Netherlands, according to the IEHS. As regards healthcare expenditure relative to GDP, the percentage was around 9.7% in 2017, while the penetration of private insurance in that year was 0.3% of GDP.

The United Kingdom's healthcare system is based on the Beveridge model. It is implemented through the National Health Service (NHS), which is mostly funded through taxes. The coverage is universal and free of charge for legal residents, regardless of their ability to pay.

Given the scope and free coverage of the NHS, only a small percentage of the UK population (around 11%) has any type of private medical insurance. The nature of this private insurance varies, from coverage for specific diseases such as cancer to broader packages that include complementary therapies and diagnostic tests. The vast majority of these policies, around 82%, are for corporate group insurance.

Chile

According to the IEHS, Chile occupies eighth place among the eleven countries analyzed in this report (twenty-ninth in the global ranking), ahead of the United States and behind the United Kingdom In terms of healthcare expenditure relative to GDP, the percentage was around 8.1% in 2017, while the penetration of private health insurance in that year was 0.3% of GDP.

The current Chilean healthcare system corresponds to a mixed Bismarckian model with elements of the Beveridge model, combining a public insurance scheme called the Fondo Nacional de Salud [National Health Fund] (Fonasa) and private health plans managed by the Instituciones de Salud Previsional [Health Insurance Institutions] (Isapres), born out of the idea of improving the healthcare offering and citizens' ability to choose. The funding comes from different sources, mainly the State and contributions from employees and employers.

According to the most recent information available, out of Chile's population of 17.6 million people, around 13.5 million are subscribed to Fonasa and 3.4 million to an Isapre, while 0.4 million are covered by insurance provided by the armed forces and police. The rest of the population (around 0.3 million) is not covered by any health plan or insurance.

There is a notably high percentage of out-of-pocket health costs, which in 2015 represented 32.2% of the total healthcare expenditure per capita, the second-highest in the sample of systems analyzed, after Mexico.

United States

Based on the IEHS, the United States occupies ninth place among the eleven countries analyzed in this report (thirty-first in the global ranking), after Chile and ahead of Brazil. This situation contrasts with the percentage of healthcare expenditure relative to GDP, which in 2017 was around 17.1%, the highest among the selected sample and one of the highest in the world. The penetration of private health insurance in that year was 5.3% of GDP.

The US healthcare model corresponds to a liberal type of model, since there is no truly universal public healthcare coverage. However, there are a number of public protection programs for certain more vulnerable sections of the population, which seek to make up for the shortcomings of the free market. The most important of these are

Medicare for adults, Medicaid for people with limited resources, and CHIP for children. They currently cover a significant percentage of the population, around 40%.

Due to its institutional design, the area of coverage of the public health system in the United States opens up significant scope for coverage through corporate health schemes by the private sector. The majority of health insurance policies (around 56%) are for corporate group insurance. Companies have traditionally not been obliged to offer healthcare coverage to their employees. However, the "ACA" law of 2010 (Patient Protection and Affordable Care Act) made it mandatory for certain companies, depending on their size, to provide their employees with medical insurance.

Unlike large companies, small and medium-sized enterprises with fewer than 50 workers are not obliged to offer healthcare coverage to their employees, beyond occupational accident insurance. They occasionally incorporate it as part of the employee's remuneration package, although this is not very common, given the high cost that it entails for them. In these cases, the employee tends to bear part of the cost of the insurance. With the aim of encouraging these companies, a number of measures have been introduced, such as tax credits and the creation of an online health insurance market to make it easier for them to take out this type of insurance and access a wider offering, called the Small Business Health Options Program (SHOP).

In addition to the mandatory coverage through the above programs and the large companies' mandatory health plans for their employees, the ACA law established the obligation to take out private health insurance, with certain minimum requirements, for all persons not covered through such programs and plans. Among other measures, it was established that people for whom it is mandatory to take out this type of insurance cannot be rejected on the grounds of pre-existing medical conditions, nor can annual limits on the coverage be imposed. The policy must cover at least 60% of the actuarial cost, and the premium cannot be calculated on an individualized basis.

To this end, a specific regulation was established to allow these people access to private insurance at a reasonable cost, with the creation of an online market for these policies and subsidies for payment of the premiums for people whose incomes are above the threshold for access to Medicaid but below a minimum determined according to the federal poverty level.

The introduction of this obligation takes into account the greater capacity of the insurance companies to negotiate the costs of the services with the healthcare providers, which people do not have at individual level, and this can help to reduce the final cost of the coverage which, in the United States, is very high.

In addition, with the aim of increasing the offering and making it easier to take out this type of insurance, it is negotiated on a digital platform managed by the different states (or otherwise at federal level), which also inform the insured persons about the possible assistance available to them depending on their circumstances. The policies negotiated in this insurance market (on so-called exchanges) are standardized, and by law must provide quite wide coverage in terms of benefits.

Brazil

Brazil occupies tenth place among the eleven countries analyzed in this report (fifty-eighth in the global ranking), behind the United States and ahead of Mexico, according to the IEHS. In terms of healthcare expenditure relative to GDP, the indicator was around 8.9% in 2015, and the penetration of private health insurance in 2017 was 0.6% of GDP.

The current Brazilian healthcare system corresponds to the Beveridge model. However, despite the existence of free universal public coverage, the involvement of the private sector is significant, through supplementary health coverage. The current configuration of the Brazilian public health system is the result of a process of structural transformation at the end of the 1980s, when it moved from a social security model (which covered only people with a contract of employment) to a national health service model, with the creation of the Sistema Único de

Salud [Unified Health System] (SUS), providing universal access and funded by tax revenues. The SUS was created in 1988, at the time of the inclusion in the Constitution of the right to free comprehensive healthcare for the entire population.

The private health sector as a whole is called the Sistema de Atención Médica Suplementaria [Supplementary Medical Care System] (SAMS), and is supervised by the Agencia Nacional de Salud Suplementaria [National Supplementary Health Agency] (ANS). The users are companies and families, who purchase group or individual Health Plans and Health Insurance. The Health Insurance is characterized by being mainly of the reimbursement type, allowing a free choice of doctor or hospital, while the Health Plans mainly cover the provision of services within a predefined medical or hospital framework, and these are the most common solution.

Mexico

Mexico occupies eleventh place among the eleven countries analyzed in this report (sixty-seventh in the global ranking), behind Brazil, according to the IEHS. In terms of healthcare expenditure relative to GDP, the percentage was around 5.4% in 2017, while the penetration of private health insurance in that year was 0.3% of GDP.

The Mexican healthcare system corresponds to a mixed Bismarckian model with elements both of the Beveridge system and of the free-market model. Three major components can be identified in this system: (i) social security institutions linked to an employment relationship; (ii) health services for the uninsured population (Seguro Popular), and (iii) private services, which are currently the predominant feature of the system, considered individually.

The institutions that make up the social security system are the Instituto Mexicano del Seguro Social [Mexican Institute of Social Security] (IMSS) for private-sector employees, the Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado [Institute of Social Security and Services for Public Workers] (ISSSTE), and the Instituto de Seguridad Social de las Fuerzas Armadas Mexicanas [Institute of Social Security for the Mexican Armed Forces] (ISSFAM). In addition, the state governments have created social insurance schemes for their employees ("State ISSSTEs"), and some decentralized bodies, such as Petróleos Mexicanos, have independent medical services.

The Seguro Popular offers coverage through two packages of health benefits: the Catálogo Universal de Servicios Esenciales en Salud [Universal Catalog of Essential Health Services] (CAUSES), and the interventions funded through the Fondo de Protección Contra Gastos Catastróficos [Fund for Protection from Catastrophic Expenses]. In addition, there is a program called IMSS-Prospera, which offers marginalized populations in rural and urban areas a free basic package of primary care and preventive health services.

It is important to note the high percentage of out-of-pocket health costs, which in 2015 represented 41.4% of the total healthcare expenditure per capita, the highest in the sample of systems analyzed.

Health expenditure by the Mexican private health subsystem represented 2.6% of GDP in 2017. The private sector includes those people who, due to their employment situation, do not have access to social security (self-employed, unsalaried casual workers, unemployed), are not registered for Seguro Popular, do not receive treatment in the public health services and state health systems, or are not beneficiaries of the IMSS-Prospera program.

The private insurance companies offer two types of coverage: insurance against major medical expenses, and health insurance taken out with Instituciones de Seguros Especializadas en Salud [Insurance Institutions Specializing in Health] (ISES). These are insurance institutions authorized to operate as insurers against accidents and illness in the health line. They are permitted to sell private insurance, and the objective must always be to protect or restore the health of the insured person directly and with their own resources, a combination of the two, or through actions performed for the benefit of the insured.

Overview of public policies

From the analysis of international experience performed in the study, it emerges that the ultimate objective of having universal healthcare coverage is not always to achieve free coverage for the entire resident population, but rather to offer special free or highly subsidized protection

only for the most vulnerable sections of the population, seeking thus to remedy the intrinsic deficiencies of the healthcare model concerned or, ultimately, the shortfalls of the market. For the rest of the population, the objective of universal coverage sometimes results in a sharing of costs, and indeed in some systems is limited to seeking to ensure coverage at a reasonable cost.

In this context, two important aspects can be inferred from the analysis performed. The first is that the aim of advancing toward universal coverage has resulted in the establishment of mechanisms complementary to those considered in the models originally employed. The second is that these complementarity schemes have involved greater participation by the private sector, whether through stimuli for companies to participate in providing supplementary healthcare coverage for their employees or through greater participation by private insurance companies as specialized managers in the provision of healthcare services.

In the international analysis, we see that the role of the insurance companies is largely determined by the healthcare model of the territory in which they operate. Normally they play a role complementary to that of the public sector, with some notable exceptions such as in the Netherlands, the United States and Japan. In the Netherlands and Japan, the high penetration of health insurance is due to public policy decisions to the effect that the insurance companies should participate in the mandatory universal coverage system. In Japan, meanwhile, the insurance companies that manage the mandatory coverage linked to an employment relationship are publicly owned, so that the role of the private insurance companies offering voluntary health insurance is limited and of a markedly complementary nature. In the United States, the very substantial participation of the insurance industry is largely due to the free-market healthcare model adopted.

Thus, in those countries where the objective is to offer universal coverage with a sharing of costs or at a reasonable cost, an opportunity opens up for the participation of voluntary health insurance through the private insurance companies. Sometimes it is the companies themselves that offer employees and their families insurance complementary to the mandatory coverage, as a work incentive. The United States and France are good examples in this regard. In any event, there is always the alternative of taking out voluntary individual coverage. Sometimes, in order to encourage this behavior, private coverage through voluntary health insurance enjoys the benefit of a favorable tax regime.

In those countries where the objective is to offer free universal healthcare coverage, such as Brazil, the United Kingdom and Spain, the volume of supplementary health insurance provided by private companies is lower, but does not disappear. Furthermore, the percentage of out-of-pocket health costs in these countries is high, even higher than those of other systems based on cost-sharing. Sooner or later, the cost to the public purse of free universal healthcare produces budgetary sustainability problems that eventually result in funding problems and longer waiting lists, giving rise to coverage shortfalls, and this also opens up space for the development of voluntary private insurance.

From the review of international experience conducted in this study, there are a number of public policies that should be highlighted, since they constitute good practices that have supported the ultimate objective of advancing toward the universalization of healthcare services coverage for the population.

Savings plans to cover health expenses

Compulsory medium and long-term saving to cover healthcare needs has always been one of the aspects regarded as key to improving the medical care provided to citizens.

In this regard, the healthcare system of Singapore includes a savings plan for its citizens

to cover their future health needs, called "MediSave". Through this mechanism, the citizens have a fund that is built up while they are healthy in order to meet future healthcare costs. This is a system that combines a state subsidy of up to 80% of hospital costs for serious illnesses with a mandatory savings system.

Incentives for taking out voluntary insurance

From the point of view of complementarity, the establishment of incentives for taking out voluntary insurance, as mechanisms for widening and eventually universalizing healthcare for the population, represents a key measure. In this regard, and with the aim of alleviating the burden on the public health systems, some countries have established a system of incentives for taking out voluntary health insurance to complement the care provided by the first-pillar schemes.

In Australia, for example, the incentivization is achieved by means of a penalty applied through income tax, by imposing a progressive surtax on the Medicare rate (applicable to all taxpayers for the funding of the public system) if private insurance is not taken out. This means that the only people exempt from the penalization mechanism are those with lower income levels who do not take out private health insurance. Those who have taken out medical insurance can choose either to take advantage of their Medicare coverage by using public hospitals (without the ability to choose the specialist who will treat them, and subject to the public healthcare waiting lists), or to use their private insurance (with the ability to choose the specialist and avoid the public system's waiting lists).

In Spain, some companies offer their employees supplementary health insurance in addition to the mandatory coverage, as a work incentive. The tax regime applicable to this form of remuneration currently offers tax advantages, since exemption from income tax is granted for the benefits in kind entailed for the employee, on the sums paid by the company for him/her, his/her spouse and his/her offspring, subject to certain quantitative limits. In the United States, Brazil and Mexico, tax credits are also granted for taking out this type of work incentive, or for taking out individual private health insurance.

Online markets and comparators

Various countries in which private health insurance plays a significant role in the general health scheme have introduced, by law, online comparators to facilitate price and coverage comparisons when taking out private health insurance.

In the United States, with the aim of encouraging small and medium-sized enterprises to take out private health insurance for their employees, in addition to tax credits, an online health insurance market has been created to make it easier for them to take out this type of insurance and access a wider offering, called the Small Business Health Options Program (SHOP). There are also digital platforms for taking out individual insurance, managed by the different states, or otherwise at federal level (called "exchanges"), with standardized policies which by law must provide quite wide coverage in terms of benefits. These policies may also cover different percentages of healthcare bills: 60%, 70%, 80% or 90% (bronze, silver, gold and platinum categories, respectively). These markets were created at the time of the introduction of the obligation to take out private health insurance for those people not covered by the public protection programs (Medicare, Medicaid or CHIP).

Strengthening of the role of private insurance

In a number of the systems analyzed, the strategy for the universalization of coverage has explicitly addressed the strengthening of the role of private health insurance.

In this regard, the Dutch health system provides universal coverage through mandatory medical insurance managed by private insurers. Insurance companies that decide to take part in the mandatory coverage system must ensure that the services included in a basic package of coverage are available to all their insured parties. They are obliged to accept all applicants and cannot differentiate premiums according to the risks to the health of the insured person. The insured person can change insurer each year.

In the United States, in addition to the mandatory coverage through the programs for vulnerable people and the large companies' mandatory health plans for their employees, the ACA law established the obligation to take out private health insurance, with certain minimum requirements, for all persons not covered through such programs and plans. Among other measures, it was established that people for whom it is mandatory to take out this type of insurance cannot be rejected on the grounds of pre-existing medical conditions, nor can annual limits on the coverage be imposed. The policy must cover at least 60% of the actuarial cost, and the premium cannot be calculated on an individualized basis.

It is important to note that the introduction of this obligation takes into account the greater capacity of the insurance companies to negotiate the costs of the services with the healthcare providers, which people do not have at individual level, and this can help to reduce the final cost of the coverage which, in the United States, is very high. These negotiations are complicated even for the insurance industry, taking into account the size and negotiating power of providers such as pharmaceutical companies or medical associations in this country.

Correction of market failures

In those countries that have established a health system with free-market characteristics, there are public protection programs for certain more vulnerable sections of the population, which would otherwise be unable to access healthcare coverage at a reasonable cost. This is the case in the United States, with the Medicare program for elderly people, Medicaid for people with limited resources, and CHIP for children. They currently cover a significant percentage of the population, around 40%.

The challenges for the health systems

Having an adequate and sustainable health system is an essential component of the public policy scheme of any government. However, health systems around the world, regardless of the specific scheme on which they are based, face enormous challenges for the future.

The current generalized increase in government debt volumes and fiscal deficits, aggravated by higher pension and health costs (largely due to the generalized process of population aging), makes it difficult to stretch the public funding budget intended to cover free and cost-sharing universal healthcare.

Notable in this regard is the case of Japan and the effort being made by the country's government to obtain information through its municipal authorities in order to determine the seriousness of the problem. Analysis of this information shows that people over the age of 64 years account for more than 58% of the total healthcare expenditure, and within this group those over the age of 70 years receive around 30% of that proportion. This country founded a unique health insurance structure for older people, making healthcare free for those over the age of 70 years and subsidizing their 30% cost sharing. However, problems of sustainability arose due to its pronounced process of population aging, and currently the eligibility age has been extended to 75 years, with the further requirement of a small copayment.

Also notable in this regard is the case of the Netherlands, where, despite the wide mandatory coverage with a predominant role played by the insurance companies in the health subsystem, the percentage of average healthcare expenditure per capita for the public system is significant, largely due to the long-term care programs funded through taxes.

Japan and the Netherlands are just two examples of what is believed to be a generalized process worldwide, which is also impacting other health systems. This aging process will undoubtedly determine the design of future public policies as the current generations live longer, with an inevitable increase in health and pension costs for which governments will need to prepare themselves. In terms of the conceptual framework of this study, these policies would need to be based on savings and on the pillars of employment-related voluntary supplementary coverage (second pillar) and individual private coverage (third pillar), due to the increase in pressure on the public accounts as the population aging process advances. In this way, the healthcare systems will be able to partially alleviate those pressures on their operation, as well as to devote greater resources to long-term and palliative care.

1. Conceptual Framework

1.1 Schema of the study

Health insurance is a business line of great importance for the insurance industry worldwide. However, this is a segment in which the role of the insurance companies is largely determined by the healthcare model of the country in which they operate.

There is currently a trend toward the extension of universal healthcare coverage to all the residents of each country, as recommended by various international organizations, including the World Health Organization (WHO). This process is the result of a historical evolution that is still ongoing.

In those countries that have established universal healthcare coverage, the manner of providing that coverage follows different models with a variety of types and forms of participation of institutions and healthcare providers, funding sources and scope of coverage. There are also differences in the ultimate objective, which is not always to achieve free universal coverage, but rather, on occasions, universal coverage at a reasonable cost with special free or highly subsidized protection for the most vulnerable sections of the population, seeking to make up for the shortcomings of the free market.

In this study, we have analyzed a selection of healthcare systems around the world, including models that incorporate some feature differentiating them from the others and that can be used as a reference when designing public policies related to healthcare systems.

Thus, the analysis in this study includes eleven models found in different regions of the world: in North America and Latin America (United States, Mexico, Brazil and Chile), in Oceania and Asia (Australia, Japan and Singapore), and in Europe (Spain, France, the Netherlands and the United Kingdom).

In accordance with the conceptual framework detailed in the next section, in each of the systems analyzed in this report an idea of the healthcare model is given by following a pillar structure reflecting mandatory healthcare coverage, voluntary coverage through an employment relationship, in which companies choose to supplement their workers' healthcare coverage, and individual voluntary coverage, We also include an analysis of the evolution of the penetration of private insurance (insurance premiums relative to GDP), total healthcare expenditure and, when sufficient information has been provided, the market shares of the main insurance companies or groups that operate in this line of business

We have also analyzed a series of indicators for expenditure, sources of funding, capacity, usage, status, risks to health and quality of the systems, with the aim of facilitating comparison between them and giving a reference for the countries' situation relative to the average value of these indicators for the member countries of the Organization for Economic Cooperation and Development (OECD).

Finally, we have developed a summary indicator to evaluate the effectiveness of the healthcare systems based on other commonly used indicators that reflect, directly or indirectly, the effectiveness of those systems. This summary indicator, which has been named the "Indicator of Effectiveness of Health Systems" (IEHS), was constructed for 180 countries on the basis of the life expectancy at birth, the percentage of mortality among children below the age of 5 years relative to the total mortality in a five-year period, and the percentage of mortality due to non-communicable diseases (NCDs) among people between the ages of 30 and 70 years.

1.2 Conceptual Framework

With the aim of giving an idea of the different healthcare systems and the environment in which the health insurance business is conducted, there follows a description of the conceptual framework used in this study, based on a pillar structure, which seeks to facilitate a comparative analysis of the role played by the public and private sectors in healthcare assistance coverage under each model (see Chart 1.2-a). The pillars considered are as follows:

Pillar 0
Minimum healthcare coverage

This basic treatment pillar covers the minimum healthcare coverage available, where applicable, for people not covered by the public system or a mandatory private alternative. It should be noted that the coverage considered in this pillar does not exist in those countries that have established mandatory universal coverage, although there is sometimes minimum coverage for non-resident foreigners who need medical attention in a given country and do not have the means to pay for it, which would form part of this pillar.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

The manner of evolving toward a particular healthcare coverage model and the design of that model are key factors for determining the relative weight of this mandatory coverage pillar. Given the generalized trend toward establishing universal public healthcare coverage models, this pillar tends to play a fundamental role. The main characteristics of the different models can be summarized in the following categories (see Chart 1.2-b).

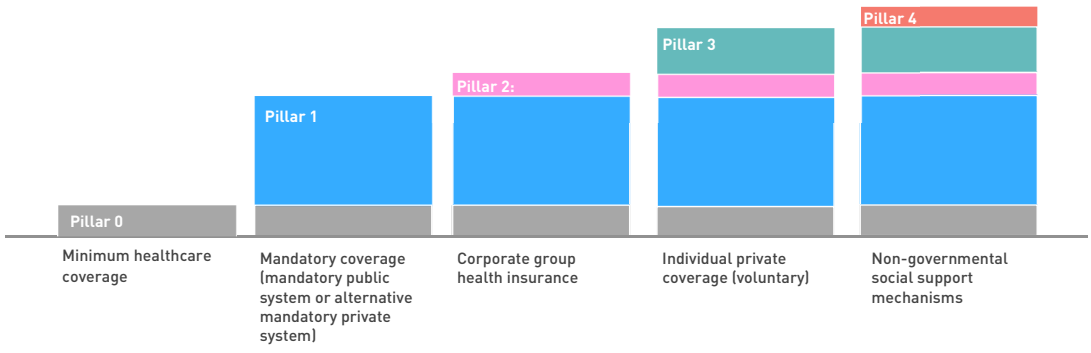
Bismarckian model

This type of model is publicly funded, mainly through employee and employer contributions, deducted from working income. The provision of services is generally a public-private combination, and the coverage applies to employees and their families.

The origins of this healthcare coverage scheme are often linked to the guilds and brotherhoods of the Middle Ages, which offered medical, apothecary and burial services in exchange for a periodic fee, and which subsequently inspired the Prussian chancellor Otto von Bismarck to establish a welfare system intended to provide workers with economic protection against certain contingencies, including illness. Typically, in this type of system the users have greater ability to choose the providers of healthcare services.

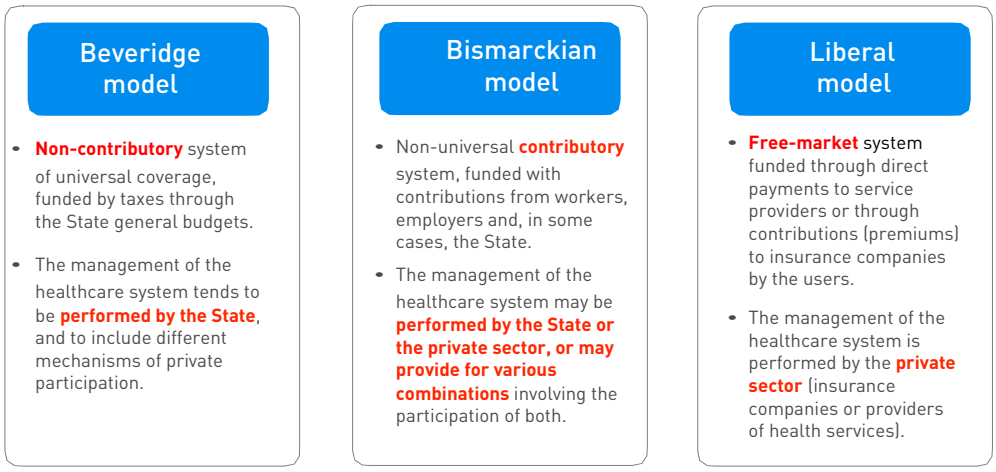
The main problem with this type of system (which operates on the basis of insurance techniques) lies in the calculation of contributions, which needs to be done on the basis of morbidity data

Chart 1.2-a
Conceptual schema: pillars for the analysis of the health systems



Source: MAPFRE Economic Research

Chart 1.2-b
Conceptual schema: summary of Pillar 1 healthcare models



Source: MAPFRE Economic Research

and the consequences should the contributions prove insufficient to meet the current healthcare expenditure. Furthermore, these systems can produce problems of fairness in relation to people who are unemployed and would therefore not be under the protection of the social security system.

Beveridge model

This health coverage model has its origins in the United Kingdom and is based on the general principle that every person has the right to the best medical treatment available, regardless of their economic means. This model owes its name to Sir William Beveridge, author of the 1942 "Report to the Parliament on Social Insurance and Allied Services", which served as the basis for the creation of the UK's health system in 1948.

In general terms, this type of system is funded publicly through general taxation, and the provision of the services is governed by the principle of universal coverage for the residents of a country. These tend to be more integrated models with a greater degree of fairness, although the user's freedom of choice is limited and can lead to problems of accessibility (waiting lists).

Liberal model (free-market healthcare models)

The general principle underlying this type of model is the consideration of healthcare services as a free-market activity and therefore not subject to specific public regulation. However, in the countries where this view of health protection predominates, there tends to be minimal regulation of the conditions of its conduct (e.g. professional licenses), although the utilization of services is based on the law of supply and demand. At the same time, there also tends to be a minimal contribution by the public authorities, which is limited to caring for certain vulnerable sections of the population who, due to their age or economic means, would otherwise have no access to adequate healthcare, seeking to make up for the shortcomings of the market.

In these models, the user pays the provider directly, without intermediaries of any kind, or frequently through private insurance companies.

Other types of models

Other healthcare systems exist that cannot be grouped with those described above because they have mixed features that make them difficult to categorize, or because they do not have a design that corresponds to the normal patterns of the described models.

It is also important to point out that in the majority of cases, these typological models are not found in a pure form. Usually, one of these models predominates in a country, with the presence of features characteristic of other models of health protection.

Pillar 2
Corporate group health insurance

This pillar includes the health mechanisms or insurance that some companies offer their employees as a supplement to the mandatory coverage and as part of the work incentives. Occasionally, governments encourage the adoption of these supplementary schemes through the implementation of a favorable tax regime.

It is important to point out that the available data does not always make it possible to distinguish this pillar from the one that corresponds to individual private coverage. Consequently, where possible in this study, an idea has been given of the volume that it represents relative to health services covered through individual private coverage.

Pillar 3
Individual private coverage (voluntary)

This pillar includes services provided either through private insurance companies or directly by providers of healthcare services. This pillar is usually supplementary to the health services that the users obtain through pillars 1 and 2.

Pillar 4
Non-governmental social support mechanisms

Finally, this pillar includes support for health services (usually basic) provided to vulnerable sections of the population directly by non-governmental organizations (NGOs), which are generally provided on a supplementary basis in parallel with the institutional health systems. For this reason, it is a supplementary pillar that falls outside the realm of public policies and has therefore been omitted from the analysis in this study.

2. Analysis of health models in selected countries

2.1 United States

Total health expenditure in the United States in 2017 represented 17.1% of the country's GDP (17% in 2016), 8.2 percentage points above the average of 8.9% for the countries of the Organization for Economic Development and Cooperation (OECD)[1]. This percentage shows a rising trend over the 2007-2017 period, during which it increased by 2.1 percentage points in terms of GDP (see Chart 2.1-a).

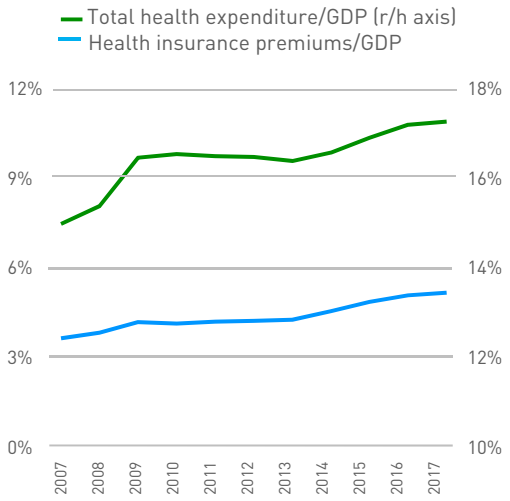
Health insurance premiums, meanwhile, represented 5.3% of GDP in 2017[2]. Analysis of the evolution of the penetration of private health insurance reveals a clear upward trend, with an increase of 1.4 percentage points relative to GDP over the 2007-2017 period (see Chart 2.1-a).

This growth in health insurance, especially from 2013 onward, partly reflects the impact of the introduction of the obligation to take out private insurance by the "Patient Protection and Affordable Care Act" of 2010 (hereinafter the "2010 ACA law"). The content of this reform is explained in the part relating to the first pillar in the next section (see Box 2.1-a).

The evolution of the volume of private health insurance business in recent years is shown in Charts 2.1-b and 2.1-c, together with a comparison of the increases in total healthcare expenditure and GDP of the United States over the same period. These clearly show the boost given to private health insurance by the 2010 reform, with sustained growth above the level of growth in GDP and total healthcare expenditure.

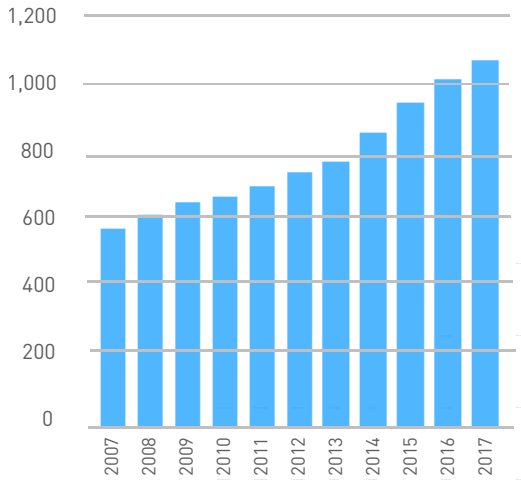
Moreover, we see significantly higher growth in insurance premiums compared with the increase in nominal GDP and total healthcare expenditure. In the last decade,

Chart 2.1-a
United States: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with NAIC, SNL, OEF and Haver Analytics data)

Chart 2.1-b
United States: health insurance premiums, 2007-2017
(billions of dollars)



Source: MAPFRE Economic Research (with NAIC, SNL, OEF and Haver Analytics data)

Box 2.1-a
United States: "Affordable Care Act" (ACA)

Patient Protection and Affordable Care Act

The "*Patient Protection and Affordable Care Act*" is a law approved on March 23, 2010 under the presidency of Barack Obama, popularly known as Obamacare and also referred to by its acronym ACA. The main objective of the legislation is to facilitate access to health coverage for all US citizens and to increase the number of insured people. To this end, the law provides for numerous measures including the following:

- **Immediate improvements in medical care coverage for all US citizens.** Prohibition of unilateral withdrawal of coverage from a subscriber, non-imposition of a cost-sharing requirement, coverage of dependents for people up to the age of 26 years, and imposition of the 80/20 rule, among other measures.
- **Reform of the health market.** The Act prohibits health plans from discriminating against or excluding people on the grounds of pre-existing conditions.
- **Establishment of qualified health plans.** The Act defines an essential health package that must be provided by all insurance plans.
- **Affordable coverage options for all US citizens, through premium tax credits and reductions in shared costs.** Individual taxpayers whose household income is at least 100%, but not more than 400%, of the federal poverty line (as determined by the Social Security Act, SSA) are eligible for a refundable tax credit for a percentage of the cost of the premiums for coverage under a qualified health plan.
- **Small Business Health Care Tax Credit**. Businesses with fewer than 25 employees whose annual salaries do not exceed 50,000 dollars can obtain a 50% tax credit.
- **Improved access to Medicaid**. To extend its coverage, starting in 2014, to people under the age of 65 years who are not entitled or are registered for Medicare and have an income not exceeding 133% of the federal poverty line. The Act also gives a state the option of widening the eligibility for Medicaid to these people as from April 1, 2010, with the offer for the federal government to pay 100% of the cost of coverage for eligible people between 2014 and 2016.

The states have the power and flexibility to establish and administer their own Medicaid programs and to determine the type, quantity, duration and scope of the services, within the general federal guidelines. Although the federal legislation requires the states to provide certain "mandatory" benefits, it allows them the option of covering other "optional" benefits known as "Medicaid expanded". Since January 1, 2017, a total of 31 states and the District of Columbia have adopted the expansion of Medicaid.

One of the features of this law was the "*individual mandate*", whereby US citizens could face a fine if they did not carry qualified health insurance. However, the fine associated with the individual mandate was abolished on December 20, 2017. The abolition will enter into force from 2019.

An important element introduced by the ACA law is the creation of the "*Health Insurance Market*", a virtual space where people can find qualified medical insurance. In most states, the Marketplace is www.healthcare.gov. Insurance plans are categorized as gold, silver, bronze and platinum according to their coverage, premiums, copayments and deductibles. All health plans offered in the Marketplace must offer 10 basic services: outpatient services, emergency services, hospitalization, maternity, mental health, prescription drugs, rehabilitative services, laboratory services, preventive services and pediatric services.

The 80/20 rule requires insurance companies to spend at least between 80% and 85% of premiums on healthcare. If the insurance companies spend less, the difference is refunded

Box 2.1-a (continued)
United States: "Affordable Care Act" (ACA)

to the consumers in the form of a rebate on part of the premium paid. The ACA requires insurers that significantly increase the premiums of the plan (by more than 10%) to send their tariffs to the state or federal government for review.

The ACA was intended to ensure access to health for all US citizens, but the coverage remains fragmented by population and by state, due to numerous private and public funding sources and a conglomerate of federal and state programs for people with low incomes. Although it has certainly achieved one of its aims, since the coverage has increased (the number of citizens without medical insurance in 2016 was 25.5 million, compared with 44.7 million in 2006), it has not succeeded in containing the costs (see the Table in the box).

There is currently a debate around the possibility of repealing this law and having it declared unconstitutional, as demanded by 20 states. If approved, any changes and budget cuts to health services and programs could have a particular impact on states and areas that have a high proportion of their population covered by Medicaid and Medicare.

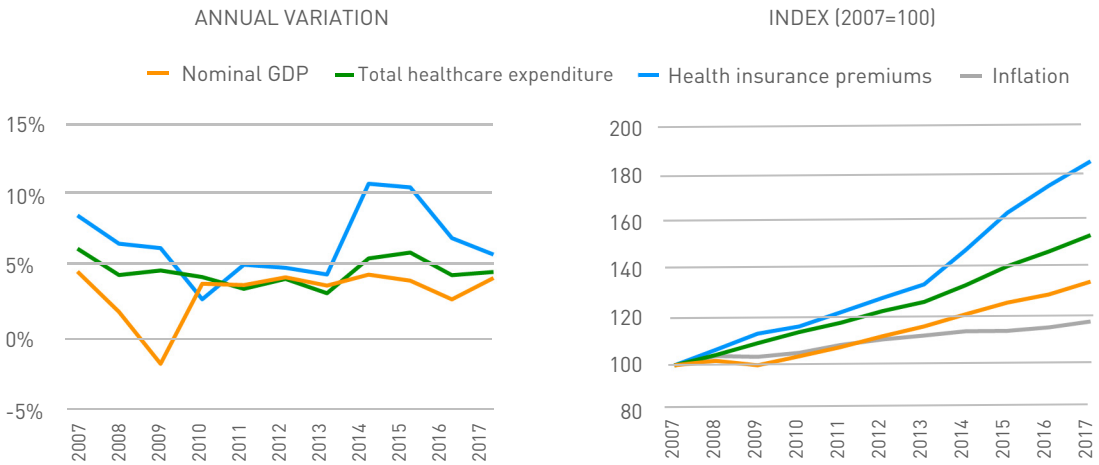
United States: evolution of Medicaid costs and healthcare coverage

Year	Medicaid costs		Evolution of Medicaid registrations		Citizens covered by Medicaid		Citizens without medical insurance		Citizens without medical insurance	
	(billions of US dollars)	Growth	(millions)	Growth	(millions)	Growth	(millions)	Growth	(% of the total)	Growth
2005	315.9	n/r	46.3	n/r	38.19	n/r	n/a	n/a	n/a	n/a
2006	315.1	-0.25%	46.7	0.86%	38.37	18.00%	44.73	n/r	17.1%	n/r
2007	332.2	5.43%	46.4	-0.64%	39.69	3.44%	41.65	-6.88%	16.6%	-0.50%
2008	351.9	5.93%	47.7	2.80%	42.83	7.91%	41.31	-0.83%	16.6%	0.00%
2009	378.6	7.59%	50.9	6.71%	47.85	11.72%	44.77	8.39%	17.3%	0.70%
2010	401.5	6.05%	54.5	7.07%	48.53	1.42%	44.66	-0.26%	17.7%	0.40%
2011	427.4	6.45%	56.3	3.30%	50.84	4.76%	44.09	-1.28%	17.3%	-0.40%
2012	431.2	0.89%	58.9	4.62%	50.90	0.12%	44.28	0.44%	17.0%	-0.30%
2013	455.6	5.66%	59.8	1.53%	54.92	7.90%	43.42	-1.95%	16.8%	-0.20%
2014	494.5	8.54%	65.1	8.83%	61.65	12.25%	34.70	-20.08%	13.5%	-3.30%
2015	549.1	11.04%	70.0	7.53%	62.38	1.18%	28.53	-17.87%	10.9%	-2.60%
2016	577.3	5.13%	72.2	3.14%	62.30	-0.12%	25.53	-10.49%	10.0%	-0.90%

Source: Statista (with www.census.gov data)

Source: MAPFRE Economic Research

Chart 2.1-c
United States: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with NAIC, SNL, OEF and Haver Analytics data)

health insurance premiums grew by 84.9% compared with an increase in nominal GDP of 34.8% during that period and a rise in total healthcare expenditure of 54.2%.

Description of the levels of coverage of the healthcare system

The US healthcare model corresponds to a liberal type of model, since there is no universal public healthcare coverage. However, there are a number of public protection programs for certain more vulnerable sections of the population. There follows a description of the different levels of coverage, following the schema described in the conceptual framework set out in the first part of this study.

Pillar 0
Minimum healthcare coverage

In the healthcare system of the United States, there is no minimum public healthcare coverage as such. However, serious emergencies involving people not covered by any health program must be treated by the nearest hospital, whether public or private, even though no insurance is available and no immediate payment can be made. In addition, public hospitals provide basic day-hospital treatment for uninsured patients without demanding prior payment. In any case, providers of public or private services have the right to subsequently demand and pursue the corresponding payment.

It should also be noted that for legal residents in the United States who do not meet the minimum residency requirement for accessing the public protection programs, there are subsidies on the payment of health insurance premiums if their incomes are below the federal poverty line[3].

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

The US public healthcare system is designed to provide coverage to the most vulnerable sections of the population according to their economic capacity and their age, covering citizens and legal residents who also meet certain minimum residency requirements (currently five years). This is wide coverage, provided through health programs that go beyond the minimum healthcare coverage.

The most important public health programs, in terms of the size of the groups covered, are those known as Medicare, Medicaid and CHIP

(Children's Health Insurance Program). Medicare and Medicaid date back to 1965, but were subjected to an important reform in 2010 through the ACA law, which considerably enlarged the scope of the groups that they cover.

According to the latest available data (2016), healthcare expenditure relating to mandatory coverage can be estimated at around 8.4% of GDP[4], and this gives an idea of the relative weight of the public coverage provided by these programs in the country's healthcare model, which currently covers around 40% of the population[5].

The basic characteristics of the public health protection programs are described below:

Medicare. This is a federal program aimed at people over the age of 65 years and those below the age of 65 with specific disabilities or chronic kidney failure. It also covers foreigners over the age of 65 with legal residence in the United States, subject to certain requirements regarding the duration of their residence. Medicare beneficiaries may be entitled to an additional benefit for the costs of medication prescribed under Medicare, subject to a series of conditions regarding the beneficiary's income and assets.

Medicaid. This is a program that covers basic medical assistance for certain people and families with low incomes and resources. Although mostly funded by the federal administration, it is managed by each state, which has a large degree of freedom to establish access and coverage rules, administering its own programs. The ACA law of 2010, effective from 2014, widened the eligibility to include everyone below the age of 65 from families with incomes of less than 133% of the federal poverty level[6]. It also extended the eligibility to include people below the age of 65 who have no other qualification factors, such as those who are below the age of 18, disabled, pregnant or parents with young children. However, the United States Supreme Court removed the federal administration's power to penalize those states that fail to expand the program, converting this into an option if non-compliance has no consequences. At the beginning of 2018, 18 states had still not extended the program.

CHIP (Children's Health Insurance Program). This is a federal-state program to help children of families whose incomes are above the limit to qualify for protection under Medicaid, but not high enough to enable them to take out private insurance coverage.

Although this set of programs is publicly funded, the majority of services are delivered by private providers, with the significant exception of serving or retired military personnel and their families. Medicare is jointly funded through taxes and mandatory contributions amounting to 2.9% of workers' salaries, half being paid by the employee and half by the employer[7].

In addition to the mandatory coverage through the above programs and the large companies' mandatory health plans for their employees, the ACA law established the obligation to take out private insurance, with certain minimum requirements, for all persons not covered through such programs and plans.

To this end, a specific regulation was established to allow these people access to private insurance at a reasonable cost, with the creation of an online market for these policies and subsidies for payment of the premiums for people whose incomes are above the threshold for access to Medicaid but below a minimum determined according to the federal poverty level (currently 400%).

Among other measures, it was established that people for whom it is mandatory to take out this type of insurance cannot be rejected on the grounds of pre-existing medical conditions, nor can annual limits on the coverage be imposed. The policy must cover at least 60% of the actuarial cost, and the premium cannot be calculated on an individualized basis.

The introduction of this obligation takes into account the greater capacity of the insurance companies to negotiate the costs of the services with the healthcare providers, which people do not have at individual level, and this

can help to reduce the final cost of the coverage which, in the United States, is very high. These negotiations are complicated even for the insurance industry, taking into account the size and negotiating power of providers such as pharmaceutical companies or medical associations in this country.

In addition, with the aim of increasing the offering and making it easier to take out this type of insurance, it is negotiated on a digital platform managed by the different states (or otherwise at federal level), which also inform the insured persons about the possible assistance available to them depending on their circumstances. The policies negotiated in this insurance market (on so-called exchanges) are standardized, and by law must provide quite wide coverage in terms of benefits. They may also cover different percentages of healthcare bills: 60%, 70%, 80% or 90% (bronze, silver, gold and platinum categories, respectively). Penalties will be applied if this type of insurance is not taken out. However, there are certain exemptions from these penalties, for example in the case of people on low wages when the cost of the premium represents more than 8% of their annual income.

The period for subscribing to a private insurance plan, under normal conditions, opens at the beginning of November of each year and lasts until the end of January of the following year. Outside this period, insurance can be taken out without being penalized in exceptional cases such as exclusion from a corporate health plan.

All actors in the health system, both public and private, are subject to regulation, often by multiple states and by non-governmental bodies. The Department of Health and Human Services (*HHS*) is a government institution controlled by the United States Congress, and is responsible for protecting health and providing essential services to US citizens who do not have the resources to obtain them for themselves. The main federal regulatory bodies under this Department include the CMS (Center for Medicaid Services), the CDC (Center for Disease Control) and the FDA (*Food and Drug Administration*).

The regulatory bodies are also composed of the public health departments, the provider licensing boards and the insurance commissioners. Local counties and cities also regulate healthcare through their public health departments and health services.

Pillar 2
Corporate group health insurance

The area of coverage of the public health system in the United States opens up significant scope for coverage through corporate health schemes by the private sector. The penetration of health insurance (health premiums/GDP) was 5.3% of GDP. The majority of health insurance policies (around 56%) are held under corporate group insurance schemes[8].

Companies have traditionally not been obliged to offer healthcare coverage to their employees, beyond occupational accident insurance. However, the 2010 ACA law made it mandatory for certain companies, depending on their size, to provide medical insurance for their employees. Until then, those companies had tended to offer it as part of their remuneration package, especially to more highly qualified employees, or because they were obliged to do so pursuant to a collective negotiation with the employees.

Unlike large companies, small and medium-sized enterprises with fewer than 50 workers are not obliged to offer healthcare coverage to their employees, beyond occupational accident insurance. They occasionally incorporate it as part of the employee's remuneration package, although this is not very common, given the high cost that it entails for them. In these cases, the employee tends to bear part of the cost of the insurance.

With the aim of encouraging these companies, a number of measures have been introduced, such as tax credits and the creation of an online health insurance market to make it easier for them to take out this type of insurance and access a wider offering, called the "Small Business Health Options Program" (SHOP) (see Box 2.1-b).

Box 2.1-b
United States: SHOP Exchange

The Small Business Health Options Program

One of the measures contained in the 2010 Affordable Care Act is the establishment of the Small Business Health Options Program (known as the "SHOP Exchange"). This program allows small businesses (fewer than 50 employees) to offer different health insurance plans for their workers under conditions that are more advantageous for both sides.

In this regard, the businesses have two options for signing up: (i) through an insurance company, without using HealthCare.gov, or (ii) through an agent or broker registered on the SHOP Exchange.

The employer can choose from four categories of plans (bronze, silver, gold and platinum) and give the employee the option of choosing from various providers of a single plan. The employee has to pay a percentage of the cost of the medical service, which ranges from 40% for the bronze plan to 10% for the platinum. However, in some states there is the possibility of opting for the so-called "vertical choice", where the employer offers the worker the option of choosing from various categories, but for a single provider (in 2018 there are 29 states where this option is permitted).

Requirements

The requirements that must be met in order to access this market are as follows:

- In general, SHOP insurance is available for employers with fewer than 50 FTE employees (those working an average of 30 hours a week or more).
- Additionally, if the business has fewer than 25 employees, it can apply for the Small Business Health Care tax credit and reduce its taxes by up to 50% of the cost of the premiums. For this to be an option, the employees must have an annual average wage of less than 50,000 dollars. The program also provides for gradual elimination of the credit based on the size of the employer and the remuneration of the employees.
- In many states, at least 70% of the employees who are offered coverage must accept the offer in order for the employer to be able to participate in the SHOP Exchange program, and the employer must have an office or work site within the state.
- Small businesses must provide coverage for at least one full-time employee who is neither the owner nor the owner's spouse or business partner.
- The individual state rules for the rates of participation in the SHOP program require businesses to cover between 0 and 75% of their full-time employees in order to qualify for registration.

Advantages

The main advantages offered by participation in the SHOP Exchange are as follows:

- The employer knows and controls the premium payments that it will have to make for the health insurance it offers to its employees. Furthermore, it can offer health coverage only, dental coverage only, or both. It can also decide how much it pays for its employees' premiums and whether it wishes to offer coverage to their families.
- SHOP businesses in the states of Alabama, Arizona, Georgia, Indiana, Kansas and Oklahoma can receive generous assistance packages for premiums from their states. For example, in Oklahoma a small business could receive assistance covering up to 60% of the costs of the premiums if the business meets the specific requirements as regards the employer and the employees.
- Employees can be signed up to the plan at any time, and there is no waiting period. Furthermore, the negotiating power of a group means that the employees have access to better coverage than with their individual insurance (by eliminating

Box 2.1-b (continued)
United States: SHOP Exchange

restrictions, limits or pre-existing conditions).

Obligations

The obligations of an employer that participates in the SHOP Exchange program can be summarized as follows:

- If the employer decides to offer medical insurance to its employees, it must offer it to all eligible employees within 90 days from the date when they start work.
- Employers must provide the employees with a standard Summary of Benefits and Coverage (SBC) form explaining what is covered by their health plan and its cost. The purpose of the SBC is to help the employees understand their medical insurance options.
- The ACA law establishes information requirements regarding the medical coverage provided for employers with 50 or more full-time employees. Under the federal legislation, small businesses are not obliged to provide any benefits of the SHOP Exchange program to part-time employees.
- In 2011, 0.36 million small businesses used the Small Business Health Care tax credit to help them pay for the health insurance of two million workers. Currently, in the United States with 27.7 million small businesses operating in its territory, it offers the SHOP agents and brokers a good opportunity to capture them as clients, and this could help to increase the number of people covered.

Source: MAPFRE Economic Research

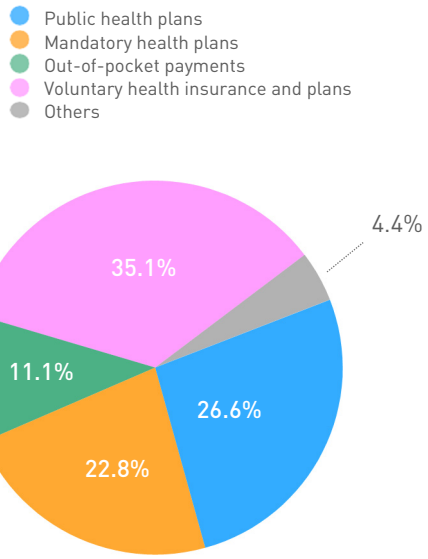
Pillar 3
Individual private coverage (voluntary)

Individual private healthcare expenditure in the United States is among the highest in the world. In terms of healthcare expenditure per capita, the estimated total in 2017, according to OECD data, was 10,209 dollars per inhabitant (9,832 dollars in 2016). Of this sum, if we apply the most recent distribution available to date (2015), around 5,039 dollars (49.4%) would correspond to the average expenditure per capita in the mandatory system. Of the remaining 50.6%, expenditure on voluntary health insurance premiums would be around 3,588 dollars[9] per person (35.1%). Coverage through individual private insurance would be around 40%. "Out-of-pocket" health costs would be around 11.1% of the total expenditure per capita, with the remaining 4.4% corresponding to other types of expenditure (see Chart 2.1-d).

Around 79% of private health insurance business is underwritten by companies specializing in this line of business. Of the rest, around 20% is underwritten by Life insurance companies and the remaining 1% by Non-Life insurance companies (without including in this line the health business referred to in the United States as "P&C").

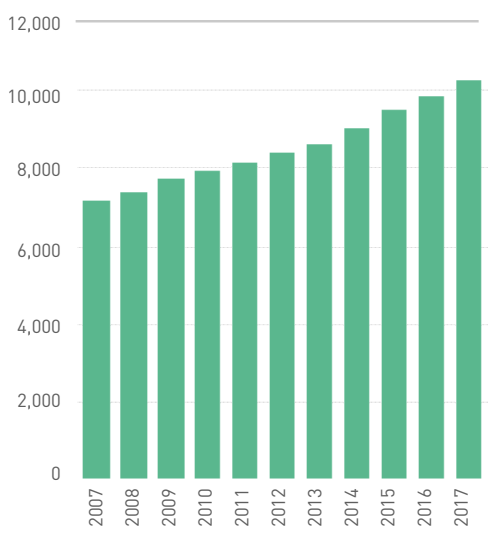
Within private health coverage in the United States, it should be noted that there are alternatives to private insurance in the form of healthcare services provision, and these include private health plans, which can be used to moderate the high cost of private health insurance. These are provided by entities such as the "Health Maintenance Organizations" (HMOs) or the "Preferred Provider Organizations" (PPOs), with freedom of medical choice and copayment for assistance or benefits, with a defined medical framework and a general practitioner acting as "gatekeeper". These types of institutions contract private health plans with the beneficiaries, but are not regulated like the insurance companies.

Chart 2.1-d
United States: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Latest available data.

Chart 2.1-e
United States: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in the United States in 2017 was 150.9% higher than the average for the countries of the OECD (10,209 dollars compared with 4,069 dollars[10]). The evolution of expenditure per capita in the last available decade is shown in Charts 2.1-e and 2.1-f.

Indicators of capacity of the healthcare system

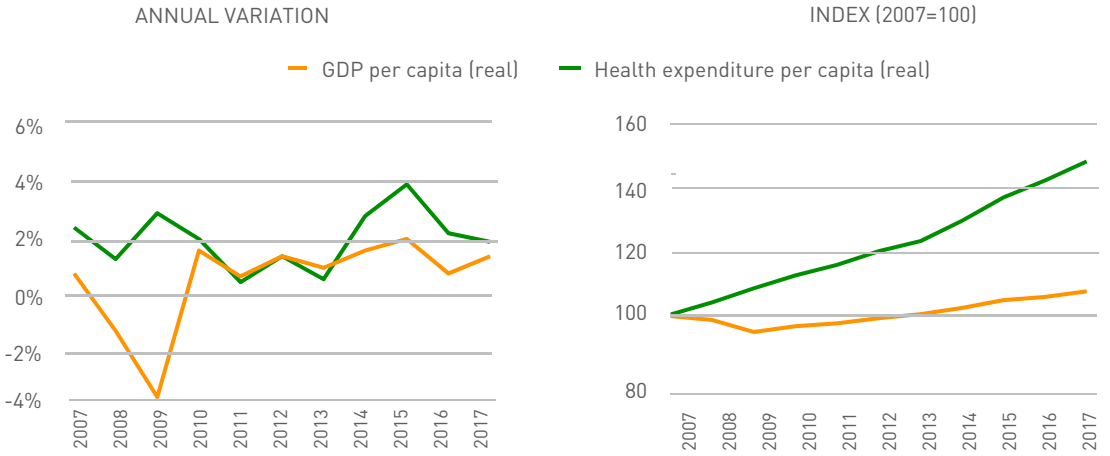
According to OECD data (see Chart 2.1-g), the number of practicing doctors in the United States was 2.6 per thousand inhabitants, 24.1% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). However, the number of nurses in 2016 was 11.6 per thousand inhabitants, 28.9% higher than the average for the countries of the OECD (9 nurses per thousand inhabitants). The number of hospital beds in 2015 was 2.8 per thousand inhabitants, 39.8% lower than the average for the countries of the OECD (4.7 beds per thousand inhabitants).

On the other hand, as illustrated in Chart 2.1-h, in 2016 the number of magnetic resonance imaging (MRI) scanners in the United States was 36.7 per million inhabitants, 123.7% higher than the average for the countries of the OECD (16.4 per million inhabitants), while the number of computed tomography (CT) scanners was 41.8 per million inhabitants, 60.1% higher than the average for the countries of the OECD (26.1 per million inhabitants).

Indicators of use of the healthcare system

The annual number per capita of consultations with doctors, both general practitioners and specialists, is quite stable in the United States, at around four visits per year. The latest available data is from 2011, when there were four visits per person, 42.4% lower than the OECD average (6.9 visits per year in that period).

Chart 2.1-f
United States: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



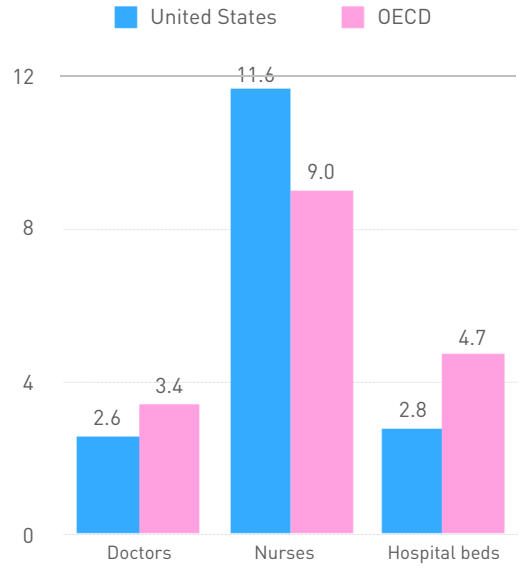
Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

Indicators of health status

Life expectancy at birth, one of the indicators most frequently used as an approximation of the health status of a country's population, was 78.6 years in the United States in 2016, according to OECD data, 2.2 years below the average for the countries of that organization (80.8 years).

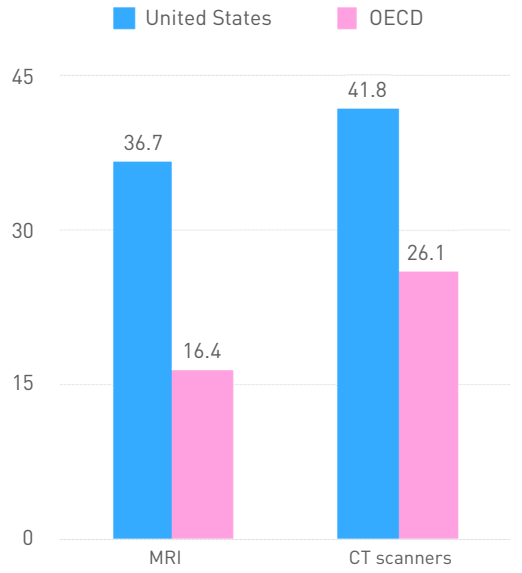
On the other hand, the indicator of healthy life expectancy is estimated at around 67.7 years,

Chart 2.1-g
United States: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2016), Nurses (2016), Hospital beds (2015)

Chart 2.1-h
United States: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2016), CT scanners (2016)

which contrasts with the estimations of this indicator for Singapore and Japan of 73.6 and 73.2 years, respectively, the highest in the world.

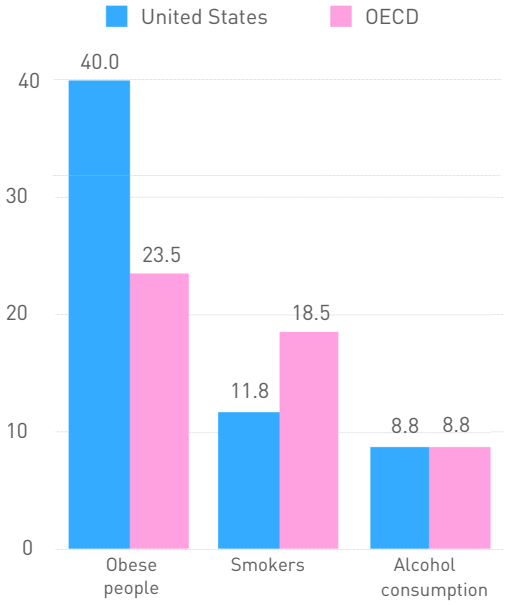
Health risk factors

The promotion of healthy lifestyles, including programs on obesity, balanced diet, exercise and smoking, is regarded as an essential element of disease prevention in any health system[11].

Of the three factors commonly used as health risk indicators, the percentage of obese people in the United States, based on real measurements, was 40% in 2016 (latest available data), 16.5 percentage points above the average for the countries of the OECD that had this information (23.5% in the 2016 period).

As regards smoking, the percentage of people who smoke daily in the United States was 11.8% in 2016, 6.7 percentage points below the OECD average (18.5% in the 2015-2016 period).

Chart 2.1-i
United States: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-M (2016), Smokers (2016), Alcohol consumption (2014)

Finally, alcohol consumption in 2014 (latest available data) was 8.8 liters per person per year, equaling the OECD average.

Indicators of healthcare quality

Infant mortality is one of the most relevant and widely used indicators of the effect of socio-economic conditions on the health of mothers and newborns, as well as of the quality of healthcare services and disease prevention and health promotion measures.

According to data from the United Nations (UN), the percentage of infant deaths up to the age of four years in the United States has fallen markedly and steadily since 1960, as illustrated in Chart 2.1-j.

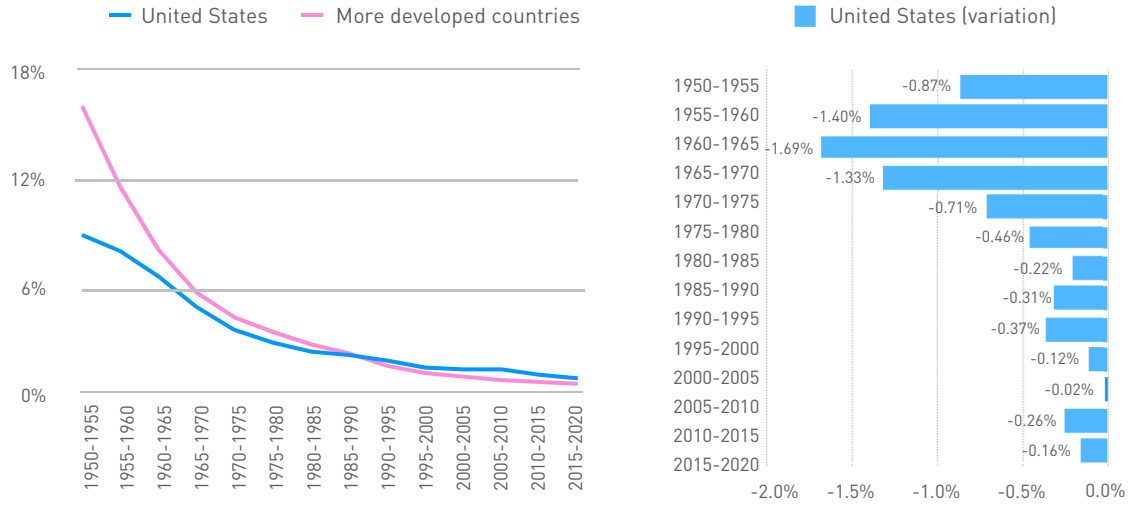
In line with that information, since 1950 infant deaths have fallen from 8.9% of all deaths to 1.1% for the 2010-2015 period. Our attention is drawn to the fact that from the 1990s onward, infant mortality in the United States exceeds that of the more developed regions of the world[12].

Another of the indicators widely used to assess the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data, as illustrated in Chart 2.1-k, the rate of deaths in 2014 during the thirty days following hospitalization for the above-mentioned disease was 6.5 per 100 admissions of adults aged 45 years and over, 12.6% lower than the average for the countries of the OECD (7.5%).

On the other hand, the percentage of people who survived for more than five years with colon cancer in the 2010-2014 period in the United States was 64.9%, 2.1 percentage points above the average for the countries of the OECD (62.8%).

Finally, as regards the percentage of people dying due to non-communicable diseases (NCDs) between the ages of 30 and 70 years, the figure for the United States is 14.6%,

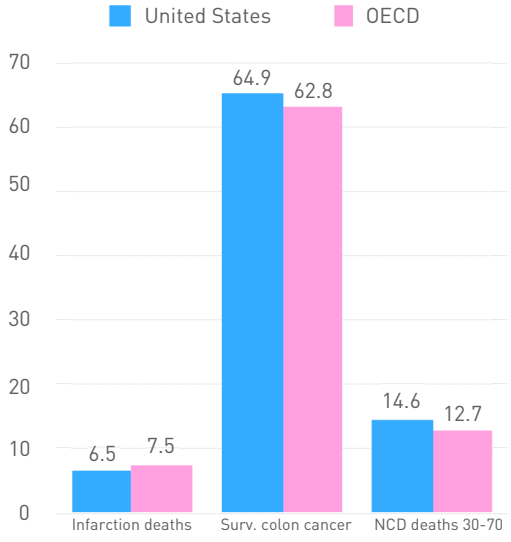
Chart 2.1-j
United States: deaths of infants between the ages of 0 and 4 years, 1950-2020(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

1.9 percentage points above the average for the countries of the OECD, which was 12.7%[13].

Chart 2.1-k
United States: mortality due to infarction, survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)

Deaths due to infarction (2014), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

Main service providers

Insurance companies

The insurance companies play an important role in the healthcare system of the United States. The market shares of the ten largest companies in 2016 are shown in Table 2.1-a. Similarly, Table 2.1-b shows the market shares of the ten largest groups in that year.

As this information shows, the top ten health insurance companies in the United States account for 20.5% of health and accident insurance premiums. This percentage rises to 50.4% if we take into account the premium volume at group level.

Meanwhile, the evolution of the loss ratio, expense ratio and technical result for health insurance, as a percentage of premiums, is shown in Chart 2.1-l.

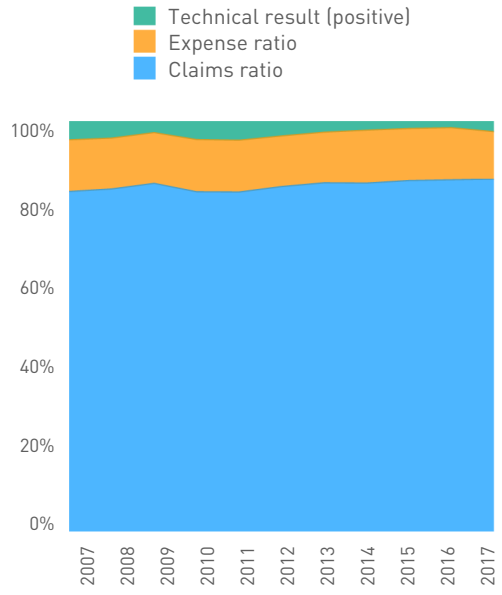
This information shows how over the last ten years, although there has been a positive technical result in insurance business linked to health insurance, this margin has been steadily narrowing.

Table 2.1-a
United States: ranking of Accident and Health insurance companies by premium volume, 2017

	Companies	Premiums earned (millions of USD	Market share (%)
1	UNITEDHEALTHCARE	49,680.9	4.8%
2	HEALTH CARE SERV CORP A MUT LEGAL RE	32,668.1	3.2%
3	AETNA LIFE INS CO	28,279.6	2.7%
4	HUMANA INS CO	22,963.4	2.2%
5	BLUE CROSS CALIFORNIA	16,792.3	1.6%
6	CIGNA HLTH & LIFE INS CO	14,400.1	1.4%
7	CALIFORNIA PHYSICIANS' SERVICE	14,240.6	1.4%
8	SIERRA HLTH & LIFE	13,316.5	1.3%
9	BCBS OF FL	10,023.0	1.0%
10	LOCAL INITIATIVE HEALTH AUTHORITY FO	8,764.3	0.9%

Source: MAPFRE Economic Research (with NAIC data, includes California DHMC data)

Chart 2.1-l
United States: operating and underwriting efficiency ratios, 2007-2017
(combined ratio, %)



Source: MAPFRE Economic Research (with SLN data)

Table 2.1-b
United States: ranking of Accident and Health insurance groups by premium volume, 2017

	Groups	Premiums earned (millions of USD	Market share (%)
1	UNITEDHEALTHCARE	138,531.4	13.5%
2	KAISER FOUNDATION	84,694.9	8.2%
3	ANTHEM	64,461.0	6.3%
4	HUMANA	53,473.8	5.3%
5	AETNA	51,789.7	5.0%
6	HCSC	34,179.4	3.3%
7	CENTENE	29,627.0	2.9%
8	CIGNA	25,326.7	2.5%
9	MOLINA HEALTHCARE	19,534.8	1.9%
10	INDEPENDENCE	17,010.9	1.7%

Source: MAPFRE Economic Research (with NAIC data, includes California DHMC data)

Brief reference to other service providers

The United States healthcare system is characterized by having a number of powerful medical and pharmaceutical associations with great negotiating power when it comes to negotiating healthcare costs with the insurance companies, and this produces a high cost per benefit.

Sooner or later, this characteristic impacts on the consumers of healthcare services, meaning that the main problem is not the waiting lists but the risk of lack of effective coverage for those sections of the population which, not being covered by the public protection programs, cannot afford to pay the premiums for private health insurance.

2.2 Mexico

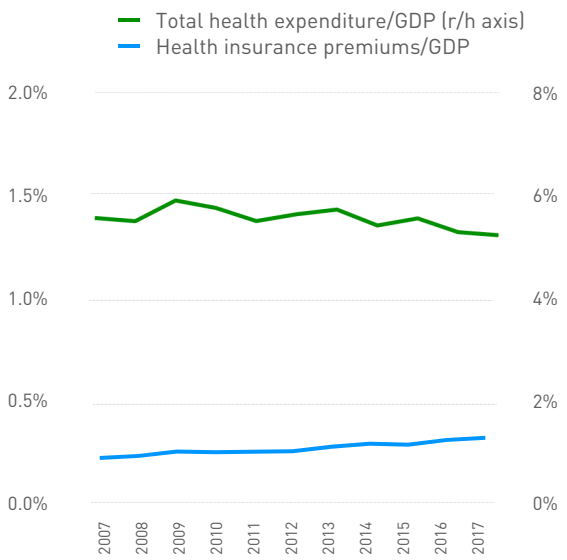
In Mexico, total healthcare expenditure in 2017 represented 5.4% of the country's GDP (5.5% in 2016), 3.5 percentage points below the average of 8.9% for the countries of the OECD, according to the institution's data[14]. Health insurance premiums represented 0.3% of GDP in that year (see Chart 2.2-a).

In the analysis of the evolution of the penetration of private health insurance over the last ten years, we see a slight increase from 0.22% of GDP in 2007 to 0.33% in 2017. Meanwhile, the percentage of total healthcare expenditure relative to GDP shows a slight downward trend over the same period, with a decrease of 0.4 percentage points.

The evolution of the volume of private health insurance business in recent years is shown in Charts 2.2-b and 2.2-c, together with a comparison of the increases in Mexico's total healthcare expenditure and GDP over the same period.

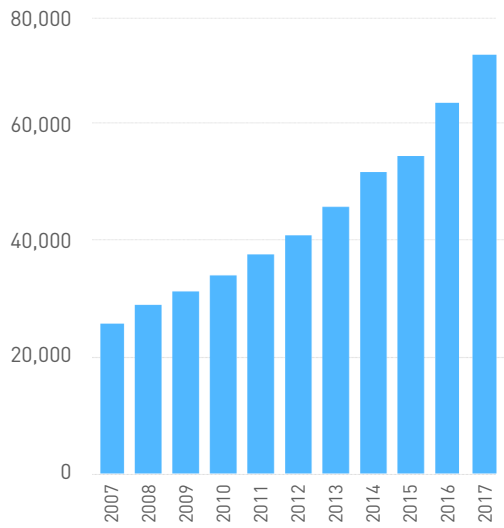
In general, we see greater increases in health insurance premiums than the increases in nominal GDP. Over the 2007-2017 period, health insurance premiums rose by 179.1% compared with a 77.3% increase in total healthcare expenditure and a 89.6% increase in GDP over that period.

Chart 2.2-a
Mexico: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with CNSF and OEF/ Analytics data)

Chart 2.2-b
Mexico: health insurance premiums, 2007-2017
(millions of pesos)



Source: MAPFRE Economic Research (with CNSF data)

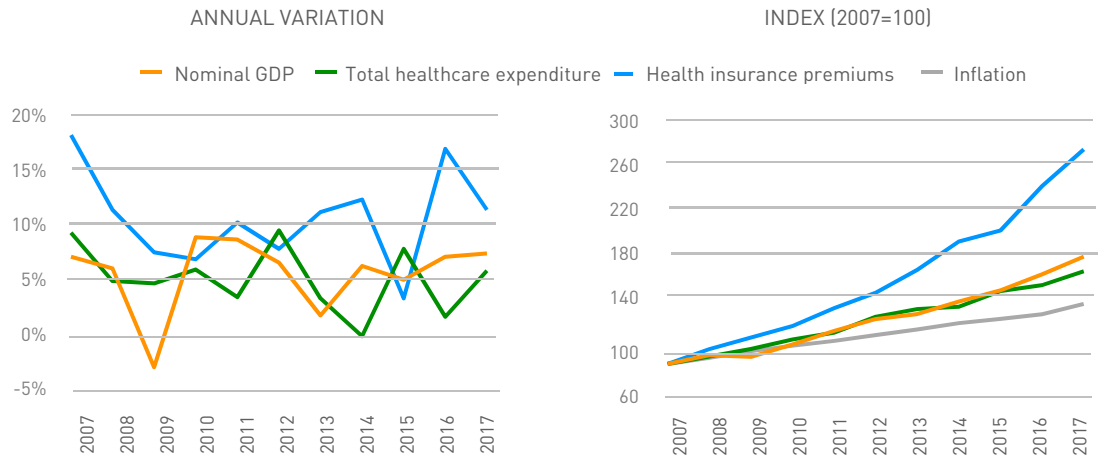
Description of the levels of coverage of the healthcare system

The Mexican healthcare system corresponds to a mixed Bismarckian model with elements both of the Beveridge system and of the free-market model. Three major components can be identified in this system: (i) social security institutions linked to an employment relationship; (ii) health services for the uninsured population (Seguro Popular), and (iii) private health services, which are currently the predominant feature of the system, considered individually.

Pillar 0
Minimum healthcare coverage

The Mexican health system has traditionally been associated with the existence of an employment relationship (Bismarckian model). However, 1983 saw the introduction of a reform that established health as a constitutional right, separating it from the individual employment status, so that the

Chart 2.2-c
Mexico: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017
(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with CNSF, SNL, OEF and Haver Analytics data)

unwaged population would not be left outside the system. Prior to that reform, programs such as IMSS-Coplamar had already been created at the end of the 1970s. This extended benefits to farm workers unable to pay contributions.

Despite these measures, at the start of the 21st century there remained imbalances in the functioning of the health system that mainly affected the most vulnerable sections of the population. Consequently, in 2003 there was a significant reform of the health system with the creation of the Sistema de Protección Social en Salud [System of Social Protection in Health] (SPSS), the operational portion of which is known as Seguro Popular. This reform entered into force on January 1, 2004. The program is characterized by the fact that it is a form of public and voluntary insurance that reduces out-of-pocket costs and the risk of impoverishment of vulnerable families due to catastrophic expenses. It is funded through contributions from the federal government and state governments, and in some cases through the payment of a "cuota familiar" [family quota] or a contribution by the entitled person.

The Seguro Popular offers coverage through two packages of health benefits: (i) the Catálogo Universal de Servicios Esenciales en Salud [Universal Catalog of Essential Health Services] (CAUSES), and (ii) the interventions funded through the Fondo de Protección contra Gastos Catastróficos [Fund for Protection from Catastrophic Expenses].

The total number of CAUSES health interventions in 2018 is 294. These include explicit and free coverage of 1,807 illnesses, as well as 670 drugs, supplies and studies associated with the services. Seguro Popular subscribers receive full health services and the necessary drugs that correspond to the services contained in the CAUSES.

In addition, there is a program named IMSS-Prospera (formerly IMSS-Oportunidades, to which it owes its origins). This federal program offers marginalized populations in rural and urban areas a free basic package of primary care and preventive health services.

From September 2014, the Oportunidades program was transformed into Prospera Programa de Inclusión Social [Prospera Social Inclusion Program], the aim of which is to organize and coordinate the institutional offer of social policy programs and actions. The program has a presence in 28 of the country's states, where it provides coverage to 12.4 million people resident in 20,633 localities belonging to 1,505 municipalities. IMSS-Prospera promotes the active participation of the beneficiary communities in order to improve health in the individual, family and group environments.

The Seguro Popular is coordinated by the federal government, through the Comisión Nacional de Protección Social en Salud

[National Commission for Social Protection in Health] (CNPSS), and operated by the Regímenes Estatales de Protección Social en Salud [State Regimes for Social Protection in Health] (REPSS), with the support of the State Health Services.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

The main institutions that make up the Mexican mandatory public health system were developed in the 1940s under a social security system funded through contributions from employees, employers and the government (Bismarckian model). The social security system covers waged employees in the public and private sectors, pensioners, and their family dependents.

The institutions that make up the social security system are the Instituto Mexicano del Seguro Social (IMSS) for private-sector employees, the Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE) for federal government employees, and the Instituto de Seguridad Social de las Fuerzas Armadas Mexicanas (ISSFAM). In addition, the state governments have created social insurance schemes for their employees ("State ISSSTEs"), and some decentralized bodies, such as Petróleos Mexicanos, have independent medical services. For reference, the contribution rates for the funding of the social security system for private-sector employees are shown in Table 2.2-a[15].

Under the Social Security Law, subscription to the IMSS comprises two types of regime, the Mandatory and the Voluntary. The Mandatory Regime applies to people who have a subordinate and waged employment relationship, which obliges the employer to insure them. 70.6% of insured people were in this category as at December 2017.

The Voluntary Regime, meanwhile, is the result of an individual or collective decision. As at December 2017, this group comprised the remaining 29.4% of people insured under the IMSS. It includes, among others, those subscribed to the Seguro de Salud para la Familia [Family Health Insurance] (SSFAM) and Optional Insurance schemes, which together account for 91.9% of people subscribed to this regime. The lowest level of subscription is found among domestic workers, sole proprietor employers, self-employed workers and voluntarily registered farm workers, who together account for 0.8% of the voluntary insurance[16].

Table 2.2-a
Mexico: funding organization by insurance type, December 2017
(contribution rates, %)

Insurance	Contribution basis	Contribution			
		Employer	Worker	Federal Government	Total
Occupational Risks	SBC[1]	1.785[2]			1.785
Illness and Maternity					
Insured Persons					
Benefits in kind					
Fixed quota	UMA[3]	20.400		14.930[4]	34.866
Surplus quota	Total SBC less 3 UMA	1.100	0.400		1.500
Benefits in cash	SBC	0.700	0.250	0.050	1.000
Pensioners	SBC	1.050	0.375	0.075	1.500

Source: MAPFRE Economic Research (with IMSS information)

1/ SBC: Salario Base de Cotización [Contribution Base Salary]

2/ The premium for this insurance depends on the claims rate of each business. The effectiveness of the weighted average premium corresponds to the period from March 2017 to February 2018.

3/ UMA: Unidad de Medida y Actualización [Unit of Measurement and Adjustment], amounting to 75.49 pesos in December 2017.

4/ The Social Security Law stipulates a daily payment per insured person, which is adjusted on a quarterly basis. For December 2017, the amount was 11.27 pesos, equivalent to 14.93% of the UMA.

The Family Health Insurance (SSFAM) represents an alternative form of voluntary insurance for people without any social protection scheme, such as unwaged workers and their families. Its funding comes from two sources: (i) an annual contribution paid by the insured persons who voluntarily sign up to the scheme, established according to the age group to which they belong, and (ii) a contribution per family paid by the federal government. In December 2013, the Congress approved a reform of Article 242 of the Social Security Law, granting the power to the Technical Board of the IMSS to determine annually the amount of the contributions to be applied, in line with the results of the corresponding actuarial studies.

As regards the costs arising from the insurance of students through the Optional Insurance scheme, the federal government covers the entire amount of the contributions, which are determined on the basis of the UMA (Unit of Measurement and Adjustment) in force at the time of registration, extrapolated to a full year. A factor of 1.723% is applied to this amount, multiplied by the number of students insured.

Coverage

The Social Security Law establishes that the benefits of the Mandatory Regime include all the forms of insurance offered by the IMSS: (i) occupational risks; (ii) illness and maternity; (iii) invalidity and life; (iv) retirement, unemployment in later life and old age, and (v) childcare and social benefits. The illness and maternity insurance provides benefits in kind and in cash to subscribed workers, retired people and their families in the event of non-occupational illness or maternity, as described in Table 2.2-b.

On the other hand, ISSSTE subscribers (federal government employees and their families), as well as pensioners and retired people, enjoy a set of benefits similar to those offered by the IMSS, although the contribution percentages differ from those for workers in the private sector[17]. The health insurance includes the following components: preventive medical treatment, curative medical treatment, maternity care, and physical and mental rehabilitation. Curative medical treatment and maternity care, as well as rehabilitation aimed at correcting physical and mental invalidity, include the following services: family medicine; specialty medicine; gerontology and geriatric medicine; traumatology and emergency treatment; oncology; surgery; and "hospital at home" care.

By law, the medical services entrusted to the ISSSTE in relation to health and occupational risks insurance are provided directly or via agreements entered into with providers of those services, in compliance with the respective regulations. The agreements are

Table 2.2-b
Mexico: funding scheme by insurance type, December 2017
(contribution rates,%)

Type of benefit	Articles of the Social Security Law	Heading	Description
In kind	91, 92, 93, 94	Medical, surgical, pharmaceutical and hospital treatment	In the case of non-occupational illness, assistance is provided to the insured pensioner and his/her beneficiaries. In maternity, the following benefits are provided: (i) obstetric care; (ii) help with breastfeeding for 6 months, and (iii) a layette when the child is born.
Benefits in cash	96, 97, 98, 100, 101, 104	Subsidies	Cash subsidy amounting to 60% of the Contribution Reference Salary to the insured person in the event of an illness resulting in incapacity for work, paid from the fourth day following the onset of the illness for a period of 52 weeks, with the possibility of an extension of up to 26 additional weeks. During pregnancy, a subsidy amounting to 100% of the last salary, 42 days before and 42 days after the birth. Help with funeral expenses, equivalent to two months' general minimum wage as effective in Mexico City on the date of the death.

Source: MAPFRE Economic Research (with IMSS information)

preferably entered into with public institutions in the health sector.

Insured people employed by decentralized bodies and the armed forces (such as Pemex, the Secretariat of National Defense and the Secretariat of the Navy) enjoy benefits similar to those of the IMSS and ISSSTE: first-, second- and third-level medical, surgical and hospital care; pharmaceutical and rehabilitation coverage; and occupational risks insurance.

The public health institutions can prescribe the medicines found in the Cuadro Básico de Insumos [Basic Formulary of Supplies] for the first level of medical care and in the Catálogo de Insumos [Catalog of Supplies] for the second and third levels, according to their policies, needs and particular circumstances, and deliver them to the user as part of the care content. The Consejo de Salubridad General [General Health Council] is responsible for preparing, updating, publishing and circulating both catalogs. If the treatment is not covered by the institutional Catalog, the patient covers the entire cost of the medication. Each institution reserves the right to decide on the purchase of the supplies contained in the Basic Formulary and Catalog according to their institutional policies, the impact and the available financial resources.

As regards the institutional system and regulatory framework, the National Health System in Mexico is regulated by a body of federal laws and by regulations specific to each of the 32 federal entities that make up the country. As defined by the General Health Law, "the National Health System is constituted by the offices and entities of the Public Administration, both federal and local, and by the natural or legal persons of the corporate and private sectors that provide health services, as well as by the mechanisms for the coordination of actions".

The system's governing institution is the Secretariat of Health, which draws up the Normas Oficiales Mexicanas [Official Mexican Standards] (NOMs). These are mandatory technical regulations issued by the competent offices. The NOMs relating to Disease Prevention and Health Promotion, once approved by the Comité Consultivo Nacional de Normalización de Prevención y Control de Enfermedades [National Advisory Standardization Committee for Disease Prevention and Control] (CCNNPCE), are issued and published in the Diario Oficial de la Federación [Official Journal of the Federation].

Pillar 2
Corporate group health insurance

Health expenditure by the Mexican private health subsystem represented 2.6% of GDP in 2017. The private sector includes those people who, due to their employment situation, do not have access to social security (self-employed, unsalaried casual workers, unemployed), are not registered for Seguro Popular, do not receive treatment in the public health services and state health systems, or are not beneficiaries of the IMSS-Prospera program.

The private insurance companies were responsible for 6.1% of total health expenditure in 2017, by way of premium payments. Group insurance represents around one half of health insurance premiums.

Two types of coverage can be distinguished: (i) insurance against major medical expenses, and (ii) health insurance taken out with Instituciones de Seguros Especializadas en Salud [Specialized Health Insurance Institutions] (ISES). The latter are specialized insurance companies authorized to operate in the health line. They are permitted to sell private insurance, and the objective must always be to protect or restore the health of the insured person directly and with their own resources, a combination of the two, or through actions performed for the benefit of the insured.

Premiums for medical expenses insurance amounted to 67,830 million pesos in 2017, of which half was for group insurance and the other half for individual insurance. On the other hand, health insurance accounted for revenues of 3,518 million pesos over the same period. As a whole, private health insurance expenditure in 2017 amounted to 71,348 million pesos[18].

The origins of the ISESs lie in the companies or organizations known as health prepayment management companies, and they were regulated through the reform of the Ley General de Instituciones y Sociedades Mutualistas de Seguros [General Law of Insurance Institutions and Mutual Societies] (LGISMS) in December 1999, although to date they have not achieved major participation in the market. As they are insurance institutions,

their functioning and operation is essentially governed by the provisions of the Ley de Instituciones de Seguros y de Fianzas [Insurance and Surety Institutions Law], as well as by the General Health Law and the NOMs.

The medical expenses policies, meanwhile, cover the expenditure made by the insured person due to an illness or accident provided for in the contract. The new Insurance and Surety Institutions Law, which entered into force on April 4, 2015, authorizes major medical expenses insurers to provide services that were previously offered only by the ISESs, with the ability to finance preventive treatments or protocols that help to prevent people from contracting serious illnesses. In December 2017 there were 29 insurance companies operating in this line. This is a highly concentrated market, where the top four companies earn 71.8% of the premiums.

Pillar 3
Individual private coverage (voluntary)

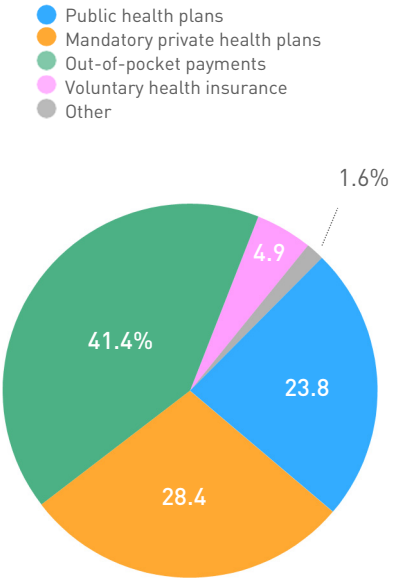
In terms of healthcare expenditure per capita, the estimated expenditure in 2017 was USD 1,034 per inhabitant (USD 1,020 in 2016), according to OECD data. Of this sum, if we apply the most recent distribution available to date (2015)[19], around USD 540 (52.2%) would correspond to the average expenditure per capita in the public system. Of the remaining 47.8%, expenditure on voluntary health insurance premiums and plans would be around USD 51 per person (4.9%). "Out-of-pocket" health costs, at USD 428, would be around 41.4% of the total expenditure per capita, with the rest corresponding to other types of expenditure (see Chart 2.2-d).

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in Mexico in 2017 was 74.6% lower than the average for the countries of the OECD in that year (USD 1,034 compared with USD 4,069). Of this sum, USD 533 (52%) would correspond to the average expenditure per capita in the public system, 83% lower than the average for the countries of the OECD (USD 3,073). The evolution of expenditure per capita in recent years, and its comparison with the evolution of GDP, is shown in Charts 2.2-e and 2.2-f.

Chart 2.2-d
Mexico: breakdown of average expenditure per inhabitant, 2015*
(%)

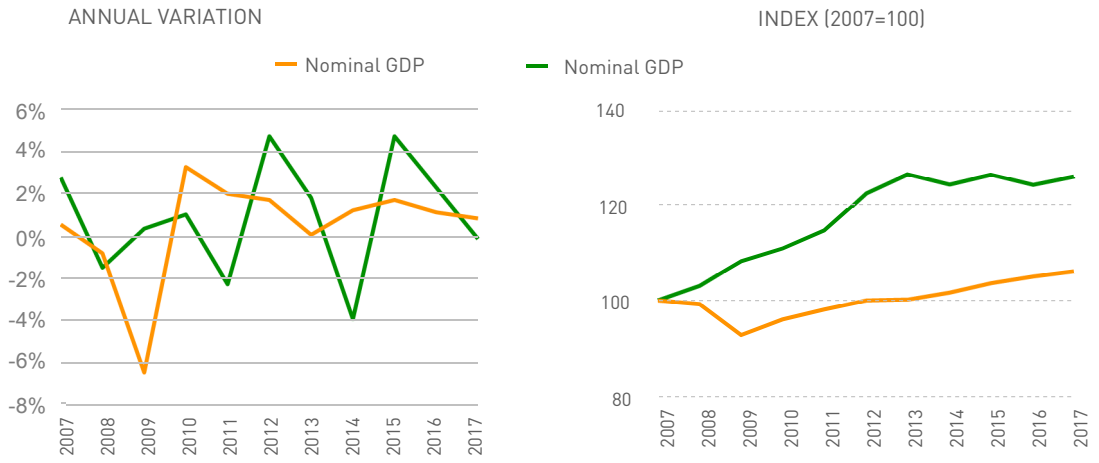


Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

Chart 2.2-e
Mexico: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)

Source: MAPFRE Economic Research (with OECD data)

Chart 2.2-f
Mexico: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

Indicators of capacity of the healthcare system

According to OECD data, as illustrated in Chart 2.2-g, in 2016 (latest available data) the number of practicing doctors in Mexico was 2.4 per thousand inhabitants, 30.6% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). The number of nurses in 2016 was 2.9 per thousand inhabitants, 67.9% lower than the average for the countries of the OECD (9.0 nurses per thousand inhabitants). On the other hand, the number of hospital beds in 2016 was 1.5 per thousand inhabitants, 67.3% lower than the average for the countries of the OECD (4.7 beds per thousand inhabitants).

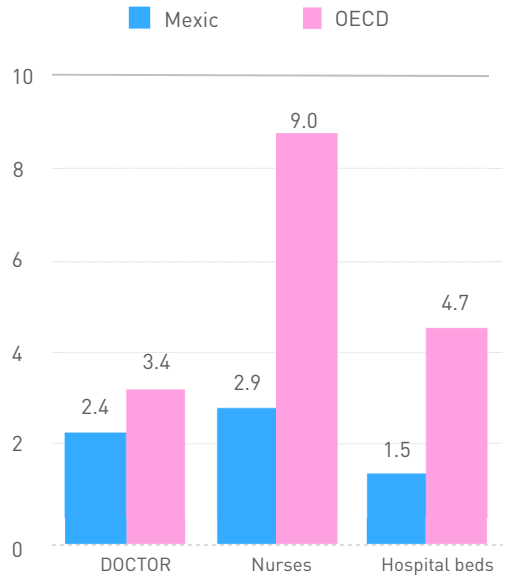
As illustrated in Chart 2.2-h, in 2016 the number of magnetic resonance imaging (MRI) scanners was 2.6 per million inhabitants, 84.3% lower than the average for the countries of the OECD (16.4 per million inhabitants), while the number of computed tomography (CT) scanners was 6.1 per million inhabitants, 76.6% lower than the average for the countries of the OECD (26.1 per million inhabitants).

Indicators of use of the healthcare system

The annual number per capita of consultations with doctors, both general practitioners and specialists, was 2.9 in 2016, 58.2% lower than the OECD average (6.9 visits per year in the 2014-2015 period).

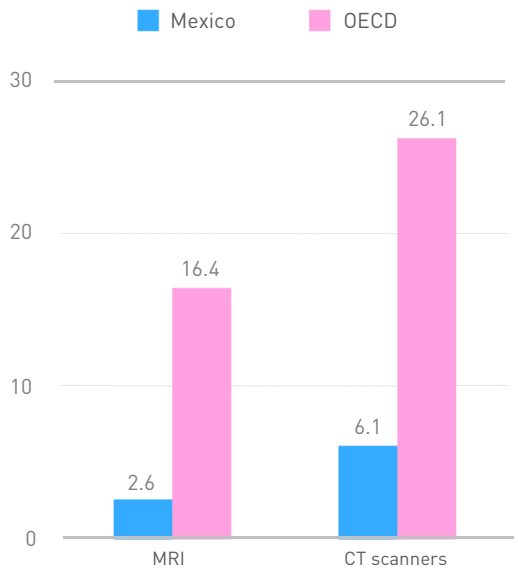
The number of hospital discharges per year in 2016 was 46.2 per thousand inhabitants,

Chart 2.2-g
Mexico: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2016), Nurses (2016), Hospital beds (2016)

Chart 2.2-h
Mexico: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2016), CT scanners (2016)

70.5% lower than the OECD average[20] (156 discharges per year during the same period). The average stay in hospital, meanwhile, was 3.8 days, 53.2% lower than the OECD average (8.1 days).

Indicators of health status

Life expectancy at birth, one of the indicators most frequently used as an approximation of the health status of a country's population, was 75.4 years in 2017 in Mexico, 5.4 years lower than the average for the countries of the OECD (80.8 years).

On the other hand, healthy life expectancy in Mexico is estimated at around 67.1 years, which contrasts with the estimations of this indicator for Singapore and Japan of 73.6 and 73.2 years, respectively (the highest in the world)[21].

Health risk factors

Of the factors commonly used as health risk indicators (see Chart 2.2-i), the percentage of obese people in Mexico in 2016 was 33.3%, 9.8 percentage points above the OECD average (23.5% in the 2015-2016 period).

As regards smoking, the percentage of people who smoke daily was 7.6% in 2017, 10.9 percentage points below the OECD average (18.5% in the 2015-2016 period).

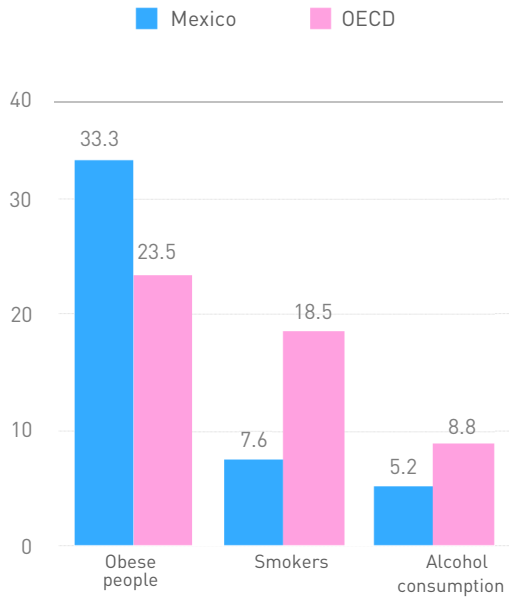
Finally, alcohol consumption in 2015 (latest available data) was 5.2 liters per person per year, 40.8% lower than the OECD average (8.8 liters).

Indicators of healthcare quality

As mentioned earlier, infant mortality is one of the most relevant and widely used indicators of the effect of socio-economic conditions on the health of mothers and newborns, as well as of the quality of healthcare services and disease prevention and health promotion measures.

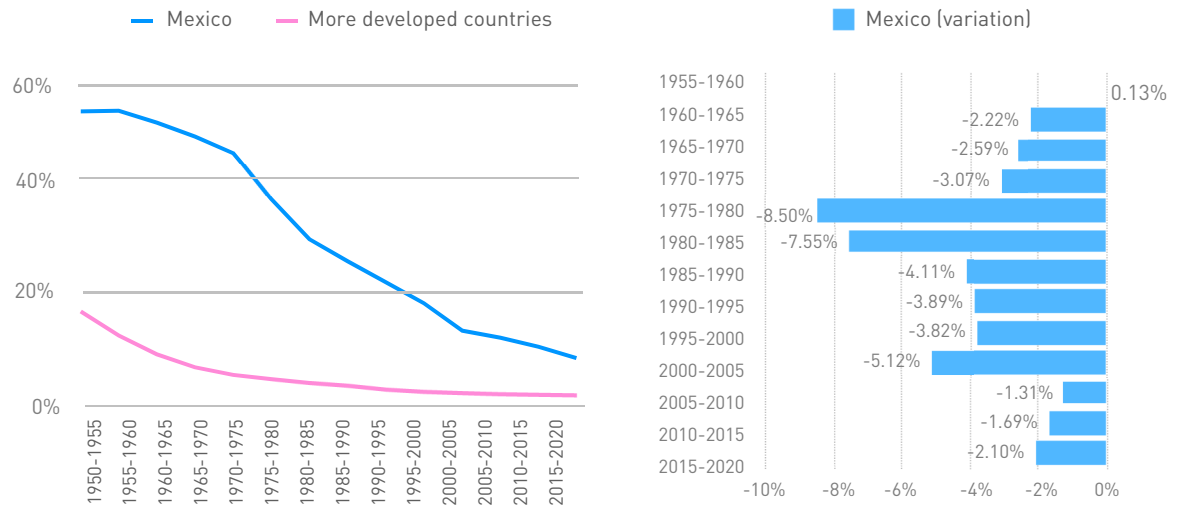
According to data from the United Nations (UN), the percentage of infant deaths up to the age of five years has fallen markedly and

Chart 2.2-i
Mexico: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-M (2016), Smokers (2017), Alcohol consumption (2015)

Chart 2.2-j
Mexico: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

steadily since 1950. In the case of Mexico, the fall has been very pronounced, having started from a percentage substantially higher than that of the more developed regions (see Chart 2.2-j). However, currently the percentage is still significantly higher than the average for those regions (7.4% in Mexico compared with 0.6% for the more developed regions)[22]. It is also striking that after a notable fall in infant mortality over the 2000-2005 period, the subsequent pace of decrease slowed significantly.

Another of the indicators widely used in relation to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data (see Chart 2.2-k), the rate of deaths in 2015 in Mexico during the thirty days following hospitalization was 28.1 per 100 admissions of adults aged 45 years and over, 277.2% higher than the average for the countries of the OECD (7.5).

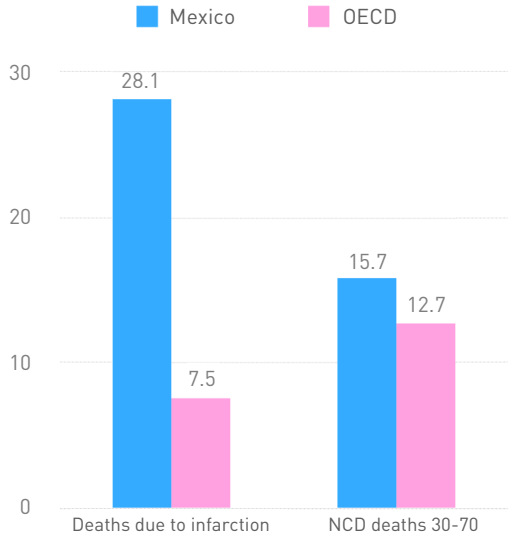
On the other hand, as regards deaths due to non-communicable diseases (NCDs) between the ages of 30 and 70 years in 2016, Mexico has a percentage of 15.7%, three percentage points above the average of 12.7% for the countries of the OECD[23].

Main service providers

Insurance companies

The market shares of the largest insurance companies in the medical expenses and health insurance business in 2017 are shown in Table 2.2-c.

Chart 2.2-k
Mexico: mortality due to infarction and non-communicable diseases
(100 admissions with infarction; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Deaths due to infarction (2015), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

In addition, the evolution over the last 10 years of the loss ratio, expense ratio and technical profitability of health insurance, as a percentage of premiums (combined ratio) is illustrated in Chart 2.2-l.

Brief reference to other service providers

In general, health services to the beneficiaries of the public social security system are provided directly in the system's establishments using its own personnel.

On the other hand, according to the most recent economic census published by the Instituto Nacional de Estadística y Geografía [National Institute of Statistics and Geography] (INEGI), in 2013 the private healthcare subsystem comprised 228,137 economic units providing personal services and producing health-related goods. This subsystem also involves 29 private insurance companies that offer major medical expenses policies and new ISESs.

84% of these economic units is made up of three lines: 81,279 community pharmacies (36%), 59,528 medical practices (26%) and 50,727 dental practices (22%). The 2,960 hospitals (general and specialist) represent 1% of the total of the units.

Private outpatient facilities in Mexico can be broken down into Consultorios Médicos Independientes [independent medical clinics] (CMIs) and private Consultorios Adyacentes a Farmacias [clinics adjacent to pharmacies] (CAFs), the latter being linked to pharmacy chains. The expansion of the CAFs began in 2010, at the time of the entry into force of the agreement regulating the sale and prescribing of antibiotics, which can only be dispensed with a doctor's prescription, as a way of mitigating the economic impact that the said agreement would have on the pharmacies.

In order to ensure compliance with the agreement, as well as to provide better medical attention to the population, the healthcare institutions take responsibility for regulating this type of establishment and ensuring that each medical consultation adopts the clinical protocol that guarantees the existence of a medical diagnosis that complies with the legislation in force.

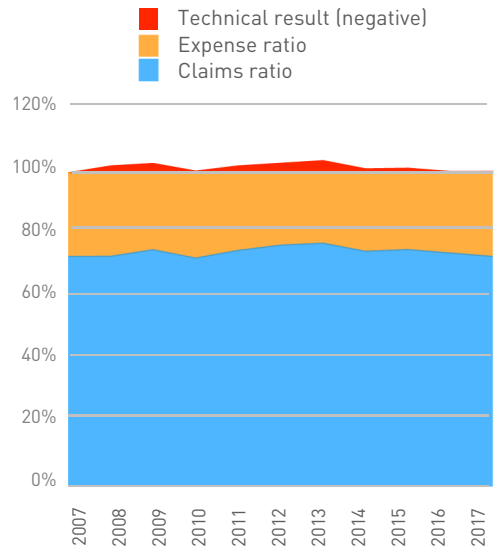
Although there are no formal studies on the infrastructure and the personnel working in these clinics, the most recent data presented

Table 2.2-c
Mexico: ranking of Health insurance companies (medical expenses) by premium volume, 2017

	Companies	Premiums written (millions of USD	Market share (%)
1	GRUPO NACIONAL PROVINCIAL	904.3	24.0%
2	AXA SEGUROS	660.4	17.5%
3	METLIFE MÉXICO	587.0	15.6%
4	SEGUROS MONTERREY NEW YORK LIFE	429.4	11.4%
5	SEGUROS INBURSA	184.5	4.9%
6	SEGUROS BANORTE	146.5	3.9%
7	SEGUROS ATLAS	133.0	3.5%
8	BUPA MÉXICO, COMPAÑÍA OF INSURANCE	112.2	3.0%
9	ALLIANZ MEXICO	104.9	2.8%
10	MAPFRE TEPEYAC	91.9	2.4%

Source: MAPFRE Economic Research (with CNSF data)

Chart 2.2-l
Mexico: operating and underwriting efficiency ratios, 2007-2017
(combined ratio,%)



Source: MAPFRE Economic Research (with CNSF data)

by the Comisión Federal para la Protección contra Riesgos Sanitarios [Federal Commission for Protection against Heatlh Risks] (Cofepris) indicates that there were 16,000 medical clinics in private pharmacies in 2016. According to the 2012 National Health and Nutrition Survey, the private sector attended to 38.9% of outpatient consultations. Between 28.4 and 36.6% of subscribers to public insurance made use of private-sector outpatient services, and approximately one third of them did so at pharmacy clinics.

The vast majority of the country's hospitals are small units. There are only 94 hospitals with more than 50 beds. In recent years there has been a reduction in the smallest hospitals due to their lower profitability compared with larger units. For example, there are eight hospital groups that account for 52.2% of the hospital expenses paid by the insurance companies.

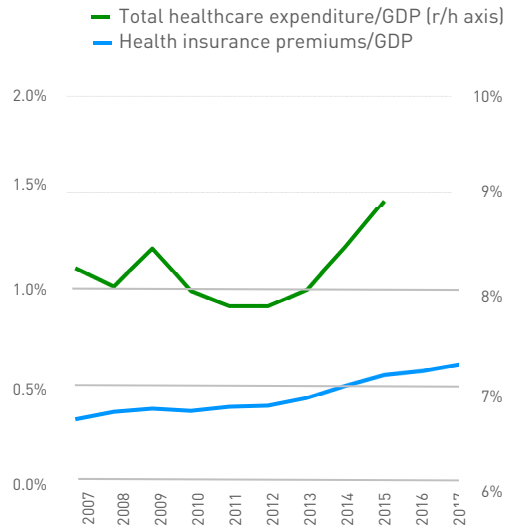
As regards the pharmaceutical industry, this belongs almost entirely to the private healthcare subsystem, and is made up of national and international companies. It depends for the majority of its sales on the private subsystem, which represents around 70% of the total.

2.3 Brazil

According to the most recent WHO data available, total healthcare expenditure in Brazil in 2015 (latest available data) represented 8.9% of the country's GDP (8.4% in 2014), on a par with the average for the countries of the OECD in that year (8.9%)[24]. The percentage of total healthcare expenditure relative to GDP, meanwhile, saw substantial growth between 2013 and 2015 (latest available data) of 0.9 percentage points, reaching in 2015 the highest level for the 2006-2015 period (see Chart 2.3-a).

Health insurance premiums represented 0.5% of GDP in 2015, increasing to 0.6% in 2017. In the analysis of the evolution of the penetration of private health insurance in Brazil, we see that the percentage of premiums relative to GDP over the last ten years has varied in a range between 0.3% and 0.6%[25] (see Chart 2.3-b).

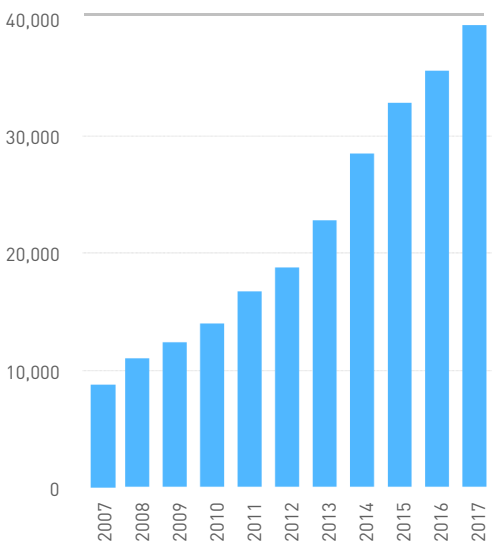
Chart 2.3-a
Brazil: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with ANS and OEF/Haver Analytics data)

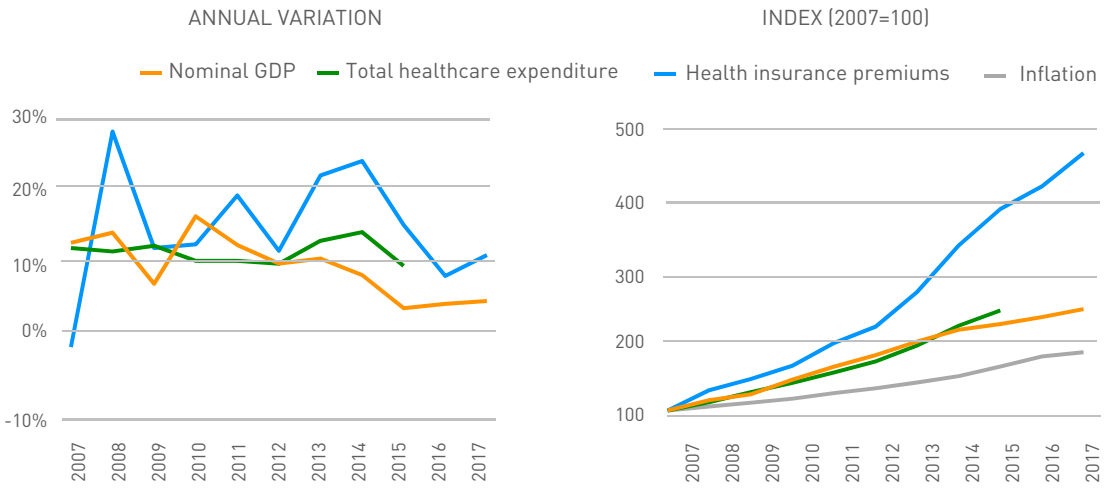
The evolution of the volume of private health insurance business in recent years is shown in Chart 2.3-c, together with a comparison of

Chart 2.3-b
Brazil: health insurance premiums, 2007-2017
(millions of reals)



Source: MAPFRE Economic Research (with ANS data)

Chart 2.3-c
Brazil: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017
(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with ANS, SNL, OEF and Haver Analytics data)

the increases in Brazil's total healthcare expenditure and GDP.

In general, we see greater increases in health insurance premiums than the increases in nominal GDP. Thus, in the 2007-2017 period, health insurance premiums grew by 358.5% compared with an increase in nominal GDP of 141.2%.

Description of the levels of coverage of the healthcare system

The current Brazilian healthcare system corresponds to the Beveridge model. However, despite the existence of free universal public coverage, the involvement of the private sector is significant, through supplementary health coverage.

With the aim of giving an idea of the environment in which health insurance business is conducted in Brazil, there follows a description of the different levels of coverage, following the schema described in the conceptual framework set out in this report.

Pillar 0
Minimum healthcare coverage

In Brazil there are no minimum health benefits limited in their scope for Brazilian citizens or for foreigners with or without permanent residence, who can request the card that gives access to the National Health Service and places them under the universal public coverage (Sistema Único de Salud [Unified Health System])[26]. This basic pillar therefore has no content, since the entire population is covered under the first pillar described below.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

The current configuration of the Brazilian health system is the result of a process of structural transformation at the end of the 1980s, when it moved from a social security model (which covered only people with a contract of employment) to a national health service model, with the creation of the Sistema Único de Salud (SUS) providing universal access and funded by taxes.

The SUS was created in 1988, at the time of the inclusion in the Constitution of the right to free comprehensive healthcare for the entire population, and was developed in 1990 through the Ley Orgánica de la Salud [Organic Health Law]. The system covers everything from outpatient treatment to high-cost surgical interventions. The SUS also promotes preventive actions, healthcare surveillance (such as food and drug surveillance),

and regulation of the public and private health systems.

The system is administered by the decentralized federal, state and municipal governments, which must administer the benefits through the networks of clinics, hospitals and establishments, both public and private, in the latter case through contracts and agreements.

Benefits are also provided by other public establishments such as university hospitals (administered by the Ministry of Education) and hospitals of the Armed Forces. The SUS coordinates the public sector and is responsible for the agreements or contracts with the private establishments.

The Brazilian system is an example for the region in terms of the liaison between the public and private systems. The SUS uses the private institutions to ensure provision in areas where the public service is insufficient.

The provision of the service is effected by means of admission to primary care, where the first assessment or treatment is performed, and if necessary the case is referred to specialized or more complex services. If the municipality does not have the service that the user requires, he or she is directed to another locality where the service exists, through a process agreed between the municipalities.

With technical and financial support from state and federal levels, each municipality is responsible for providing care to its population or referring users to other municipalities.

Although the entire population is entitled to the service, it is estimated that only 28.6% of the population are exclusive users of the SUS and 61.5% are non-exclusive users. In other words, 90% of the population uses the SUS, according to figures from the *Conselho Nacional de Secretarios de Saúde* [National Council of Municipal Health Secretaries].

The SUS is funded by taxes and social security contributions levied at the three levels of government: federal, state and municipal. The federal government's participation in the funding of the SUS is approximately 50%, while the states provide 27% and the municipalities 23%. A Senate regulation of 2008 established that the federation must devote 10% of its revenues to health, the states and federal district 12% and the municipalities 15%. The budgetary resources of the SUS must be deposited in the Health Funds. A portion of the federal resources is transferred to the states and municipalities. Similarly, a portion of the states' resources is transferred to the municipalities.

Chart 2.3-d presents a schematic summary of the Brazilian health system27.

Pillar 2
Corporate group health insurance

In Brazil, the private health sector as a whole is referred to as the Sistema de Atención Médica Suplementaria [Supplementary Medical Care System] (SAMS). The users are companies and families, who purchase group or individual Health Plans and Health Insurance.

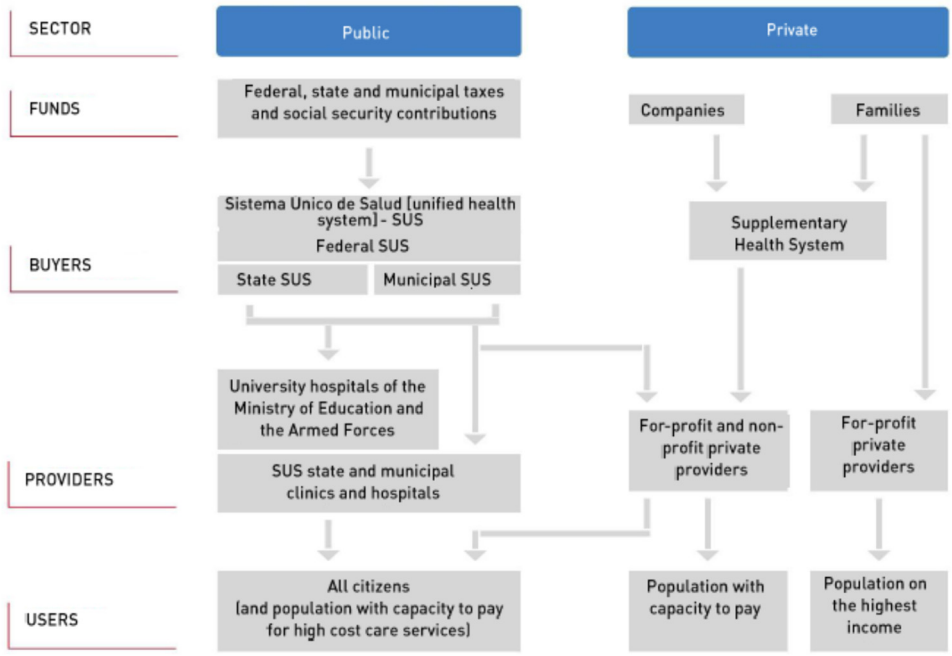
The Health Insurance is characterized by being mainly of the reimbursement type, allowing a free choice of doctor or hospital, while the Health Plans mainly cover the provision of services within a predefined medical or hospital framework. The Health Plans also have the option of reimbursement, but are taken out less frequently. It is notable that approximately 25% of the population has some kind of private medical plan or insurance, while an additional 11% has such an arrangement providing dental coverage only.

The Operadores de Planes de Salud [Health Plan Operators] (OPSs) are classified into eight types: (i) group medicine; (ii) group dentistry; (iii) specialized health insurers; (iv) administrators; (v) medical cooperatives; (vi) dental cooperatives; (vii) philanthropic institutions, and (viii) self-managing operators.

As at August 2018, the Supplementary Health System comprised 1,054 OPS entities, providing coverage to 70 million beneficiaries[28]. Of this total, 48 million were covered through corporate group schemes, 8 million through group affiliation (other groups) and 13 million through individual or family policies (see Table 2.3-a).

The popularity of this type of plan or insurance can be gauged by the number of beneficiaries. The group medicine medical and hospital operators accounted for 34% of the

Chart 2.3-d
Brazil: summary schema of the health system



Source: MAPFRE Economic Research (with information from Becerril Montekio, Medina G., Aquino R., Salud Pública [Public Health], México 2011)

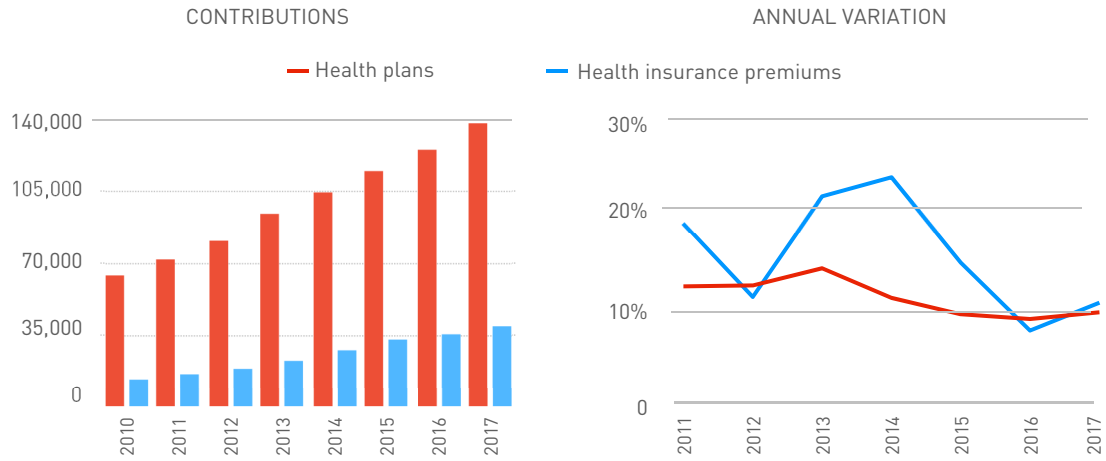
beneficiaries and the medical cooperatives 25%, while the specialized health insurers represented 10%. It should be noted that as from 1989, the Superintendencia de Seguros Privados [Superintendence of Private Insurance] (SUSEP) allowed insurance companies to be linked to the health services (SUSEP Circular no. 5 of 1989) as operators of health plans. The Agencia Nacional de Saude Suplementar [National Supplementary Health Agency] (ANS), meanwhile, is the body responsible for matters relating to private health insurance and regulates the operators of health plans

Table 2.3-a
Brazil: beneficiaries by type of health plan contracts, 2018
(contribution rates,%)

Group	Type of plan taken out	Beneficiaries
Corporate Group	• Corporate group	48,837,045
	• Corporate group with sponsor contribution	12,479
	• Corporate group without sponsor contribution	184
Unidentified Group	• Corporate group + Group through subscription	1,327
	• Individual or family + Corporate group	30
	• Individual or family + Corporate group + Group through subscription	3,789
	• Individual or family + Group through subscription	202
Group through Subscription	• Group through subscription	8,557,537
	• Group through subscription with sponsor contribution	15,530
	• Group through subscription without sponsor contribution	1,865
Individual or Family	• Individual or family	13,147,268
Not classified	• Not classified	178,275

Source: ANS, Sector Profile, Sector Data, Situation Room (August 2018)

Chart 2.3-e
Brazil: contributions to health plans and insurance, 2010-2017
(millions of reals; annual variation rates, %)



Source: MAPFRE Studies Service (with data from ANS and Finaccord)

and contributes to the development of health programs in the country.

In 2017 the total revenue of operators of Health Plans and Insurance was 178,132 million reals[29] (USD 55,817 million), of which around 80% would be group contracts and 20% individual[30].

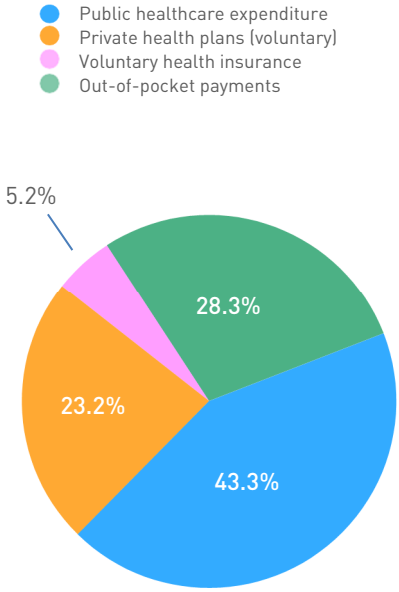
Companies' contributions to their employees' health plans are entirely tax-deductible as an operating expense, and this tax advantage encourages the adoption of such plans.

The evolution and variation of revenue in recent years are shown in Chart 2.3-e. As this information shows, there are notable increases in the volume of health insurance premiums across the entire series, especially between 2012 and 2016.

Pillar 3
Individual private coverage (voluntary)

In terms of healthcare expenditure per capita (see Chart 2.3-f), the estimated total in Brazil in 2015, according to OECD data, was USD 1,402 per inhabitant (USD 1,375 in 2014). Of this sum, around USD 607 (43.3%) would correspond to the average expenditure per capita in the mandatory public system. Of the remaining 56.7%, expenditure on voluntary health insurance premiums would be around USD 72 per person (5.2%) and expenditure on health plans would be USD 326

Chart 2.3-f
Brazil: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

(23.3%). "Out-of-pocket" costs would be around USD 397 (28.3%)[31].

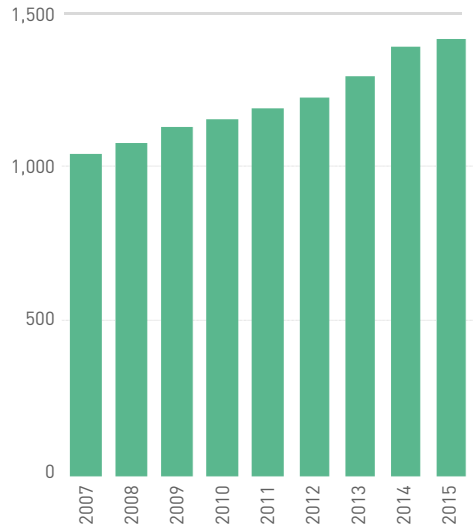
It is important to note that in Brazil there are tax advantages for people who take out a health plan or insurance, since they can deduct the entire amount from income tax. This constitutes a fundamental incentive for taking out such insurance, and helps to alleviate the high additional burden on the public health system entailed by the introduction of free universal coverage in Brazil at the end of the 1980s.

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in Brazil in 2015 was 63.4% lower than the average for the countries of the OECD in that year (USD 1,402 compared with USD 3,826)[32], according to that body's estimates. The evolution of expenditure per capita in the most recent available years is shown in Charts 2.3-g and 2.3-h.

Chart 2.3-g
Brazil: healthcare expenditure per inhabitant, 2007-2015
(dollars, nominal cost - PPP)

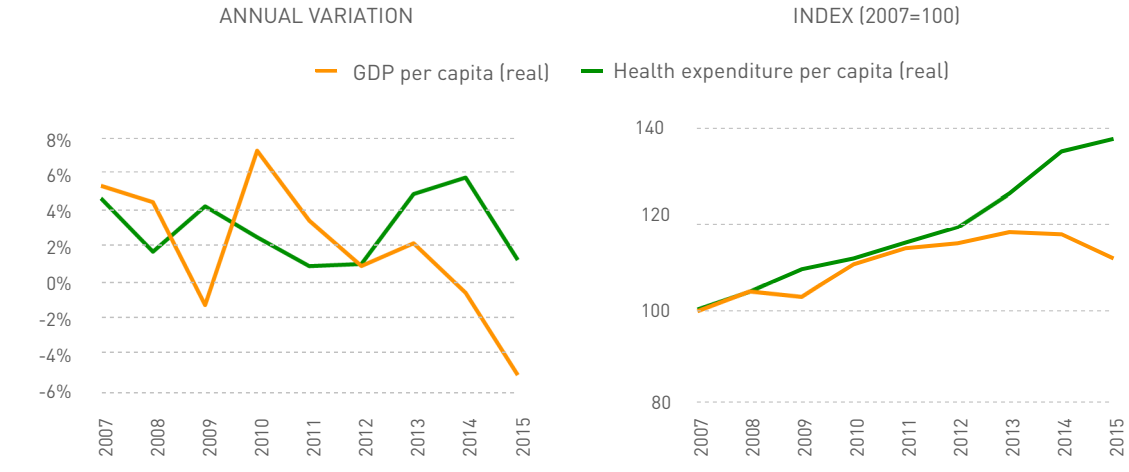


Source: MAPFRE Economic Research (with OECD data)

Indicators of capacity of the healthcare system

According to WHO data, as illustrated in Chart 2.3-i, in 2010 (latest available data) the number of practicing doctors in Brazil was 1.8 doctors per thousand inhabitants, 41.3% lower than the average for the countries of the OECD in that year (3.1 doctors per thousand inhabitants). The number of nurses was 1.5 per thousand inhabitants, 82.3% lower than the average for the countries of the OECD in that year (8.3 nurses per

Chart 2.3-h
Brazil: variation in healthcare expenditure per inhabitant, 2007-2015
(real variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

thousand inhabitants). On the other hand, the number of hospital beds in 2012 was 2.3 per thousand inhabitants, 52.3% lower than the average for the countries of the OECD in that year (4.8 beds per thousand inhabitants).

In 2012 there were 6.8 magnetic resonance imaging (MRI) scanners per million inhabitants (see Chart 2.3-j), 47.2% lower than the average for the countries of the OECD in that year (12.8 per million inhabitants), while the number of computed tomography (CT) scanners was 15.3 per million inhabitants, 30.0% lower than the average for the countries of the OECD (21.9 per million inhabitants).

Indicators of use of the healthcare system

The annual number per capita of consultations with doctors in 2013 was 2.8 visits per year, 61.1% lower than the OECD average (7.2 visits in that year).

The number of hospital discharges per thousand inhabitants per year in 2012 was 55.2, 64.7% lower than the OECD average[33] (156 discharges per year during the same period).

Indicators of health status

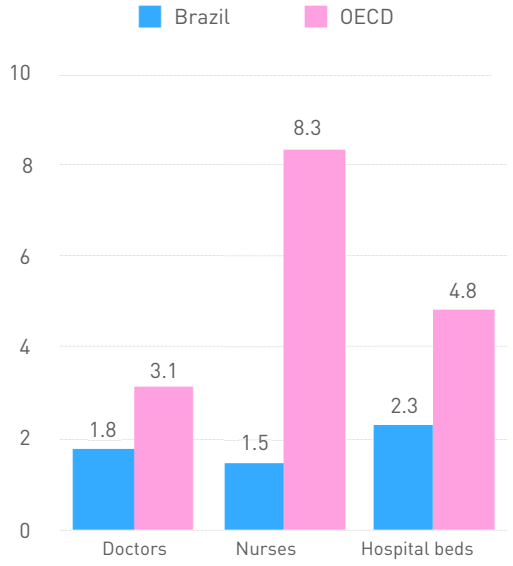
In the case of Brazil, life expectancy at birth, one of the indicators most frequently used as an approximation of the health status of a country's population, was 74.7 years in 2015, according to OECD data, 6.1 years below the average for the countries of the OECD (80.8 years).

On the other hand, healthy life expectancy is estimated at around 65.5 years, which, as in the countries analyzed previously, contrasts with the estimations of this indicator for Singapore and Japan of 73.6 and 73.2 years, respectively (the highest in the world)[34].

Health risk factors

Analysis of the factors commonly used as health risk indicators (see Chart 2.3-k) shows that the percentage of obese people in Brazil was 17% in 2015 (latest available data), 0.5 percentage points above the OECD average (16.5%).

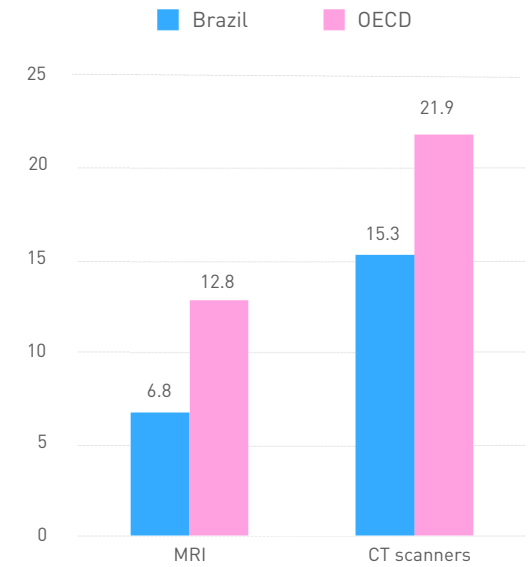
Chart 2.3-i
Brazil: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2010), Nurses (2010), Hospital beds (2012)

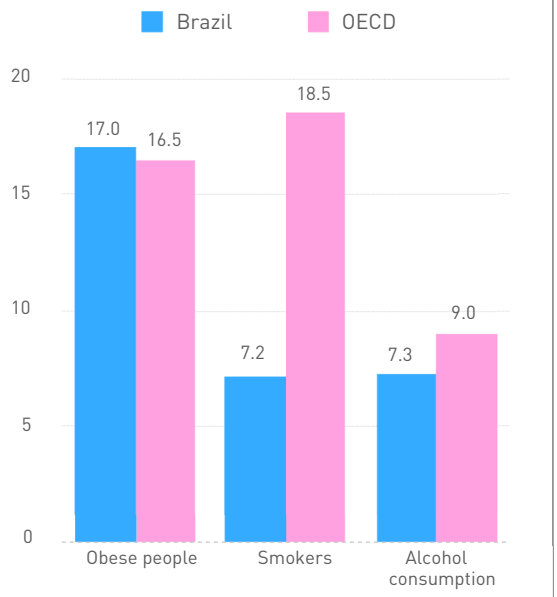
As regards smoking, the percentage of people who smoke daily was 7.2% in 2015, 11.3 percentage points below the OECD average

Chart 2.3-j
Brazil: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2012), CT scanners (2012)

Chart 2.3-k
Brazil: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-SR (2015), Smokers (2015), Alcohol consumption (2016)

(18.5% in the 2015-2016 period). Finally, alcohol consumption in 2016 was 7.3 liters per person per year, 18.5% lower than the OECD average (9 liters).

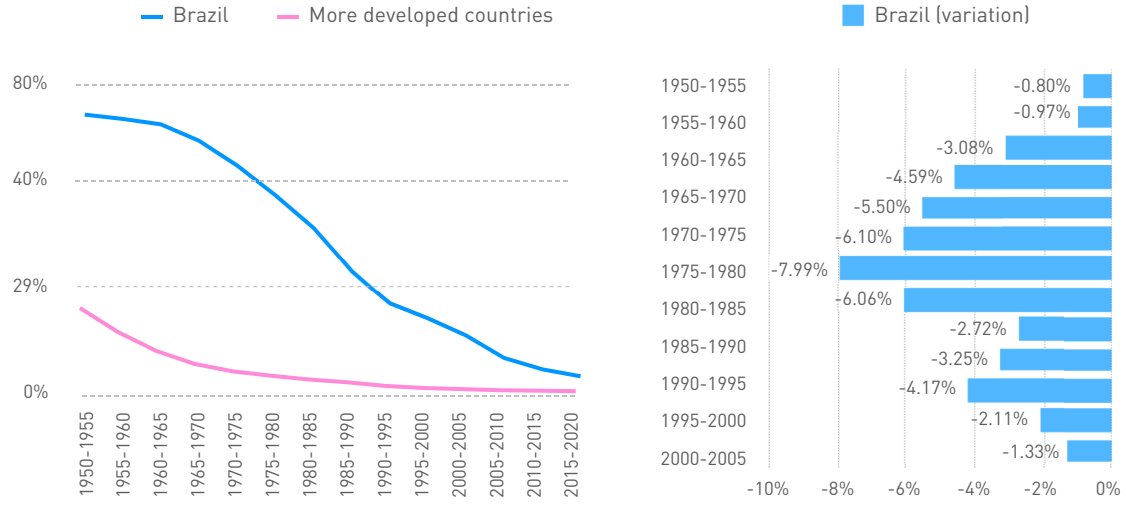
Indicators of healthcare quality

As mentioned earlier, infant mortality is one of the most relevant and widely used indicators of the effect of socio-economic conditions on the health of mothers and newborns, as well as of the quality of healthcare services and disease prevention and health promotion measures.

According to UN data, the percentage of infant deaths up to the age of four years has fallen markedly and steadily over the last few decades. In the case of Brazil (see Chart 2.3-l), the reduction has been very pronounced, having started from a percentage substantially higher than that of the more developed regions. However, it is currently still significantly above the average of the more developed regions (3.4% in Brazil compared with 0.6% in the more developed regions)[35].

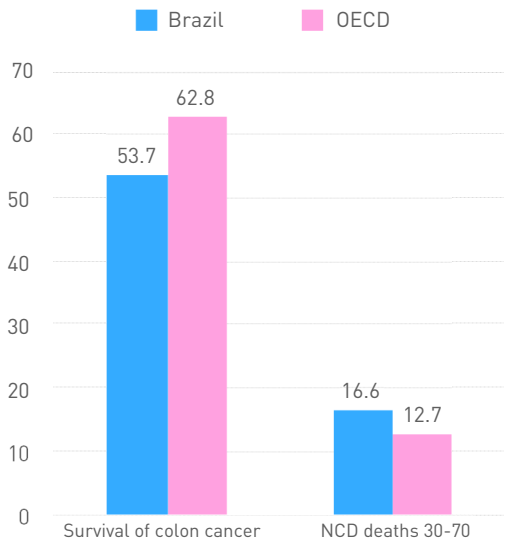
It should be noted that the percentage had been falling significantly toward the end of the 1980s, but from that time onward we see a sharp change of trend, coinciding with the extension of free universal coverage to the whole population. This may be indicative of a fall in the quality of healthcare, attributable to the overburdening that this extension entailed

Chart 2.3-l
Brazil: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

Chart 2.3-m
Brazil: survival of colon cancer and non-communicable diseases
(5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Survival of colon cancer (2010-2014). Deaths between the ages of 30-70 due to non-communicable diseases (2016)

for the public health system. In the 2000-2005 period, this trend reverses once again, resuming a path of greater convergence with that of the more developed regions.

On the other hand, the percentage of people surviving for more than five years with colon cancer in the 2010-2014 period in Brazil was 53.7%, 9.8 percentage points below the average for the countries of the OECD (62.8%).

As regards deaths due to non-communicable diseases (NCDs) between the ages of 30 and 70 years in 2016, Brazil has a percentage of 16.6%, 3.9 percentage points above the average of 12.7%[36] for the countries of the OECD (see Chart 2.3-m).

Main service providers

Insurance companies

The market shares of the largest insurance companies in the Brazilian health insurance business in 2017 are shown in Table 2.3-b[37]. As this information shows, this is a highly concentrated market in which the top two companies account for 86.1% of health insurance premiums.

Table 2.3-b
Brazil: ranking of Health insurance companies by premium volume, 2017

	Companies	Premiums (millions of USD	Market share (%)
1	BRADESCO	6,391.7	51.7%
2	SUL AMERICA	4,253.7	34.4%
3	UNIMED	679.9	5.5%
4	PORTO SEGURO	390.0	3.2%
5	CAIXA SEGURADORA	236.1	1.9%
6	SOMPO	169.6	1.4%
7	ALLIANZ	162.2	1.3%
8	ITAUSEG	46.4	0.4%
9	SALUTAR	32.1	0.3%

Source: MAPFRE Economic Research (with ANS data)

Table 2.3-c
Brazil: ranking of supplementary health operators (excluding insurance companies) by premium volume, 2017

	Companies	Premiums (millions of USD)	Market share (%)
1	AMIL ASSISTÊNCIA MÉDICA INTERNACIONAL	5,823.7	13.3%
2	NOTRE DAME INTERMÉDICA SAÚDE	1,519.6	3.5%
3	UNIMED-RIO COOPERATIVA DE TRABALHO MEDICO	1,485.0	3.4%
4	CAIXA DE ASSISTÊNCIA DOS FUNCIONÁRIOS DO B	1,334.5	3.0%
5	CENTRAL NACIONAL UNIMED COOPERATIVA CENT	1,295.6	3.0%
6	HAPVIDA ASSISTENCIA MEDICA LTDA	1,229.5	2.8%
7	GEAP AUTOGESTÃO EM SAÚDE	1,133.5	2.6%
8	UNIMED - BELO HORIZONTE COOPERATIVA DE TRA	1,045.4	2.4%
9	UNIMED DO ESTADO DE SP - FEDERAÇÃO ESTADUA	730.8	1.7%
10	PREVENT SENIOR PRIVATE OPERADORA DE SAÚDE	728.1	1.7%

Source: MAPFRE Economic Research (with ANS data)

Meanwhile, the ranking of the entities managing the supplementary health plans, excluding insurance companies, is shown in Table 2.3-c.

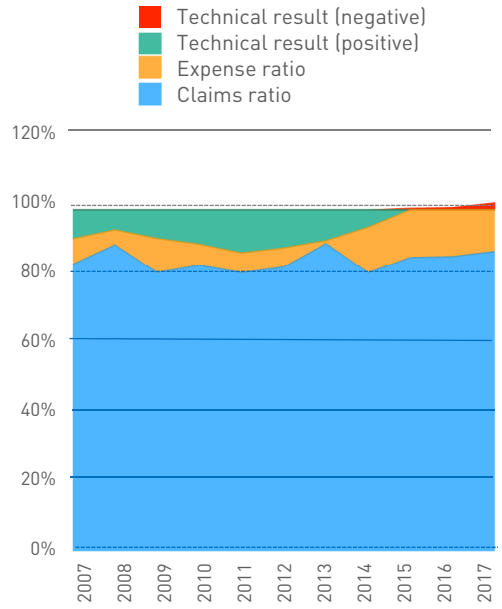
Finally, the evolution of the loss ratio, expense ratio and technical result for health insurance, as a percentage of premiums (combined ratio), is shown in Chart 2.3-n[38].

The combined ratio in 2016 was 102.1%, having increased steadily since 2013, when it was 94.9%. This rise is essentially due to the increase in the loss ratio.

Brief reference to other service providers

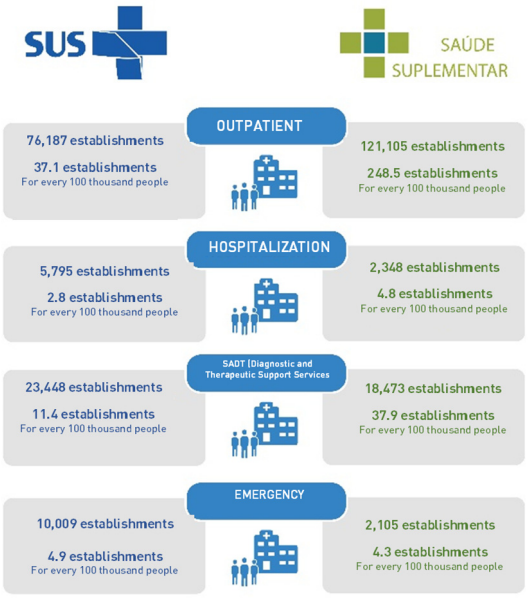
The health operators, whether plans or insurance companies, provide their services through a wide network of around 121,000 establishments (see Chart 2.3-o). These establishments, which may or may not belong to the operating entities, include clinics, specialized outpatient units, surgeries, general hospitals, specialized hospitals and polyclinics[39].

Chart 2.3-n
Brazil: operating and underwriting efficiency ratios, 2007-2017
(combined ratio, %)



Source: MAPFRE Economic Research (with CNSF data)

Chart 2.3-o
Brazil: health system establishments and services



Source: MAPFRE Economic Research (with information from the Instituto de Estudos de Saúde Complementar [Institute of Complementary Health Studies])

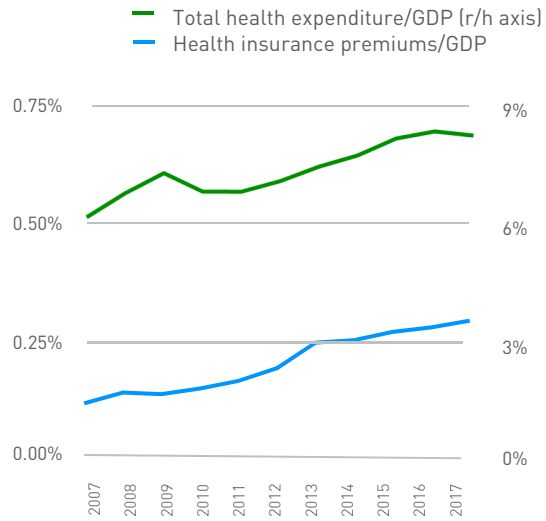
2.4 Chile

Total healthcare expenditure in Chile in 2017 represed 8.1% of the country's GDP (8.2% in 2016), 0.8 percentage points below the average for the countries of the OECD in that year (8.9%)[40]. As this information shows, total healthcare expenditure relative to GDP has seen substantial growth over the last ten years, with an increase of 1.9 percentage points (see Chrt 2.4-a).

On the other hand, health insurance premiums represented 0.3% of GDP. In the analysis of the evolution of the penen of private health insurance, we see that the percentage of premiums relative to GDP over the last ten years varies in a range betwn 0.1% and 0.3%.

The evolution of the volume of private health insurance business in recent years is shown in Chart 2.4-b, togethe th a comparison of the increases in Chile's total healthcare expenditure and GDP over the same period (see Chart 2.4-c).

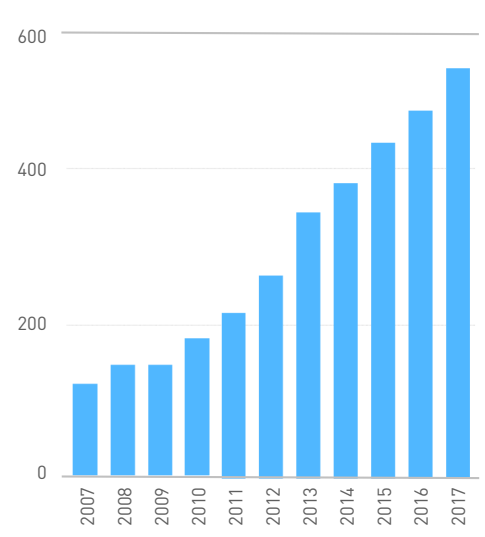
Chart 2.4-a
Chile: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile [Chilean Insurers' Association], OECD and OEF/Haver Analytics data)

In general, we see greater increases in health insurance premiums and total healthcare expenditure than the increases in nominal GDP. In the 2007-2017 period,

Chart 2.4-b
Chile: health insurance premiums, 2007-2017
(billions of pesos)



Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile data)

health insurance premiums grew by 341.3% compared with a 159.7% increase in total healthcare expenditure and a 98.3% increase in GDP over that period.

Description of the levels of coverage of the healthcare system

The current Chilean healthcare system corresponds to a mixed Bismarckian model with elements of the Beveridge model, combining a public insurance scheme called the Fondo Nacional de Salud [National Health Fund] (Fonasa) and private insurance schemes managed by the Instituciones de Salud Previsional [Health Insurance Institutions] (Isapres).

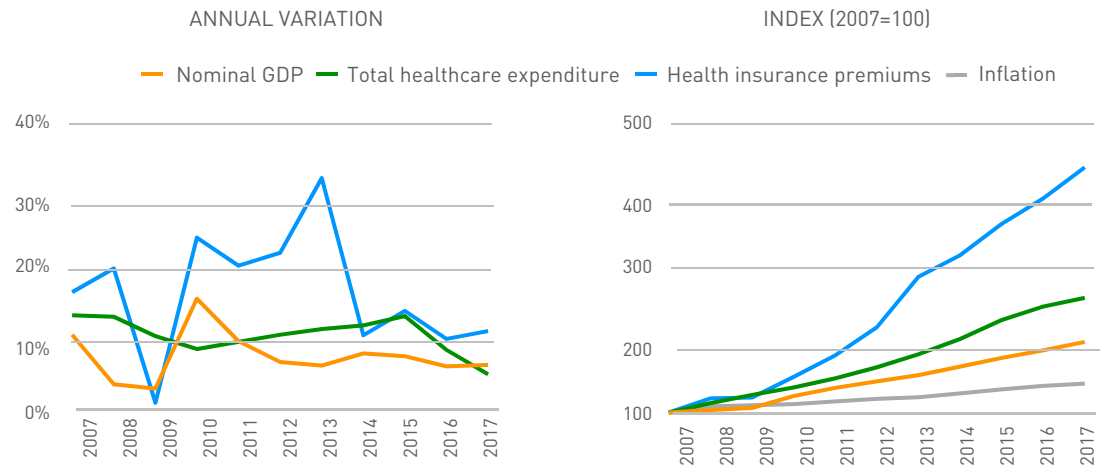
The funding for the system comes from different sources, mainly the State and contributions from employees and employers. Every active or passive worker is obliged to pay a contribution amounting to 7% of his/her taxable income to fund his/her health insurance, with a ceiling of 74.3 Unidades de Fomento [Development Units] (UF), but is free to choose between the public or the private system. In the case of Fonasa, the cost not covered by subscribers' contributions is funded by fiscal grants paid out of general taxes. The Isapres, meanwhile, are funded solely by the contributions of their subscribers, and in some cases this may involve a top-up in addition to the legal contribution. The Armed Forces have their own insurance, funded through taxes.

With the aim of giving an idea of the environment in which health insurance business is conducted in Chile, there follows a description of the different levels of coverage, following the schema described in the conceptual framework of this study.

Pillar 0
Minimum healthcare coverage

Healthcare coverage in Chile is very wide, but does not reach the whole of the population. For vulnerable people who are not covered, there are non-contributory medical assistance benefits provided under government social protection policies, the administration and funding of which is taken care of by the Fondo Nacional de Salud [National Health Fund]. In the case of foreigners, emergency treatment is offered in public infrastructures.

Chart 2.4-c
Chile: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017
(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile [Chilean Insurers' Association], OECD and OEF/Haver Analytics data)

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

The current configuration of the Chilean health model dates back to 1979, when the main reform of the health system was enacted through Decree Law no. 2.763/1979, which reorganized the Ministry of Health and its related institutions, creating the Sistema Nacional de Servicios de Salud [National Health Services System] (SNSS). Subsequently, Law no. 15.469 of 1985 established the characteristics of the health funding, insurance and treatment model currently in use, emphasizing the freedom to choose between public or private insurance and treatment alternatives and a contribution proportional to income in the public system.

These reforms gave rise to Fonasa, which became the body responsible for offering the public service. In addition, with the aim of improving the healthcare offering and citizens' ability to choose, the Isapres also emerged. These are private health plans that supplement the public sector.

According to data from the Superintendencia de Salud [Superintendence of Health], out of the population of 17.6 million people, around 13.5 million are affiliated to the public insurance scheme (Fonasa) and 3.4 million to an Isapre, while 0.4 million are beneficiaries of the Armed Forces and Police insurance. The rest of the population (around 0.3 million) is not covered by any health insurance.

In the period between 1973 and 1990 there was a series of reforms that brought about the decentralization of primary care, which was delegated to the municipal administration, and a direct or indirect privatization of part of its functions.

Between the 1990s and 2005, there was a further series of relevant reforms. The first of these was Law no. 19.381 (1995), which established for the first time that any contribution surplus (the difference between the value of the plan and the 7% contribution) belongs to the beneficiaries and must be accumulated in an account in the Isapre, which can then be used to meet any copayments or benefits not covered by the plan.

Another important reform was the Ley de Urgencias [Emergencies Law] of 1999 (no. 19650), the aim of which was to abolish prepayment for services both in the Isapres and in the Fonasa when the patient was treated in the context of a life-threatening emergency. Along the same lines, 2000 saw the emergence of the so-called Cobertura para Enfermedades Catastróficas [Coverage for Catastrophic Illnesses] (CAEC), regulated by Circular no. 59.

This started out as a voluntary insurance scheme, which ended up being made mandatory.

Also worthy of note in this regulatory process is the enactment in 2004 of Law no. 19.966 on the Régimen General de Garantías en Salud o Plan de Acceso Universal con Garantías Explícitas [General Regime of Health Guarantees or Universal Access Plan with Explicit Guarantees] (AUGE), also known as the Régimen de Garantías Explícitas de Salud [Regime of Explicit Health Guarantees] (GES), a universal health plan establishing the access, quality, financial protection and opportunity guarantees with which the benefits associated with a prioritized set of established programs, illnesses or health conditions must be delivered. The beneficiaries of the plan are contributors or affiliates in the Fonasa or in the Isapres, and since its entry into force in 2005 the included illnesses cover more than 70% of the country's disease burden. Health conditions and problems not provided for in the AUGE Plan are governed by the insurance conditions in force for the beneficiaries of the Fonasa and the Isapres.

Following this reform of the health system, the different governments sought to resolve the problems faced by health insurance in Chile through regulatory proposals that involved a modification of the health system, affecting the operation of the Isapres, the rights of their affiliates and beneficiaries, and their relations with the Health System as a whole. The main problems of the private health system relate to the mobility of its beneficiaries, determination of the tariff, adjustment of its premiums, transparency and application of the Table of Factors[41]. In this regard, the beneficiaries of the Isapres can move to the Fonasa or another Isapre after one year of coverage, but in practice, pre-existing conditions or age may impose de facto limits on this mobility.

Occupational health protection and insurance is effected through the Mutuales de Seguridad [Mutual Insurance Societies] (non-profit private entities) and the Instituto de Normalización Previsional [Institute of Social Security Standardization] (INP), which are responsible for collecting and administering the employers' contributions for mandatory insurance against occupational accidents.

The healthcare authority is the Ministry of Health, which is responsible for management, regulation, establishment of health policies and general plans, funding, insurance, provision of services and supervision of the functioning of the system. The regulatory role is also played by the Superintendence of Health, which supervises the Isapres and the Fonasa and oversees service providers in both the public and the private sector. The Superintendence of Health is a public body, the legal successor to the Superintendence of Isapres, which began its operations on January 1 2005, pursuant to the provisions of the Ley de Autoridad Sanitaria [Health Authority Law] (Law no. 19.937).

As regards coverage and care according to the type of insurance, both public and private insurers must offer a service with minimum guarantees, including: preventive medicine; medical assistance for a list of illnesses established by the Ministry of Health; dental treatment (for particular cases); pregnancy and postnatal screening; subsidy for incapacity for work; subsidy for maternity, and Garantías Explícitas en Salud [Explicit Health Guarantees] (GES).

We must also specify the features of the Fonasa, which distinguishes two plans: Modalidad de Atención Institucional [Institutional Care Modality] (MAI) and Modalidad de Libre Elección [Free Choice Modality] (MLE). Affiliates are classified, according to their income, into bands (A-B-C-D) according to whether or not a copayment applies to that band.

The Institutional Modality consists of a public healthcare network that provides a free service at health centers for primary care, while its beneficiaries make a copayment at public hospitals for secondary and tertiary care, according to the income band (see Table 2.4-a).

In the Free Choice Modality, on the other hand, the beneficiary freely chooses a professional and/or entity from the public or private sector that is listed in the Fonasa register, has entered into an agreement with the Fonasa and provides the required services. The beneficiaries must make a copayment according to their income level for general medical consultations, and the percentage of the treatment cost covered is lower than in the Institutional Modality. Additionally, in this model explicit health guarantees (GES) may be

Table 2.4-a
Chile: classification of Fonasa beneficiaries by income bands

Group	Beneficiaries	% Copayment
A	Destitute people or those with few resources, beneficiaries of social assistance pensions referred to in Decree Law no. 869 of 1975, and those entitled to family allowance under the provisions of Law no. 18.020.	0%
B	Affiliates whose monthly income is less than the minimum monthly wage (241,000 pesos) applicable to workers between the ages of 18 and 65 years.	0%
C	Affiliates whose monthly income is greater than the minimum monthly wage applicable to workers between the ages of 18 and 65 years but less than 1.46 times that amount, unless they have three or more dependent beneficiaries, in which case they will be considered to belong in Group B. In other words, this band currently includes people with a monthly taxable income of more than 241,000 pesos but not more than 351,860 pesos. If they have three or more family dependents, they move to Band B.	10%
D	Affiliates whose monthly income is more than 1.46 times the minimum monthly wage (more than 351,860 pesos) applicable to workers between the ages of 18 and 65 years, provided that they have no more than two dependent beneficiaries. If they have three or more dependent beneficiaries, they will be considered to belong to Group C.	20%

Source: MAPFRE Economic Research (with Asociación de Isapres de Chile data)

required for all of its beneficiaries. People in Group A cannot opt for this model.

Finally, it is important to mention the free catastrophic expenses insurance provided by the Fonasa for the treatment of certain conditions, which is effective only under the Institutional Modality.

Meanwhile, the Isapres offer various plans, which are of two types: the open, which are taken out on an individual basis, and the closed, which are linked to a company. There are currently seven open Isapres, whose plans are made up of explicit health guarantees (GES), are managed through agreements and have a supplementary plan which, as a minimum, must guarantee the minimum services of the Fonasa Free Choice Modality and may also include preferred providers or a closed plan, all regulated by copayments. At the same time, the Isapres may be closed (there are currently six closed Isapres) and be linked by ownership and purpose to a particular company or a group of companies, so that it is aimed at employees and their families. The funding of the closed Isapres is based not only on employee contributions, but also on direct contributions by the employer and different forms of subsidies by the parent companies.

On average, the Isapres cover 55% of outpatient costs and 70% of in-hospital services. In addition, all of the Isapres have Cobertura Adicional para Enfermedades Catastróficas [Additional Coverage for Catastrophic Illnesses (CAEC), which makes it possible to fund 100% of high-cost expenses.

Structure of the health system[42]

The entity responsible for public healthcare is the Sistema Nacional de Servicios de Salud [National Health Services System](SNSS), made up of the Ministry of Health and its dependent bodies: the Health Services, the Fonasa, the Instituto de Salud Pública [Public Health Institute] and the Central de Abastecimiento [Supply Center]. The system also involves all those institutions that enter into agreements, notably the municipalities and delegated services.

There are currently 29 Health Services across the country, which are responsible for carrying out integrated actions of health development, protection and recovery, and patient rehabilitation. Directly dependent upon these are the hospitals and, in some cases, primary-level outpatient treatment centers. The primary healthcare provided at urban and rural centers has been delegated to the municipal administration. Each Health Service has an assistance network of establishments and levels of care organized according to their population coverage and treatment complexity.

The primary level has minimal complexity and wide coverage. It provides outpatient treatment in the Postas Rurales de Salud

[Rural Health Posts] and in the general, urban and rural clinics. The secondary level, mainly centered on basic specialisms, has intermediate complexity and medium coverage. It provides outpatient treatment and hospital care in hospitals that also offer outpatient services through an adjoining surgery in this type of establishment. The tertiary level is characterized by reduced population coverage, mainly based on referrals of patients from other levels, and by its high technological complexity. Although these hospitals carry out highly complex activities, they generally also provide secondary-level care.

Pillar 2
Corporate group health insurance

Supplementary health insurance is focused mainly on group policies taken out by an employer or a negotiating body, such as labor unions or corporate internal units. This type of insurance accounts for around 80% of the health insurance taken out with insurers other than the Isapres, with an upward trend over recent years.

In 2017, the insurance companies took 527,831 million pesos in health premiums (USD 814 million). Of this figure, 98.6% represents premiums written by life insurance companies.

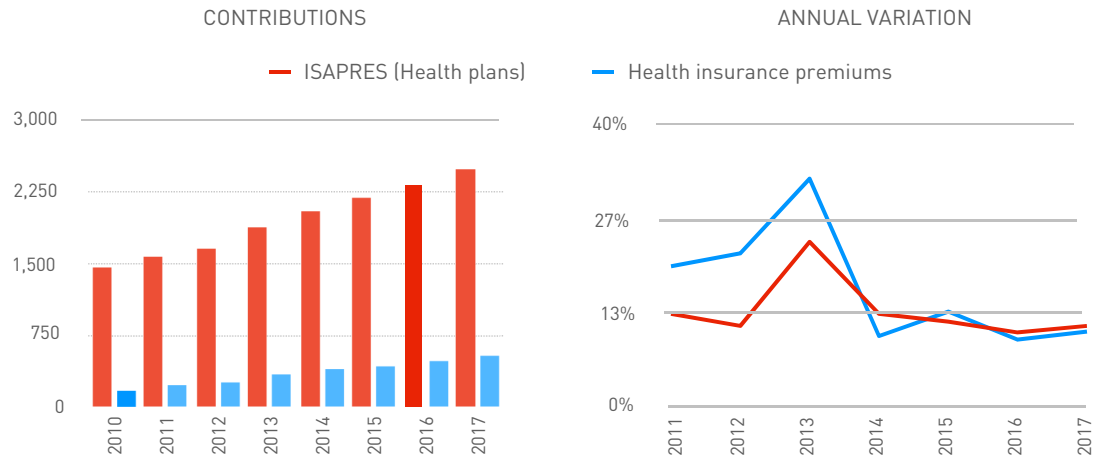
It is notable that the increases in health insurance premium volumes exceed the increases in the revenues of the Isapres until 2014, from which time they follow a similar path (see Chart 2.4-d).

Pillar 3
Individual private coverage (voluntary)

In terms of healthcare expenditure per capita, the estimated total in Chile in 2017, according to OECD data, was USD 1,915 per inhabitant (USD 1,893 in 2016). Of this sum, if we apply the most recent distribution available to date (2015)[43], around USD 1,164 (60.8%) would correspond to the average expenditure per capita in the mandatory system. Of the remaining 39.2%, expenditure on voluntary health insurance premiums would be around USD 71 per person (3.7%). "Out-of-pocket" health costs, at USD 617, would be around 32.2% of the total expenditure per capita, with the rest corresponding to other types of expenditure (see Chart 2.4-e).

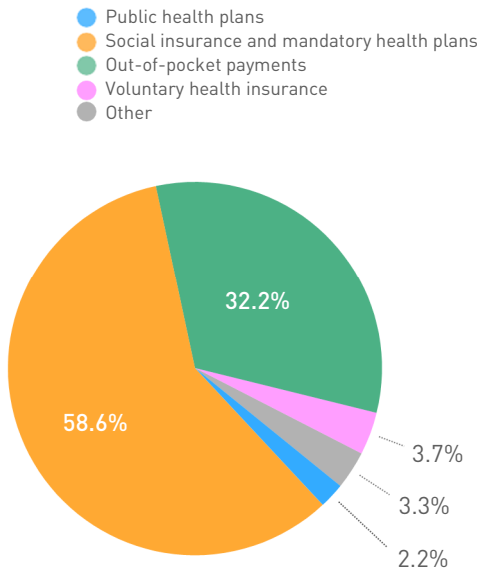
It should be noted that within voluntary health insurance, coverage through individual private insurance would be around 20%, compared with 80% for group private insurance.

Chart 2.4-d
Chile: contributions to health plans and insurance, 2010-2017
(millions of pesos; annual variation rates,%)



Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile and Finaccord data)

Chart 2.4-e
Chile: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile and Finaccord data)
* Latest available data.

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in Chile in 2017 was 52.9% lower than the average for the countries of the OECD in that year (USD 1,915 compared with USD 4,069). The evolution of expenditure per capita in the most recent years available is shown in Charts 2.4-f and 2.4-g, together with a comparison with the evolution of GDP during the same period.

Indicators of capacity of the healthcare system

According to OECD data (see Chart 2.4-h), the number of practicing doctors in Chile in 2017 was 2.5 per thousand inhabitants, 28.0% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). As regards the number of nurses, the indicator stood at 2.7 per thousand inhabitants, 69.8% lower than the average for the countries of the OECD (9.0 nurses per thousand inhabitants).

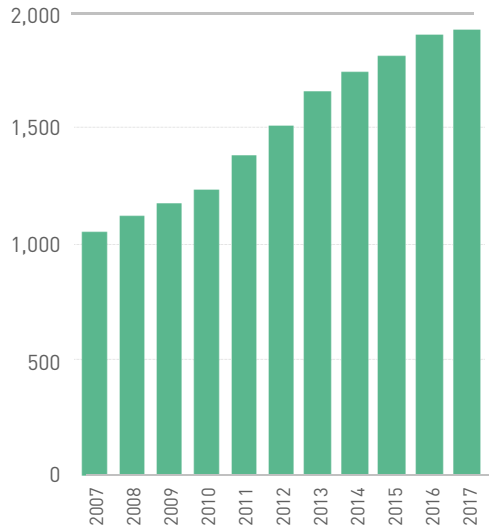
On the other hand, the number of hospital beds in Chile in 2016 was 2.1 per thousand inhabitants, 54.5% lower than the average for the countries of the OECD (4.7 beds per thousand inhabitants).

Meanwhile, as illustrated in Chart 2.4-i, the number of magnetic resonance imaging (MRI) scanners in Chile in 2014 was 9.4 per million inhabitants, 39.9% lower than the average for the countries of the OECD (15.7 per million inhabitants), while the number of computed tomography (CT) scanners was 14.8 per million inhabitants, 43.2% lower than the average for the countries of the OECD (26 per million inhabitants).

Indicators of use of the healthcare system

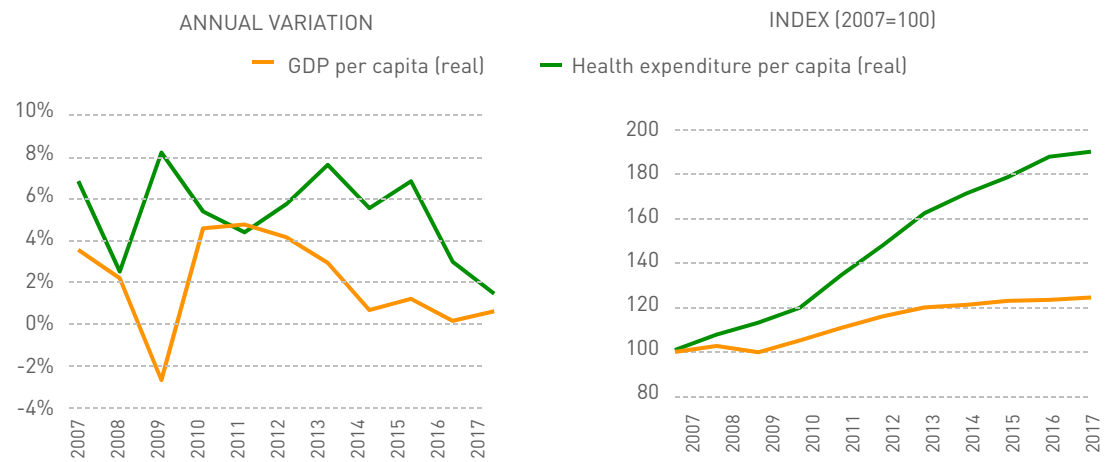
The annual number per capita of consultations with doctors, both general practitioners and specialists, is quite stable in Chile, at around 3.2 visits per year. The latest available data is from 2015, when the average was 3.5 visits per person, 49.6% lower than the OECD average

Chart 2.4-f
Chile: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

Chart 2.4-g
Chile: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)

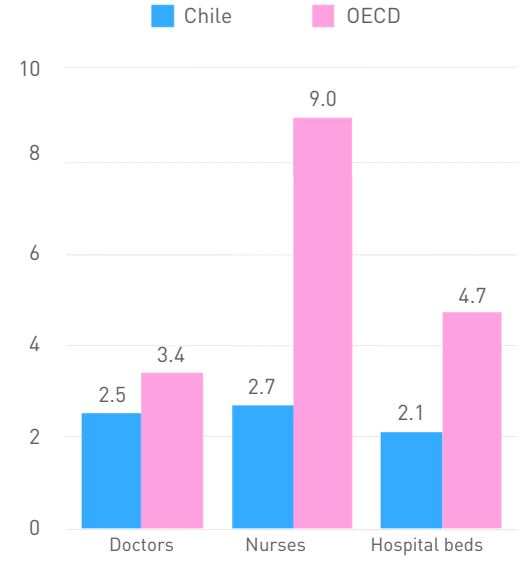


Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

(6.9 visits per year in the 2014-2015 period).

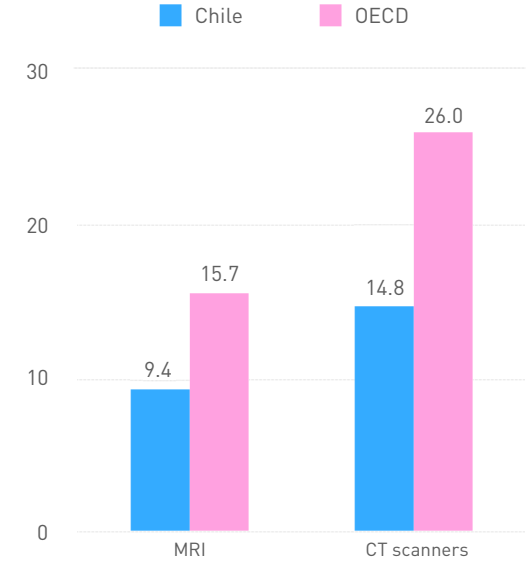
On the other hand, as regards the annual number of hospital discharges per thousand inhabitants in 2016 in Chile, the indicator was 90 per thousand inhabitants, 42.5% lower than the OECD average[44] (156 discharges per year during the same period). The average stay in hospital, meanwhile, was 5.8 days, 28.6% lower than the OECD average (8.1 days).

Chart 2.4-h
Chile: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2017), Nurses (2017), Hospital beds (2016)

Chart 2.4-i
Chile: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2014), CT scanners (2014)

Indicators of health status

Life expectancy at birth, one of the indicators most frequently used as an approximation of the health status of a country's population, was 79.9 years in Chile in 2017, according to OECD data, 0.9 years below the average for the countries of the OECD (80.8 years).

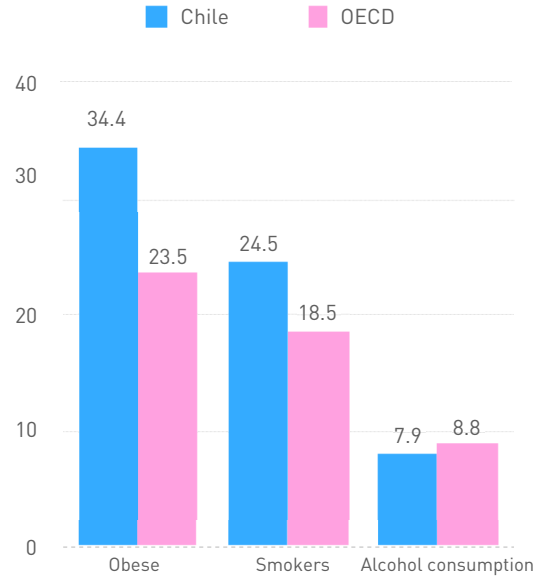
On the other hand, healthy life expectancy is estimated at around 69.9 years, contrasting with the estimations of this indicator for countries such as Singapore and Japan, at 73.6 and 73.2 years, respectively (the highest in the world)[45].

Health risk factors

The promotion of healthy lifestyles (programs on obesity, balanced diet, exercise and smoking) constitutes an essential element of disease prevention in any health system.

Analyzing the three factors commonly used as health risk indicators, the percentage of obese people in Chile, based on real measurements, was 34.4% in 2016 (latest available data), 10.9 percentage points above the OECD average (23.5% in the 2015-2016 period).

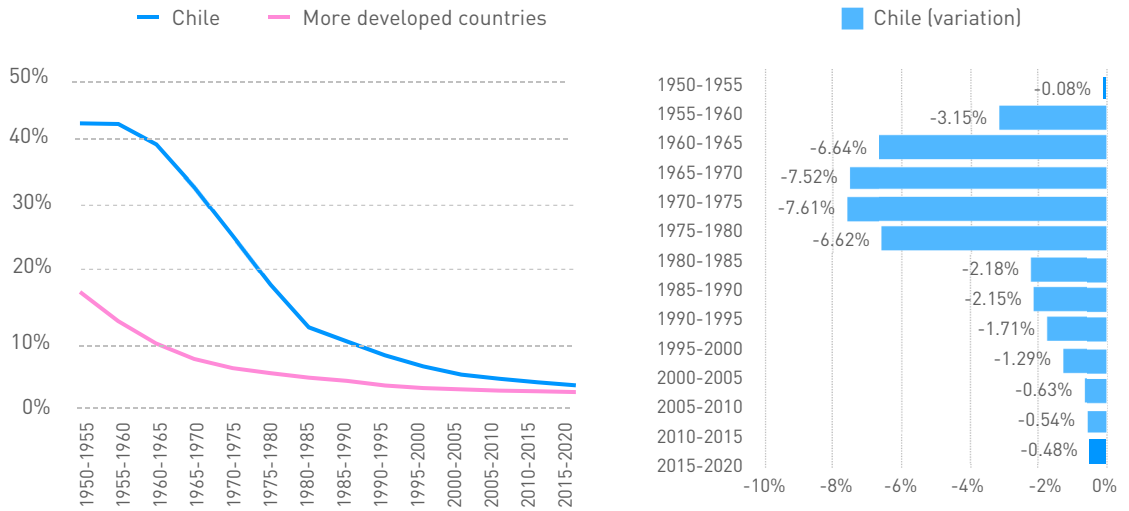
Chart 2.4-j
Chile: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-M (2016), Smokers (2016), Alcohol consumption (2016)

As regards smoking, the percentage of people who smoke daily was 24.5% in 2016, 6 percentage points above the OECD average (18.5% in the 2015-2016 period).

Chart 2.4-k
Chile: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

Finally, alcohol consumption in 2016 (latest available data) was 7.9 liters per person per year, 10% lower than the OECD average (8.8 liters).

Indicators of healthcare quality

Infant mortality is a relevant indicator for analyzing the effect of socio-economic conditions on the health of mothers and newborns, as well as the quality of healthcare services and disease prevention and health promotion measures.

According to UN data, the percentage of infant deaths up to the age of five years has fallen markedly and steadily over the last several decades. As illustrated in Chart 2.4-k, in the case of Chile the fall in the indicator has been very pronounced, having started from a percentage substantially higher than that of the more developed regions. However, it is currently still well above the average for those regions (1.6% in Chile compared with 0.6% in the more developed regions)[46].

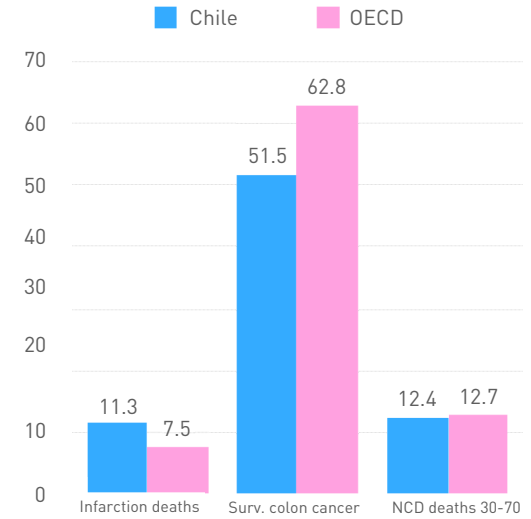
Another of the indicators widely used in relation to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data, the rate of deaths in 2015 in Chile during the thirty days following hospitalization was 11.3 per 100 admissions of adults aged 45 years and over, 51.2% higher than the average for the countries of the OECD (7.5). On the other hand, the percentage of people who survived for more than five years with colon cancer in the 2010-2014 period in Chile was 51.5%, 11.3 percentage points below the average for the countries of the OECD (62.8%). Finally, as regards the percentage of deaths due to non-communicable diseases between the ages of 30 and 70years, Chile has a percentage of 12.4%, 0.3 percentage points below the average for the countries of the OECD (12.7%)[47].

Main service providers

Insurance companies

The market shares of the largest insurance companies in the Chilean health insurance business in 2017 are shown in Table 2.4-b.

Chart 2.4-l
Chile: mortality due to infarction, survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)

* Deaths due to infarction (2014), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

As this information shows, the top ten insurance groups account for 85.5% of health insurance premiums in Chile.

Table 2.4-b
Chile: ranking of health insurance groups by premium volume, 2017

	Groups	Premiums (millions of USD	Market share (%)
1	METLIFE	179.7	22.1%
2	CHILENA CONSOLIDADA	93.1	11.4%
3	SECURITY PREVISIÓN	76,4	9,4%
4	EUROAMÉRICA	74.0	9.1%
5	CÁMARA	63.5	7.8%
6	BICE VIDA	55.7	6.8%
7	BCI SEGUROS VIDA	48.9	6.0%
8	CONSORCIO NACIONAL	38.9	4.8%
9	SURA	35.6	4.4%
10	CLC	29.5	3.6%

Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile data)

Brief reference to other service providers

In Chile, most private medical services are provided by for-profit persons and entities that provide their services through different types of treatment centers (outpatient and closed), including professionals who provide healthcare on an individual basis. The regulation of providers is the responsibility of the Undersecretariat of Public Health, in terms of healthcare authorization, and the Superintendence of Health, as regards accreditation and quality certification.

The main private providers are grouped together in the Asociación de Clínicas de Chile, a trade association whose objective is to maintain an ongoing relationship of collaboration with the authorities and other public and private bodies in the sector. According to a study by the said association, the participation of private providers in 2016 accounted for 48% of all services delivered, excluding the primary care delivered in the network of municipal and public establishments.

Both the private and public providers can offer healthcare services on the open market. The treatment centers of the health services and those under municipal administration can offer services to any type of insured and uninsured persons,

Table 2.4-c
Chile: number of health institutions, 2016
(hospital care with more than 10 beds)

Companies	Number of institutions	(%)
Public Hospitals	191	54.9%
Private Clinics	83	23.9%
Mutual Societies	11	3.2%
Psychiatric Clinics, Geriatric Centers, Recuperation Units	38	10.9%
Institutional entities (Armed Forces, Universities, Copper, etc.)	16	4.6%
Other	9	2.6%
Total	**348**	**100.0%**

Source: MAPFRE Economic Research (with FONASA and Clínicas de Chile A.G. data)

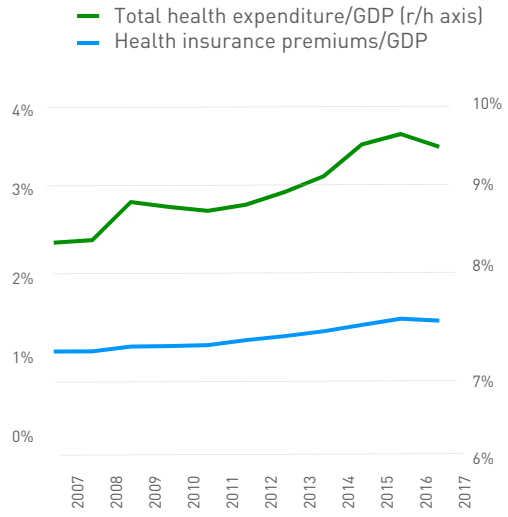
and for this purpose they have differentiated tariffs: under the institutional modality (internal payment of the SNSS for services provided); free choice modality in the Fonasa (copayment by the Fonasa user) and private or individual tariffs.

In addition to the SNSS, there are other institutions in the public subsector that have their own health systems, intended to provide healthcare to employees and their family dependents, and for this purpose they have open and closed establishments and care units. Notable in this regard are the establishments of the Armed Forces, the Prison Service, Empresa Nacional del Petróleo and the University of Chile, among others.

2.5 Australia

In Australia, total healthcare expenditure in 2017 represented 9.4% of GDP (9.6% in 2016), 0.5 percentage points above the average for the countries of the OECD (8.9%)[48]. As can be seen in Chart 2.5-a, total healthcare expenditure relative to GDP in that country grew by one percentage point over the 2007-2017 period.

Chart 2.5-a
Australia: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with APRA, OECD and OEF/Haver Analytics data)

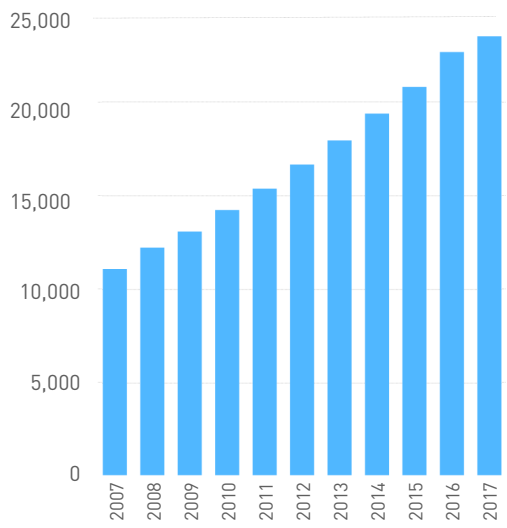
On the other hand, health insurance premiums represented 1.3% of GDP in 2017[49]. In the analysis of the evolution of the penetration of private health insurance, we see a rising trend over the last ten years.

Specifically, the evolution of the volume of private health insurance business in recent years is shown in Charts 2.5-b and 2.5-c, together with a comparison of the increases in Australia's total healthcare expenditure and GDP during the same period. In general, we see higher increases in health insurance premiums and total healthcare expenditure than the increases in GDP and inflation. Thus, over the last ten years health insurance premiums grew the most (111.6%), followed by total healthcare expenditure (78.4%), compared with GDP growth of 59.4%.

Description of the levels of coverage of the healthcare system

The Australian health system corresponds to the Beveridge model of universal coverage funded through taxes. With the aim of giving an idea of the environment in which health insurance business is conducted in Chile, there follows a description of the different levels of coverage, following the schema described in the conceptual framework of this study.

Chart 2.5-b
Australia: health insurance premiums, 2007-2017
(millions of Australian dollars)

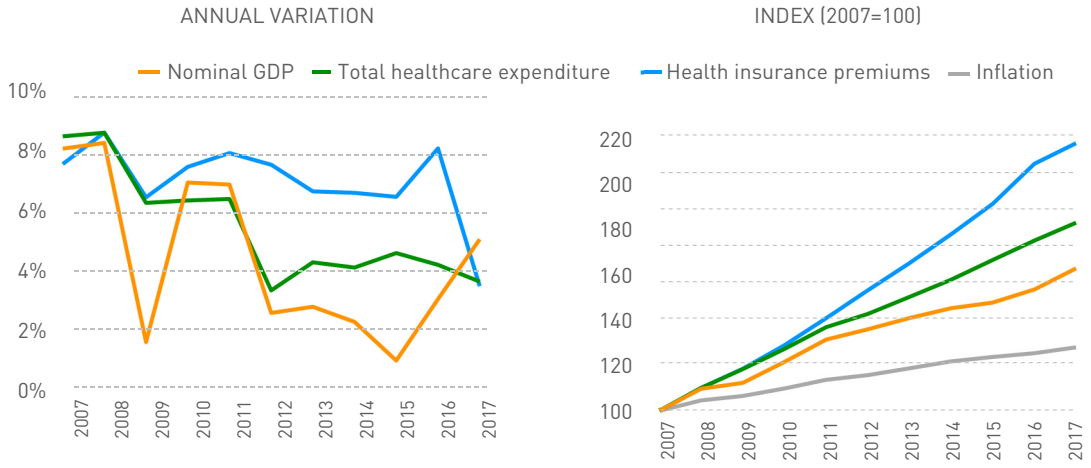


Source: MAPFRE Economic Research (with APRA data)

Pillar 0: minimum healthcare coverage

The healthcare coverage provided through this basic pillar is residual in Australia, since there is a universal public system with full access for all Australian or New Zealand citizens[50], for

Chart 2.5-c
Australia: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017
(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with APRA, OECD and OEF/Haver Analytics data)

foreigners with permanent residence, and for holders of return visas and foreign citizens whose country of origin has reciprocal guarantee agreements.

Immigrants and people entering the country as refugees or for humanitarian reasons generally have immediate access to medical care under the public program (known as Medicare).

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

Public healthcare coverage for Australians and other permanent residents is provided through the Medicare program, which includes primary care costs, hospital costs and 85% of specialists' costs. It also covers certain services provided by opticians, nursing personnel, obstetricians and dentists. This coverage is funded by applying a 2% surtax on income tax.

In addition to Medicare, and with the aim of alleviating the burden on the public system, a system of incentives has been established to encourage people to take out additional Private Health Insurance (PHI). The incentivization of private health insurance is achieved by applying a penalty through income tax, with a progressive surtax on the Medicare rate if private insurance is not taken out. This means that only people with low income levels would be exempt from penalization (see Box 2.5).

Those who have taken out private medical insurance can choose either to take advantage of their Medicare coverage by using public hospitals (without the ability to choose the specialist who will treat them, and subject to the public healthcare waiting lists), or to use their private insurance (with the ability to choose the specialist and avoid the public system's waiting lists).

The Australian federal government has an online comparator to facilitate price and coverage comparisons when taking out private health insurance[51]. There is a specific regulatory framework as regards the accuracy and appropriateness of the information that must be provided to consumers of health insurance in this comparator. Consumer protection falls within the scope of the "Private Health Insurance Ombudsman" (PHIO), with powers of inspection over this market.

Help is also available from the federal government, which may subsidize part of the private insurance premiums depending on the scope of the coverage and the financial means of the policyholder.

Additionally, in 2000 the so-called "Lifetime Health Cover" was introduced, with the aim of encouraging younger people to take out hospital insurance at an early age and maintain its coverage throughout their lives. This insurance offers a lower premium throughout its lifetime if the participants enroll before the age of 30 years.

As regards payment for medications, a wide range of pharmaceutical products is subsidized under the Programa de Beneficios Farmacéuticos [Pharmaceutical Benefits Program] (PBS). A valid Medicare card is required to access this benefit. The amount of the subsidy varies according to the type of medication and is published each year by the Australian Department of Health. If medications are needed in large quantities or for a long period, the PBS Safety Net can also give a subsidy depending on the quantity involved.

On the other hand, the procedure and organizational model for emergency care is the responsibility of each state government. In general terms, such care is provided through the primary care services and hospitals. In Queensland and Tasmania, emergency outpatient services are provided free of charge by the state government. New South Wales and the Australian Capital Territory offer free outpatient coverage for pensioners and people on low incomes. However, in the other states, Medicare does not cover emergency costs or other outpatient costs.

As regards care for seniors, this is provided by the federal government through the Commonwealth Home Support Program. This program is currently in transition as part of a process to unify the services provided across

Box 2.5
Incentives for private health insurance in Australia

The system of incentives for private health insurance in Australia was introduced on July 1, 1997 through the Private Health Insurance Incentives Scheme, with the aim of encouraging people to take out such insurance.

From its beginnings, this system provided a subsidy to people on the lowest incomes who took out private health insurance (a subsidy that remains available today), and it was simultaneously supplemented with the introduction of the Medicare Levy Surcharge (MLS), which is applicable to individuals or families with higher incomes who decide not to take out such insurance. The objective of this surcharge is to encourage people to take out and maintain private insurance that facilitates the sustainability of the public health system, in that it obliges beneficiaries who do not take out such insurance to pay an additional and progressive levy depending on their income.

The MLS was originally conceived as a flat-rate 1% surcharge on the income tax of individuals or families whose income was above a certain threshold. However, following its reform in 2002, a progressive surcharge is applied according to the level of income (see Table A).

Table A
Income tax surcharge for not taking out private health insurance (Australian dollars)

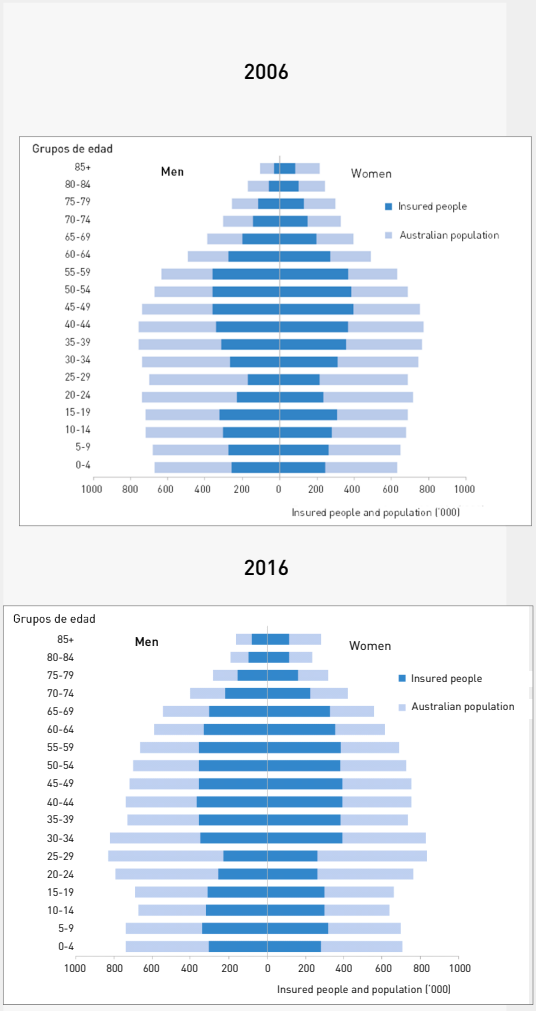
Tier	Income level for the purposes of the Medicare Levy Surcharge (MLS)	MLS
	Thresholds from July 1, 2014 to June 30, 2018	
No Tier	Individuals - $0 - $90,000 Families - $0 - $180,000	None
Tier 1	Individuals - $90,001 - $105,000 Families - $180,001 - $210,000	1%
Tier 2	Individuals - $105,001 - $140,000 Families - $210,001 - $280,000	1.25%
Tier 3	Individuals - $140,001 + Families - $280,001 +	1.50%

Source: MAPFRE Economic Research (with AIHW information)

It is important to note that the income limits in these tables are index-linked in order to keep them up to date with respect to variations in the average salary.

Additionally, in 2000 the so-called "Lifetime Health Cover" was introduced, with the aim of encouraging younger people to take out hospital insurance at an early age and maintain its coverage throughout their lives. This insurance offers a lower premium throughout its lifetime if the participants enroll before the age of 30 years.

Chart A
Coverage of age groups, 2006 and 2016



Source: MAPFRE Economic Research (with APRA information)

Box 2.5 (continued)
Incentives for private health insurance in Australia

Table B
Public hospital waiting lists
(figures as at June of each year)

	Admissions to waiting lists	Admissions x 1,000 inhabitants	Waiting days (50th percentile)	Waiting days (90th percentile)	% waiting more than 365 days
2000-01	508,290	26	27	202	4
2001-02	508,371	26	27	203	5
2002-03	517,503	26	28	197	4
2003-04	528,949	27	28	193	4
2004-05	549,746	27	29	217	5
2005-06	556,770	27	32	226	3
2007-08	570,907	27	34	234	3
2008-09	601,037	28	33	219	3
2009-10	612,439	28	35	245	3
2010-11	627,184	28	36	250	3
2011-12	661,707	29	36	251	3
2012-13	671,033	29	36	265	3
2013-14	699,023	30	36	262	2
2014-15	697,593	30	35	253	2
2015-16	711,854	30	37	260	2
2016-17	748,091	31	38	258	2

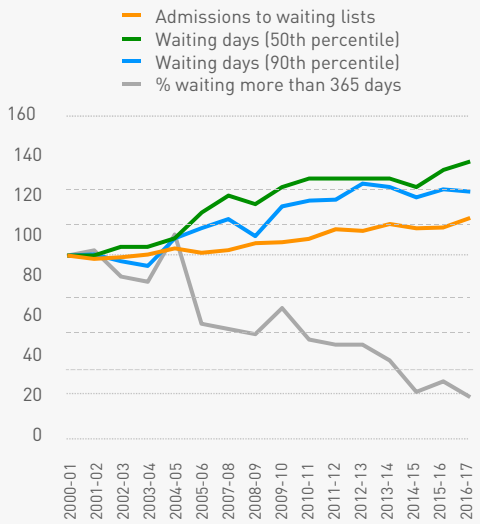
Source: MAPFRE Economic Research (with AIHW data)

The aims of this reform were to achieve greater cost efficiency in the public and private systems by generating economies of scale, increase the percentage of population coverage and alleviate the pressures on waiting lists. As can be seen in Chart A, the number of people with private insurance increased over the 2006-2016 period.

On the other hand, the evolution of admissions to waiting lists for scheduled surgical interventions in public hospitals in the 2000-2017 period can be seen in Table B. As this information reveals, the number of admissions to waiting lists in public hospitals during that period shows a slight upward trend, in both absolute and relative terms.

However, waiting times of less than one year show a persistent downward trend, but they continue to rise moderately in the case of

Chart B
Evolution of waiting lists, 2000-2017
(index, 2000-2001=100)



Source: MAPFRE Economic Research (with AIHW data, figures as at June of each year)

Box 2.5 (continued)
Incentives for private health insurance in Australia

average times (which range between 29 and 38 days in that period) and the 90th percentile, although the latter appears to have stabilized since 2012 after a notable increase in the previous years. In the case of waiting times of more than 365 days, we see a significant reduction in the percentage (see Chart B).

Finally, Table C shows the evolution of the sources of funding for public and private hospitals in Australia in the 2006-2016 period. As a result of the public policy implemented, we see a growing trend of funding from private health insurance, particularly significant in the case of public hospitals.

Table C
Sources of funding for public and private hospitals, 2006-2016

	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Public Hospitals										
Public patients	86.5	86.0	85.6	85.1	85.1	84.5	83.3	82.3	82.8	82.7
Patients with private insurance	8.2	8.8	9.2	9.9	10.0	10.6	12.4	13.2	13.6	13.9
Own funds	1.1	1.2	1.2	1.2	1.2	1.3	1.0	0.9	0.8	0.7
Workers' compensation	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Claims for damages against third parties, motor vehicles	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4
Department of Veterans' Affairs	2.8	2.6	2.5	2.3	2.2	2.1	1.9	1.7	1.5	1.4
Others	0.4	0.5	0.5	0.6	0.5	0.5	0.5	1.0	0.4	0.5
Total for public hospitals	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Private Hospitals										
Public patients	1.7	2.4	3.1	2.9	2.9	2.9	3.1	3.3	3.7	3.8
Patients with private insurance	79.8	79.8	79.2	80.0	80.3	80.9	82.0	82.6	82.9	83.2
Workers' compensation	8.9	8.5	8.5	8.3	8.2	8.0	7.6	7.2	6.9	6.6
Claims for damages against third parties, motor vehicles	1.7	1.6	1.7	1.7	1.7	1.8	1.6	1.5	1.4	1.3
Department of Veterans'	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Affairs	7.1	6.4	6.1	5.8	5.5	5.2	4.8	4.5	4.3	4.0
Others	0.7	1.1	1.3	1.2	1.2	1.1	0.7	0.7	0.7	0.8
Total for private hospitals	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: MAPFRE Economic Research (with AIHW data, figures as at June of each year)

the entire territory, a notable example being the recent agreement to integrate the Victorian My Age Care program in 2016). The benefits of the program are aimed at people aged 65 years and over, and are grouped into three levels:

- Community and Home Support. This first level is the most complete, covering a wide range of therapeutic treatments, transport, technological assistance, personal care, domiciliary nursing and meal services.
- Assistance with Care and Housing. In collaboration with the first level, this offers legal and financial advisory services and information and advice on private plans.
- Care Relationships and Care Supporter. Flexible care services.

The cost of the services is borne by the people who receive them. However, state subsidies are made available, with the aim of maintaining a reasonable and affordable cost, depending on the means of the beneficiaries of the services.

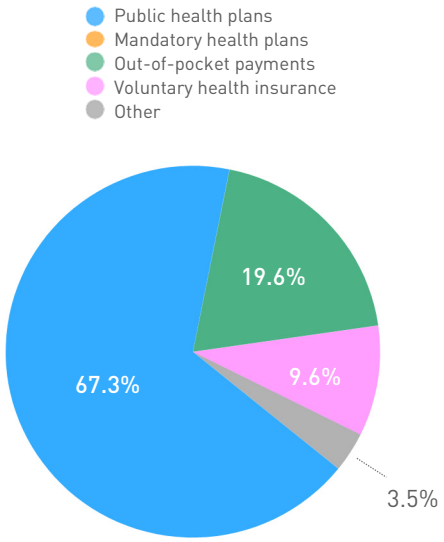
Pillar 2
Corporate group health insurance

In Australia, some health funds provide health coverage policies designed for specific companies or organizations, which may form part of the company's package of employee benefits. However, the relative importance of this pillar is residual compared with individual private coverage, given the incentives and tax breaks offered for taking out individual health insurance.

Pillar 3
Individual private coverage (voluntary)

In terms of healthcare expenditure per capita, the estimated total in Australia in 2017, according to OECD data, was USD 4,543 per inhabitant (USD 4,514 in 2016). Of this sum, if we apply the most recent distribution available (2015), around USD 3,060 (67.3%) would correspond to the average expenditure per capita in the mandatory system. Of the remaining 32.7%, expenditure on voluntary health insurance premiums would be around USD 434[52] per person (9.6%). "Out-of-pocket" health costs would be around 19.6% of the total expenditure per capita, with the remaining 3.5% corresponding to other types of expenditure (see Chart 2.5-d).

Chart 2.5-d
Australia: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

Analysis of other relevant indicators

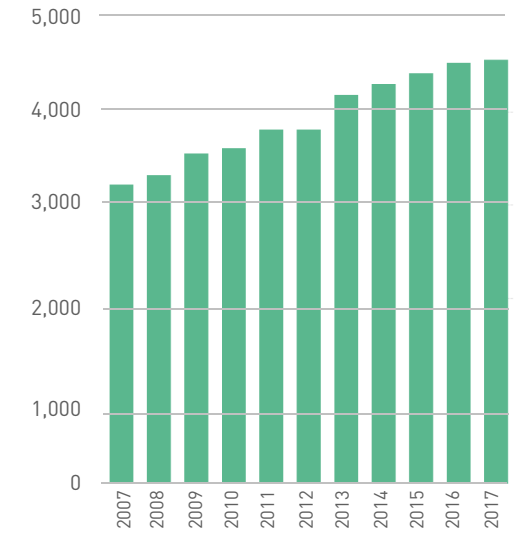
Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in Australia in 2017 was 11.7% higher than the average for the countries of the OECD (USD 4,543 compared with USD 4,069[53]). The evolution of expenditure per capita in the last available decade is shown in Charts 2.5-e and 2.5-f.

Indicators of capacity of the healthcare system

According to OECD data (see Chart 2.5-h), the number of practicing doctors in Australia in 2016 was 3.6 per thousand inhabitants, 5.0% higher than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). The number of nurses in 2016 was 11.6 per thousand inhabitants, 29.2% higher than the

Chart 2.5-e
Australia: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

average for the countries of the OECD (9 nurses per thousand inhabitants). On the other hand, the number of hospital beds in 2015 was 3.8 per thousand inhabitants, 18.1% lower than the average for the countries of the OECD (4.7 beds per thousand inhabitants).

As regards the number of magnetic resonance imaging (MRI) scanners, as illustrated in Chart 2.5-h, this was 15 per million inhabitants, 8.5% lower than the average for the countries of the OECD (16.4 per million inhabitants). On the other hand, the number of computed tomography (CT) scanners in Australia was 64.4 per million inhabitants, 146.3% higher than the average for the countries of the OECD (26.1 per million inhabitants).

Indicators of use of the healthcare system

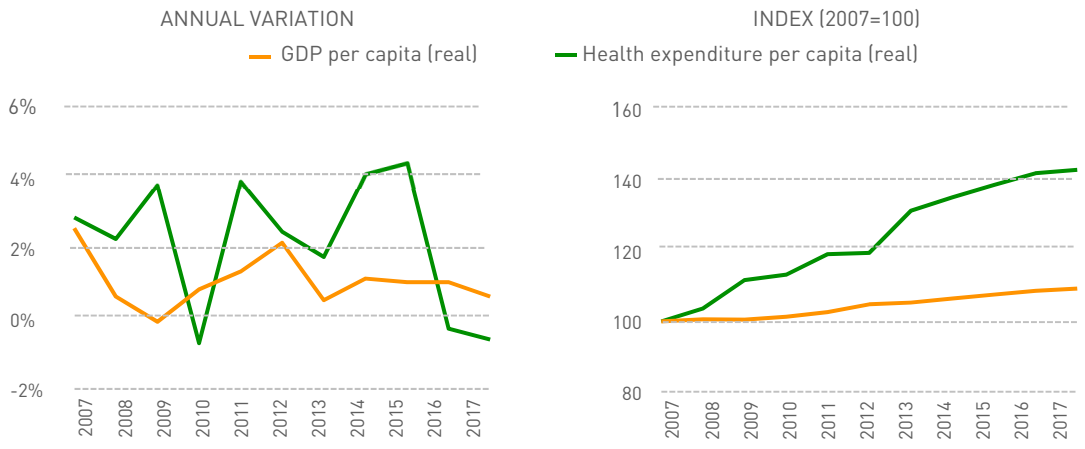
In Australia, the annual number per capita of consultations with doctors in 2017 was 7.7 visits per year, 10.9% higher than the OECD average (6.9 visits per year in the 2015-2016 period).

The annual number of hospital discharges per thousand inhabitants in 2015 was 178.2, 13.9% higher than the OECD average[54] (156 discharges per year in the 2015-2016 period). The average stay in hospital, meanwhile, was 5.5 days, 32.3% lower than the OECD average (8.1 days).

Indicators of health status

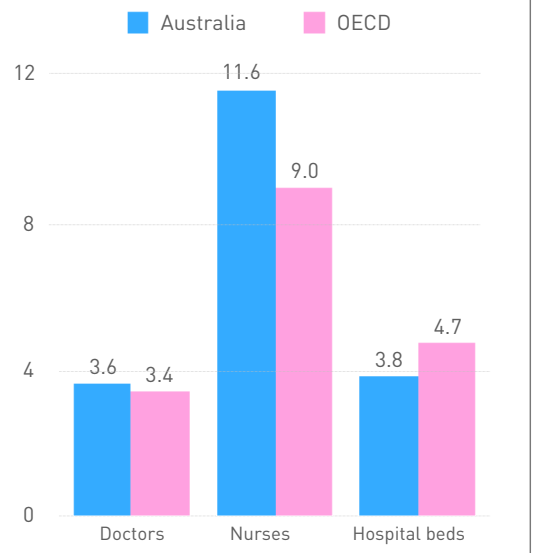
Life expectancy at birth, one of the indicators most frequently used as an approximation of the health status of a country's population,

Chart 2.5-f
Australia: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



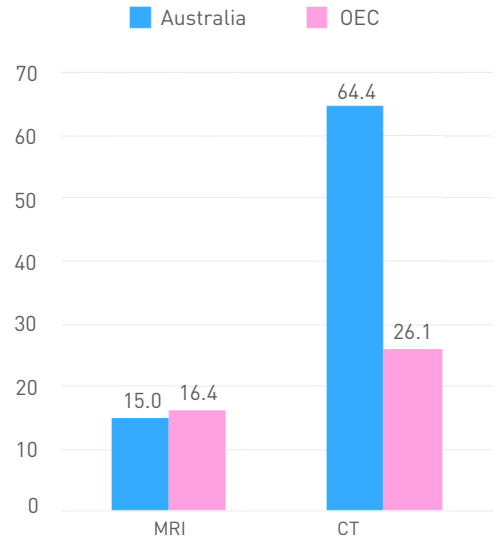
Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

Chart 2.5-g
Australia: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2016), Nurses (2016), Hospital beds (2015)

Chart 2.5-h
Australia: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2017), CT scanners (2017)

was 82.5 years in 2016, according to OECD data, 1.7 years above the average for the countries of that organization (80.8 years)[55].

On the other hand, healthy life expectancy in Australia is estimated at around 71.5 years, which contrasts with the estimations of this indicator for Singapore and Japan of 73.6 and 73.2 years, respectively.

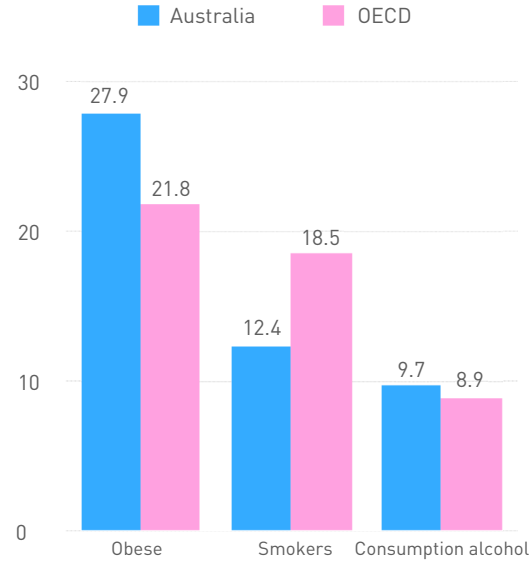
Health risk factors

As in all health systems at international level, the promotion of healthy lifestyles, including programs on obesity, balanced diet, exercise and smoking, is regarded as an essential element of disease prevention in any health system.

Of the three factors commonly used as health risk indicators (see Chart 2.5-i), the percentage of obese people in Australia, based on real measurements, was 27.9% in 2014 (latest available data), 6.1 percentage points above the average for the countries of the OECD that had this information (21.8% in 2014).

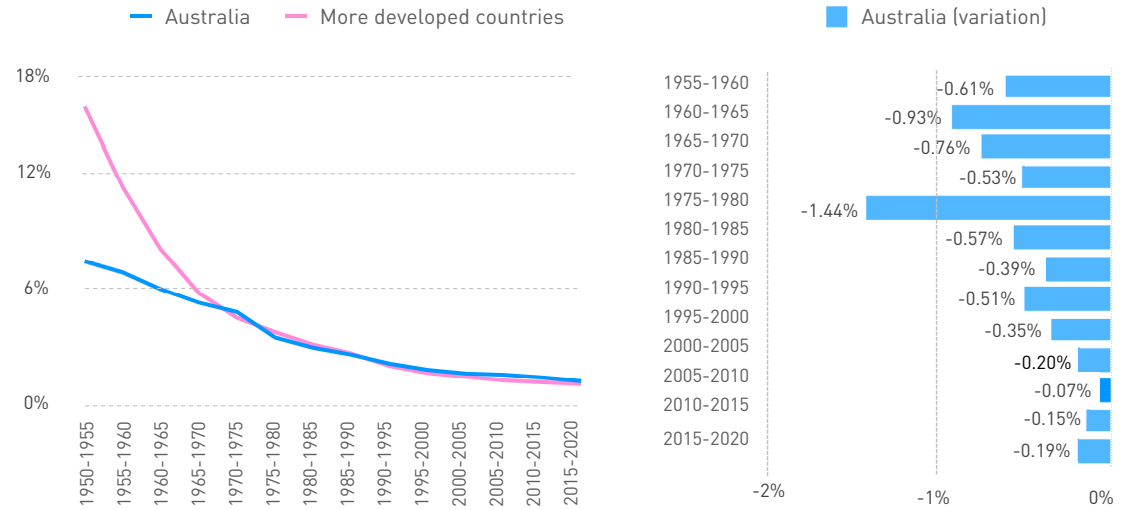
As regards smoking, the percentage of people who smoke daily was 12.4% in 2016, 6.1 percentage points below the OECD average (18.5% in the 2015-2016 period).

Chart 2.5-i
Australia: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-M (2014), Smokers (2016), Alcohol consumption (2015)

Chart 2.5-j
Australia: deaths of infants between the ages of 0 and 4 years, 1950-2020 (percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

Finally, alcohol consumption in 2015 (latest available data) was 9.7 liters per person per year, 9% higher than the OECD average (8.9 liters).

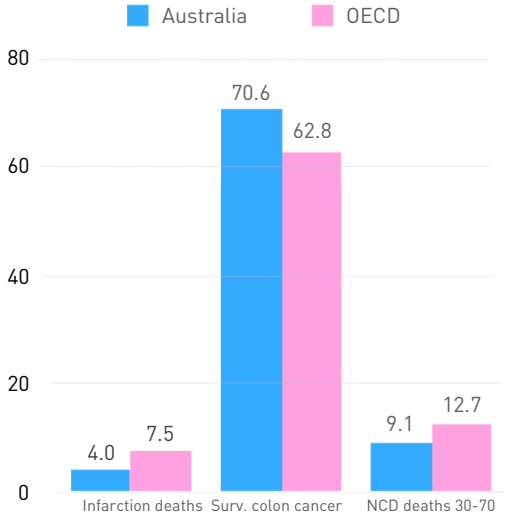
Indicators of healthcare quality

As mentioned earlier, infant mortality is one of the most relevant and widely used indicators of the effect of socio-economic conditions on the health of mothers and newborns, as well as of the quality of healthcare services and disease prevention and health promotion measures.

According to UN data, the percentage of infant deaths up to the age of four years has fallen markedly and steadily since 1960 (see Chart 2.5-j). In the case of Australia, despite replication of this trend, it is notable that since the 1990s the percentage has been slightly higher than the average for the more developed countries[56].

Another of the indicators widely used in relation to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data (see Chart 2.5-k), the rate of deaths in 2014 in Australia during the thirty days following hospitalization was 4 per 100 admissions of adults aged 45 years and over, 46.6% lower than the average for the countries of the OECD (7.5).

Chart 2.5-k
Australia: mortality due to infarction, survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)

* Deaths due to infarction (2014), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

Meanwhile, the percentage of people who survived for more than five years with colon cancer in the 2010-2014 period was 70.6%, 7.8 percentage points above the average for the countries of the OECD (62.8%). Finally, the rate of deaths for people between the ages of 30 and 70 years due to non-communicable diseases (NCDs) in 2016 in Australia was 9.1%, 3.6 percentage points lower than the average for the countries of the OECD (12.7%).

Main service providers

Insurance companies

The market shares of the ten largest companies in 2017 are shown in Table 2.5. As this information shows, the top ten health insurance companies account for 90.6% of health insurance premiums.

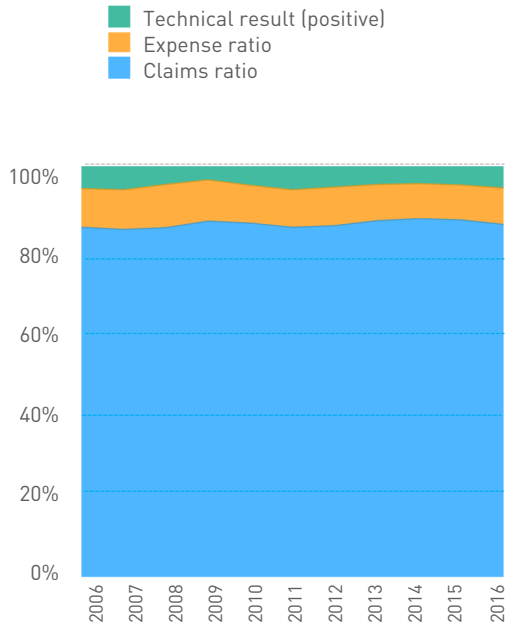
On the other hand, the evolution of the loss ratio, expense ratio and technical result for health insurance, as a percentage of premiums (combined ratio), is shown in Chart 2.5-l. In general, we see positive technical behavior over the analyzed period.

Table 2.5
Australia: ranking of Health insurance companies by premium volume, 2017

	Companies	Premiums (millions of USD)	Market share (%)
1	BUPA HI PTY LIMITED	4,902.9	27.7%
2	MEDIBANK PRIVATE LIMITED	4,679.8	26.5%
3	HOSPITALS CONTRIBUTION FUND OF AUSTRALIA	1,906.4	10.8%
4	NIB HEALTH FUNDS LIMITED	1,278.9	7.2%
5	HBF HEALTH LIMITED	1,237.3	7.0%
6	AUSTRALIAN UNITY HEALTH LIMITED	520.9	2.9%
7	TEACHERS FEDERATION HEALTH LIMITED	457.9	2.6%
8	GMHBA LIMITED	362.0	2.0%
9	DEFENCE HEALTH LIMITED	358.9	2.0%
10	CBHS HEALTH FUND LIMITED	300.2	1.7%

Source: MAPFRE Economic Research (with APRA data)

Chart 2.5-l
Australia: operating and underwriting efficiency ratios, 2006-2016
(combined ratio, %)



Source: MAPFRE Economic Research (with APRA data)

Brief reference to other service providers

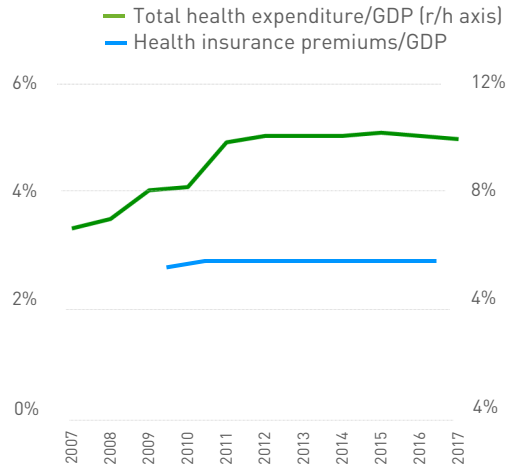
As regards the main providers of healthcare services, among the various medical associations that exist in Australia[57], the two most representative are the Australian Salaried Medical Officers' Federation (ASMOF)[58] and the Australian Medical Association (AMA)[59].

Notable among the other healthcare service providers is the Australian Healthcare and Hospitals Association (AHHA)[60], which includes public hospitals, for-profit hospitals and private hospitals, among other service providers.

2.6 Japan

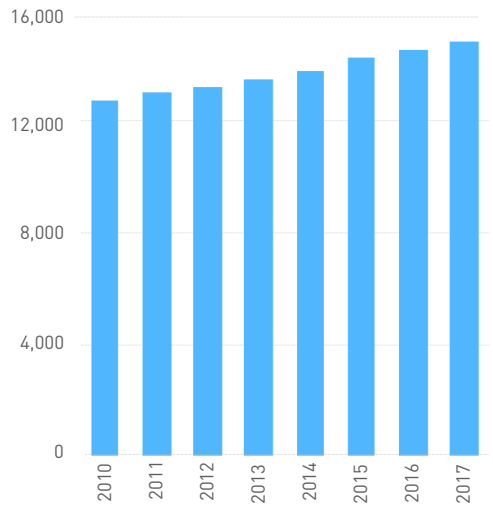
Total healthcare expenditure in Japan in 2017 represented 10.7% of the country's GDP (10.8% in 2016), 1.8 percentage points higher than the OECD average of 8.9%, according to the institution's data[61]. The percentage of total healthcare expenditure relative to GDP has been stable at around 10.7% since 2012, although it is notable that there was strong

Chart 2.6-a
Japan: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with Finaccord, OECD and OEF/Haver Analytics data)

Chart 2.6-b
Japan: health insurance premiums, 2010-2017
(billions of yen)

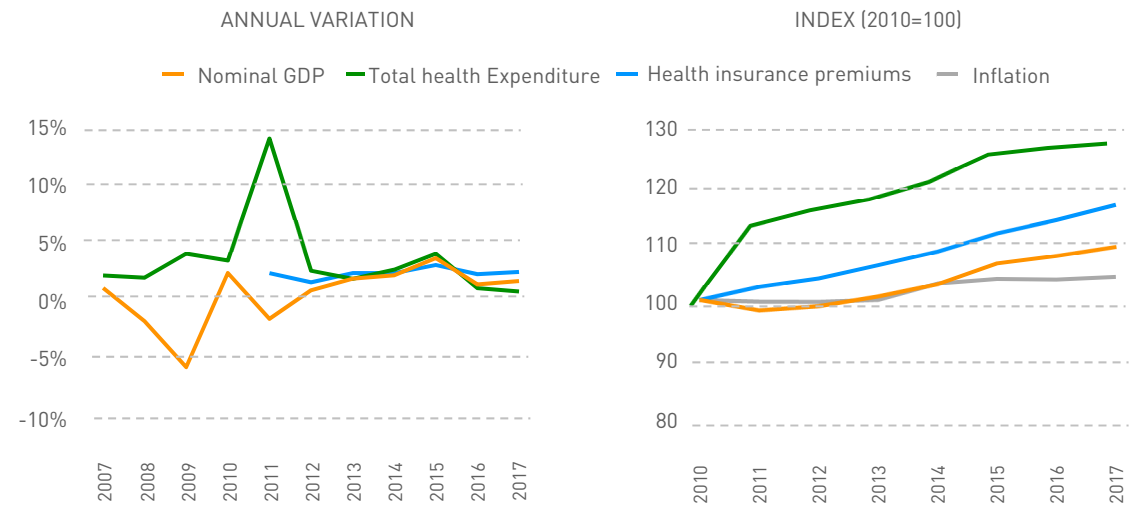


Source: MAPFRE Economic Research (with Finaccord data)

growth between 2007 and 2011, rising from representing 7.9% to 10.6% of GDP, attributable in part to the increase in healthcare costs due the aging of the population, together with the slowdown and fall of GDP in those years. This increase prompted various reforms, which at present appear to have succeeded in stabilizing it (see Chart 2.6-a).

Health insurance premiums, meanwhile, represented 2.7% of GDP in 2017[62]. In the analysis of the evolution of the penetration of private health insurance, we see that has been stable at around 2.7% of GDP since 2010.

Chart 2.6-c
Japan: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017
(nominal annual variation rates, local currency, %; index 2010=100)



Source: MAPFRE Economic Research (with Finaccord, OECD and OEF/Haver Analytics data)

The evolution of the volume of private health insurance business in recent years is shown in Charts 2.6-b and 2.6-c, together with a comparison of the increases in Japan's total healthcare expenditure and GDP over the same period. It should be noted that the sharp increase in total healthcare expenditure seen in 2011 was due to a change in the accounting basis.

In general, we see greater increases in total healthcare expenditure and health insurance premiums than the increases in nominal GDP. Thus, over the 2010-2017 period, total healthcare expenditure grew the most (28.2%), followed by health insurance premiums (16.5%), compared with GDP growth of 9.2%.

Description of the levels of coverage of the healthcare system

The Japanese healthcare model is of the Bismarckian type. However, it incorporates elements of the Beveridge system since there are public protection programs to extend healthcare coverage universally to all of the country's residents.

The system is funded mainly through insurance premiums subsidized by taxes. According to the most recent information available (2016) relating to 2014, within healthcare expenditure (NHCE)[63], funding through taxes represented 38.8% of the total expenditure (see Table 2.6-a). Group occupational insurance premiums accounted for 20.4%, national health insurance premiums for self-employed workers and other people not covered through an employment relationship 28.3%, and out-of-pocket health payments 11.7%, with the rest (0.8%) relating to other headings.

It should be noted that the Japanese health system is one of the largest health insurance programs in the world, covering virtually the entire Japanese population and long-term residents (more than 127 million people).

There follows a description of the different levels of coverage of this healthcare system, following the schema described in the conceptual framework adopted for this study.

Pillar 0
Minimum healthcare coverage

Since a healthcare system covering all residents has been established, this pillar has no content in the Japanese healthcare system. There is a network of hospitals that provide emergency treatment for foreigners, but in all cases the service providers have the right to subsequently demand and pursue the corresponding payment[64].

Table 2.6-a
Japan: sources of funding for health expenditure
(%)

	1985	1995	2000	2005	2011	2014
Total health expenditure	100.0	100.0	100.0	100.0	100.0	100.0
Taxes						
Central government	26.6	24.2	24.7	25.2	25.9	25.8
Local governments	6.8	7.5	8.5	11.4	12.2	13.0
Total	33.4	31.7	33.2	36.6	38.1	38.8
Insurance premiums						
Workers	23.4	24.5	22.7	20.3	20.1	20.4
NHI (self-employed and others)	30.9	31.9	30.7	28.7	28.3	28.3
Total	54.3	56.4	53.4	49.0	48.5	48.7
Out-of-pocket payments	12.0	11.8	13.4	14.4	12.7	11.7

Source: MAPFRE Economic Research (with information from the Ministry of Health, Labor and Welfare)

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

In Japan, the law requires all residents to have health insurance coverage. People without employment-based insurance are covered under the National Health Insurance Program (NHI), which is administered by the local governments.

This is therefore a system with a combination of two structures developed separately: employment-based health insurance (*kenko hoken*) and residency-based national health insurance (*kokumin kenko hoken*). It also incorporates specific coverage for people aged 75 years and above, and for long-term care.

A healthcare card system is used, and people can choose the institutions they want to visit and receive medical care at a predetermined cost. Patients are free to select doctors or care centers and cannot be refused coverage. They must make a copayment, normally 30%, although this can be reduced to 10% depending on the personal circumstances of the insured person.

Employment-based health insurance (*kenko hoken* or SHI)

There are two employment-based health insurance programs: one for the public sector and employees of large companies, and the other for employees of small and medium-sized enterprises (with five or more employees), administered respectively by the Health Insurance Society and by the Japan Health Insurance Association (managed health insurance). Companies with 700 or more employees can create their own Health Insurance Society, subject to prior approval by the Ministry of Health and Labor. The cost of the insurance is deducted from the employee's pay, and a contribution is also made by the employer.

Residency-based national health insurance (*kenko hoken* or NHI)

The current residency-based National Health Insurance system was established following the approval of the National Health Insurance Law in 1938. However, its implementation was greatly complicated by the Second World War. In addition, the NHI did not succeed in covering the entire population because the municipalities, which were responsible for the local administration of the NHI, did not have a mandate to establish local programs. As a result, approximately one third of the population remained without insurance in the mid-1950s.

This situation led to an amendment of the National Health Insurance Law in 1958 that incorporated the obligation for all municipalities to establish and administer such residency-based programs, covering 50% of medical treatment costs at that time. In 1968, the benefit was increased to cover 70%.

Coverage for the elderly population

In 1972, Japan established a unique health insurance structure for seniors when it subsidized their 30% burden of the shared cost within the NHI, making healthcare free for the majority of seniors aged 70 years and over, through the reallocation of public funds. However, between 1973 and 1980 health costs for the elderly population increased more than fourfold, raising concerns about sustainability.

Against this backdrop, in 1983 the Healthcare Act ended free care for seniors, requiring a small copayment and raising the eligibility age to 75 years. This legislation also cross-subsidized the NHI program through the transfer of revenues from employment-based health insurance. As a result of these two reforms, the Elderly Health Care Act is regarded as one of the most critical pieces of healthcare legislation in the history of Japanese health policy.

Long-term care

The care of chronic health problems is another of the elements addressed by the Japanese health system, with the aim of having a system that allows adequate long-term medical care. However, the financial burden associated with long-term care makes it difficult to incorporate this coverage into the existing health system, and for this reason a new system was established.

The Long-Term Care Insurance Law, approved in 1997, provides coverage for institutional care, domiciliary care services and community-based services for people over the age of 65 years and those between the ages of 40 and 64 years with age-related disabilities.

Long-term Care Insurance drove the growth of a new profession known as the "care manager", which is covered under this scheme and serves as a central point of access to the benefits. Unlike Health Care Insurance, Long-Term Care Insurance imposes a limit on the benefits that can be received. Once the beneficiaries exceed this limit, all services must be paid for out of their own pockets.

Latest reforms

The Health System Reform Law of 2015 entered into force in 2018, transferring the supervision of the NHI from municipal level to prefecture level. In this way, it seeks to solve the problem of the imbalances in coverage at territorial level and the increase in healthcare costs.

To support this transition, the law gives the prefectures greater authority and responsibility in relation to funding and the system for provision of health services, involving a major change in medical care since the establishment of the modern healthcare system.

Main institutions related to the Japanese healthcare system

There follows a general description of the main health policy actors[65].

Central government. Supervises and regulates healthcare by overseeing the health insurance system. Specifically, the central government supervises the health insurance contracts between the government and providers. It is also responsible for regulating the practices of the pharmaceutical industry, including clinical trials, post-marketing research, and manufacturing. These regulations are created and applied by various offices of the Ministry of Health, Labor and Welfare (MHLW). The assessment of new applications for drugs and medical devices is the responsibility of the Pharmaceutical and Medical Devices Agency (PMDA).

Ministry of Health, Labor and Welfare. The MHLW was originally established in 1938 as the Ministry of Health and Welfare. In 2001 it was merged with the Ministry of Labor. It includes more than 143 national hospitals, 8 national social welfare offices, 6 research institutes and 16 councils. The 47 labor offices and 47 social security offices (one for each of the prefectures) also form part of the organization of the MHLW. In addition, it has various offices that influence health policy:

- *Health Insurance Bureau (HIB).* Plays an active role in the biannual review of the program of tariffs and provides support for improvements to the medical care system.
- *Health Policy Bureau.* Investigates and proposes policy options in relevant policy areas, including response capacity, service provision, workforce and health technology.
- *Health Services Bureau.* Focuses on regional healthcare, health promotion, measures to deal with infectious diseases, sanitation and organ transplants.
- *Pharmaceutical and Food Safety Bureau.* Establishes policies to ensure the safety and effectiveness of pharmaceutical products, medical devices and cosmetics. Also establishes safety standards for hospitals and manages blood supplies. This bureau is also responsible for tackling the use of illegal substances.
- *Health and Welfare Bureau for the Elderly.* Proposes policies to manage the increasing aging of the population, with a focus on health insurance and support care services.
- *Labor Standards Bureau.* Supervises worker health and safety, including working hours, worker remuneration and salaries.

Pharmaceutical and Medical Devices Agency (PMDA). The PMDA, established in 2004, is a government regulatory agency responsible for assessing new applications for drugs and medical devices, post-marketing safety, and dealing with damages related to adverse effects on health. The agency comprises various offices, including the Office of International Programs, which deals with non-Japanese applicants and enquiries; the Office of Regulatory Science, which works to develop the capacity of regulatory science in Japan; and the Office of Cellular and Tissue-Based Products, specializing in biological products. Through various policies and organizational strategies, the PMDA succeeded in reducing the average review time for standard review products from 22 months in 2008 to 11.5 months in 2011. The average review time for priority review products fell from 15.4 months in 2008 to 6.5 months in 2011.

Central Social Insurance Medical Council. The Central Social Insurance Medical Council (*Chuikyou*) is directed by personnel of the MHLW's HIB, and meets to advise the Minister of Health on health insurance and health services. The council has representatives from the payer side, the provider side and the public interest side, who serve on the council. They meet several times a year, and the main function of this council is to debate and establish reviews of tariffs for medical and pharmaceutical services.

Budget Bureau of the Ministry of Finance. The Budget Bureau (BB) of the Ministry of Finance is included in the list of health policy actors because it supervises the subsidy that the government gives for national health insurance. This subsidy is funded through taxes, as well as with government loans. The BB has great influence in the half-yearly tariff review process. These reviews entail wide-ranging negotiations that involve various actors.

Prefectural governments. Through the 1948 Medical Care Act, the prefectural governments supervise medical facilities and providers within the prefecture. Unlike the central government, which regulates contractual and payment matters, the prefectural governments regulate management issues, including the facilities and the workforce. The role of the prefectural governments in hospital planning was introduced in the 1985 revision of the Medical Care Act. The prefectural governments also administer public health centers that are responsible for sanitation, disease control and environmental matters. The governments of more than 70 major Japanese cities share these public health responsibilities.

Municipal governments. Establish public health policy in relation to disease prevention and family health through the community's health centers. The 1982 Elderly Health Care Act increased municipal participation by requiring the municipal governments to enhance the health services for these people, for example with preventive education and health assessments. The 2002 Health Promotion Act called on the municipal governments to participate actively in the planning of community health.

Pillar 2
Corporate group health insurance

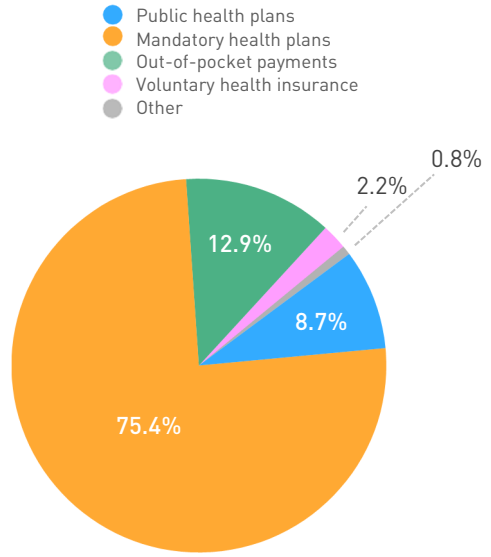
In Japan, both large and small/medium-sized companies (with fewer than five workers) are obliged to offer first-pillar healthcare coverage to their employees, beyond occupational accident insurance. This second pillar of voluntary coverage is therefore of marginal relevance in the Japanese healthcare system.

Pillar 3
Individual private coverage (voluntary)

In terms of healthcare expenditure per capita, the estimated total in Japan in 2017, according to OECD data, was USD 4,717 per inhabitant (USD 4,585 in 2016).

Of this sum, if we apply the most recent distribution available (2015), around USD 3,968 (84.1%) would correspond to the average expenditure per capita in the mandatory system. Of the remaining 15.9%, expenditure on voluntary health insurance premiums would be around USD 104 per person (2.2%)[66]. "Out-of-pocket" health costs would be around

Chart 2.6-d
Japan: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD and WHO data)

* Latest available data.

12.9% of the total expenditure per capita, with the rest (0.8%) corresponding to other types of expenditure (see Chart 2.6-d).

The wide coverage provided by the public health insurance system means that the relative size of private expenditure is reduced. The private insurance industry in Japan generally markets private medical insurance as a complement to life insurance, in the form of insurance for the reimbursement of costs, covering chronic illnesses and hospitalization. This offers the insured a global sum at the time of the diagnosis or hospitalization. In particular, insurance against cancer has gathered momentum in recent times. There is also coverage taken out independently of life insurance, but this is less common.

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

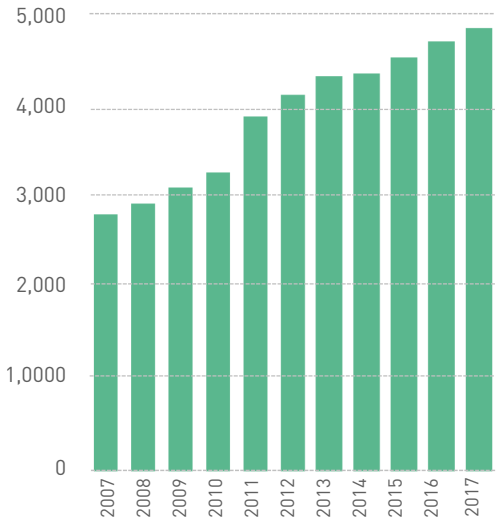
Total healthcare expenditure per capita in Japan in 2017 was 15.9% higher than the average for the countries of the OECD (USD 4,717 compared with USD 4,069[67]). The evolution of expenditure per capita in the last available decade is shown in Charts 2.6-e and 2.6-f.

As this information shows, in 2011 there was a change in Japan's national accounting basis in relation to total healthcare expenditure, which distorts the growth figure for that year. The figure corresponding to the real growth has been obtained by interpolation from the previous and following years. Thus, we see a declining trend from 2010 onward.

Indicators of capacity of the healthcare system

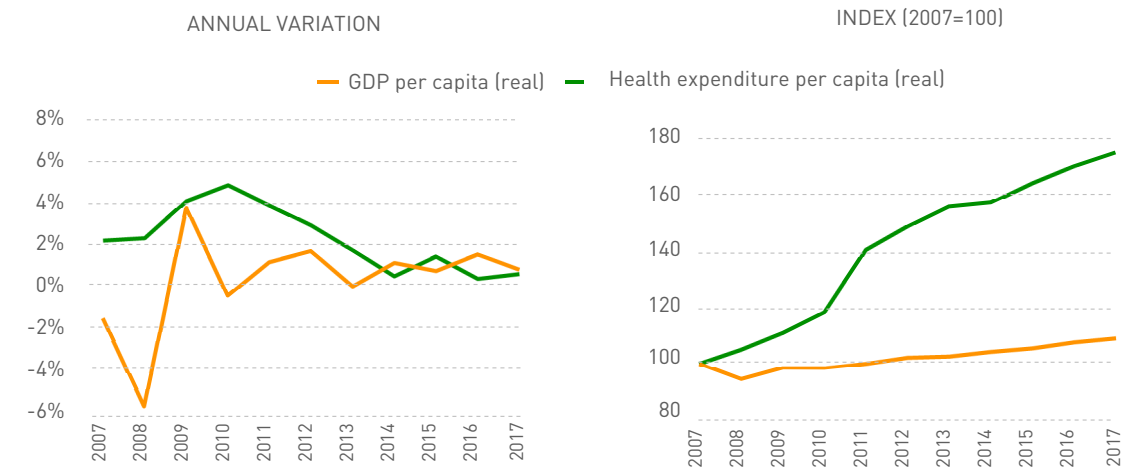
According to OECD data (see Chart 2.6-g), the number of practicing doctors in Japan in 2016 was 2.4 per thousand inhabitants, 28.5% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). However, the number of nurses in 2016 was 11.3 per thousand inhabitants, 25.9% higher than the average for the countries of the OECD (9 nurses per thousand inhabitants). However, the number of nurses in 2016 was 13.1 per thousand inhabitants, 181.7% higher than the average for the countries of the OECD (4.7 nurses per thousand inhabitants).

Chart 2.6-e
Japan: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

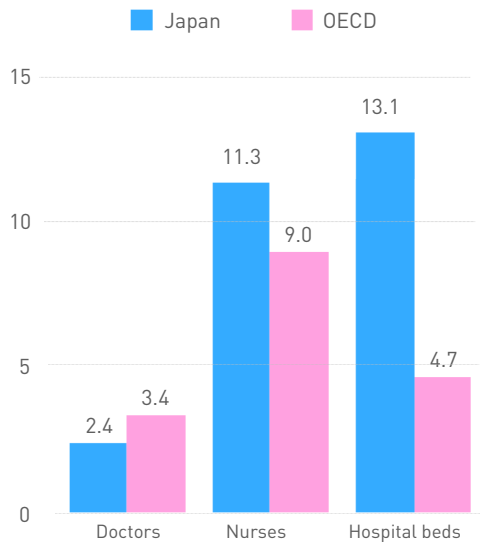
Chart 2.6-f
Japan: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

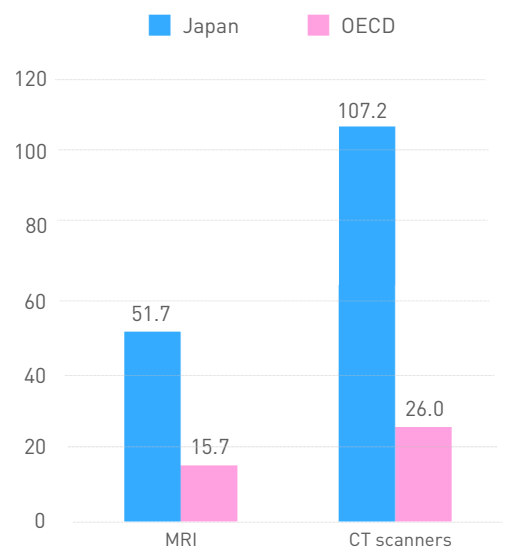
On the other hand, as illustrated in Chart 2.6-h, in 2014 the number of magnetic resonance imaging (MRI) scanners in Japan was 51.7 per million inhabitants, 229.2% higher than the average for the countries of the OECD (15.7 per million inhabitants). Similarly, the number of computed tomography (CT) scanners was 107.2 per million inhabitants, 312.2% higher than the average for the countries of the OECD (26 per million inhabitants).

Chart 2.6-g
Japan: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2016), Nurses (2016), Hospital beds (2016)

Chart 2.6-h
Japan: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2014), CT scanners (2014)

Indicators of use of the healthcare system

The annual number per capita of consultations with doctors in 2015 was 12.8 visits per year, 84.4% higher than the OECD average (6.9 visits per year in the 2015-2016 period). The annual number of hospital discharges per thousand inhabitants in 2016 was 126.4, 19.2% lower than the OECD average[68] (156 discharges per year in the 2015-2016 period). The average stay in hospital was 28.5 days, 250.9% higher than the OECD average (8.1 days).

Indicators of health status

Life expectancy at birth (one of the indicators most frequently used as an approximation of the health status of a country's population), was 84.1 years in Japan in 2016, the highest in the world, according to OECD data, and 3.3 years below the average for the countries of the OECD (80.8 years).

On the other hand, healthy life expectancy is estimated at around 73.2 years, the second-highest in the world, behind only Singapore with 73.6 years[69].

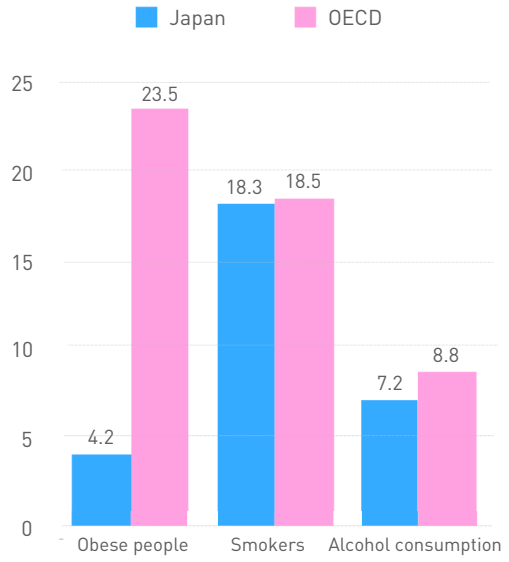
Health risk factors

Analyzing the three factors commonly used as health risk indicators (see Chart 2.6-i), the percentage of obese people in Japan (based on real measurements) was 4.2% in 2016, 19.3 percentage points below the average for the countries of the OECD that had this information (23.5% in the 2016 period). As regards smoking, the percentage of people who smoke daily was 18.3% in 2016, very similar to the OECD average (18.5% in the 2015-2016 period). Finally, alcohol consumption in 2016 (latest available data) was 7.2 liters per person per year, 18% lower than the OECD average (8.8 liters).

Indicators of healthcare quality

Infant mortality is one of the most relevant and widely used predictors of the effect of socio-economic conditions on the health of mothers and newborns, as well as of the quality of healthcare services and disease prevention and health promotion measures.

Chart 2.6-i
Japan: risk indicators
(%; liters per person per year)



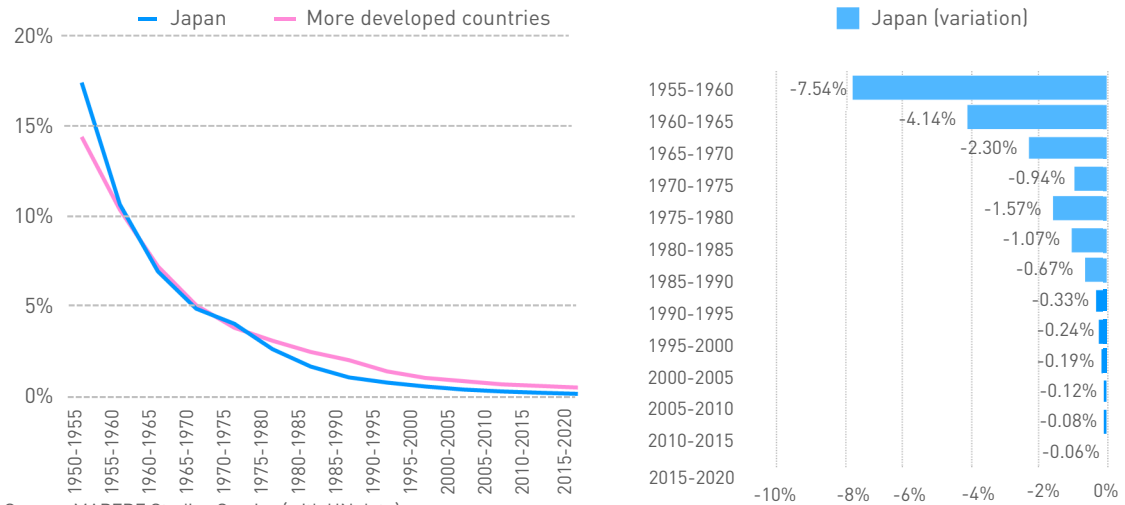
Source: MAPFRE Economic Research (with OECD data)
* Obese people-M (2016), Smokers (2016), Alcohol consumption (2016)

As mentioned earlier, according to data from the United Nations (UN), the percentage of infant deaths up to the age of four years has fallen markedly and steadily since 1960. In the case of Japan, since 1975, in addition to the declining trend, the country shows a percentage lower than the average for the more developed countries[70] (see Chart 2.6-j).

Another of the indicators widely used in relation to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data (as illustrated in Chart 2.6-k), the rate of deaths in 2014 in Japan during the thirty days following hospitalization was 11.7 per 100 admissions of adults aged 45 years and over, 57.4% higher than the average for the countries of the OECD (7.5).

Meanwhile, the percentage of people who survived for more than five years with colon cancer in the 2010-2014 period was 67.8%, 5 percentage points above the average for the countries of the OECD (62.8%).

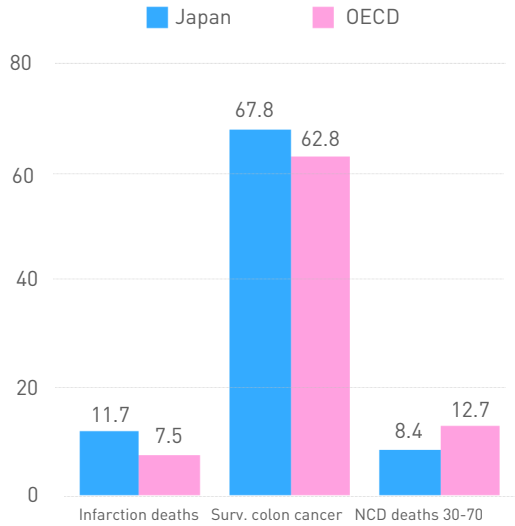
Chart 2.6-j
Japan: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Studies Service (with UN data)

Finally, the mortality rate for people between the ages of 30 and 70 years due to non-communicable diseases in 2016 was 8.4%, 4.3 percentage points below the recorded average for the member countries of the OECD (12.7%).

Chart 2.6-k
Japan: mortality due to infarction, survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Deaths due to infarction (2014), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

Main service providers

Insurance companies

The market shares of the five largest companies in 2016 are shown in Table 2.6-b[71]. According to this information, the top five insurance companies operating in the health insurance sector accounted for 41% of total health insurance premiums in 2016.

Table 2.6-b
Japan: ranking of Health insurance companies by premium volume, 2016.

	Companies	Premiums (millions of USD)	Market share (%)
1	JAPAN POST INSURANCE CO., LTD.	6,774.8	10.7%
2	NIPPON LIFE INSURANCE CO.	5,617.8	8.9%
3	DAIDO ICHI LIFE	5,298.2	8.4%
4	SUMITOMO LIFE INSURANCE CO	4,910.3	7.8%
5	MEIJI YASUDA LIFE INSURANCE COMPANY	3,374.1	5.3%

Source: MAPFRE Economic Research (based on FSA data and annual reports of each company)

Brief reference to other service providers

In Japan, the law requires hospitals to operate on a non-profit basis and to be administered by doctors. For-profit corporations are not permitted to own or operate hospitals. The clinics must be owned by doctors and be managed by those health professionals.

Approximately 55% of doctors are members of the Japan Medical Association (JMA), the most prominent health policy interest group. The JMA has seats on the Central Social Insurance Medical Council, which is involved in the establishment of healthcare tariffs. These tariffs are established and supervised by the Ministry of Health, Labor and Welfare (MHLW), which determines the conditions that must be met by providers as regards billing for medical services, medical devices and pharmaceutical products. The tariffs are reviewed biannually. The system of tariffs for healthcare assistance was established in its current form in 1961 on a fee-for-service (FFS) basis. However, the first decade of this century saw the introduction of a new system called DPC (Diagnosis Procedure Combination) against a backdrop of growing concern over healthcare costs, the duration of hospital stays and the health needs associated with the increasing aging of the population.

The aim of the DPC is to support the improvement of healthcare levels and transparency. By compiling objective treatment information, available in a database, this system aims to contribute to a better understanding of the results related to the service, as well as to improve the disparities in the quality of the service delivered by the providers. Patients also have access to the standards of healthcare based on the data, as well as information about its prices. The DPC was also designed to attempt to shorten the average duration of hospital stay. It is currently estimated that this payment system covers more than 50% of general hospitals in Japan.

As in the diagnosis-related groups (prospective payment system used in the United States under the name DRG), the DPC is prospective and uses codes based on diagnosis categories and groups. As at mid-April 2012, there were already 2,927 DPC codes. However, the DCP system is characterized by the inclusion of standard FFS payments. In this regard, the providers receive a flat-rate prospective fee per day of hospitalization for certain DPC services, as well as payment for non-DPC FFS services (such as surgery, radiotherapy, anesthesia and medical treatments with a value above a determined limit). In addition, if the duration of the stay becomes exceptionally prolonged, all payments revert to a FFS basis.

Various analyses have been performed in Japan to determine whether the DPC is succeeding in achieving its established objectives. Although it has been largely demonstrated that the DPC has not resulted in lower costs due its unique combination of PPS (Prospective Payment System) and FFS, there is strong opposition to greater integration of PPS.

Biannual review of the tariff list

The tariffs for services, medical devices and pharmaceutical products supplied or delivered by the majority of providers are determined by a national fixed tariff. The list of tariffs and the billing conditions are reviewed annually by the MHLW. This process, which begins in the spring of odd-numbered years and concludes in April of the following year, establishes tariffs and policies that determine the package of medical care benefits, as well as virtually all the revenues of the providers or medical centers. This policy tool acts as a control lever for the government, since both general costs and shared costs can be adjusted, affecting the behavior of the provider in its own control of costs, supply and provision of services associated with the health system.

Review of billing conditions

Unlike the tariff list, the reviews of billing conditions are not limited to once every two years, but can be reviewed by the MHLW at any time. Through these conditions, the supply of products and services can be controlled

Box 2.6
Japan: healthcare expenditure by age groups

Japan can be regarded as a paradigmatic case when studying healthcare expenditure by age groups. The fact that the country is facing a process of population aging that outstrips other developed countries, and its concern over the tensions that can arise in relation to the sustainability of its healthcare system, has prompted the Japanese authorities to compile information about the scale of the problem.

Behavior of healthcare expenditure by age groups

Against this backdrop, since 2011 the Japanese local authorities have been compiling information on the healthcare bills of its national health system under the charge of the municipalities (cities, towns and smaller local entities), by age and type of illness. This information, which is published by the Ministry of Health, turns out to represent around 15% of total healthcare expenditure in the 2011-2016 period. In 2016 it involved healthcare expenditure of 7,877 billion yen (USD 89,772 million).

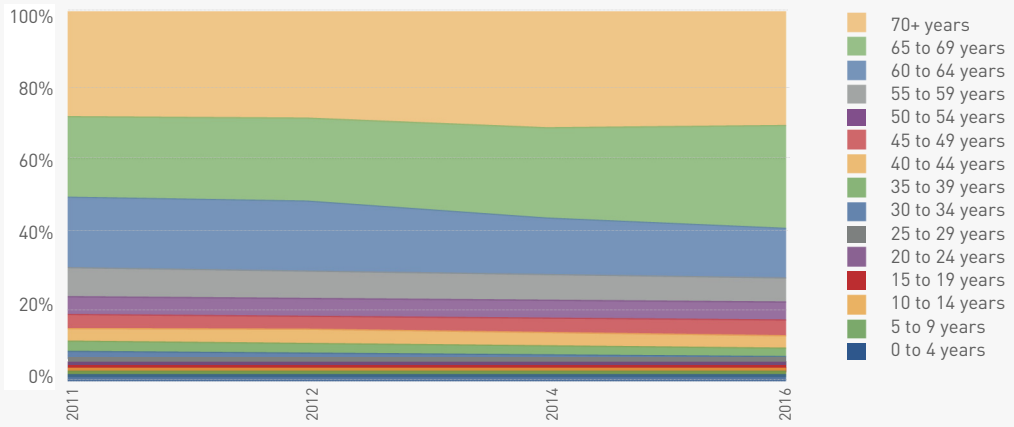
The analysis of this information, as illustrated in Chart A and Table A, shows that around 30.8% of healthcare expenditure in 2016 was made for people over the age of 70 years. On the other hand, expenditure for people between the ages of 65 and 69 years has been growing in relative terms in recent years, representing around 27.8% of total healthcare expenditure in 2016. This means that people over the age of 64 years account for around 58.5% of total healthcare expenditure.

On the other hand, the variation in the healthcare expenditure of the municipal healthcare services for the different age groups in the 2011-2016 period is shown in Chart B and Table B.

A notable feature to emerge from the analysis of this data is the increase in healthcare expenditure for people between the ages of 65 and 69 years. In the population pyramid for Japan in 2015 (Chart C), constructed on the basis of UN data, we see the increase in the population that comes to form part of this age range, which, in combination with the higher healthcare expenditure for the elderly, makes it the greatest increase of all the age groups (45.9% increase in the 2011-2016 period).

Also notable is the 28.1% increase in healthcare expenditure for people between the ages of 45 and 49 years in the 2011-2016

Graph A
Healthcare expenditure by age groups, 2011-2016
(%)



Source: MAPFRE Economic Research (with Japanese Ministry of Health data relating to the payment of bills by the national health insurance municipalities)

Box 2.6 (continued)
Japan: healthcare expenditure by age groups

Table A
Structure of healthcare expenditure by age groups, 2011-2016
(%)

	2011	2012	2014	2016
0 to 4 years	1.9%	1.8%	1.6%	1.4%
5 to 9 years	0.8%	0.8%	0.7%	0.7%
10 to 14 years	0.8%	0.7%	0.7%	0.6%
15 to 19 years	0.7%	0.7%	0.7%	0.7%
20 to 24 years	0.9%	0.9%	0.8%	0.8%
25 to 29 years	1.3%	1.3%	1.2%	1.1%
30 to 34 years	1.9%	1.9%	1.7%	1.6%
35 to 39 years	2.8%	2.7%	2.5%	2.3%
40 to 44 years	3.4%	3.5%	3.5%	3.4%
45 to 49 years	3.8%	3.9%	4.0%	4.3%
50 to 54 years	4.8%	4.8%	4.8%	4.9%
55 to 59 years	7.9%	7.5%	6.8%	6.5%
60 to 64 years	19.0%	18.5%	15.3%	13.3%
65 to 69 years	21.7%	22.4%	24.3%	27.8%
70+ years	28.4%	28.8%	31.4%	30.8%

Source: MAPFRE Economic Research (with Japanese Ministry of Health data relating to the payment of bills by the national health insurance municipalities)

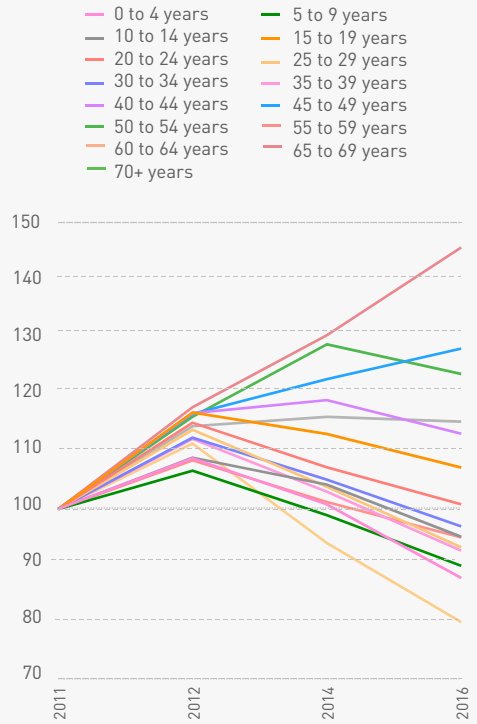
Table B
Index of evolution of healthcare expenditure by age groups, 2011-2016
(index 2011=100)

	2011	2012	2014	2016
0 to 4 years	100.0	108.9	100.8	87.9
5 to 9 years	100.0	106.7	98.9	90.1
10 to 14 years	100.0	109.0	104.3	95.1
15 to 19 years	100.0	116.9	113.2	107.3
20 to 24 years	100.0	115.1	107.3	100.9
25 to 29 years	100.0	113.9	103.9	93.3
30 to 34 years	100.0	112.5	105.2	97.0
35 to 39 years	100.0	112.3	103.0	92.7
40 to 44 years	100.0	116.8	119.1	113.2
45 to 49 years	100.0	116.7	122.8	128.1
50 to 54 years	100.0	114.5	116.2	115.3
55 to 59 years	100.0	108.5	101.2	95.0
60 to 64 years	100.0	111.5	94.0	80.1
65 to 69 years	100.0	117.9	130.5	145.9
70+ years	100.0	116.2	128.9	123.7

Source: MAPFRE Economic Research (with Japanese Ministry of Health data relating to the payment of bills by the national health insurance municipalities)

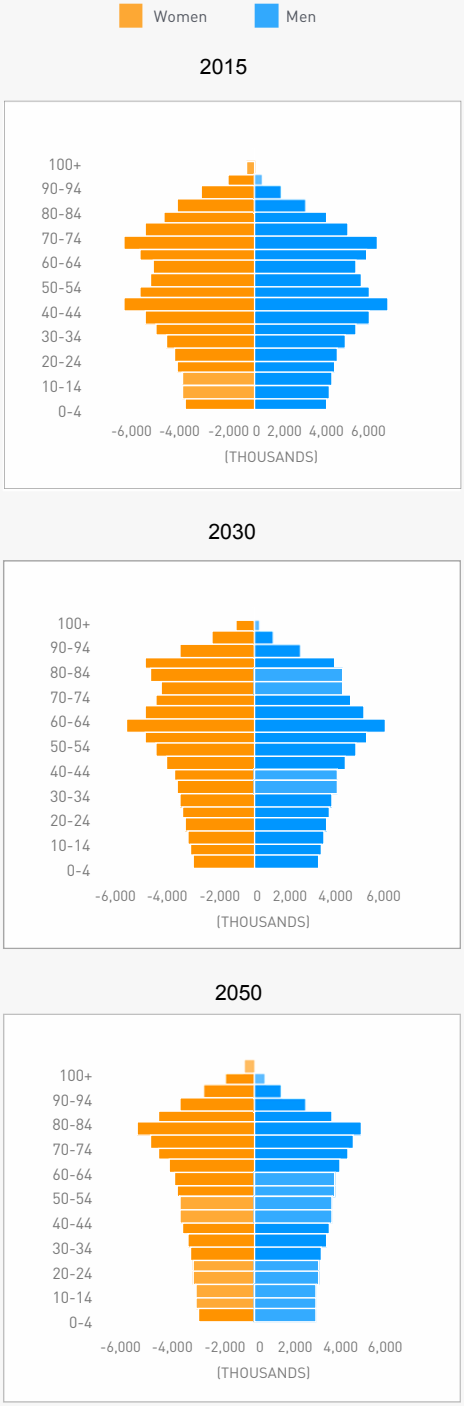
Box 2.6 (continued)
Japan: healthcare expenditure by age groups

Graph B
Evolution of healthcare expenditure by age groups, 2011-2016
(index 2011=100)



Source: MAPFRE Economic Research (with Japanese Ministry of Health data relating to the payment of bills by the national health insurance municipalities)

Chart C
Japan: population pyramid, 2015, 2030 and 2050



Source: MAPFRE Economic Research (with UN data)

period. This increase can be explained by the arrival of a large cohort in that age group, as can be seen in the aforementioned population pyramid for 2015.

The projected population pyramids for the years 2030 and 2050 anticipate an accentuation of the phenomenon in those years, in which that cohort increases to become the most significant age segment in the population structure of Japan (see Chart C).

by allowing an additional method of controlling costs. These conditions also serve as the main source of quality control in health services. By establishing certain standards that must be satisfied before a service can be billed, the MHLW can ensure, for example, that appropriate equipment is used for a particular service or that the appropriate number of personnel is available for the treatment of each hospitalized patient.

Free choice of providers

At the end of the 1980s, government and professional circles considered changing the system so that the levels of primary, secondary and tertiary care would be clearly distinguished within each geographic region. In addition, the facilities would be designed according to the level of care, and referrals would be required to obtain more complex care. The heads of policy and administrators recognized the need to unify the various insurance systems and control the costs. However, these proposals were not implemented.

Control of pharmaceutical costs

Japan continues to show high growth in pharmaceutical expenditure, while other countries have seen a slowdown in recent years. Public spending on pharmaceutical products increased by 5% per annum between 2009 and 2013, and in the latter year the expenditure per capita on pharmaceutical products was the second-highest within the OECD.

One of the reasons often attributed to high expenditure on pharmaceutical products is the low penetration of generics in the market. In 2013, generics accounted for 11% of the value of the Japanese pharmaceutical market, compared with the OECD average of 24%. Japan occupies a low place in terms of market volume of generics, with 28% compared with the OECD average of 48%. As a comparison reference, generics make up more than 80% of the pharmaceutical market by volume in Germany, the United Kingdom and the United States.

The Japanese government has been working for a number of years to accelerate the use of generic medicines. At the beginning of the 2000s, some changes were made to the methods used to determine the list of tariffs and prescriptions, with the aim of increasing the use of generic medicines. 2007 saw the approval of the "Action plan to promote the safe use of generic medicines", which established the policies relating to the quality and prescribing of these types of medicines and their understanding by patients.

Between 2008 and 2012, various adjustments were made to the list of tariffs and the rules relating to sale with prescription in order to encourage their use. In 2018, a new "Action plan for greater promotion of the use of generic medicines" was approved. This plan establishes the policy for strengthening the system and monitoring the progress toward nine targets in the percentage of use, such as actions for the government, industry suppliers and healthcare, with the aim of achieving the new objective (80% where generic substitution is possible).

Challenges arising from population aging

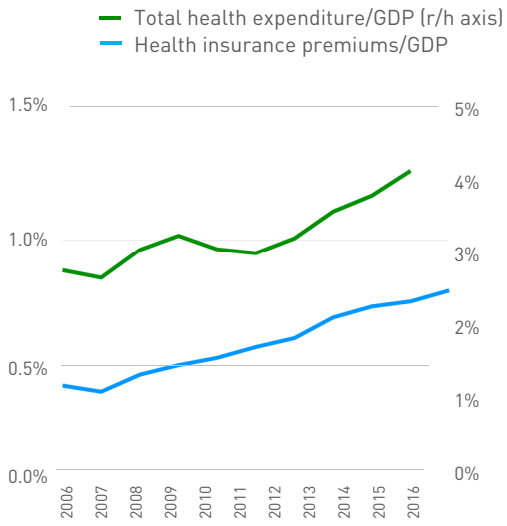
The growth in national health expenditure experienced by Japan in recent times has been caused mainly by an increase in medical expenses for the elderly. Analysis of the medical expenditure by age group revealed that expenses rose as the age increased, and that medical expenditure per older adult was five times higher than the figure for young people. As the aging process advances in Japan, it can be expected that the situation will become even more severe in the future. This explains the country's current efforts to take measures to contain health spending (see Box 2.6).

2.7 Singapore

Total healthcare expenditure in Singapore in 2015 (latest available data) represented 4.3% of the country's GDP (3.9% in 2014), 4.6 percentage points lower than the OECD average of 8.9%[72].

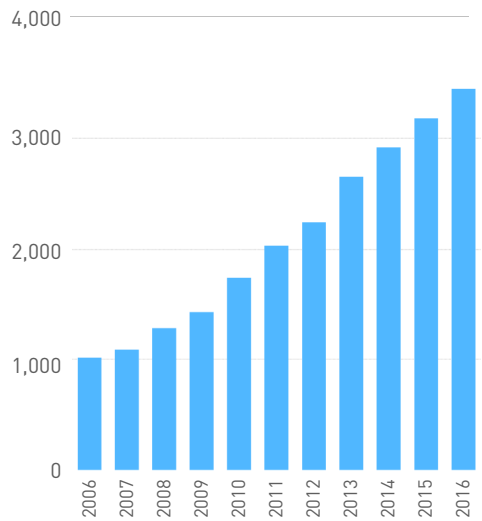
In general, the percentage of total healthcare expenditure relative to GDP shows an upward trend over the 2006-2015 period, with an increase of 1.3 percentage points (see Chart 2.7-a).

Chart 2.7-a
Singapore: health insurance premiums vs total healthcare expenditure, 2006-2016
(% of GDP)



Source: MAPFRE Economic Research (with WHO, MAS and OEF/Haver Analytics data)

Chart 2.7-b
Singapore: health insurance premiums, 2006-2016
(millions of Singapore dollars)



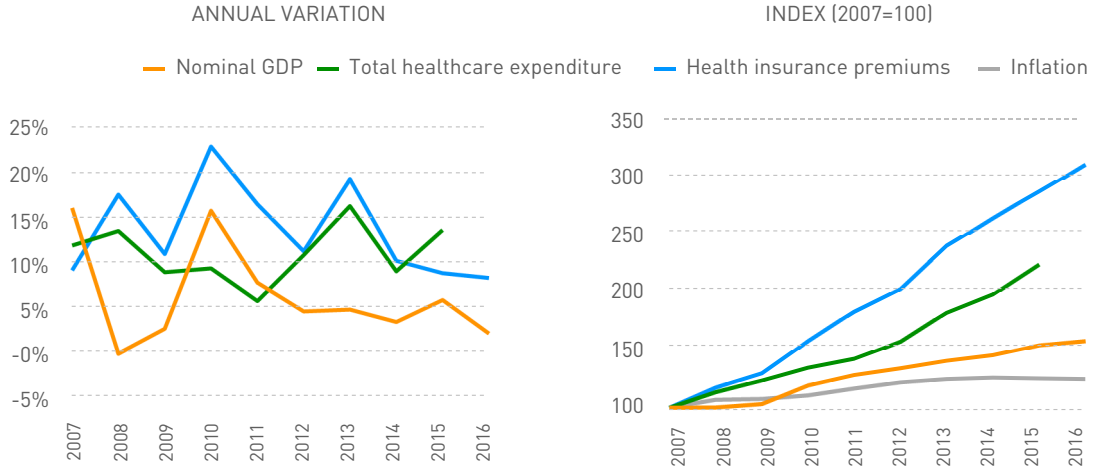
Source: MAPFRE Economic Research (with MAS data)

On the other hand, in the analysis of the evolution of the penetration of private health insurance, we see a marked increase from 0.4% of GDP in 2006 to 0.8% in 2016.

The evolution of the volume of private health insurance business in recent years is illustrated in Charts 2.7-b and 2.7-c, together with a comparison of the increases in Singapore's total healthcare expenditure and GDP over the same period.

This information reveals significantly greater increases in health insurance premiums than the increases in nominal GDP. Thus, in the last available decade,

Chart 2.7-c
Singapore: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2016
(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with WHO, MAS, OECD and OEF/Haver Analytics data)

health insurance premiums grew by 211.4% compared with an increase in GDP of 57.8% during that period.

Description of the levels of coverage of the healthcare system

Singapore's healthcare system corresponds to a mixed model of the liberal type with elements of the Beveridge system, offering universal coverage and seeking to guarantee high-quality and affordable basic medical services for the entire population. It is innovative as regards its form of funding, which includes an integral and mandatory social security savings plan (Central Provident Fund, CPF) for Singaporean citizens and permanent residents, intended to cover their future health needs, among other contingencies. In summary, this is a system that combines state subsidization with citizen savings.

Pillar 0
Minimum healthcare coverage

Singapore's citizens and permanent residents are entitled to subsidized health services, while foreigners with a work permit must obtain coverage through their employer or by taking out private health insurance. The rest of the non-resident population has to pay the costs of any healthcare they may need.

Among the subsidized programs for people with limited means, there are two notable examples: (i) the Community Health Assistance Scheme (CHAS), which enables households with low and medium incomes to receive subsidies for medical and dental care, and (ii) the Pioneer Generation Package program, consisting of healthcare assistance and social support plans aimed at Singapore's so-called "pioneers" in recognition of their contributions during the birth of the nation.

There is also a fund named MediFund, established by the government to help Singaporeans who fall into situations of need. It acts as the final safety net for patients who face financial difficulties due to their medical bills after receiving government subsidies and exhausting their coverage under the mandatory system. The government injects capital into the fund on an ad-hoc basis, normally when there are budget surpluses.

The government also administers other subsidy schemes, such as the Interim Disability Assistance Program for the Elderly and the Drug Subsidies & Schemes, among others.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

In Singapore's current mandatory health system, there are three different levels of protection. The first level provides government subsidies of up to 80% of the total bill for treatment of serious illnesses in public hospitals, available to all Singaporeans[73].

The second level of protection is provided by the MediSave program, a mandatory plan involving individual savings accounts for medical expenses, intended to ensure that all Singaporean residents can pay for their medical treatment without suffering financial difficulties. Employees and their employers pay a portion of the monthly salaries into the account to save for their future medical needs. The account holder can use their MediSave to pay for hospitalization and certain outpatient expenses incurred in any Singapore hospital, for themselves and for their immediate family (see Box 2.7).

The third level of mandatory protection is provided by MediShield Life, a basic health insurance plan administered by the CPF Board, which helps with the payment of large hospital bills and selected high-cost outpatient treatments, such as dialysis and chemotherapy for cancer. All Singapore citizens and permanent residents are eligible, and the premiums are paid out of their MediSave account. However, if they have no funds and cannot pay the premium, they still remain covered by this program. The government has undertaken to keep the MediShield Life premiums affordable with a series of state subsidies. Since the plan is designed for receiving subsidized treatment in public hospitals, patients desiring additional services must pay more of their bill with resources from their MediSave account and/or cash.

Box 2.7
Singapore: the MediSave plan

MediSave is a mandatory national savings plan that forms part of the Central Provident Fund (CPF) in Singapore. The CPF is a comprehensive social security system with three schemes: pensions, housing and health. Employees and employers in Singapore make monthly contributions to this fund, divided into four accounts:

- **Ordinary Account**: for housing, insurance, investment and education.
- **Special Account**: for old age and investment in financial products related to retirement.
- **MediSave Account**: for hospitalization and medical insurance expenses.
- **Retirement Account**: created automatically when the contributors reach the age of 55 years.

The money in the CPF is invested in special securities guaranteed by the Singapore government (SSGSs). The funds in the Special and MediSave accounts are revalued using the minimum interest rate or the average yield over 12 months of 10-year Singapore government securities plus 1%, whichever is greater. This rate is reviewed on a quarterly basis.

On the other hand, savers who are at least 18 years old and have above a certain amount saved in their Ordinary or Special account can invest part of their savings through the CPF Investment Scheme (CPFIS). This scheme allows savers to invest in a range of products, although in this case there is no guarantee that any profit will be made.

The MediSave plan was created in 1984 to help CPF members save for their hospitalization expenses and those of their families. Workers and their employers, according to their age, pay a specific percentage of their monthly salary into the Central Provident Fund, and part of this goes into the personal MediSave account (between 8% and 10.5%, depending on their age, for workers who earn SGD 750 or more). People who work for themselves and earn more than SGD 6,000 a year must contribute to MediSave based on their net business income in the previous year.

Singaporean citizens or permanent residents can make voluntary contributions to their MediSave account and claim tax breaks to reduce their taxes. Private-sector employers can also increase their contribution to their employees' MediSave accounts through the Additional MediSave Contribution Scheme (AMCS), subject to a limit of SGD 2,730 per employee per year. These contributions are tax-free for the employees, and the employers can also receive tax benefits.

MediSave funds can be used to pay:

- Insurance premiums for MediShield Life, Integrated Shield Plans and ElderShield / CareShield Life.
- Hospitalization expenses for an individual or his/her immediate family.
- Outpatient care up to SGD 500 a year as from June 2018. Since June 2018, patients aged 60 years or above can use up to SGD 200 per patient per year from their MediSave account, or that of their spouse, to receive outpatient medical treatment (Flexi-MediSave).
- Long-term care (hospices, rehabilitation, palliative care, etc.)

There are limits on the withdrawal of funds from MediSave for treatments and hospitalization, in order to ensure that the savings are preserved for future medical needs, especially in old age. The withdrawal limits are generally adequate to cover the majority of expenses incurred in subsidized wards by hospitalized patients and for outpatient treatments.

The Basic Healthcare Sum (BHS) is the maximum amount that can be held in the MediSave account on reaching the age of 65 years. This is the estimated amount of savings necessary to cover basic subsidized healthcare needs in old age, as well as to pay the MediShield Life premiums. It is determined according to previous trends in the use of MediSave by the elderly. Citizens are not obliged to top up their MediSave account if it does not reach the BHS, but may consider doing so voluntarily.

Box 2.7 (continued)
Singapore: the MediSave plan

There is no minimum amount that must be held in the MediSave account. Contributions are accumulated until they reach the Basic Healthcare Sum, and if that amount is exceeded, the surplus is transferred to other of the CPF member's accounts, depending on his/her age.

The amount of the BHS is adjusted annually to maintain the rate of growth in the use of MediSave by older people, particularly due to the increase in life expectancy and medical treatment costs. For each cohort reaching the age of 65 years, their BHS will be fixed for the rest of their life at the amount established for each year. In 2018, the BHS is fixed at SGD 54,500 (around EUR 34,700) for CPF members born from 1953 onward.

A notable feature is the definition of the Singaporean basic healthcare package, which has its origins in the recommendations contained in the 1993 "Affordable Health Care" white paper[74]. The basic package must cover essential and economical medical treatment, without the patient's health and quality of life being significantly compromised. Its aim is to define the medical services available to the entire population and subsidized by the government. These basic services must be reviewed to take medical progress and social and economic changes into account.

The basic package includes treatment by qualified doctors and specialists, but does not give the patient the right to choose his/her specialist. It includes medicines in a standard list based on the recommendations of the World Health Organization (WHO) and covers virtually all normal medical needs, but excludes alternative medicines that can be marginally better than those of the standard list, and experimental medicines. Some costly investigations, medicines and procedures are available in the basic package, but can only be ordered by a consultant or an experienced doctor.

As regards long-term care, required for people who need care and treatment after being discharged from hospital, as well as for elderly people who need supervision or assistance in their everyday activities, Singaporeans have access to services delivered in the home, in day centers and in residential facilities. The government subsidizes this care for Singapore citizens and permanent residents who meet the eligibility conditions. A means test is used to determine the amount of the subsidies, and people from households with lower incomes will receive larger subsidies.

In addition, all Singapore citizens and permanent residents with MediSave accounts are automatically registered in ElderShield at the age of 40 years, unless they opt out of the plan. Launched in 2002, ElderShield is an insurance plan for severe disability designed to provide basic financial protection to Singapore residents who need long-term care, especially in old age. In the event of a serious disability, ElderShield policyholders receive a monthly cash payment for a period of time, depending on the plan. The Ministry of Health appoints the private insurance companies that administer the plan.

For citizens registered in the plan at the age of 40 years, there are no exclusions of pre-existing conditions. Those who take out the insurance later must undergo a medical examination and may be rejected by the insurer if they have pre-existing conditions. Severe disabilities that predate registration in ElderShield are not covered.

The Basic Healthcare Sum (BHS) is the estimated amount of savings required to cover basic subsidized healthcare needs in old age.

The BHS is adjusted annually for members of the CPF below the age of 65 years in order to keep it up-to-date with the increase in withdrawals of MediSave funds. In anticipation of the increase in life expectancy, the BHS is adjusted annually in January to maintain the rate of growth in the use of MediSave by older people.

The Basic Healthcare Sum (BHS) for each cohort is fixed when they reach the age of 65 years, and this amount does not change for the rest of their lives. There are limits on the withdrawal of funds from MediSave for treatments and hospitalization, in order to ensure that the savings are preserved for future medical needs, especially in old age.

A small group of elderly people who were not eligible for ElderShield when it was launched in 2002 (due to their advanced age or because they had pre-existing disabilities) are eligible for the Interim Disability Assistance Program for the Elderly (IDAPE), a government assistance program that provides financial support to disabled elderly people in need. This consists of a monthly cash payment of SGD 150 or 250 (around EUR 94 or 157), according to the beneficiary's financial circumstances, for up to 72 months.

As regards mental health, in 2007 the Singapore government formulated the National Mental Health Blueprint[75], a five-year plan aimed at improving mental health and, where possible, preventing the development of mental health problems and disorders, and reducing their impact. Subsequently, new masterplans were launched in 2012 and 2017. These include the Community Mental Health Masterplan, aimed at further strengthening community mental health services and providing better support to people suffering from such problems. Meanwhile, the Institute of Mental Health (IMH) is a tertiary-level psychiatric hospital that offers a wide range of psychiatric, rehabilitation and advisory services for children adolescents, adults and elderly people.

Public dental services are available through the National Dental Center and in some polyclinics and hospitals. The Health Promotion Board focuses mainly on preventive dentistry, primarily aimed at schoolchildren.

Finally, occupational accident insurance in Singapore is governed by the Work Injury Compensation Act (Chapter 354), and the body responsible for its supervision is the Ministry of Manpower. Insurance is provided by the private sector, through companies operating in general insurance. In 2016, the general insurance companies wrote premiums for this coverage amounting to SGD 353.7 million (USD 256 million).

As regards pharmaceutical expenditure, the Ministry of Health provides subsidies for medicines in public hospitals, specialist outpatient clinics and polyclinics, in order to ensure that patients have access to effective medicines for common medical conditions. The subsidies and financial assistance are granted for medicines approved under the Standard Drug List (SDL) and the Medication Assistance Fund (MAF). Medicines approved under the SDL and the MAF must be registered by the Health Sciences Authority (HSA) and be clinically and economically assessed. The Medication Assistance Fund (MAF) helps eligible patients to pay for costly medicines that are not in the list of standard medicines but have been assessed as clinically necessary.

Quality control and innovation are the responsibility of the Ministry of Health, which performs these functions in collaboration with healthcare institutions and providers in order to ensure that patients receive high-quality, safe care[76]. In this regard, in 2015 the Agency for Care Effectiveness was created to improve patient outcomes and healthcare quality through the assessment of health technology.

Each year, the Ministry of Health launches the National Healthcare Quality Poster Competition, open to all professionals from all health institutions, public and private, that have taken part in projects to improve healthcare quality, safety and standards of patient care in the health services system.

Finally, as regards prevention, in 2001 the Health Promotion Board (HPB) was created, a governmental organization devoted to the promotion of healthy living in Singapore. Its aim is to increase the quality of life and healthy life expectancy of the population, as well as to prevent illnesses, disabilities and premature deaths.

Pillar 2
Corporate group health insurance

For foreigners with work permits, employers can opt to provide them with insurance coverage as part of their employment contract, otherwise they must take out their own medical insurance.

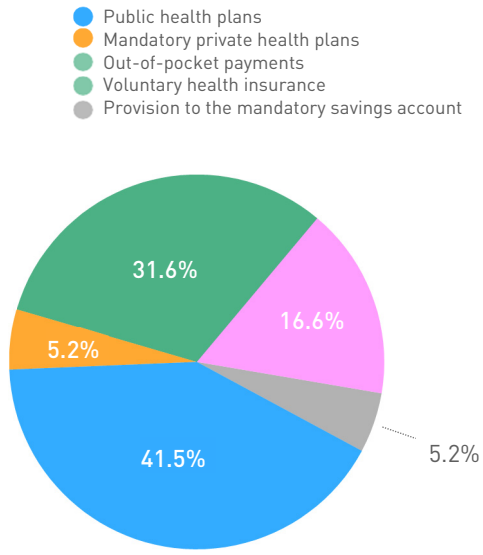
Group health insurance premiums accounted for around 24% of premiums for this line of business in 2017, significantly less than the proportion represented by premiums on individual private health insurance policies.

Pillar 3
Individual private coverage (voluntary)

In terms of healthcare expenditure per capita, the estimated expenditure in 2015 (latest available data) was USD 2,678 per inhabitant (USD 2,623 in 2014), according to WHO data. Of this sum, around USD 1,111 (41.5%) would correspond to the average expenditure per capita in the mandatory public system. Of the remaining 58.5%, expenditure on contributions to mandatory health plans would be around USD 140 per person (5.2%). "Out-of-pocket" health costs (including those paid through MediSave account provisions) would be around USD 845 (31.6%). Finally, expenditure on voluntary insurance premiums would amount to USD 444 (16.6%) of total expenditure per capita, with the rest (5.2%) corresponding to the mandatory provision to the savings account in order to cover health costs (see Chart 2.7-d).

In 2004, the Monetary Authority of Singapore (MAS) introduced the regulatory framework governing the taking out and distribution of accident and health insurance. Under this framework, accident and health insurance is classified into short- and long-term policies in order to bring the offering of this long-term coverage into line with Life insurance[77].

Chart 2.7-d
Singapore: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with WHO data)
* Latest available data.

In Singapore, insurers authorized to operate in the Life segment can offer short-term health and accident policies. Long-term insurance requires an additional license.

Health insurance may include coverage for medical expenses, hospitalization insurance (paying a fixed amount for each day the insured is hospitalized to receive medical treatment or surgery), chronic illness insurance, disability insurance and long-term care insurance[78].

Many Singaporeans decide to supplement their MediShield Life coverage by signing up to Integrated Shield Plans (IP). These consist of two parts: (i) the MediShield Life component, administered by the Central Provident Fund (CPF), and (ii) additional benefits offered by Life insurance companies, for which the premiums can be paid out of MediSave funds. These insurers must be authorized by the MAS to operate in this line, and in addition to the prudential and market conduct requirements

established for all Life companies, must satisfy the Ministry of Health's "Conditions for approval of integrated MediSave plans".

This additional coverage is generally taken out to cover treatment in private hospitals or expenses for healthcare attention received in particular wards of public hospitals. In this regard, the wings of public hospitals are classified by level in four main classes (A, B1, B2, C), according to the level of services. Class A wings have the highest level of comfort. 81% of the beds in public hospitals (classes B2 and C) are highly subsidized, while the remaining 19% receive a lower subsidy (20% for class B1 and no subsidy for class A wards), opening up the field for additional coverage by private insurance companies.

Before a plan can be marketed, the Ministry of Health examines it to ensure that it meets certain basic requirements. The insurers compete by offering their policyholders the protection of more economic insurance over their lifetime. The Ministry of Health does not regulate the decisions of the private insurers on the acceptance of applicants, but it does require them to guarantee renewals.

Singaporeans can take out other private health insurance coverage, in addition to supplementing the MediShield coverage, but the premiums cannot be paid out of MediSave funds.

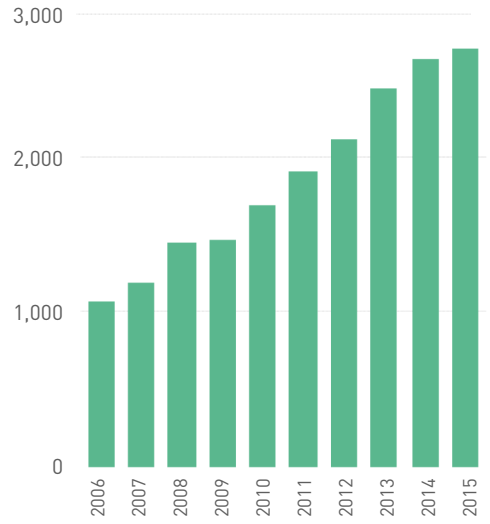
According to the Life Insurance Association of Singapore, premiums for Integrated Shield Plans (IP) in the last quarter of 2017 accounted for 91% of the health line, while the remaining 9% came from other medical plans. At the same date, approximately three out of four Singaporeans had taken out an Integrated Shield Plan[79].

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in Singapore in 2015 was 28.3% lower than the average for the countries of the OECD in that year (USD 2,678 compared with USD 3,735), according to OECD and WHO estimates (see Charts 2.7-e and 2.7-f). Of this sum, USD 1,250 (46.7%) corresponded to the average expenditure per capita in the mandatory system, 59.3% lower than the average

Chart 2.7-e
Singapore: healthcare expenditure per inhabitant, 2006-2015
(dollars, nominal cost - PPP)



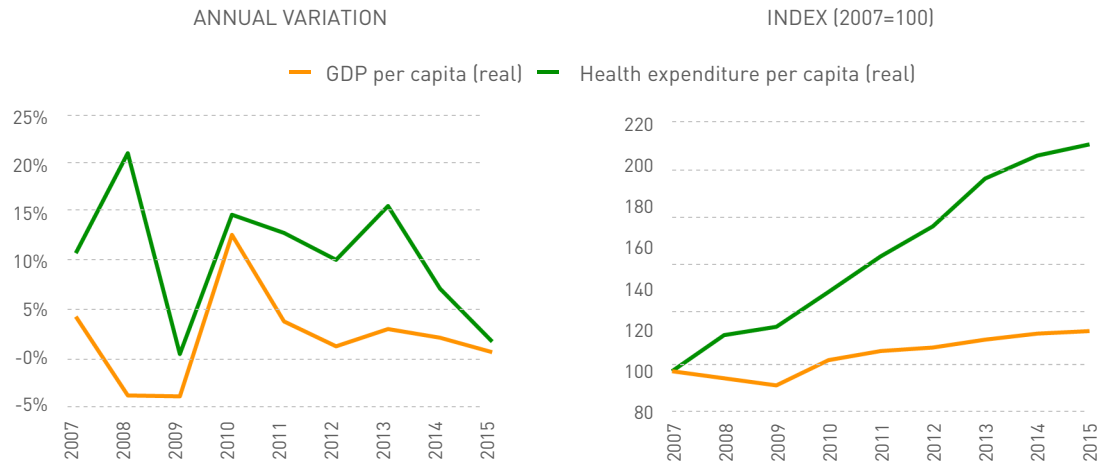
Source: MAPFRE Economic Research (with OECD data)

for the countries of the OECD (USD 3,073). These figures are well below the average for the countries analyzed in this study, as well as the OECD average, and this is indicative of the lower cost of healthcare in Singapore and the high level of participation in healthcare expenditure by the country's citizens.

Indicators of capacity of the healthcare system

According to the latest available data[80] (see Chart 2.7-g), the number of practicing doctors in Singapore in 2017 was 2.4 per thousand inhabitants, 29.4% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). The number of nurses was 7.4 per thousand inhabitants, 17.9% lower than the average for the countries of the OECD (9 nurses per thousand inhabitants). On the other hand, the number of hospital beds in 2014 was 12.5 per thousand inhabitants, 168.7% higher than the average for the countries of the OECD at that date (4.7 beds per thousand inhabitants).

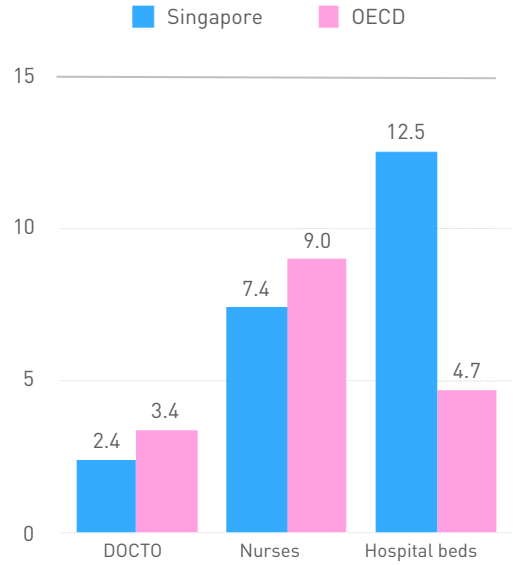
Chart 2.7-f
Singapore: variation in healthcare expenditure per inhabitant, 2007-2015
(real variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

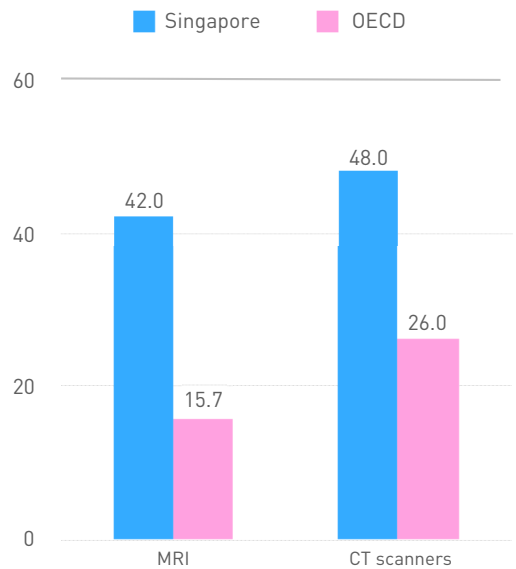
On the other hand, as shown in Chart 2.7-h, the number of magnetic resonance imaging (MRI) scanners in 2014 (latest available data) was 42 per million inhabitants, 167.5% higher than the average for the countries of the OECD in that year (15.7 per million inhabitants). Similarly, the number of computed tomography (CT) scanners in Singapore was 48 per million inhabitants, 84.6% higher than the average for the countries of the OECD (26 per million inhabitants).

Chart 2.7-g
Singapore: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



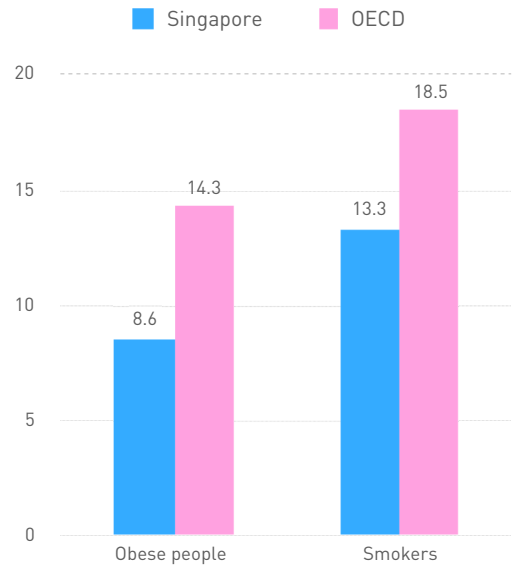
Source: MAPFRE Economic Research (with OECD data)
* Doctors (2017), Nurses (2017), Hospital beds (2014)

Chart 2.7-h
Singapore: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2014), CT scanners (2014)

Chart 2.7-i Singapore: risk indicators (%)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Obese people (2013), Smokers (2013)

Indicators of health status

Life expectancy at birth in Singapore was 82.9 years in 2016, according to OECD data, 2.1 years higher than the average for the countries of that organization (80.8 years). On the other hand, healthy life expectancy is estimated at around 73.6 years, which, together with Japan, is one of the highest in the world[81].

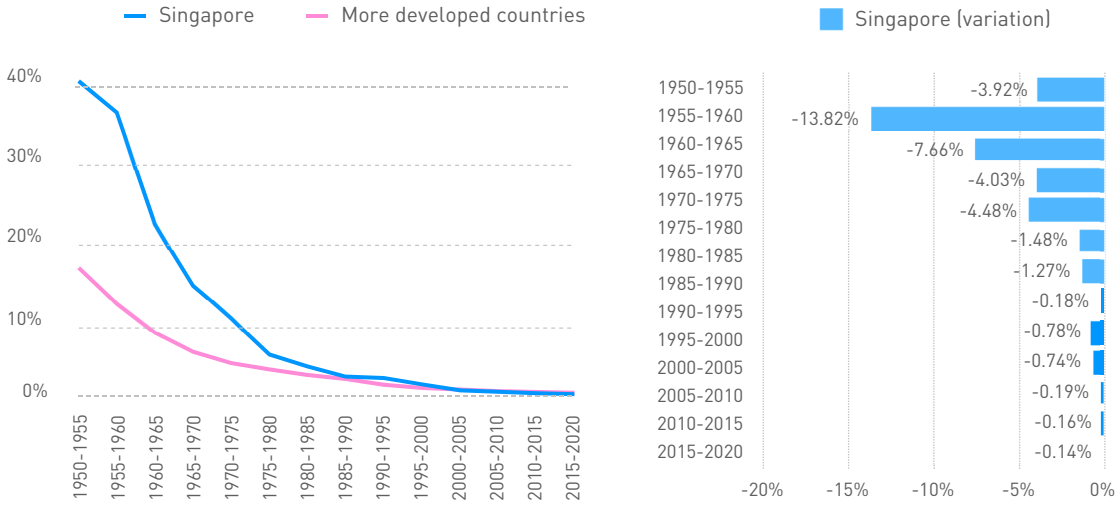
Health risk factors

As regards health risk factors, as shown in Chart 2.7-i, the percentage of obese people in 2013 in Singapore was 8.6%, 5.7 percentage points below the OECD average (14.3%). As regards smoking, the percentage of people who smoke daily was 13.3% in 2017, 5.2 percentage points below the OECD average (18.5% in the 2015-2016 period).

Indicators of healthcare quality

Infant mortality is one of the most relevant indicators for assessing the effect of socio-economic conditions on the health of mothers and newborns, as well as of the quality of healthcare services and disease prevention and health promotion measures. According to data from the United Nations (UN), the percentage of infant deaths up to the age of five years has fallen markedly and steadily over recent decades (see Chart 2.7-j).

Chart 2.7-j
Singapore: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

In the case of Singapore, the fall has been very pronounced, having started from a percentage substantially higher than that of the more developed regions. However, it is currently still below the average for those regions (0.4% in Singapore compared with 0.6% in the more developed regions)[82].

Another widely-used indicator in relation to the quality of healthcare services is the percentage of people dying due to non-communicable diseases (NCDs) between the ages of 30 and 70 years, which in Singapore is 9.3%, 3.4 percentage points below the average for the countries of the OECD (12.7%)[83].

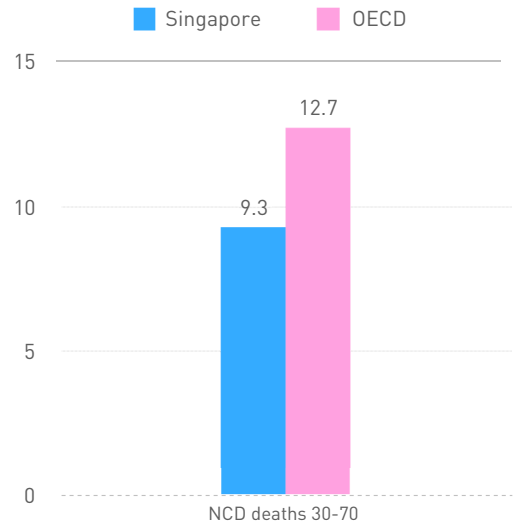
Main service providers

Insurance companies

The market shares of the largest insurance companies in Singapore's medical expenses and health insurance business in 2017 are shown in Tables 2.7-a and 2.7-b[84].

The market concentration of the Life companies operating in accident and health insurance is very high, with the top five accounting for 91.4% of premiums (Table 2.7-a). In the case of the general insurance companies, the concentration is rather lower, with the top five accounting for 65.4% of the market (Table 2.7-b).

Chart 2.7-k Singapore: mortality due to non-communicable diseases
(NCD deaths, %)



Source: MAPFRE Economic Research (with WHO data)
* Deaths between the ages of 30-70 due to non-communicable diseases

Table 2.7-a
Singapore: ranking of Life insurance companies by premium volume in long-term accident and health insurance, 2017

	Companies	Premiums (millions of USD)	Market share (%)
1	AIA SPORE	664.7	26.8%
2	PRUDENTIAL	513.5	20.7%
3	GREAT EASTERN LIFE	467.2	18.9%
4	NTUC INCOME	346.1	14.0%
5	AVIVA	273.0	11.0%
6	AXA INSURANCE	69.7	2.8%
7	TOKIO MARINE LIFE	53.9	2.2%
8	FWD SINGAPORE	42.9	1.7%
9	RAFFLES HEALTH	38.8	1.6%
10	MANULIFE	7.2	0.3%

Source: MAPFRE Economic Research (with MAS data)

Table 2.7-b
Singapore: ranking of general insurance companies by premium volume in health insurance, 2017

	Companies	Premiums (millions of USD)	Market share (%)
1	CIGNA EUROPE	72.9	22.7%
2	AXA INSURANCE	52.1	16.2%
3	AETNA S'PORE BRANCH	39.1	12.2%
4	AIG ASIA	26.2	8.2%
5	MSIG	19.9	6.2%
6	CHUBB INS	18.2	5.7%
7	FIRST CAPITAL	17.1	5.3%
8	Liberty	13.5	4.2%
9	SOMPO INS	12.7	3.9%
10	QBE INS	12.4	3.9%

Source: MAPFRE Economic Research (with MAS data)

Brief reference to other service providers

The healthcare infrastructure in Singapore is made up of both public and private health centers. The balance between universal coverage and individual responsibility is constantly supervised and adjusted through the levels of subsidy, eligibility of the institutions and the treatments covered, among other aspects. The government pays direct subsidies to public hospitals, polyclinics and other providers of medical care in order to reimburse part of the treatment costs to the patients.

This is a hybrid system comprising three levels:

- Subsidized hospitals, subject to controls on pricing and operations in key areas;
- Private-sector patients who use MediSave, subject to controls on costs above the reimbursement limits of the scheme, and
- Private-sector patients, subject to minimal controls.

Primary care is provided through an insular network of polyclinics and outpatient clinics administered by private family doctors. There are currently 18 polyclinics and around 1,500 clinics. The polyclinics provide subsidized primary care, which includes primary medical treatment, preventive medical care and health education. Patients can be referred from the polyclinics to the hospitals, where they can receive more specialized treatment. The primary care sector is dominated by private-sector providers, which represent approximately 80% of the market.

The public hospitals belong to the Ministry of Health through the Health Corporation of Singapore, a parent company created in 1985 and now known as MOH Holdings (MOHH), which groups together the following entities: (i) the National University Health System; (ii) the National Healthcare Group, and (iii) Singapore Health Services. These differ from the private services in that they receive an annual grant or subsidy from the government for the provision of medical services to patients. They must be administered as non-profit organizations and are subject to broad policy guidance by the government through the Ministry of Health. The public sector dominates the intensive care sector, providing 80% of care in this sector.

On the other hand, in February 1983 Singapore launched its National Health Plan, which provided for a reorganization of the public hospitals in order to introduce competition, greater efficiency and capacity for response to public needs. It gave them autonomy, under the supervision of a central body, to carry out their everyday activities as private entities, believing that competition would encourage greater efficiency, flexibility and agility.

The Plan also provided for increases in the workforce (better trained and more highly qualified doctors and nurses) for the enlarged facilities and to manage chronic patients and the aging of the population, at the same time as giving a wider role to private medical care.

From that time forward, a major restructuring was carried out whereby the existing six regional health systems were grouped into three integrated "clusters". Each of these offers a more comprehensive range of services, covering hospital care, primary care and community care. Each group has its own medical school. The objective is to strengthen the health system for the challenges of the future, such as the aging of the population and the rising number of people with chronic illnesses.

All medical care facilities must apply for a license pursuant to the Private Hospitals & Medical Clinics Act (PHMC), and must maintain a good level of medical and clinical services.

On the other hand, for intermediate and long-term care there are ongoing care centers aimed at patients who do not need the level of care provided by a hospital but who nevertheless require ongoing care.

Health professionals are self-regulated by the relevant professional bodies: the Singapore Medical Council, the Singapore Dental Council,

the Singapore Nursing Board, the Singapore Pharmacy Council, the Traditional Chinese Medicine Practitioners Board, the Optometrists & Opticians Board, and the Allied Health Professions Council. Health-related products, such as medicines, medical devices, supplements, etc., are regulated by the Health Sciences Authority.

In general, the government does not regulate the prices of medicines. However, the public hospitals centralize purchases of medicines through procurement contracts managed by the Group Purchasing Offices (GPOs). This purchasing mechanism serves as a way of indirectly regulating the prices of medicines.

Singapore's health system is regarded as one of the most successful and efficient in the world, combining high-quality care with low cost. It is a universal coverage system that is based on the provision of subsidized medical services while simultaneously promoting individual responsibility to bear part of the costs of the healthcare services, as well as the use that is made of them, and the promotion of a healthy lifestyle among the citizens, who take responsibility for their own health. The government, in turn, provides safety nets to ensure that no Singaporean is denied access to healthcare. In addition, the Singapore health system is a model of collaboration between the public sector and the private sector, which plays an important role in the country's healthcare.

From the point of view of the risks, it should perhaps be pointed out that Singapore's health system, being highly subsidized, is very dependent on the State's revenues and therefore on the performance of the economy. Insofar as the elderly people receiving this assistance are the most economically vulnerable, they are the most exposed to this risk. Furthermore, a downturn in the economy or employment could lead to a reduction in citizens' savings in their MediSave accounts, and this would make them more dependent on government subsidies.

For this reason, one of the main challenges that must be faced by Singapore's health system is controlling the increase in expenditure, which is related not only to the increase in prices, but also to greater consumption of healthcare services.

The government's actions in this regard have been aimed at ensuring that total health expenditure is not affected by significant inflationary pressures, by regulating the supply and prices of the health services. Their maintenance therefore depends more on the government's decisions than on the market conditions.

Proof of the importance attached by the government to responsible behavior by patients and providers in the utilization of health services, as well as the consequent importance of controlling expenditure, is the announcement by the Ministry of Health, in one of its recent interventions, of the agreement reached with the insurance companies operating in the Integrated Shield Plans that these plans should have copayment features in future. For its part, the Ministry of Health has undertaken to constantly review the funding policies in order to ensure that the copayment is affordable.

However, it is difficult to control expenditure when one of the main problems facing the system in terms of its sustainability is the progressive increase in the aging of the population and the increase in chronic illnesses.

In order to meet this challenge, the Ministry of Health focuses its strategy on improving the accessibility, quality and affordability of medical care through a series of plans that generally involve an increase in expenditure: increase in medical care facilities, increase in subsidies to ensure that healthcare remains affordable for all citizens, increase in spending on primary care and intermediate and long-term care sectors to ensure care for the community, improvement of personnel, and reorganization of the public health system into integrated clusters, among other aspects.

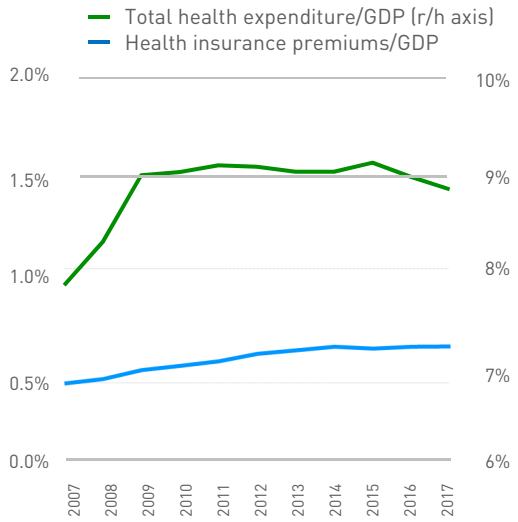
2.8 Spain

In Spain, total healthcare expenditure in 2017 represented 8.8% of GDP (9.0% in 2016), similar to the average for the countries of the OECD (8.9%)[85]. Meanwhile, health insurance premiums represented 0.7% of GDP in that year (see Chart 2.8-a).

The evolution of the volume of private health insurance business in recent years is shown in Chart 2.8-b, together with a comparison of the increases in Spain's total healthcare expenditure and GDP over the same period. This information shows a rising trend, even in the most severe years of the recent economic crisis, during which there was positive growth in years when both GDP and total health expenditure fell sharply (2008-2013).

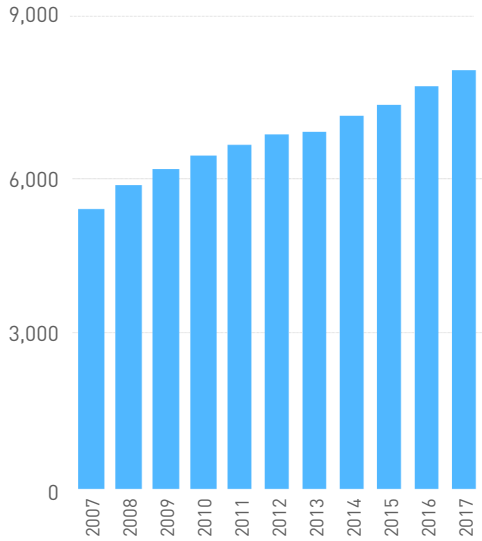
It can also be seen that the increases in health insurance premiums in Spain were significantly higher than the increases in nominal GDP. In this regard, health insurance premiums grew by 49.2% over the last 10 years, compared with nominal GDP growth of 7.7% during the same period (see Chart 2.8-c).

Chart 2.8-a
Spain: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with ICEA, OECD and OEF/Haver Analytics data)

Chart 2.8-b
Spain: health insurance premiums, 2007-2017
(millions of euros)



Source: MAPFRE Economic Research (with ICEA data)

Description of the levels of coverage of the healthcare system

With the aim of giving an idea of the environment in which health insurance business is conducted in Spain, there follows a description of the different levels of coverage, following the schema described in the conceptual framework of this study.

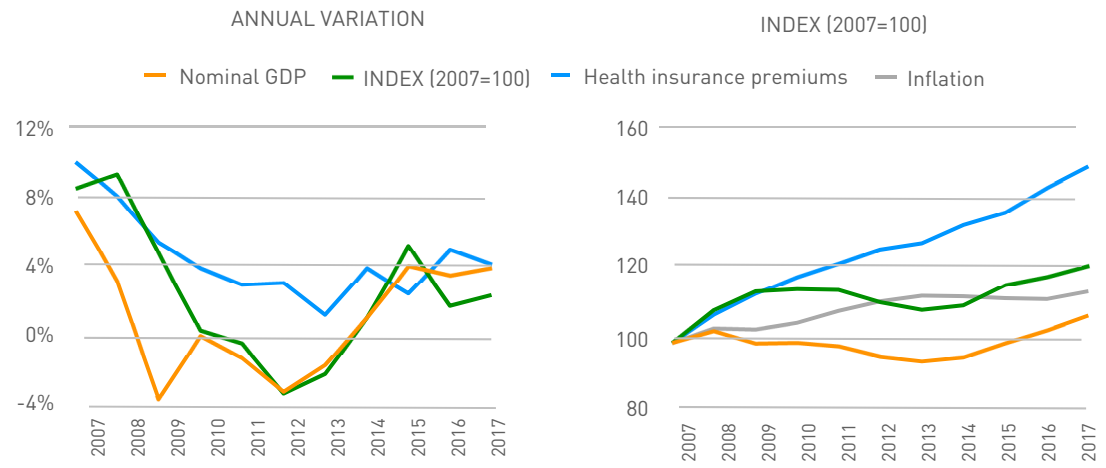
Pillar 0
Minimum healthcare coverage

Currently, healthcare coverage in Spain is total for Spaniards and for foreigners entered in the Register of Foreign Nationals who have resided in the country for more than three months, as well as for foreigners under the age of 18 years. For everyone else, there is emergency coverage in case of accident or serious illness.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

The Spanish healthcare system corresponds to the Beveridge model. It was designed at the end of the 1970s, when the Sistema Nacional de

Chart 2.8-c
Spain: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017
(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with ICEA, OECD and OEF/Haver Analytics data)

Salud [National Health System] (SNS) was created as one of the key components of the Welfare State based on principles of universality and fairness, and on the transfer of responsibilities to the new regional governments (the Autonomous Communities).

The SNS consists of the coordinated body of Health Services of the State Administration and Health Services of the Autonomous Communities incorporating all the healthcare functions and services that are, by law, the responsibility of the public authorities.

The Ley de Sanidad [Health Law] and the Ley de Cohesión y Calidad del SNA [Law on the Cohesion and Quality of the National Health System] (16/2003) distribute the responsibilities between the State, the Autonomous Communities and Local Authorities.

The starting point prior to the creation of the SNS was a public healthcare network focusing on hospital treatment and centralized management, of the Bismarckian type, which was funded through Social Security contributions in the case of workers with medium and low incomes, and through direct payments in the case of citizens with high incomes. Advocates of the reform believed that there were significant inequalities, as regards both the health status and the healthcare assistance of the population, that made a change of model necessary.

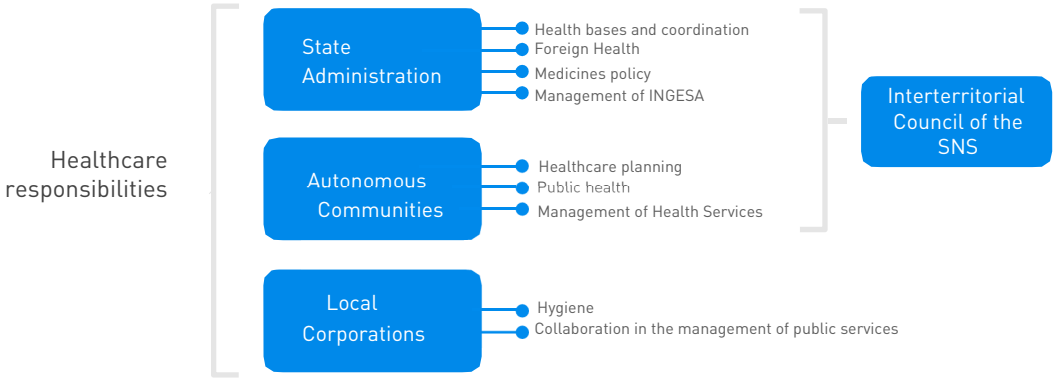
The SNS was designed to give universal healthcare coverage, based mainly on primary care, with a full transfer to the 16 Autonomous Communities. This is a profound reform compared with the previous system, and was carried out over a period of approximately 20 years.

However, the State and Local Authorities also have a series of responsibilities assigned to them under the new healthcare model. The distribution of responsibilities between the State, Autonomous Communities and Local Authorities is illustrated in Chart 2.8-d.

Subsequent reforms designed to make the system more cohesive have also been approved. Thus, the 2003 Law on the Cohesion and Quality of the National Health System elevated the Consejo Interterritorial del Sistema Nacional de Salud [Interterritorial Council of the National Health System] (CISNS) to the position of highest authority of the SNS, with the aim of facilitating the process of consensual policy formulation. This Council is made up of representatives from the Ministry of Health and Social Policy and the Departments or Ministries of the Autonomous Communities.

The said Law defines the portfolio of common services and the human resources policy framework of the SNS, as well as the bases for the coordination and enforcement of the National Health System Quality Plan. This plan

Chart 2.8-d
Spain: distribution of responsibilities between the State, Autonomous Communities and Local Authorities



Source: Ministry of Health and Consumption (pursuant to the Spanish Constitution of 1978, the General Health Law no. 14/1986 of April 25, and Law no. 16/2003 of May 28 on the Cohesion and Quality of the National Health System).

includes activities for the implementation of the healthcare information system of the SNS, a system for the unequivocal identification of patients with relevant clinical information, and the development of a digital or electronic clinical history for the whole of the national territory.

It also contains measures for the development of a standard in relation to maximum waiting times, the adoption of a common vaccination schedule for the whole of the SNS, and cost-control measures focusing on the pharmaceutical policy. The Autonomous Communities can choose to offer additional vaccinations on top of those agreed within the CISNS.

As regards the coverage of the public healthcare system, the benefits include primary and specialized care modalities, pharmaceutical services, complementary services, information services and healthcare documentation services. The protected risks are common illness, occupational illness and injuries caused by any type of accident.

An important concept in the Spanish healthcare system is the "common portfolio of services of the National Health System", which comprises the body of activities, techniques and resources whereby the healthcare services are effectively provided. The common portfolio of services of the SNS is agreed within the Interterritorial Council of the National Health System and must be approved by a Royal Decree.

In turn, the common portfolio of services of the SNS comprises the following three categories:

- **Basic common portfolio.** Includes all assistance activities of prevention, diagnosis, treatment and rehabilitation carried out at healthcare or medical and social services centers, as well as urgent healthcare transport, fully covered by public funding.
- **Supplementary common portfolio.** Includes all benefits subject to a contribution by the user (pharmaceutical, orthoprosthetic, dietary products and non-urgent healthcare transport, subject to optional prescription on clinical grounds and with a level of user contribution in accordance with that determined for the pharmaceutical benefit).
- **Common portfolio of ancillary services.** Includes non-benefit activities that are not deemed essential and serve to provide support for a chronic illness. The maximum funding amounts and autonomous health coefficients for providers are approved annually. Reimbursement is governed by the same rules that regulate the pharmaceutical service.

The updating of the catalog of services, the maximum funding amounts and the correction coefficients to be applied to determine the definitive billing for autonomous health services by the providers, which will be regarded as the final price, must be approved by a Ministerial Order, following agreement by the Interterritorial Council of the National Health System, on the proposal of the Comisión de Prestaciones, Aseguramiento y Financiación [Benefits, Insurance and Funding Commission].

The Autonomous Communities, within the scope of their responsibilities, may approve their respective portfolios of services, which will include at least the common portfolio of services of the National Health System in its basic modalities of assistance services, supplementary services and ancillary services.

The inclusion of medicines in the funding of the National Health System is made possible by selective and non-indiscriminate funding, applying a price-setting system. For the taking of decisions, the Comisión Interministerial de Precios de los Medicamentos [Interministerial Commission for Medicines Pricing] will take account of the reports drawn up by the Comité Asesor de la Prestación Farmacéutica del Sistema Nacional de Salud [Advisory Committee on National Health System Pharmaceutical Services].

There is also a pharmaceutical copayment that discriminates between active workers, retired people with contributory pensions, the long-term unemployed and retired people with non-contributory pensions. The copayment of the first two groups depends on their level of income, while the other two are currently exempt from making any copayment.

The procedure and organizational model for emergency care is the responsibility of each Autonomous Community. In general terms, it is provided through the primary and specialized care services, as well as through services specifically dedicated to emergency care when the clinical situation does not allow them to be accessed.

The coordination of the different emergency resources and the mobilization of the parties involved is centralized in the coordinating centers for emergency healthcare treatment. These centers also coordinate healthcare services in the context of disaster plans and collaboration with the emergency services of the different administrations, such as Civil Protection, Fire Departments and State Security Forces, as well as the emergency units of the army.

Mental health services have been territorialized along with the other healthcare services, and have been fully integrated into the healthcare network. The number of psychiatric beds in monographic hospitals has seen a very sharp fall, giving way to integrated beds in the network of general hospitals.

The portfolio of common services of the SNS recognizes palliative care as a fundamental component of healthcare attention in the National Health System, although there are differences at territorial level in the benefits of this healthcare service. In economic terms, the SNS covers between 60% and 65% of the costs of this type of care. Some of the remaining percentage is funded by private entities, mostly non-profit entities such as the Asociación Española de Lucha Contra el Cáncer [Spanish Association for the Fight Against Cancer], which obtain the funds from very diverse sources.

Rehabilitation is provided in primary care, in hospital rehabilitation departments and in day centers. Intermediate care, or convalescence during transition into the community, is not very well developed in Spain, and it tends to be the families that find themselves taking care of this task in the home.

As regards long-term care and social services, these services are regulated by Law no. 39/2006 on the Promotion of Personal Autonomy and Care for People in a Situation of Dependency, creating the new Sistema para la Autonomía y Atención a la Dependencia [Autonomy and Dependency Care System] (SAAD).

This law details a series of services regarded as priorities that must be provided through the public offer of the social services networks of the Autonomous Communities through duly accredited and subsidized public or private centers and services.

The right to services and benefits is tied to Spanish nationality, and depends on the level of dependency and economic capacity of the applicant. There is a copayment system depending on the type of services needed, which is proportional to the dependent person's economic capacity.

These benefits and services are integrated into the network of centers and services of the SAAD, which is made up of the public centers of the Autonomous Communities, the City Councils, the reference state centers for the promotion of personal autonomy and provision of attention and care in specific situations of dependency, and the duly accredited and subsidized private centers. The Autonomous Communities have full freedom for the organization of this network in their territory.

NGOs and non-profit entities can access this network under favorable conditions, since it recognizes their experience and long-standing activity as key providers in many parts of the territory. Unsubsidized private centers that provide services in the Autonomous Communities must also be duly accredited by the autonomous authority.

Finally, it should also be noted that employees of the State Civil Administration and personnel of the Justice Administration and the Armed Forces (personnel attached to the Ministry of Defense) are covered respectively under the Special Social Security Regime for State Civil Servants and the Special Social Security Regime for the Armed Forces. The healthcare coverage for these groups is managed by the mutual societies MUFACE (Mutualidad General de Funcionarios Civiles del Estado [General Mutual Society for State Civil Servants]), ISFAS (Instituto Social de las Fuerzas Armadas [Social Institute of the Armed Forces]) and MUGEJU (Mutualidad Gestora de Funcionarios de la Administración de Justicia [Managing Mutual Society for Justice Administration Civil Servants]). Civil servants can choose either to obtain coverage through a private insurance company that has signed an agreement with their respective mutual society or to receive coverage from the SNS.

Pillar 2
Corporate group health insurance

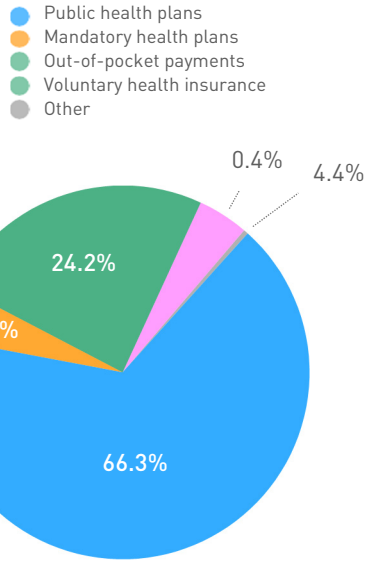
In Spain, some companies offer their employees supplementary health insurance in addition to the mandatory coverage, as a work incentive.

Currently, the tax regime applicable to this form of employee remuneration provides income tax relief, with exemption for the income in kind entailed for the employee in the amounts paid for him/her, his/her spouse and his/her offspring, subject to certain quantitative limits. In 2017, the premium volume for this type of insurance was EUR 2,284 million, approximately 28% of total premiums in the health insurance business in Spain.

Pillar 3
Individual private coverage

In terms of healthcare expenditure per capita, the estimated total in Spain in 2017, according to OECD data, was USD 3,371 per inhabitant (USD 3,257 in 2016). Of this sum, if we apply the most recent distribution available (2015), around USD 2,394 (71.0%) would correspond to the average expenditure per capita in the mandatory system. Of the remaining 29.0%, expenditure on voluntary health insurance premiums would be around USD 148 per person (4.4%). "Out-of-pocket" health costs would be around 24.2% of the total expenditure per capita, with the remaining 0.4% corresponding to other types of expenditure (see Chart 2.8-e).

Chart 2.8-e
Spain: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

Within private health insurance coverage, individual insurance would account for around 72%, with the rest corresponding to group health insurance (28% of premiums).

Analysis of other relevant indicators

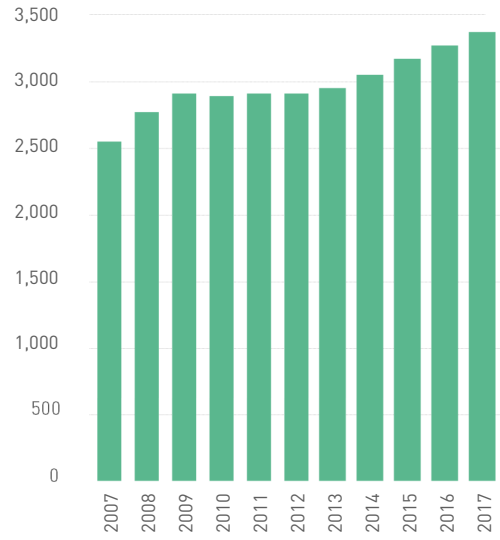
Indicators of healthcare expenditure per capita

Total healthcare expenditure per capita in Spain in 2017 was 17.2% lower than the average for the countries of the OECD (USD 3,371 compared with USD 4,069)[86]. The evolution of expenditure per capita in the last available decade is shown in Charts 2.8-f and 2.8-g.

Indicators of capacity of the healthcare system

According to OECD data (see Chart 2.8-h), the number of practicing doctors in Spain in 2016 was 3.8 per thousand inhabitants, 12.3% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). However, the number of nurses in 2016 was 5.5 per thousand inhabitants, 38.8% lower than the average for the countries of the OECD (9 nurses per thousand inhabitants). The number of hospital beds in 2015 was 3.0 per thousand inhabitants, 36.0% lower than the average for the countries of the OECD (4.7 beds per thousand inhabitants).

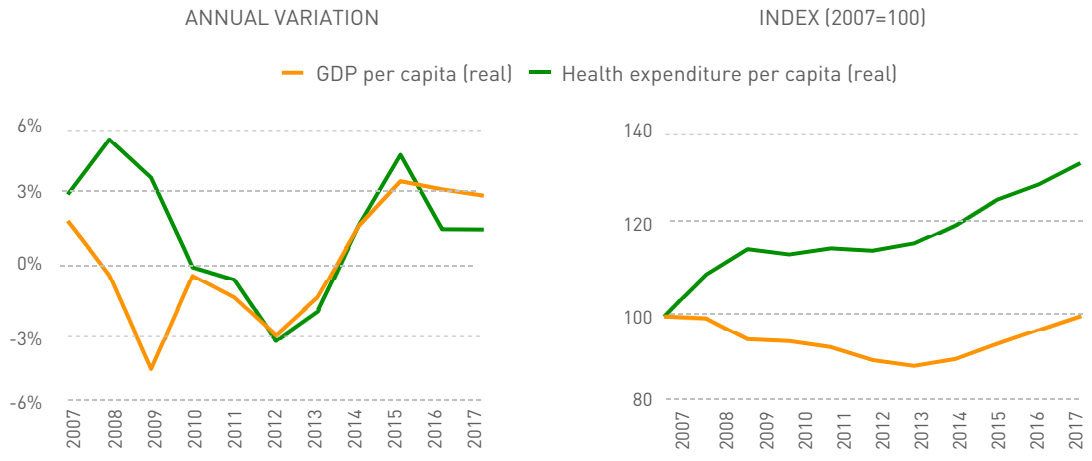
Chart 2.8-f
Spain: healthcare expenditure per inhabitant, 2007-2017(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

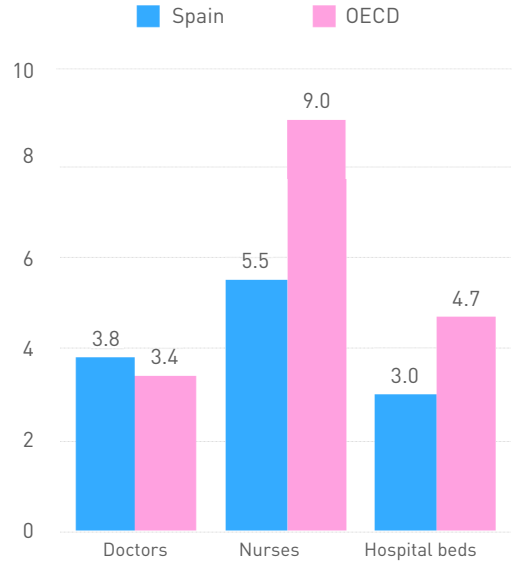
On the other hand, as shown in Chart 2.8-i, in 2016 the number of magnetic resonance imaging (MRI) scanners in Spain was 15.9 per million inhabitants, 2.9% lower than the average for the countries of the OECD (16.4 per million inhabitants).

Chart 2.8-g
Spain: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



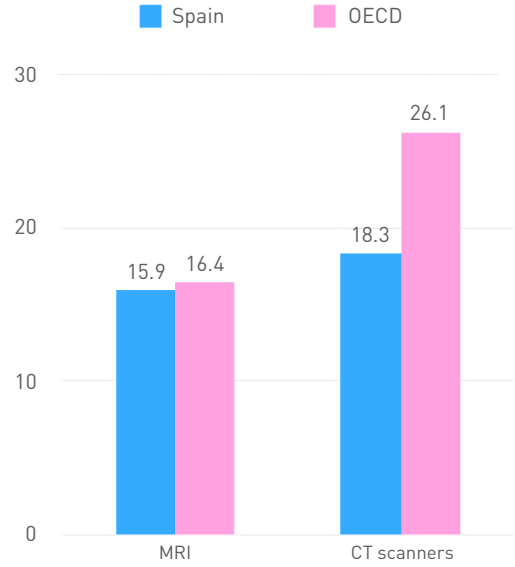
Source: MAPFRE Economic Research (with ICEA, OECD and OEF/Haver Analytics data)

Chart 2.8-h
Spain: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2016), Nurses (2016), Hospital beds (2015)

Chart 2.8-i
Spain: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2016), CT scanners (2016)

while the number of computed tomography (CT) scanners was 18.3 per million inhabitants, 30.1% lower than the average for the countries of the OECD (26.1 per million inhabitants).

Indicators of use of the healthcare system

In the case of Spain, the annual number per capita of consultations with doctors, both general practitioners and specialists, has been quite stable over recent years, at around 7.5 visits per year. The latest available data is from 2014, when there were 7.6 visits per person, 9.5% higher than the OECD average (6.9 visits per year in the 2015-2016 period).

The annual number of hospital discharges per thousand inhabitants in Spain in 2016 was 115, 26.5% lower than the OECD average[87] (156 discharges per year in the 2015-2016 period). The average stay in hospital, meanwhile, was 7.3 days, 10.1% lower than the OECD average (8.1 days).

Indicators of health status

Life expectancy at birth, one of the indicators most frequently used as an approximation of the health status of a country's population, was 83.4 years in Spain in 2016, according to OECD data, 2.6 years above the average for the countries of the OECD (80.8 years).

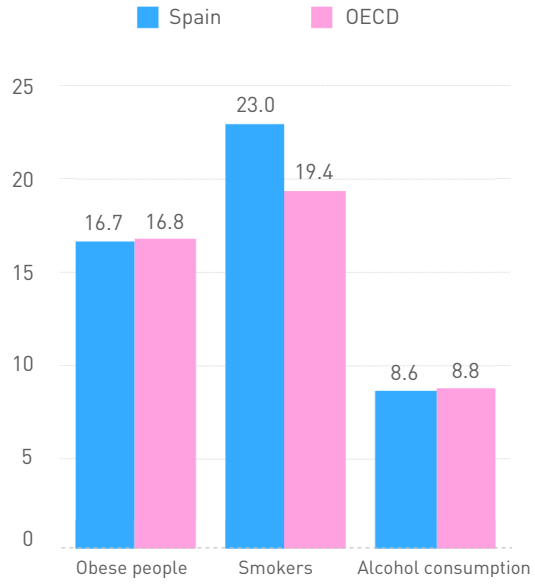
On the other hand, healthy life expectancy is estimated at around 72.6 years, which compares favorably with the estimations of this indicator for Singapore and Japan of 73.6 and 73.2 years, respectively (the highest in the world)[88].

Health risk factors

Analyzing the three factors commonly used as health risk indicators, the percentage of obese people in Spain was 16.7% in 2014 (latest available data), 0.1 percentage points below the OECD average (16.8% in the 2015-2016 period).

As regards smoking, the percentage of people who smoke daily in Spain was 23.0% in 2014,

Chart 2.8-j
Spain: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-SR (2014), Smokers (2014), Alcohol consumption (2016)

3.6 percentage points above the OECD average (19.4% in that year). Finally, alcohol consumption in 2016 was 8.6 liters per person per year, above [sic] the OECD average of 8.8 liters.

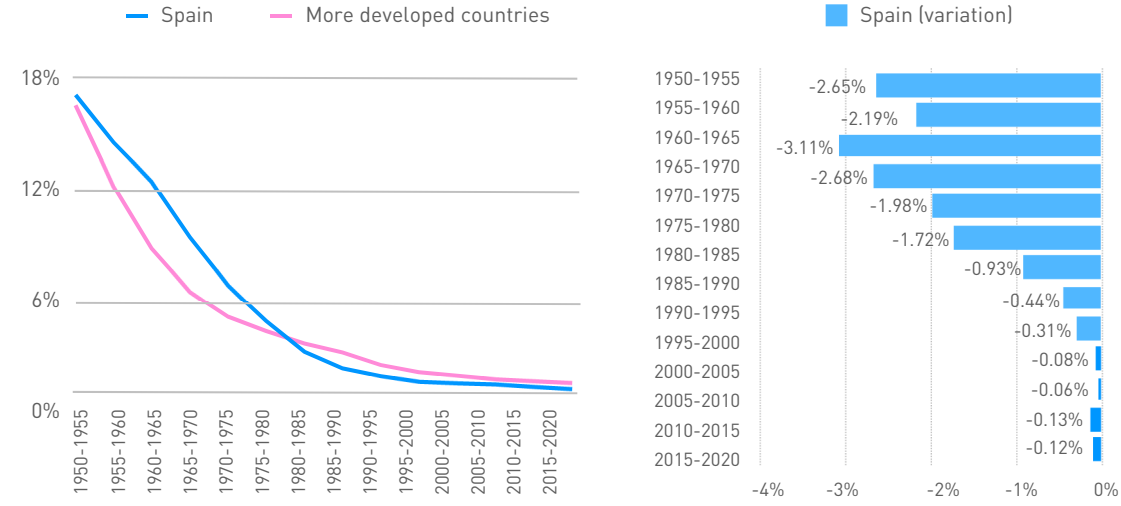
Indicators of healthcare quality

Infant mortality is one of the most relevant and widely used indicators of the effect of socio-economic conditions on health, as well as of the quality of healthcare services and disease prevention and health promotion measures.

According to data from the United Nations (UN), the percentage of infant deaths up to the age of five years has fallen markedly and steadily over recent decades. In the case of Spain, that fall has been very pronounced, starting from a percentage higher than that of the more developed regions (see Chart 2.8-k). It is currently below the average for those regions (0.3% in Spain compared with 0.6% in the more developed regions)[89].

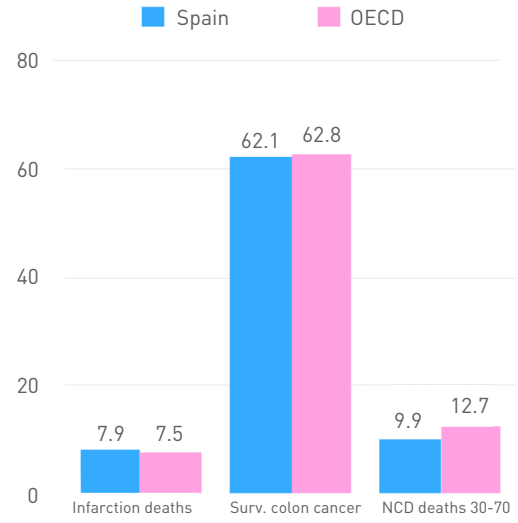
Another indicator widely used in relation to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data, as illustrated in Chart 2.8-l, the rate of deaths in 2015 in Spain during the thirty days following hospitalization was 7.9 per 100 admissions of adults aged 45 years and over, slightly above the average for the countries of the OECD (7.5%).

Chart 2.8-k
Spain: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

Chart 2.8-l
Spain: mortality due to infarction, survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Deaths due to infarction (2015), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

Meanwhile, the percentage of people who survived for more than five years with colon cancer in the 2010-2014 period was 62.1%, very similar to the average for the countries of the OECD (62.8%). Finally, the mortality rate for people between the ages of 30 and 70 years due to non-communicable diseases (NCDs) was 9.9%, 2.8 percentage points below the OECD average (12.7%).

Main service providers

Insurance companies

As regards the concentration of the health insurance market, the market shares of the ten largest companies in that year, as well as those of the ten largest insurance groups, are shown in Tables 2.8-a and 2.8-b.

The top ten health insurance companies account for 82.7% of health and accident insurance premiums. This percentage rises to 83.0% if we take into account the premium volume at group level.

On the other hand, the evolution of the loss ratio, expense ratio and technical result for health insurance, as a percentage of premiums (combined ratio), is shown in Chart 2.8-m. The combined ratio in 2017 was 93.4%, having fallen (improved) steadily since 2012, when it was 95.2%. This fall is mainly due to the decline in the loss ratio.

Table 2.8-a
Spain: ranking of general insurance companies by premium volume in health insurance, 2017

	Companies	Premiums earned (millions of USD	Market share (%)
1	SEGURCAIXA ADESLAS	2,567.8	28.8%
2	SANITAS	1,421.6	15.9%
3	ASISA	1,231.8	13.8%
4	DKV SEGUROS	634.4	7.1%
5	MAPFRE ESPAÑA	583.3	6.5%
6	ASISTENCIA SANITARIA COLEGIAL	220.6	2.5%
7	IMQ	218.4	2.4%
8	AXA SEGUROS GENERALES	206.3	2.3%
9	FIATC	172.1	1.9%
10	AGRUPACIO AMCI	129.8	1.5%

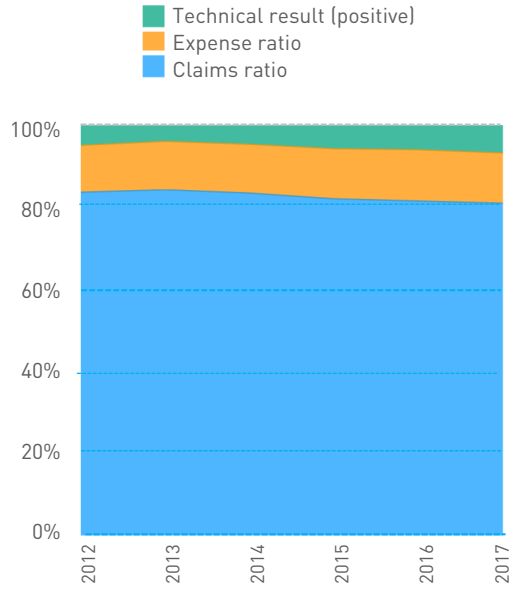
Source: MAPFRE Economic Research (with ICEA data)

Table 2.8-b
Spain: ranking of insurance groups by premium volume in health insurance, 2017

	Groups	Premiums earned (millions of USD	Market share (%)
1	GRUPO MUTUA MADRILEÑA	2,567.8	28.8%
2	SANITAS	1,421.6	15.9%
3	ASISA	1,231.8	13.8%
4	GRUPO DKV SEGUROS	640.2	7.2%
5	MAPFRE	583.3	6.5%
6	ASISTENCIA SANITARIA COLEGIAL	220.6	2.5%
7	IMQ	218.4	2.4%
8	AXA GROUP	206.3	2.3%
9	FIATC	172.1	1.9%
10	GRUPO CASER	150.4	1.7%

Source: MAPFRE Economic Research (with ICEA data)

Chart 2.8-m
Spain: operating and underwriting efficiency ratios, 2012-2017
(combined ratio, %)



Source: MAPFRE Economic Research (with ICEA data)

Brief reference to other service providers

The Spanish health system provides the majority of its hospital services through the network of public hospitals, although it has traditionally contracted out between 15% and 20% of specialized care services to private hospital providers (mostly non-profit). Through these contracts, it generally acquires certain high-resolution diagnostic services or outpatient surgical procedures, as part of the management of waiting lists.

A notable exception is the case of Catalonia, with two thirds of public hospital services provided by non-profit private hospitals integrated into the network of public providers through long-term agreements. In other cases, concessions with the same scope have been granted to private companies, some of which own and administer services while others simply construct and administer them, with the introduction of joint public-private company schemes[90].

There is a high degree of fragmentation in the association of the medical collective at territorial level in Spain, which takes place mainly through the Provincial Official Medical Associations and also through the labor union medical association at Autonomous Community level. There are also specific associations for specialisms and for primary care doctors.

However, the Organización Médica Colegial [Medical Associations Organization] integrates the Provincial Official Medical Associations at state level, together with the Consejo General de Colegios Oficiales de Médicos [General Council of Official Medical Associations]. All of these institutions are public corporations falling under the Ley General de Colegios Profesionales [General Law on Professional Associations], with democratically created structures, a representative nature and legal personality, and independent of the State Administration. There is also a body that groups together the main labor unions of the sector in the Autonomous Communities, namely the Confederación Estatal de Sindicatos Médicos [State Confederation of Medical Labor Unions] (CESM).

2.9 France

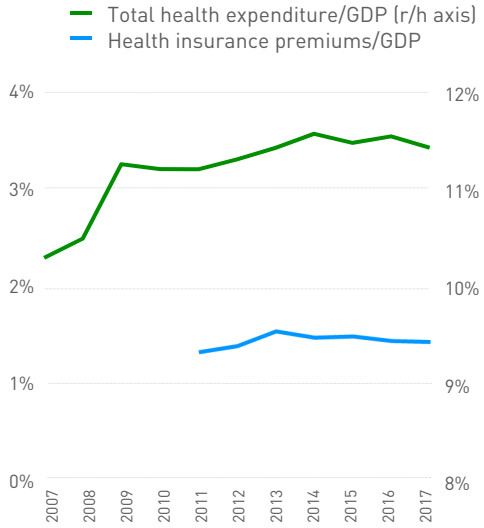
Total healthcare expenditure in France in 2017 represented 11.4% of the country's GDP (11.5% in 2016), 2.5 percentage points above the average for the member countries of the OECD (8.9%)[91]. The percentage of healthcare expenditure relative to GDP has varied between 10.3% and 11.4% in the last ten years.

Health insurance premiums, meanwhile, represented 1.6% of GDP in 2017. The penetration of private health insurance since 2011 varies in a range between 1.5% and 1.7% of GDP[92] (see Chart 2.9).

The evolution of the volume of private health insurance business in recent years is shown in Charts 2.9-b and 2.9-c, together with a comparison of the increases in France's total healthcare expenditure and GDP over the same period.

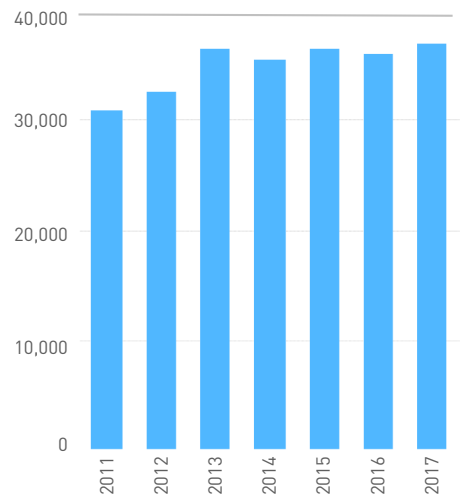
In general terms, we see greater increases in health insurance premiums and total healthcare expenditure than the increases in GDP. Thus, over the 2011-2017 period, health insurance premiums grew the most (19.4%), followed by total healthcare expenditure (13.7%), compared with GDP growth of 11.5%.

Chart 2.9-a
France: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with ACPR, OECD and OEF/Haver Analytics data)

Chart 2.9-b
France: health insurance premiums, 2011-2017
(millions of euros)



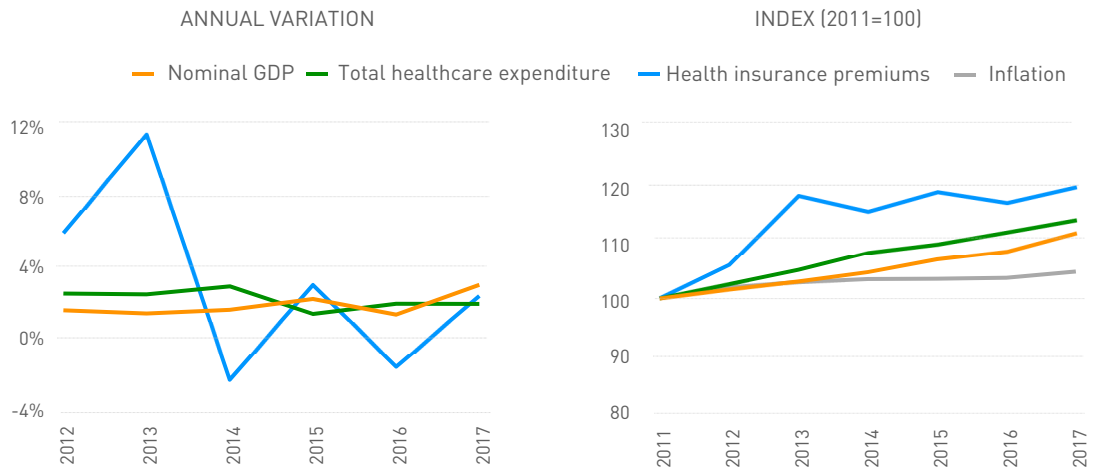
Source: MAPFRE Economic Research (with ACPR data)

Description of the levels of coverage of the healthcare system

The French system is a Bismarckian model, with funding based on the withholdings made on employees' wages and employers' contributions, but with features of the Beveridge model in that it provides universal coverage and obtains additional revenue from specific taxes such as those on tobacco and alcohol, among others.

With the aim of giving an idea of the environment in which health insurance business is conducted, there follows a description of the different levels of coverage,

Chart 2.9-c
France: variation in health insurance premiums, total healthcare expenditure and GDP, 2011-2017
(nominal annual variation rates, local currency, %; index 2011=100)



Source: MAPFRE Economic Research (with ACPR, OECD and OEF/Haver Analytics data)

following the schema described in the conceptual framework of this study.

Pillar 0
Minimum healthcare coverage

As regards the pillar of minimum healthcare coverage, in France there is medical and pharmaceutical coverage for foreigners without a residency permit, through a state program called AME (Aide Médicale d'Etat [State Medical Aid]), which those people can access provided they do not have income above a certain threshold[93].

There is also coverage supplementary to the mandatory public system for residents with limited means; since the public system does not cover all costs, a percentage of these must be paid by the insured (around 30%).

Finally, there are free healthcare access facilities known as PASS (*Permanences d'Accès aux Soins de Santé*), aimed at people who are not affiliated to the social security service, do not have a private doctor and need medical attention urgently. Under French law, all public hospitals must offer this service free of charge.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

The French healthcare system provides universal health coverage for everyone who carries on a professional activity or resides in France on a stable and regular basis[94].

Most of the coverage is provided through mandatory health insurance plans (*Assurance Maladie*), linked to an employment relationship. Workers are automatically subscribed to one of the schemes according to their status, without the possibility of choosing for themselves. The scheme with the largest number of subscribers is the *Caisse Nationale d'Assurance Maladie des Travailleurs Salariés* [National Sickness Insurance Fund for Salaried Workers] (CNAMTS), which covers workers in the industrial and commercial sectors, together with their family members.

People who do not have coverage through a mandatory health insurance plan are also covered by the public system if they are legal residents in France (*Couverture Maladie Universelle* [Universal Sickness Coverage], CMU). In the latter case, and if their income does not exceed a certain limit, the coverage is free of charge[95]. People whose income exceeds that limit must contribute 8% of the excess income, and the coverage entitles them to receive reimbursement for the health expenses under the same conditions as those who are insured through a mandatory health plan.

Benefits under mandatory health insurance plans (*Assurance Maladie*) may be paid in cash or in kind. Payments in kind vary according to whether or not hospital services are involved, there being specific lists of services under this type of payment (in which payment to the provider for the service is made directly by the fund of the mandatory insurance plan). For non-hospital services, the beneficiary normally pays the health expenses directly and the fund of the mandatory insurance plan reimburses part of them, around 70%. This opens up a field for private health insurance, for coverage of the copayment borne by the beneficiaries.

Primary care is delivered mainly in the outpatient sector by independent professionals, while secondary care can be delivered either on an outpatient basis or in hospitals. Patients can choose from specialists through a general practitioner, with the exception of gynecologists, ophthalmologists, psychiatrists and stomatologists.

The typical path of a patient goes through a general practitioner who will request the diagnostic tests considered necessary and, if deemed appropriate, refer the patient to a specialist in the public or private sector. If the patient decides to skip the general practitioner step and go directly to a specialist, the 30% copayment may be increased up to 70%, depending on the medical service involved, and the specialist may apply tariffs higher than the statutory tariffs that would otherwise be applicable.

Specialists who work in public hospitals may see private paying patients, either on an outpatient basis or internally, but must pay a percentage of their fees to the hospital.

The statutory tariffs are established though negotiations between the providers and the mandatory insurance plans (*Assurance Maladie*), represented by the *Union Nationale des Caisses d'Assurance Maladie* [National Union of Sickness Insurance Funds] (UNCAM), with approval at ministerial level by the budget managers and the heads of the Ministry of Health.

The Ministry of Health is responsible for preparing and implementing government policy on public health. It controls much of the regulation of healthcare expenditure according to the framework established by parliament. Jurisdiction in terms of health policy and regulation of the health system is divided between the State (parliament, government), the mandatory health insurance system (*Assurance Maladie*) and local authorities, especially at regional level, represented by the Agence Régionale de Santé [Regional Health Agency] (ARS).

Parliament has control over the healthcare system and its resources through the approval of an annual law on social security funding. This law set a target for health insurance expenditure for the following year (*Objectif National des Dépenses d'Assurance Maladie* [National Health Insurance Expenditure Objective] ONDAM). It also approves the budget revenue based on the contribution rates for employers, beneficiaries and employees, and the specific taxes to be set.

Emergency services are offered through public hospitals, private hospitals that have signed an agreement with their Regional Health Agency, self-employed doctors who work for emergency departments, and doctors funded by the public system and assisted by health professionals on a voluntary basis. Primary care doctors are not obliged to provide this type of services.

As regards long-term care, the sickness insurance covers the medical costs of the treatment, while the families are responsible for the cost of stays in hospices and other long-term facilities. End-of-life care in hospitals is completely covered. Some funds for the care of elderly and disabled people come from the Caisse Nationale de Solidarité pour l'Autonomie [National Solidarity Fund for Autonomy], which in turn is funded by statutory health insurance (SHI) and the revenues from an unpaid working "solidarity" day. Local authorities, general councils and households also participate in the funding of these categories of care.

Home care for the elderly is provided mainly by self-employed doctors and nurses and, to a lesser extent, by community nursing services.

Long-term care in institutions is provided in retirement homes and long-term care units. Monetary subsidies are provided for the elderly. The allowances are adjusted in relation to the individual's level of dependency, living conditions and needs, as assessed by a joint medical and social care team, and can be used for any chosen service and provider.

Finally, most medicines are covered to 65%, with certain exceptions where the coverage may be complete or below that percentage.

Pillar 2
Corporate group health insurance

Despite the wide coverage of the French public health system, the penetration of private health insurance is significant. The main reason for this is that although the public coverage is considered to be universal (in that it reaches virtually the entire population), it does not cover the full cost incurred, but only around 70%, with the exception of the least privileged people, and it is common to take out supplementary private health insurance in order to achieve full coverage.

In this regard, there is an organization called the *Union Nationale des Organismes d'Assurance Maladie Complémentaire* [National Union of Supplementary Sickness Insurance Funds] (UNOCAM), representing all supplementary health insurance operators, in which

insurance mutual funds and pension funds have a significant role (around 34% and 21.5% of health insurance premiums in 2017, respectively[96]). Premiums for group private health insurance represented around 47% of total premiums in 2017, with the remaining 53% corresponding to individual private insurance premiums.

Pillar 3
Individual private coverage (voluntary)

In terms of healthcare expenditure per capita, the estimated total in France in 2017, according to OECD data, was USD 4,902 per inhabitant (USD 4,773 in 2016). Of this sum, if we apply the most recent distribution available (2015), around USD 3,869 (79%) would correspond to the average expenditure per capita in the mandatory system.

Of the remaining 21.1%, expenditure on voluntary health insurance premiums would be around USD 668 per person (13.6%)[97]. "Out-of-pocket" health costs would be around 6.8% of total expenditure per capita, with the rest (0.7%) corresponding to other types of expenditure (see Chart 2.9-d).

Analysis of other relevant indicators

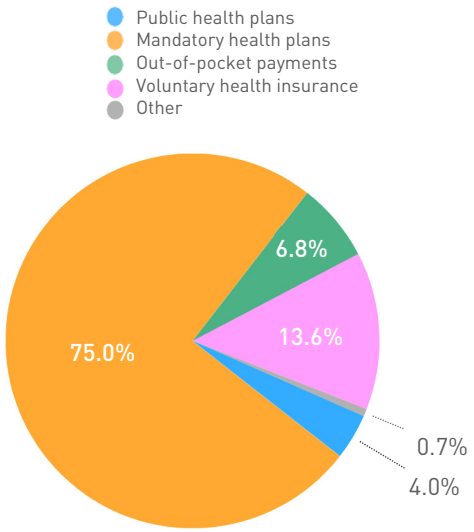
Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in France in 2017 was 20.5% higher than the average for the countries of the OECD (USD 4,902 compared with USD 4,069)[98]. The evolution of expenditure per capita in the last available decade is shown in Charts 2.9-e y 2.9-f, together with a comparison with the evolution of GDP per capita.

Indicators of capacity of the healthcare system

According to OECD data, as illustrated in Chart 2.4-g, the number of practicing doctors in France in 2016 was 3.1 per thousand inhabitants, 8.0% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). However, the number of nurses in 2016 was 10.2 per thousand inhabitants, 13.1% above the average for the countries of the OECD (9 nurses per thousand inhabitants). On the other hand, the number of hospital beds in France was 6.1 per thousand inhabitants, 30% higher than the average for the countries of the OECD (4.7 beds per thousand inhabitants).

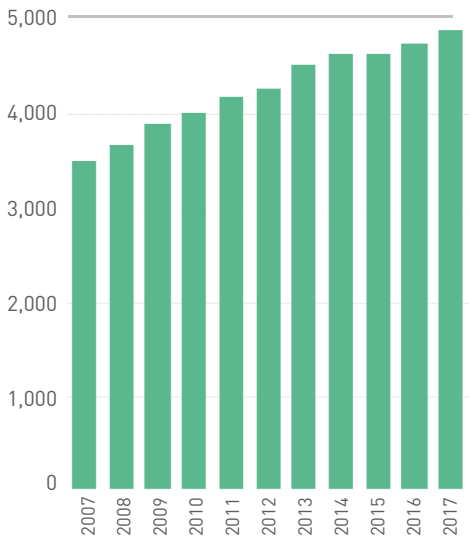
Chart 2.9-d
France: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)

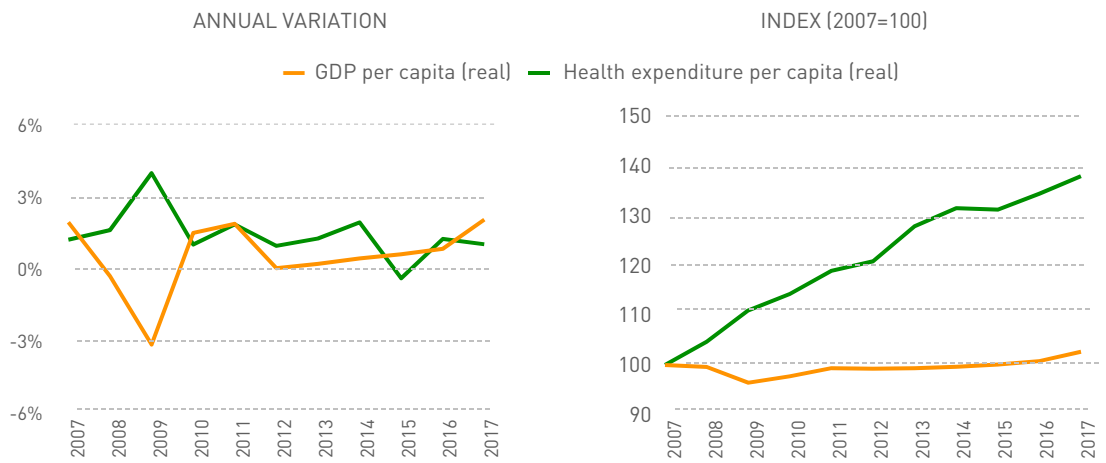
* Latest available data.

Chart 2.9-e
France: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

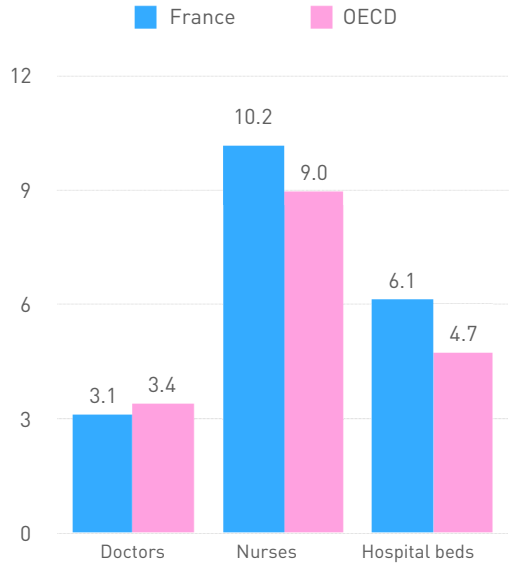
Chart 2.9-f
Japan: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with OECD and OEF/Haver Analytics data)

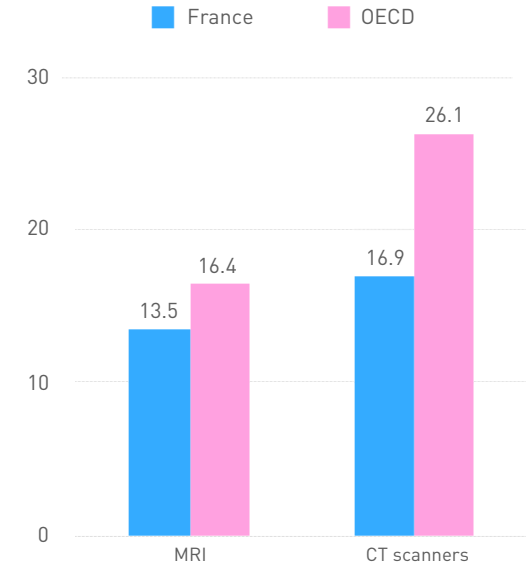
The number of magnetic resonance imaging (MRI) scanners, as illustrated in Chart 2.9-h, was 13.5 per million inhabitants, 17.6% lower than the average for the countries of the OECD (16.4 per million inhabitants). As regards the number of computed tomography (CT) scanners in the country, this was 16.9 per million inhabitants, 35.2% lower than the average for the countries of the OECD (26.1 per million inhabitants).

Chart 2.9-g
France: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2016), Nurses (2016), Hospital beds (2016)

Chart 2.9-h
France: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2016), CT scanners (2016)

Indicators of use of the healthcare system

The annual number per capita of consultations with doctors in France in 2016 (latest available data) was 6.1 visits per year, 12.1% lower than the OECD average (6.9 visits per year in the 2015-2016 period).

The annual number of hospital discharges per thousand inhabitants in 2016 was 181.9, 16.2% higher than the OECD average[99] (156 discharges per year in the 2015-2016 period). The average stay in hospital was 10.1 days in 2015, 24.3% higher than the OECD average (8.1 days).

Indicators of health status

Life expectancy at birth, one of the indicators most frequently used as an approximation of the health status of a country's population, was 82.4 years in 2017, according to OECD data, 1.6 years above the average for the countries of the OECD (80.8 years).

On the other hand, healthy life expectancy in France was estimated at around 71.7 years, which contrasts with the estimations of this indicator for countries such as Singapore and Japan with 73.6 and 73.2 years, respectively (the highest in the world)[100].

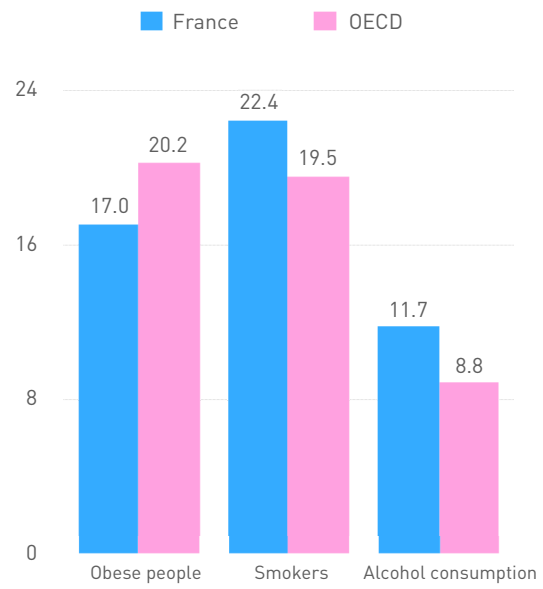
Health risk factors

The promotion of healthy lifestyles, including programs on obesity, balanced diet, exercise and smoking, is regarded as an essential element of disease prevention in any health system.

Of the three factors used as health risk indicators (see Chart 2.9-i), the percentage of obese people in France (based on real measurements) was 17% in 2015 (latest available data), 3.2 percentage points below the average for the countries of the OECD (20.2% in the 2015 period).

As regards smoking, the percentage of people who smoke daily was 22.4% in 2014, 2.9 percentage points above the OECD average (19.5% in the 2014 period). Finally, alcohol consumption in 2016 (latest available data) was

Chart 2.9-i
France: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-M (2015), Smokers (2014), Alcohol consumption (2015)

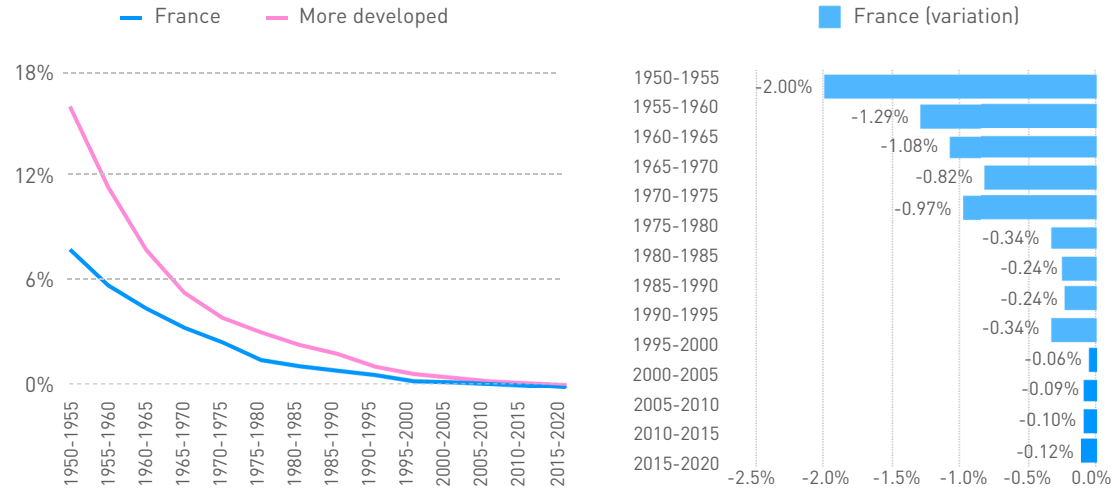
11.7 liters per person per year, 33.2% higher than the OECD average (8.8 liters).

Indicators of healthcare quality

Infant mortality (one of the most relevant and widely used indicators of the effect of socio-economic conditions on the health of mothers and newborns, as well as of the quality of healthcare services and disease prevention and health promotion measures) has been falling steadily over recent decades. In the case of France, since 1950, in addition to the declining trend, the country shows a percentage clearly lower than the average for the more developed countries across the entire series[101] (see Chart 2.9-j).

Another indicator related to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data (see Chart 2.9-k), the rate of deaths in 2015 in France during the thirty days following hospitalization was 5.6 per 100 admissions of adults aged 45 years and

Chart 2.9-j
France: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)

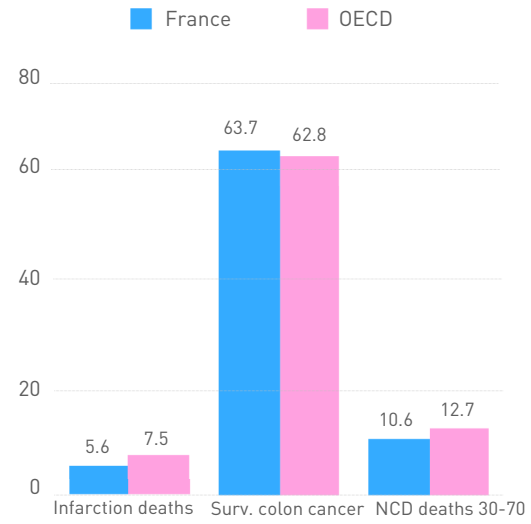


Source: MAPFRE Economic Research (with UN data)

over, 25.5% lower than the average for the countries of the OECD (7.5%).

Meanwhile, the percentage of people surviving for more than five years with colon cancer in the 2010-2014 period was 63.7%, 0.9 percentage points above the average for the countries of the OECD (62.8%).

Chart 2.9-k
France: mortality due to infarction, survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Deaths due to infarction (2015), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

Finally, as regards deaths due to non-communicable diseases (NCDs) between the ages of 30 and 70 years, France has a percentage of 10.6% in 2016, 2.1 percentage points above the average of 12.7% for the countries of the OECD[102].

Main service providers

Insurance companies

The market shares of the ten largest insurance companies in the health and accident insurance business in France in 2017 are shown in Table 2.9. As this information shows, the top ten insurance groups account for 55.4% of health insurance premiums.

Brief reference to other service providers

In France there is a labor union called the *Union Nationale des Professionnels de Santé* [National Union of Healthcare Professionals] (UNPS), created under the Health Insurance Reform Law of August 13, 2004, which brings together representatives from more than 20 union organizations for health professionals. The UNPS represents 12 professional categories, including general practitioners, specialists and

Table 2.9
France: ranking of insurance groups by premium volume in health insurance, 2017

	Groups	Direct insurance premiums (millions of USD	Market share (%)
1	GROUPE VYV	5,648.8	13.5%
2	AXA France	2,425.0	5.8%
3	GROUPAMA	2,257.3	5.4%
4	GROUPE AESIO	2,184.8	5.2%
5	SGAM AG2R LA MONDIALE	2,155.4	5.2%
6	GROUPE MALAKOFF MÉDÉRIC	2,05 6.3	4.9%
7	BTP PRÉVOYANCE	1,726.8	4.1%
8	COVÉA	1,654.6	4.0%
9	GROUPE HUMANIS	1,559.9	3.7%
10	ALLIANZ France	1,495.6	3.6%

Source: MAPFRE Economic Research (with L'Argus de L'Assurance data)

nurses, among others. This union is officially recognized as the most representative. However, there are other unions, such as the one that represents doctors who work in public hospitals and others at regional level, and this shows a high degree of fragmentation in the French associations of health service providers.

The hospitals' human and physical resources are controlled by the government through different mechanisms. The Ministry of Health ensures that public and private hospitals and hospital doctors meet the standards of competence through a certification process

2.10 The Netherlands

In the Netherlands, total healthcare expenditure represented 10.1% of GDP in 2017, 1.2 percentage points above the average for the countries of the OECD (8.9%)[103]. As can be seen in Chart 2.10-a, this percentage shows a rising trend over the 2007-2014 period, after which it changes to a downward path. Overall, healthcare expenditure increased by 0.9 percentage points, in terms of GDP, over the 2007-2017 period.

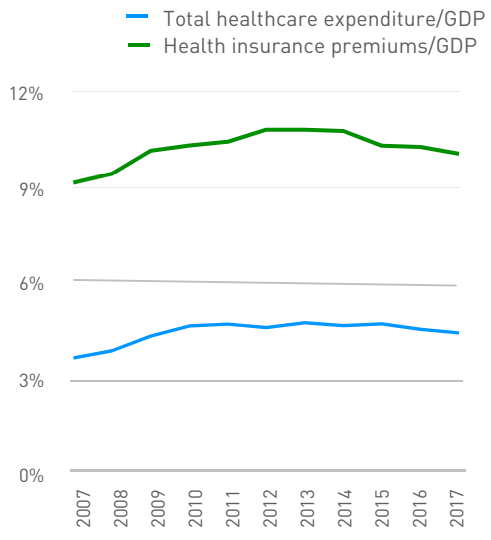
Meanwhile, health insurance premiums represented 5.9% of GDP in 2017, one of the highest levels in the world[104]. In the analysis of the evolution of the penetration of private health insurance in the Netherlands over the last decade, we see a trend similar to that of total healthcare expenditure, rising over the 2007-2013 period, after which it changes every four years.

Ownership of the hospitals is divided between:

(i) the government (public hospitals); (ii) non-profit organizations linked to the public sector, which tend to be owned by foundations, religious organizations or mutual insurance associations; and (iii) non-profit private hospitals, which are increasingly owned by large international groups. In this regard, there are various associations that represent the hospitals, and these are grouped according to their public or private status and whether they are commercial or non-profit bodies. to a downward path, albeit less pronounced than in the case of healthcare expenditure. Thus, over the 2007-2017 period the penetration of health insurance increased from 5.2% of GDP in 2007 to 5.9% in 2017.

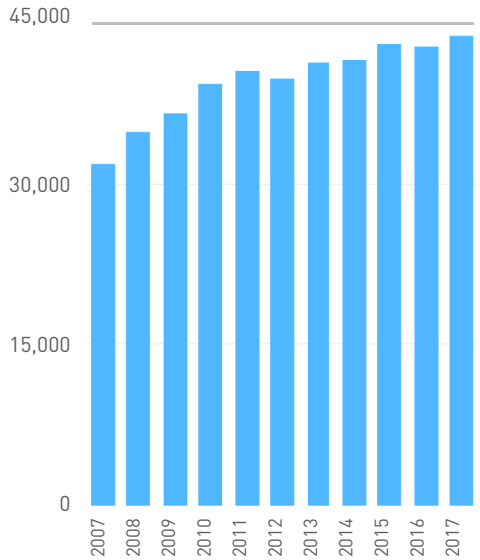
The evolution of the volume of private health insurance business in recent years

Chart 2.10-a
Netherlands: health insurance premiums vs total healthcare expenditure, 2007-2017(% of GDP)



Source: MAPFRE Economic Research (with VVV, OECD and OEF/Haver Analytics data)

Chart 2.10-b
Netherlands: health insurance premiums, 2007-2017
(millions of euros)



Source: MAPFRE Economic Research (with VVV data)

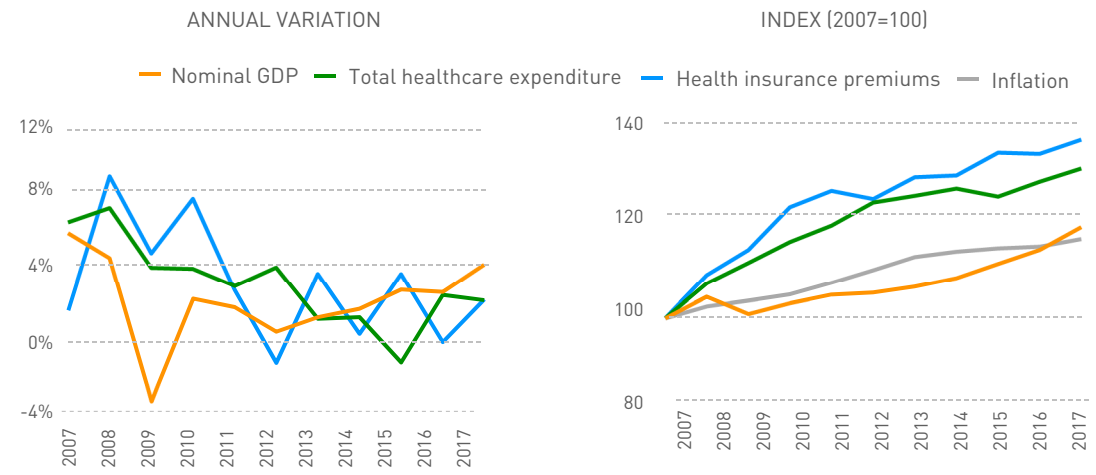
is shown in Chart 2.10-c, together with a comparison of the increases in the Netherlands' total healthcare expenditure and GDP over the same period. In general, we see greater increases in health insurance premiums than the increases in nominal GDP and total healthcare expenditure. In the last decade, health insurance premiums grew by 37.3% compared with an increase in GDP of 19.1% during that period and a rise in total healthcare expenditure of 31.3%.

Description of the levels of coverage of the healthcare system

The Dutch health system is a mixed liberal model with elements of the Beveridge system. This is a model that provides universal coverage through mandatory medical insurance managed by private insurance companies. The insurance premium breaks down into two parts: the first is a standard amount that must be paid by each insured person over the age of 18 years, while the second is a variable amount that depends on the person's income level. For children and young people up to the age of 18 years, the government pays the cost of the insurance out of public resources.

Prior to this system, healthcare coverage in the Netherlands was of the Bismarckian type, linked to an employment relationship, together with a social security insurance system that covered a percentage of the population with low incomes. During the 1960s a social security plan for long-term care was introduced, which was then extended to include care services for the elderly and for mental health. It was in 2006 that the greatest changes were made to the

Chart 2.10-c
Netherlands: variation in health insurance premiums, total healthcare expenditure and GDP, 2007-2017
(nominal annual variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with VVV, OECD and OEF/Haver Analytics data)

system, with the arrival of the new Social Security Law that incorporated the mandatory insurance plan[105].

The current system is governed by the Medical Insurance Law (*Zorgverzekeringswet*), which regulates social insurance for medical treatment for the entire population; the Long-Term Care Law (*Wet langdurige zorg*), which contains rules on health insurance for people who need long-term care; the Social Support Law (*Wet maatschappelijke on- dersteuning*), aimed at offering help and support to people with physical, psychological or mental disabilities in their daily life, and the Youth Law (*Jeugdwet*), which contains rules on the responsibility for prevention, support, assistance and care for young people and their parents in the event of child-rearing problems or psychological problems and disorders[106]. Finally, in 2015 there was another major reform that included a decentralization of long-term care (except for domiciliary nursing, which is the responsibility of the health insurance companies).

With the aim of giving an idea of the environment in which health insurance business is conducted, there follows a description of the levels of coverage, following the conceptual schema set out in this study.

Pillar 0
Minimum healthcare coverage

All Dutch citizens and legal residents are obliged to take out basic health insurance. Anyone else who needs medical attention in the Netherlands must pay for the medical attention out of their own pocket. Healthcare providers are obliged to provide the necessary medical treatment. Consequently, if the patients cannot pay for it, under certain conditions the providers can receive reimbursement from the government[107].

The Dutch health system provides for a subsidy to help fund the cost of health insurance (*zorgtoeslag*), which is offered by the government for people who are obliged to take out such insurance but whose income is below the established limit, among other requirements.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

Healthcare coverage in the Netherlands is ensured by the obligation to take out basic coverage through private health insurance. There is also a public system for military personnel, whose medical treatment is organized by the Ministry of Defense and provided by the military medical service.

People who do not wish to take out medical insurance for religious or philosophical reasons must pay an additional income tax charge. These contributions are deposited in personal accounts administered by the National Health Care Institute (*Zorginstituut Nederland*). Medical treatment expenses for these people are reimbursed from their personal accounts. If the medical treatment expenses exceed the balance in the account, the individual must pay the cost out of his/her own pocket.

The national government, advised by the National Health Care Institute, determines the coverage that is included in the basic package for all entitled persons. Insurers must ensure that the services included in the basic package are available for all their insured parties. They are obliged to accept all applicants and cannot differentiate premiums according to the insured person's health risks. Furthermore, the insured person can change insurer each year.

There is a deductible for medical treatment costs that is applied to most of the healthcare services in the basic package. The deductible is an amount that must be paid by the recipient of the medical care before the insurer begins to bear the cost. However, there are medical services for which the deductible is not applied, for example the general practitioner. In 2018, the government set the deductible at 385 euros. In addition, for certain medical costs in the basic package, a personal contribution or copayment must be paid. This can be a fixed amount or a percentage of the cost. The personal contribution applies to very specific goods and services such as hearing aids and patient transport, among others. The government determines which types of care are subject to this contribution, as well as the cost that it entails.

The insurance companies can offer two types of policies: *"natura"* [in-kind] and *"restitutie"* [reimbursement]. The *"natura"* policy is a form of service provision insurance and means that the insurance companies must offer treatment to their policyholders through medical service providers contracted by their own insurer.

The *"restitutie"* policy, meanwhile, is a form of expense reimbursement insurance that entitles the policyholder to reimbursement of his/her medical treatment bill and gives freedom of choice of provider. In principle, the policyholder pays the bill out of his/her own pocket and this is then reimbursed by the insurance company, although if the treatment is very costly it is paid directly by the insurer.

There are also mixed service provision and expense reimbursement policies, where if the policyholder decides to choose a provider not contracted by the insurance company, he/she receives a particular amount established in the policy.

It is important to note that the government bears final responsibility for ensuring that healthcare is of good quality, safe, accessible and affordable, as well as for setting the national health budget.

In the Dutch healthcare system, general practitioners are a key component, since patients must visit them before they can go to a specialist or receive hospital treatment (they act as "gatekeepers"). They also play a significant role in the emergency medical treatment provided by cooperatives of general practitioners ("GP posts")[108] who treat them and decide whether they should be referred to hospital emergency rooms. It should also be noted that nurses are playing an increasingly significant role in Dutch healthcare, especially in the treatment of chronic illnesses such as diabetes or people with chronic pulmonary or cardiac diseases.

The organization of long-term care in the home is decentralized in the municipalities, which fund it through their own taxes. In this regard, nowadays the Dutch municipalities make assessments and purchase professional attention for their citizens with contributions not assigned by the national government.

District nurses assess the needs of the people who need this type of attention, and coordinate it with the general practitioner and other healthcare professionals.

The growing number of people diagnosed with chronic illnesses, and of elderly people with complex needs, is driving the development of "integrated care", with protocols and coordinated action plans agreed at national level. Based on these protocols, the primary care groups develop their programs, which must be contracted by private health insurance companies.

In addition to these programs, there are multiple initiatives with a wider perspective for integrating medical care, social assistance and, where applicable, domiciliary care.

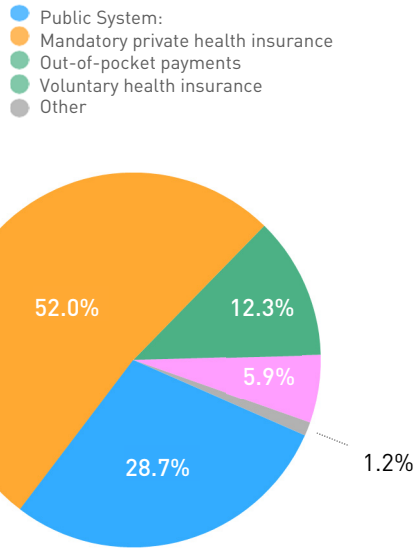
Pillar 2
Corporate group health insurance

In the Netherlands it is common for insurance companies to offer supplementary health insurance to cover the costs not covered by the mandatory private insurance. This supplementary insurance may be group contracts for certain groups of insured persons as employees of the same company, or for associations that represent certain population groups. The insured persons are free to join a group health plan or purchase an individual plan.

Pillar 3
Individual private coverage (voluntary)

The estimated healthcare expenditure per capita in 2017 in the Netherlands was USD 5,386 per inhabitant (USD 5,235 in 2016), according to OECD data. Of this sum, using the latest available breakdown with WHO data for 2015, around USD 1,548 (28.7%) would correspond to the average expenditure per capita in the public system, while expenditure on mandatory health insurance contributions would be around USD 2,799 per person (52.0%). "Out-of-pocket" health costs would be around USD 660 (12.3%). Finally, expenditure on voluntary health insurance premiums would amount to USD 316 (5.9% of total healthcare expenditure), with the rest corresponding to

Chart 2.10-d
Netherlands: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

The additional coverage provided by the health insurance companies on top of the mandatory basic coverage is determined by the companies' own insurers, without the government having any influence over these supplementary insurance policies.

Despite the predominant role of the insurance companies in the Dutch health system, it should be noted that the percentage of average healthcare expenditure per capita for the public system is significant, mainly due to long-term care programs funded through taxes.

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

Total healthcare expenditure per capita in the Netherlands in 2017 was 32.4% higher than the average for the countries of the OECD (USD 5,386 compared with USD 4,069), according to that body's estimates (see Chart 2.10-e).

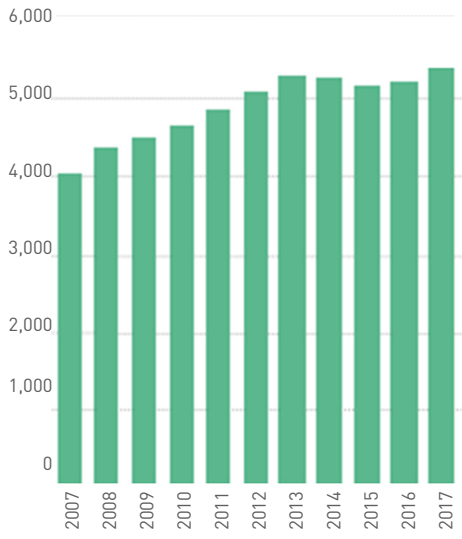
The evolution of health expenditure per capita in the most recent available years, together with a comparison of the evolution of GDP per capita, is shown in Chart 2.10-f. This information shows a substantially greater increase in healthcare expenditure per capita than the increase in revenue.

Indicators of capacity of the healthcare system

According to the latest available data[109], as illustrated in Chart 2.10-g, the number of practicing doctors in the Netherlands in 2016 was 3.5 per thousand inhabitants, 2.9% higher than the average for the countries of the OECD in that year (3.4 doctors per thousand inhabitants). Meanwhile, the number of nurses in 2016 was 10.6 per thousand inhabitants, 17.4% higher than the average for the countries of the OECD (9 nurses per thousand inhabitants).

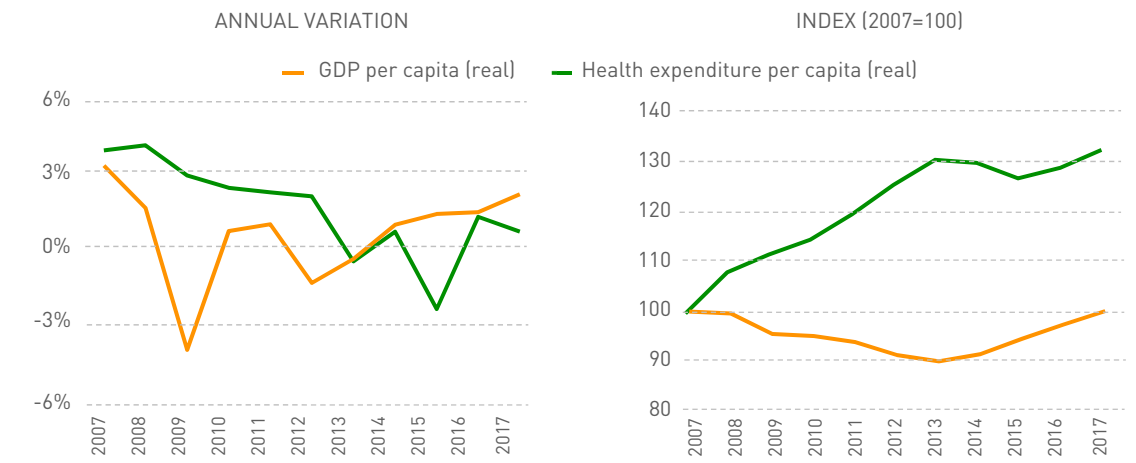
The number of hospital beds in 2016 was 3.6 per thousand inhabitants, 22% lower than the average for the countries of the OECD at that date (4.7 beds per thousand inhabitants).

Chart 2.10-e
Netherlands: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

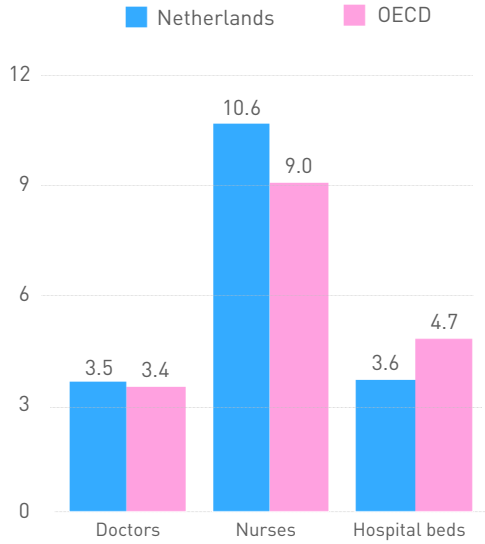
Chart 2.10-f
Netherlands: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with OECD data)

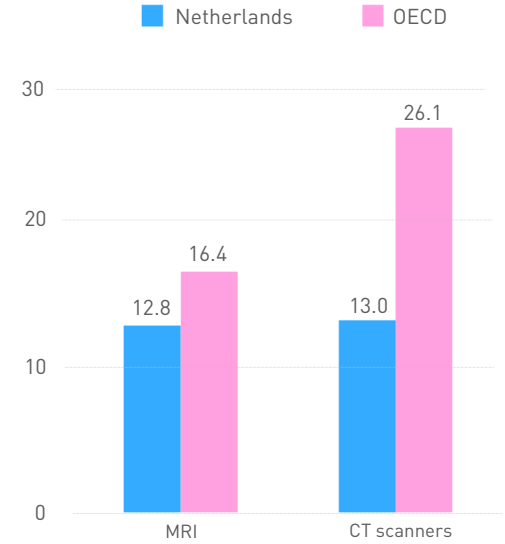
On the other hand, as shown in Chart 2.10-h, the number of magnetic resonance imaging (MRI) scanners in 2016 was 12.8 per million inhabitants, 21.9% lower than the average for the countries of the OECD in that year (16.4 per million inhabitants). Similarly, the number of computed tomography (CT) scanners in the Netherlands was 13 per million inhabitants, 50.1% lower than the average for the countries of the OECD (26.1 per million inhabitants).

Chart 2.10-g
Netherlands: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2016), Nurses (2016), Hospital beds (2016)

Chart 2.10-h
Netherlands: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2016), CT scanners (2016)

Indicators of use of the healthcare system

The annual number per capita of consultations with doctors in 2016 in the Netherlands was 8.8 visits per year, 26.8% higher than the OECD average (6.9 visits per year in the 2015-2016 period).

The annual number of hospital discharges per thousand inhabitants in 2010 (latest available year) was 116.5, 24.4% lower than the OECD average[110] (154 discharges per year in that year). The average stay in hospital was 5 days, 38.3% lower than the OECD average (8.1 days).

Indicators of health status

Life expectancy at birth in the Netherlands was 81.6 years in 2016, according to OECD data, 0.8 years higher than the average for the countries of the OECD (80.8 years).

Meanwhile, healthy life expectancy is estimated at around 70.7 years, which contrasts with the estimations of this indicator for Singapore and Japan of 73.6 and 73.2 years, respectively (the highest in the world)[111].

Health risk factors

As regards indicators linked to disease prevention (see Chart 2.10-i), the percentage of obese people in 2016 in the Netherlands was 13.6%, 2.9 percentage points below the OECD average (16.5%).

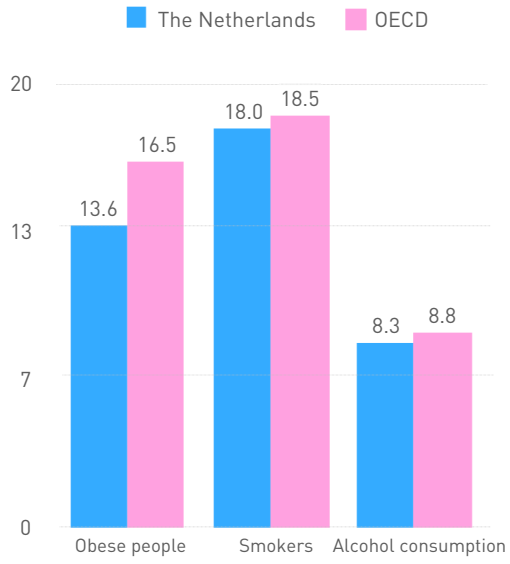
As regards smoking, the percentage of people who smoke daily was 18% in 2016, 0.5 percentage points below the OECD average (18.5% in the 2015-2016 period). Finally, alcohol consumption in the Netherlands in 2016 (latest available year) was 8.3 liters per person per year, 5.5% lower than the OECD average (8.8 liters).

Indicators of healthcare quality

As mentioned earlier, infant mortality is one of the most relevant and widely used indicators of the effect of socio-economic conditions on the quality of healthcare services and disease prevention and health promotion measures. In

Chart 2.10-i

Netherlands: risk indicators
(%; liters per person per year)



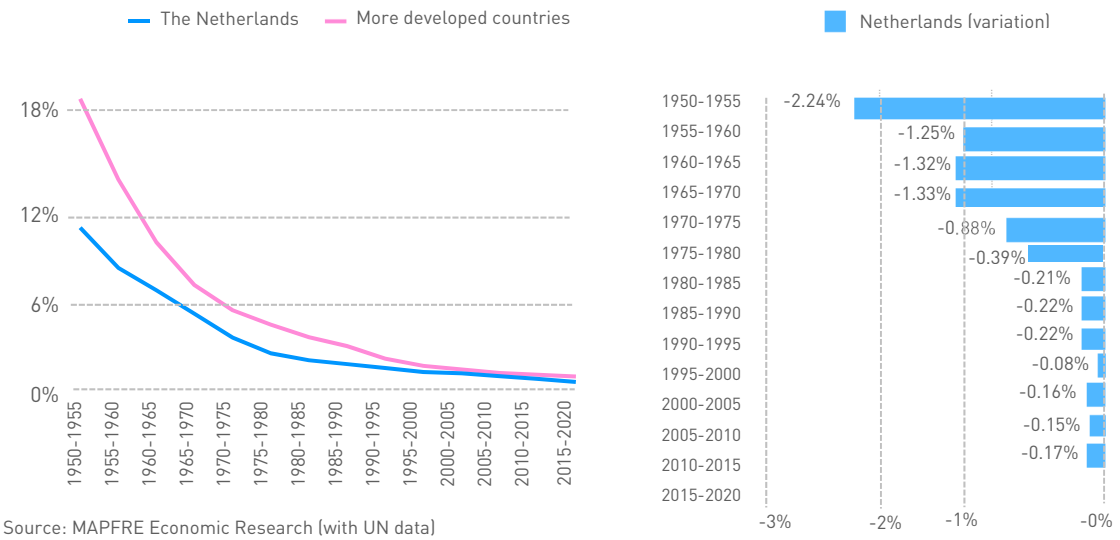
Source: MAPFRE Economic Research (with OECD data)
* Obese people-SR (2016), Smokers (2016), Alcohol consumption (2016)

the case of the Netherlands, the fall in this indicator has been less pronounced than the average for the more developed regions, having started from a significantly lower percentage (see Chart 2.10-j). This indicator is currently closer to but still below the average for those regions (0.4% in the Netherlands compared with 0.6% in the more developed regions)[112].

Another of the indicators related to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction. According to OECD data (see Chart 2.10-k), the rate of deaths in 2012 in the Netherlands during the thirty days following hospitalization was 5.4 per 100 admissions of adults aged 45 years and over, 27.8% lower than the average for the countries of the OECD (7.5).

Similarly, the percentage of people who survived for more than five years with colon cancer in the 2010-2014 period in the Netherlands was 63%, barely 0.2 percentage points above the average for the countries of the OECD (62.8%).

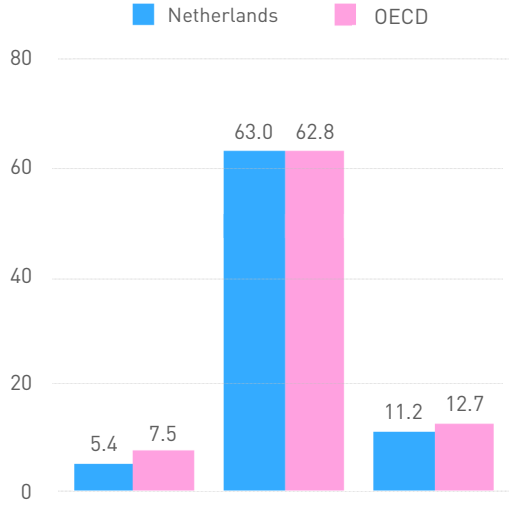
Chart 2.10-j
Netherlands: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



Source: MAPFRE Economic Research (with UN data)

Finally, the percentage of people who died from non-communicable diseases (NCDs) between the ages of 30 and 70 years in 2016 was 11.2% in 2016, 1.5 percentage points below the average of 12.7% for the countries of the OECD[113].

Chart 2.10-k
Netherlands: mortality due to infarction,survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Deaths due to infarction (2012), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

Main service providers

Insurance companies

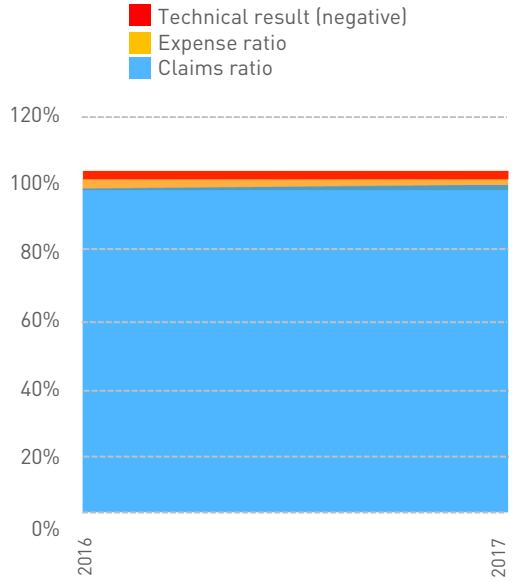
The market shares of the largest companies in the health insurance business in the Netherlands in 2015 (latest available data) are shown in Table 2.10. This information demonstrates that the concentration of the insurance market in

Table 2.10
Netherlands: ranking of insurance companies by premium volume in health insurance, 2015

	Companies	Premiums (millions of USD)	Market share (%)
1	ZILVEREN KRUIS ACHMEA ZORG	9,862.2	20.7%
2	CZ ZORG	6,868.8	14.4%
3	VGZ	6,478.3	13.6%
4	MENZIS ZORG	4,874.0	10.2%
5	UNIVÉ ZORG	2,157.9	4.5%
6	IZA	1,765.2	3.7%
7	DE FRIESLAND ZORG	1,427.9	3.0%
8	ZORG EN ZEKERHEID ZORG	1,224.9	2.6%
9	OHRA ZIEKTEKOSTEN	1,194.9	2.5%
10	IZZ	1,111.7	2.3%

Source: MAPFRE Economic Research (with VVV data)

Chart 2.10-l
Netherlands: operating and underwriting efficiency ratios, 2016-2017
(combined ratio, %)



Source: MAPFRE Economic Research (with VVV data)

the health segment is significant, since the top five insurance companies account for 63.4% of premiums.

On the other hand, according to the latest information available from *De Nederlandsche Bank* (DNB), the loss ratio in 2017 was 98.3% of health insurance premiums (97.1% in 2016), while the expense ratio in 2017 was 4.2% (the same as in 2016). This means that in aggregate, this line of business had a negative technical profitability of -2.5% in 2017 (-1.3% in 2016).

Brief reference to other service providers

There are various associations of doctors in the Netherlands. The Royal Dutch Medical Association (KNMG)[114] is the main organization that integrates many of these associations, functioning in the form of a federation. The federation consists of the Association of Public Health Physicians (KAMG), the National Association of Salaried Doctors (LAD), the National Association of General Practitioners (LHV), the Dutch Association for Occupational Health (NVAB), the Association for Elderly Care Physicians (*Verenso*), the Dutch Association of Insurance Medicine (NVVG), the Dutch Association of Medical Specialists (*Federatie van Medisch Specialisten*) and the Association of Medical Students (*De Geneeskundestudent*).

In addition, most general practitioners are members of the Dutch College of General Practitioners (*Nederlands Huisartsen Genootschap*, NHG)[115]. Meanwhile, the specialist doctors of the different hospitals tend to be associated with each other, and it is these associations that negotiate their remuneration directly with the hospital[116].

The majority of the hospitals are foundations. The hospitals are non-profit institutions, and they are not permitted to be constituted as commercial entities. In the Netherlands there are essentially three types of hospitals: (i) general hospitals, (ii) university hospitals, and (iii) hospitals specializing in a particular type of condition (e.g. cancer hospitals or ophthalmology hospitals). These hospitals provide practically all forms of outpatient treatment, as well as secondary care for hospitalized patients. The majority of hospitals also have 24-hour emergency rooms.

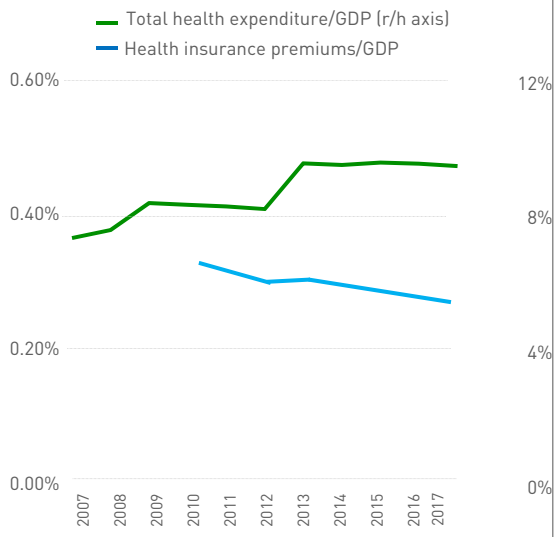
2.11 United Kingdom

Total healthcare expenditure in the United Kingdom in 2017 represented 9.7% of the country's GDP (9.8% in 2016), 0.8 percentage points above the OECD average of 8.9%[117]. The percentage of total healthcare expenditure relative to GDP has seen a notable increase over the last decade of 2.3 percentage points in terms of GDP. The largest increase occurred in 2013, and since then the percentages have been stable at around 9.7%.

Meanwhile, health insurance premiums represented 0.3% of GDP in 2017. The penetration of private health insurance showed a falling trend over the 2010-2017 period[118] (see Chart 2.11-a).

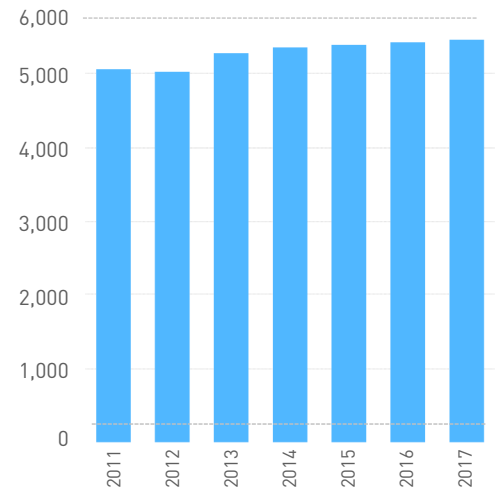
The evolution of the volume of private health insurance business in recent years is shown in Charts 2.11-b and 2.11-c, together with a comparison of the increases in the UK's total

Chart 2.11-a
United Kingdom: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with ACPR, OECD and OEF/Haver Analytics data)

Chart 2.11-b
United Kingdom: health insurance premiums, 2011-2017
(millions of pounds)

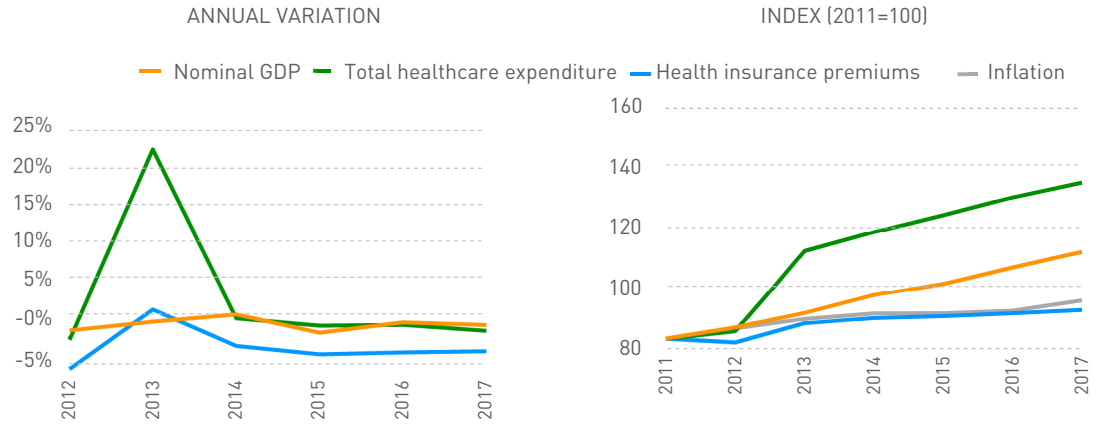


Source: MAPFRE Economic Research (with Finaccord data)

healthcare expenditure and GDP over the same period.

As can be seen from the information presented in the above-mentioned charts, there are smaller increases in health insurance premiums compared with the increases in GDP and total healthcare spending, even below inflation, across the entire series. Thus, over the 2011-2017 period it was total healthcare expenditure that grew the most (43.3%), compared with growth of 24.1% in nominal GDP and a 7.9% rise in health premiums.

Chart 2.11-c
United Kingdom: variation in health insurance premiums, total healthcare expenditure and GDP, 2012-2017
(nominal annual variation rates, local currency, %; index 2011=100)



Source: MAPFRE Economic Research (with ACPR, OECD and OEF/Haver Analytics data)

Description of the levels of coverage of the healthcare system

The health system of the United Kingdom is based on the Beveridge model, which owes its name to Sir William Beveridge, author of the 1942 report to the British Parliament that served as the basis for the creation of the country's health system in 1948. The system is implemented through the National Health Service (NHS), which is mostly funded through taxes[119].

It is important to note that healthcare assistance in the United Kingdom is decentralized, i.e. it is managed directly by England, Northern Ireland, Scotland and Wales. Each of these has its own system, namely "NHS England", "Health and Care NI", "NHS Scotland" and "NHS Wales" respectively, with its own mechanisms for planning and decision-making on the organization of health services.

With the aim of giving an idea of the environment in which health insurance business is conducted in the UK, there follows a description of the different levels of coverage, following the schema described in the conceptual framework of this study.

Pillar 0
Minimum healthcare coverage

Minimum healthcare coverage is provided mainly to non-residents without documentation or foreign tourists, and covers only emergency situations and treatment for certain contagious diseases. This treatment is not free, and the NHS can subsequently pursue payment, except in the case of citizens of the European Union (EU), who for the moment receive it free of charge.

Pillar 1
Mandatory coverage (mandatory public system or alternative mandatory private system)

In the United Kingdom there is free universal coverage for legal residents and – for the moment – non-resident EU citizens with a European health card. The aim of the NHS is to make medical treatment accessible to all legal residents of the United Kingdom, regardless of their ability to pay. The rules vary slightly in different parts of the United Kingdom as regards the definitions, but in general, residents can access medical attention anywhere in UK territory.

The United Kingdom Department of Health is responsible for the health system in England (as well as for some regulatory affairs in the whole of the UK), and meets regularly with its counterparts in the devolved administrations of Scotland, Wales and Northern Ireland, which can establish their own expenditure plans within the allocations determined according to the so-called Barnett formula. Financial responsibility for tax revenue remains in the hands of the central government of the United Kingdom.

The coverage of the NHS services is not specifically defined in any statute or legislation, and patients have no absolute right to receive a specific treatment. However, there is a statutory obligation for the Secretary of State for Health to ensure complete coverage. The National Institute for Health and Care Excellence (NICE) controls the quality of the care and operates independently of the government, although it is responsible to the Department of Health.

The Medicines and Healthcare Products Regulatory Agency (MHRA), meanwhile, is responsible for all medicines and medical devices in the United Kingdom. It also supports innovation and research that will benefit public health.

Primary care in the United Kingdom is the first point of contact when a person has a health problem; it is the means for obtaining access to treatment for common illnesses and injuries, and serves as a filter for accessing more specialized attention. Patients are free to register with a general practitioner of their choice and, in general, to choose any NHS hospital, provided their general practitioner recommends it. The Health and Social Care Act 2012 in England made patient choice a priority.

Most secondary care in the NHS is carried out by salaried specialist doctors and others working in state hospitals. For patients to

receive treatment from specialists, they must be referred by a general practitioner or admitted to hospital as an emergency case.

Emergency treatment is free of charge and available 24/7 throughout the year. To avoid unnecessary hospital admissions, there are some prevention, rehabilitation, rehousing and recuperation services. These services are aimed mainly at the elderly, but they also provide assistance to people with a variety of health conditions, including mental health problems. The aim of this type of care is to help patients remain in their homes instead of going into hospital.

Long-term care is a combination of social care and healthcare. The NHS provides some care of this type, but a large proportion is provided by the private/voluntary sector. It is financed with public and private funds. It is provided to elderly people; people with a physical disability, frailty or sensory impairment; people with a learning disability; people with mental health problems; people with substance abuse issues, and other vulnerable people.

Residential or nursing care is provided in homes dedicated to this type of care. It is provided mainly by the private/voluntary sector, except for some residential care in homes administered by local councils.

Local authorities are obliged to assess the needs of people who might require social care, and if it is judged that support is needed, they must provide it to them. There are national thresholds above which a person is expected to pay for residential care in England. These can range from free treatment to coverage of the full costs.

Palliative care aims to provide a better quality of life to patients with advanced progressive illnesses and their families by managing pain and symptoms and offering social and psychological support. It is provided when a cure is not an option. Historically, it has been provided through volunteers, although in the 1990s the NHS began to create palliative care strategies.

The NHS, local authorities, volunteering organizations and private-sector organizations provide mental health services in the United Kingdom. NHS services are free, while some services provided by local authorities are charged for on the basis of a means test.

Dental treatment was initially free when the NHS was launched in 1948, but charges were quickly introduced. People pay for private dental treatment through private insurance plans or directly out of their own pocket. Private dental insurance is based on capitation plans that include a basic package or a fixed amount per year, covering the treatment cost up to a predetermined amount. There has been an increase in the number of people receiving private dental treatment, partly because the NHS contract introduced in 2006 reduced the number of dentists who provide NHS services.

Pillar 2
Corporate group health insurance

A small percentage of the UK population (around 11%) has any type of private medical insurance. The nature of this private insurance varies, from coverage for specific diseases such as cancer to broader packages that include complementary therapies and diagnostic tests. The vast majority of these policies, around 82%, are for corporate group insurance[120].

However, citizens with private health insurance do not lose entitlement to public health services. The motivation for taking out private coverage is the ability to access treatments that are not available under the public system, or to avoid the public waiting lists. Few insurance policies, whether taken out by companies for their employees or by individuals, offer maternity or mental health coverage. Within these limitations, the nature of the coverage varies significantly between policies.

There are different copayment levels and limits on benefits, as well as different restrictions on

the private hospitals that can be used without additional payment. There are policies that come into force only when the NHS waiting time exceeds a specified duration, or that operate as a form of "stop loss" insurance when the cost of a treatment exceeds a certain limit (excess).

The predominance of corporate group policies is partly explained by the fact that individuals can enjoy substantially lower premiums under a corporate scheme than on an individual basis, and that there is a higher level of risk mutualization[121]. The companies usually pay all or part of the cost. In terms of taxation, the insurance provided by the company is treated as a benefit in kind and is subject to income tax, social security contributions and national insurance charges, and therefore does not provide any tax advantages.

Pillar 3

Individual private coverage (voluntary)

In terms of healthcare expenditure per capita, the estimated total in 2017, according to OECD data, was USD 4,264 per inhabitant (USD 4,164 in 2016). Of this sum, if we apply the most recent distribution available to date (2015), around USD 3,397 (79.6%) would correspond to the average expenditure per capita in the mandatory system. Of the remaining 20.3%, expenditure on voluntary health insurance premiums would be around USD 146 per person (3.4%)[122]. "Out-of-pocket" health costs would be around 14.8% of the total expenditure per capita, with the remaining 2.1% corresponding to other types of expenditure (see Chart 2.11-d).

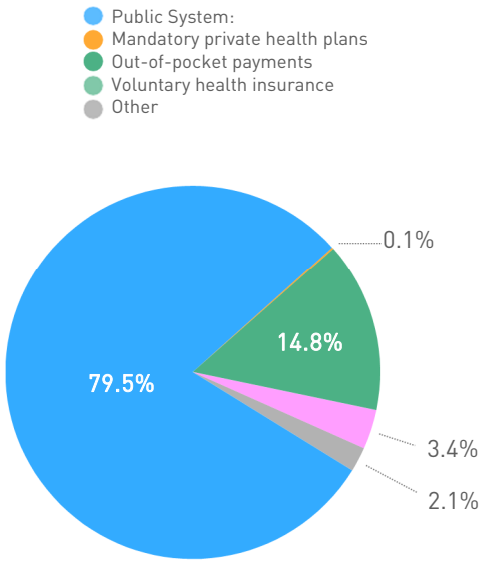
In the United Kingdom, policies are annual and priced according to the loss experience, both for groups and for individuals. Pre-existing illnesses are usually excluded or incur a higher premium[123]. Individual private insurance does not qualify for any tax relief.

Analysis of other relevant indicators

Evolution of healthcare expenditure per capita

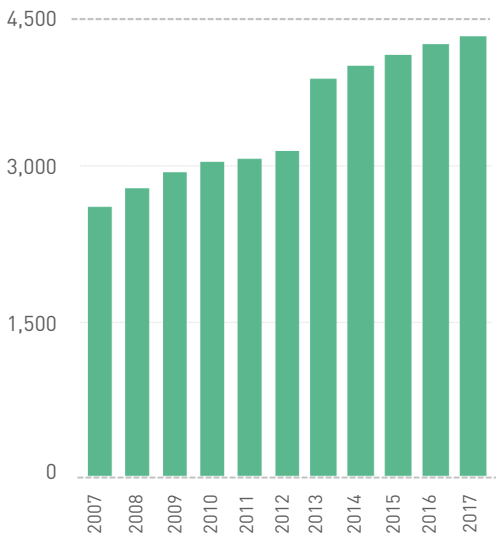
Total healthcare expenditure per capita in the United Kingdom in 2017 was 4.8% higher than the average for the countries of the OECD (USD 4,264 compared with USD 4,069)[124]. The evolution of expenditure per capita in the last

Chart 2.11-d
United Kingdom: breakdown of average expenditure per inhabitant, 2015*
(%)



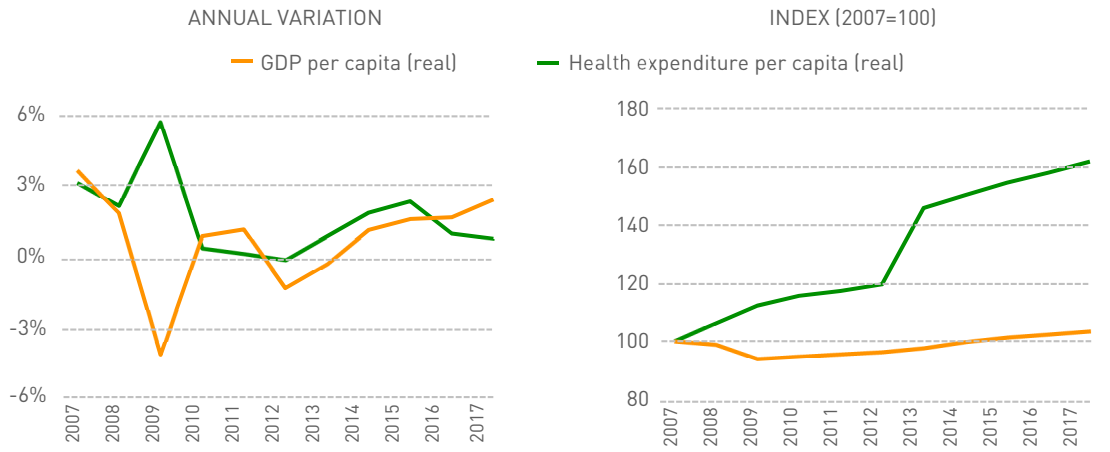
Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

Chart 2.11-e
United Kingdom: healthcare expenditure per inhabitant, 2007-2017
(dollars, nominal cost - PPP)



Source: MAPFRE Economic Research (with OECD data)

Chart 2.11-f
United Kingdom: variation in healthcare expenditure per inhabitant, 2007-2017
(real variation rates, local currency, %; index 2007=100)



Source: MAPFRE Economic Research (with OECD data)

available decade is shown in Chart 2.11-e, together with the respective evolution of GDP per capita over the same period. In general, we see that health expenditure rose more quickly than per capita income in the United Kingdom over the analyzed period.

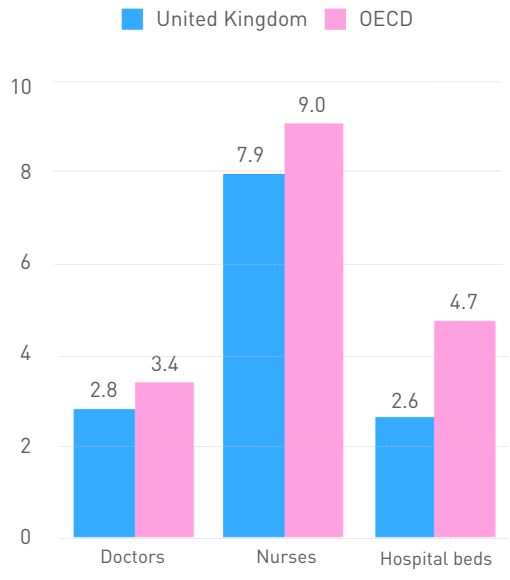
Indicators of capacity of the healthcare system

According to OECD data (as illustrated in Chart 2.11-g), the number of practicing doctors in the United Kingdom in 2017 was 2.8 per thousand inhabitants, 17.1% lower than the average for the countries of the OECD (3.4 doctors per thousand inhabitants). The number of nurses in 2017 was 7.9 per thousand inhabitants, 12.8% lower than the average for the countries of the OECD (9 nurses per thousand inhabitants).

Meanwhile, the number of hospital beds in the United Kingdom in 2016 was 2.6 per thousand inhabitants, 44.6% lower than the average for the countries of the OECD (4.7 nurses per thousand inhabitants).

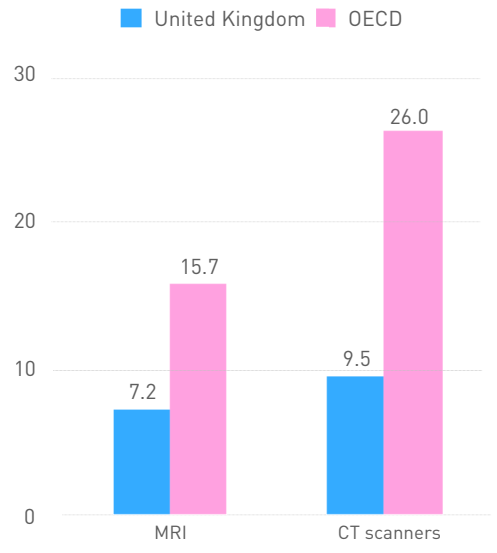
On the other hand, as shown in Chart 2.11-h, the number of magnetic resonance imaging (MRI) scanners in 2014 was 7.2 per million inhabitants, 53.8% lower than the average for the countries of the OECD in that year (15.7 per million inhabitants), while the number of computed tomography (CT) scanners was 9.5 per million inhabitants, 63.6% lower than the average for the countries of the OECD in that year (26 per million inhabitants).

Chart 2.11-g
United Kingdom: density of healthcare personnel and hospital beds
(number per thousand inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* Doctors (2017), Nurses (2017), Hospital beds (2016)

Chart 2.11-h
United Kingdom: MRI and CT scanners
(number per million inhabitants)



Source: MAPFRE Economic Research (with OECD data)
* MRI (2014), CT scanners (2014)

Indicators of use of the healthcare system

According to the latest available data (2009), the annual number per capita of consultations with doctors was 5.0 visits per year, 26.3% lower than the OECD average in that year (6.8 visits per year).

The annual number of hospital discharges per thousand inhabitants in 2016 was 131, 16.3% lower than the OECD average (156.5 discharges per year in the 2015-2016 period). The average stay in hospital, meanwhile, was 7.1 days, 12.3% lower than the OECD average (8.1 days)[125].

Indicators of health status

As regards the indicators most frequently used as an approximation of the health status of a country's population, life expectancy at birth in the United Kingdom was 81.2 years in 2016, according to OECD data, 0.4 years above the average for the countries of the OECD (80.8 years).

On the other hand, healthy life expectancy is estimated at around 70 years, which contrasts with the estimations of this indicator for countries such as Singapore and Japan with 73.6 and 73.2 years, respectively (the highest in the world)[126].

Health risk factors

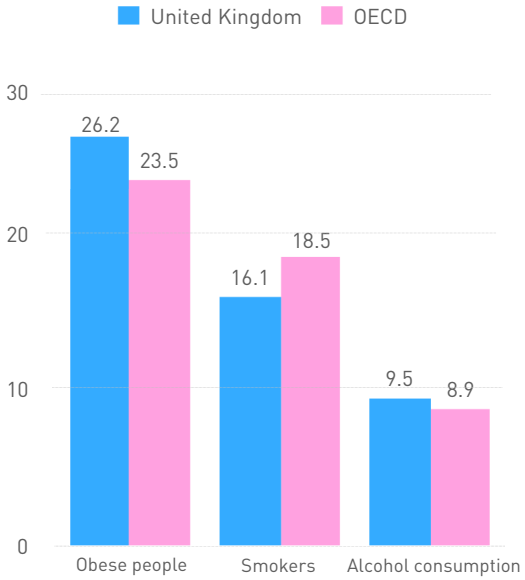
Of the three factors commonly used as health risk indicators (see Chart 2.11-i), the percentage of obese people in the United Kingdom, based on real measurements, was 26.2% in 2016, 2.7 percentage points above the average for the countries of the OECD that had this information (23.5% in that year).

As regards smoking, the percentage of people who smoke daily was 16.1% in 2016, 2.4 percentage points below the OECD average (18.5% in that period). Finally, alcohol consumption in 2015 (latest available data) was 9.5 liters per person per year, 7.2% higher than the OECD average (8.9 liters).

Indicators of healthcare quality

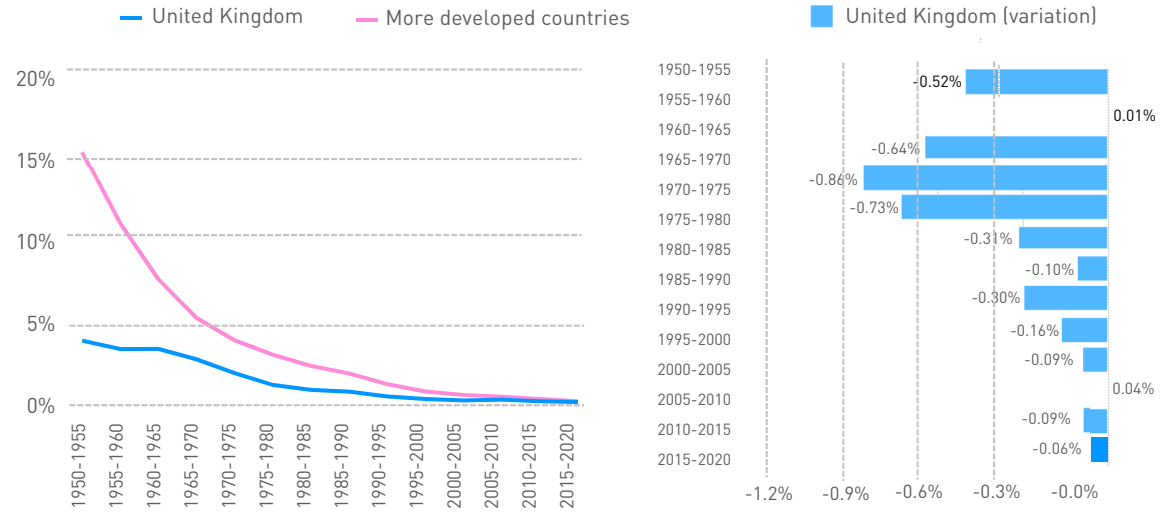
Infant mortality is one of the most relevant and widely used indicators of the effect of socio-

Chart 2.11-i
United Kingdom: risk indicators
(%; liters per person per year)



Source: MAPFRE Economic Research (with OECD data)
* Obese people-M (2016), Smokers (2016), Alcohol consumption (2015)

Chart 2.11-j
United Kingdom: deaths of infants between the ages of 0 and 4 years, 1950-2020
(percentage of deaths; variation rates, percentage points)



MAPFRE Economic Research (with UN data)

economic conditions on the health of mothers and newborns, as well as the quality of healthcare services and disease prevention and health promotion measures.

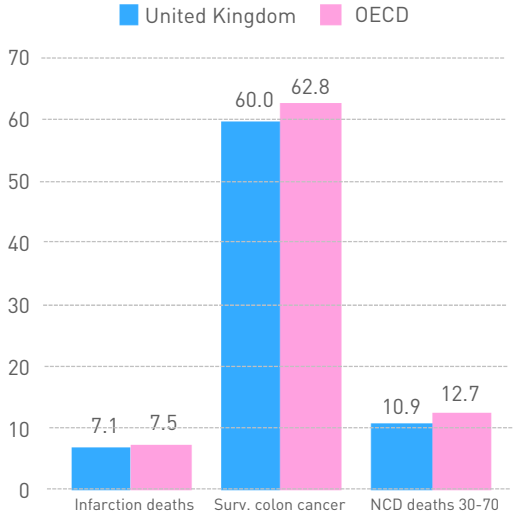
According to data from the United Nations (UN), the percentage of infant deaths up to the age of five years has fallen markedly and steadily. In the case of the United Kingdom, since 1950, in addition to the declining trend, the country shows a percentage substantially lower than the average for the more developed countries across the entire series[127]. The death rate currently stands at the average for the more developed regions (see Chart 2.11-j).

Another of the indicators widely used in relation to the quality of healthcare services is the rate of in-hospital mortality due to acute myocardial infarction (see Chart 2.11-k). According to OECD data, the rate of deaths in 2015 in the United Kingdom during the thirty days following hospitalization was 7.1 per 100 admissions of adults aged 45 years and over, 4.2% lower than the average for the countries of the OECD (7.5).

Meanwhile, the percentage of people who survived for more than five years with colon cancer in the 2010-2014 period was 60%, 2.8 percentage points below the average for the countries of the OECD (62.8%).

Finally, as regards deaths due to non-communicable diseases (NCDs) between the ages of 30 and 70 years in 2016, the United Kingdom has a percentage of 10.9%, 1.8 percentage points below the average of 12.7% for the countries of the OECD[128].

Chart 2.11-k
United Kingdom: mortality due to infarction, survival of colon cancer and non-communicable diseases
(100 infarction admissions; 5 or more years of cancer, %; NCD deaths, %)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Deaths due to infarction (2015), Survival of colon cancer (2010-2014), Deaths between the ages of 30-70 due to non-communicable diseases (2016)

Main service providers

Insurance companies

The latest public information available from the ABI (Association of British Insurers) for 2013 places the insurance company BUPA as the market leader, followed by AXA PPP Healthcare. These are the two main companies by market share, and have held these positions for more than two decades[129].

Brief reference to other service providers

Primary outpatient care is provided by general medicine doctors (general practitioners or GPs) who act as filters for secondary care (hospitals and specialists). In 2015, there were 34,592 general practitioners (full-time equivalents) in 7,674 surgeries, with an average of 7,450 patients per surgery and 1,530 patients per doctor. There were also 43,632 specialists in hospitals and 51,460 practicing hospital doctors. The number of surgeries with a single doctor was 843, while there were 3,589 centers with more than five doctors.

As regards external consulting specialists, the vast majority of these are salaried employees of the NHS hospitals. The so-called "Clinical Commissioning Groups" (CCGs) are responsible for paying the hospitals for the referral of patients for external consultations, at prices predetermined at national level. Finally, it is important to note that most of the United Kingdom's hospitals are owned by the State.

3. Global indicator of the effectiveness of health systems

As a complement to the analysis performed in the previous section of this report in relation to the health systems of a series of selected countries, this section presents an evaluation exercise based on the construction of an *ad hoc* indicator, with the aim of providing a view of the level of effectiveness of the health systems globally. By using this indicator, the objective is to have a comparative view of the effectiveness of the different health systems around the world, based on an evaluation of key indicators reflecting the positive effects of their operation.

3.1 The indicator

Rationale of the indicator

For the construction of the **Indicator of Effectiveness of Health Systems (IEHS)**, data was used from the United Nations and the World Health Organization concerning three variables that are available for practically all of the analyzed countries (universe of 180 countries). These indicators are:

a) the life expectancy at birth;

b) the percentage of mortality among children between the ages of 0 and 4 years, and

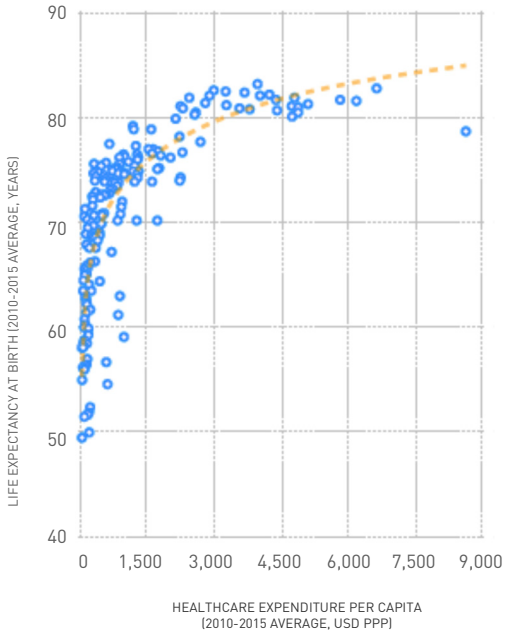
c) the mortality due to non-communicable diseases among people between the ages of 30 and 70 years attributable to cardiovascular diseases, cancer, diabetes or chronic respiratory diseases (NCDs).

Generally speaking, the behavior of these variables offers an overview of the effectiveness of the health systems by measuring three demographic phenomena directly linked to them.

It should be noted that unlike similar exercises performed in this regard[130], in the construction of the IEHS no account has been taken of any variable related to healthcare expenditure (e.g. healthcare expenditure as a percentage of GDP or healthcare expenditure per capita). The rationale for this choice has to do with the high degree of dispersion seen in the healthcare expenditure data when compared with the positive effects obtained from it.

As illustrated in the dispersion analysis presented in Chart 3.1-a, when we compare healthcare expenditure per capita with life expectancy, we see that a very high level of survival (even around the age of 80 years) is achieved with relatively low levels of healthcare expenditure. From that point onward, the level of dispersion of the data increases, suggesting a relatively minor effect of the increase in expenditure on the greater survival of the population. The explanation appears to lie in the fact that the effectiveness of the healthcare systems does not derive exclusively from what national accounting groups under the heading

Chart 3.1-a
Healthcare expenditure per capita vs life expectancy at birth



Source: MAPFRE Economic Research (with UN and WHO data)

of healthcare expenditure, but rather from a larger body of expenditure and investments that have a positive influence on the health status of the population (e.g. investments in infrastructure, housing, education, etc.). Consequently, it is not possible to obtain an appropriate indicator of effectiveness (i.e. one that considers the relationship between healthcare expenditure and effects on health conditions) by using this variable.

For this reason, and given the impossibility of identifying the items of expenditure that have positive effects on the health conditions of the population for the universe of analyzed countries, it was decided that the IEHS should concentrate on result variables (life expectancy, infant mortality and mortality due to non-communicable diseases) that show, in an objective manner, the general effectiveness of the health systems, eliminating the distortion that would be brought about by the inclusion of any healthcare expenditure variable.

Construction of the indicator

As indicated earlier, the IEHS was constructed based on the use of three variables that are regarded as key for understanding the health status of a population (and in relation to which there is information for all of the analyzed countries): life expectancy at birth, the percentage of mortality among children between the ages of 0 and 4 years, and mortality due to non-communicable diseases (NCDs).

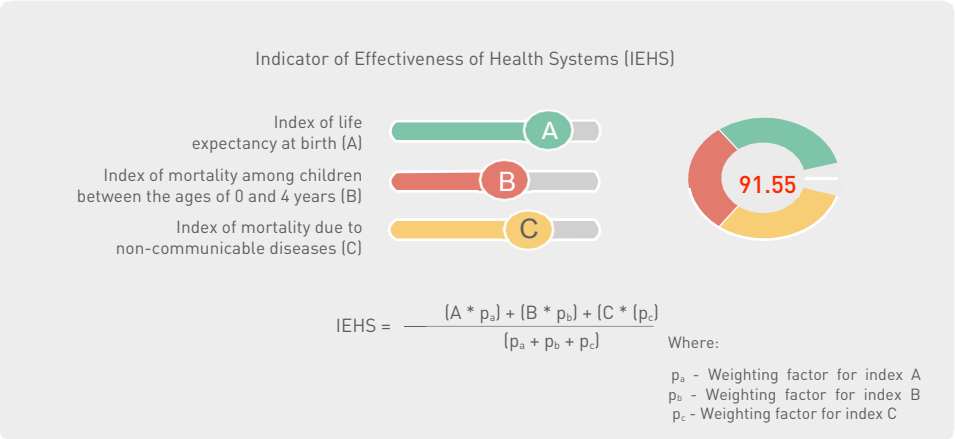
For the purposes of developing the indicator, the series of each of these variables were normalized to express each value of the series with reference to the maximum value observed in the same. Based on these series of normalized values, the IEHS was constructed as a composite index (with values ranging from 0 to 100) that considers the same weighting for each of the above-mentioned variables (see Chart 3.1-b).

3.2 Ranking of health systems

Global ranking of health systems

Table 3.2 shows the ranking that emerges from the construction of the IEHS, considering a universe of 180 countries. The ranking is headed by Japan, Switzerland, South Korea, Singapore and Iceland.

Chart 3.1-b
Construction of the Indicator of Effectiveness of Health Systems (IEHS)



Source: MAPFRE Economic Research

Table 3.2
Indicator of Effectiveness of Health Systems (IEHS)

	Country	IEHS
1	Japan	100.00
2	Switzerland	99.45
3	South Korea	99.37
4	Singapore	99.16
5	Iceland	99.11
6	Italy	99.08
7	Sweden	99.05
8	Norway	99.05
9	Spain	99.00
10	Australia	98.99
11	Canada	98.67
12	Luxembourg	98.60
13	Israel	98.49
14	France	98.47
15	Finland	98.43
16	New Zealand	98.22
17	Ireland	98.13
18	Malta	98.05
19	Netherlands	97.96
20	Portugal	97.91
21	United Kingdom	97.83
22	Austria	97.73
23	Belgium	97.68
24	Denmark	97.59
25	Greece	97.39
26	Cyprus	97.39
27	Germany	97.37
28	Slovenia	97.16
29	Chile	96.20
30	Costa Rica	96.11
31	United States	95.45
32	Czech Republic	95.39
33	Croatia	94.56
34	Estonia	94.34
35	Bahrain	94.23
36	Albania	93.76
37	Thailand	93.75
38	Slovakia	93.73
39	Uruguay	93.73
40	Maldives	93.70
41	Barbados	93.63
42	Bosnia and Herzegovina	93.62
43	Lebanon	93.61
44	Poland	93.60
45	Panama	93.35

	Country	IEHS
46	Argentina	93.21
47	Jamaica	93.20
48	Bahamas	93.14
49	Brunei Darussalam	93.11
50	Qatar	93.11
51	China	93.07
52	Montenegro	92.65
53	United Arab Emirates	92.63
54	Sri Lanka	92.57
55	Malaysia	92.45
56	Serbia	92.40
57	Iran	92.36
58	Brazil	92.21
59	Turkey	92.12
60	Saint Lucia	92.11
61	Macedonia	92.09
62	Tunisia	92.03
63	El Salvador	92.00
64	Ecuador	91.88
65	Lithuania	91.68
66	Romania	91.57
67	Mexico	91.55
68	Peru	91.53
69	Vietnam	91.44
70	Hungary	91.34
71	Latvia	91.26
72	Colombia	91.24
73	Nicaragua:	91.09
74	Oman	90.96
75	Morocco	90.95
76	Venezuela	90.86
77	Antigua and Barbuda	90.81
78	Bulgaria	90.65
79	Seychelles	90.63
80	Kuwait	90.62
81	Armenia	90.53
82	Mauritius	90.44
83	Saudi Arabia	90.36
84	Belarus	90.28
85	Grenada	90.10
86	Georgia	89.39
87	Algeria	89.26
88	Cape Verde	89.07
89	Ukraine	89.01
90	Dominican Republic	88.86

Table 3.2 (continued)
Indicator of Effectiveness of Health Systems (IEHS): global ranking

	Country	IEHS
91	Saint Vincent and the Grenadines	88.76
92	Moldova	88.64
93	Russia	88.61
94	Trinidad and Tobago	88.44
95	Samoa	88.37
96	Surinam	88.16
97	Paraguay	87.92
98	Guatemala	87.72
99	Honduras	87.44
100	Jordan	87.30
101	Belize	87.28
102	Libya	87.14
103	Kazakhstan	87.05
104	Syrian	86.97
105	Azerbaijan	86.89
106	Tonga	86.87
107	Kyrgyzstan	85.78
108	Bangladesh	85.54
109	Nepal	85.38
110	Bhutan	85.02
111	Indonesia	84.76
112	Cambodia	84.70
113	Uzbekistan	84.62
114	Fiji	84.52
115	Botswana	84.50
116	Egypt	84.43
117	Vanuatu	84.40
118	Philippines	83.85
119	India	83.73
120	Gabon	83.71
121	Bolivia	83.23
122	Myanmar	82.90
123	Micronesia	82.63
124	Mongolia	82.59
125	South Africa	82.18
126	Namibia	82.14
127	Salomon Islands	81.91
128	Kenya	81.76
129	Iraq	81.59
130	Guyana	81.52
131	Tajikistan	79.78
132	Congo	79.52
133	Senegal	79.38
134	Djibouti	79.36
135	Rwanda	79.29
136	Turkmenistan	79.16
137	Laos	79.10
138	Ethiopia	79.03
139	São Tomé and Príncipe	78.86
140	Zimbabwe	78.83
141	Tanzania	78.81
142	Madagascar	78.63
143	Ghana	78.61
144	Timor-Leste	78.53
145	Eritrea	78.40
146	Haiti	77.78
147	Kiribati	77.45
148	Liberia	77.31
149	Papua New Guinea	76.47
150	Lesotho	76.07
151	Malawi	76.03
152	Swaziland	76.00
153	Zambia	75.88
154	Pakistan	75.87
155	Comoros	75.39
156	Mauritania	75.09
157	Sudan	75.06
158	Gambia	74.68
159	Yemen	74.21
160	Togo	74.14
161	Mozambique	73.95
162	Guinea	73.46
163	Cameroon	73.07
164	Benin	73.06
165	Equatorial Guinea	72.91
166	Angola	72.54
167	South Sudan	72.47
168	Burkina Faso	71.89
169	Uganda	71.44
170	Democratic Rep. of Congo	71.16
171	Afghanistan	70.78
172	Guinea-Bissau	70.69
173	Ivory Coast	70.56
174	Nigeria	70.53
175	Central African Republic	70.02
176	Burundi	69.30
177	Niger	68.99
178	Mali	68.07
179	Sierra Leone	67.02
180	Chad	66.34

Source: MAPFRE Economic Research

Meanwhile, the healthcare systems of the countries analyzed in the second section of this report (in addition to Japan and Singapore, 1 and 4 in the ranking, respectively) appear in the following places: Spain (9), Australia (10), France (14), Netherlands (19), United Kingdom (21), Chile (29), United States (31), Brazil (58) and Mexico (67).

Although, in general terms, the ranking appears to reflect the relative level of development of the countries considered, there are some exceptions. In addition to the high degree of dispersion in the per capita income of the countries with a high IEHS indicator, there are some countries that appear in positions higher than their level of per capita income would suggest (see Chart 3.2-a). These countries are Albania (36), Thailand (37), Bosnia and Herzegovina (42) and Lebanon (43), with per capita incomes substantially lower than the countries that surround them in the IEHS ranking.

Conversely, there are other countries with high levels of per capita income that are nevertheless located with IEHS values dominated by countries with substantially lower levels of per capita income. This is the case for the Bahamas (48), Brunei Darussalam (49), Qatar (50) and the United Arab Emirates (53).

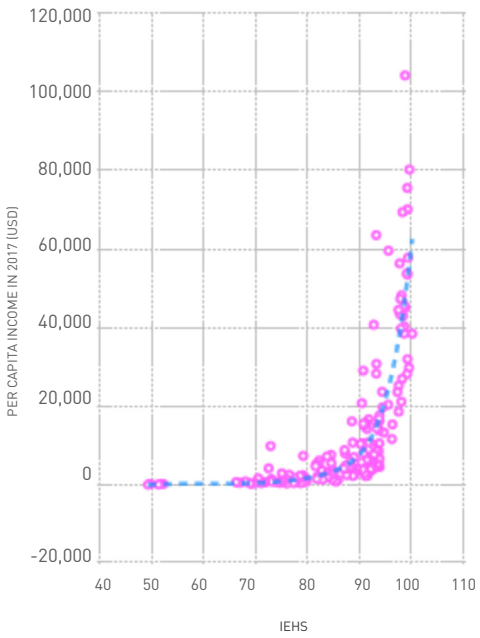
It is important to point out that analysis of the reasons for these singular cases exceeds the scope of this study, although they might suggest that, regardless of a country's income level, the specific institutional arrangements with respect to their health systems can play a significant role in the health conditions of its population.

Contribution of the analyzed factors in the composition of the IEHS for each country

Finally, it is interesting to analyze not only the relative value of the indicator in the composition of the ranking of healthcare systems, but also the different influence that each of the indices considered in its construction (life expectancy, infant mortality and mortality due to non-communicable diseases) has on the level of the indicator as a whole.

Chart 3.2-b illustrates this exercise for the group of analyzed countries. In this chart

Chart 3.2-a
IEHS vs per capita income



Source: MAPFRE Economic Research (with World Bank data)

it can be seen that as the healthcare systems descend in position in the ranking, the contribution of the different factors considered becomes more unbalanced.

Generally speaking, it can be assumed that the more effective the healthcare system (with a high IEHS), the greater the balance in the effectiveness of the actions that it takes to control the mortality of vulnerable groups (mortality among children between the ages of 0 and 4 years) and mortality due to general morbidity (mortality due to non-communicable diseases), and to create the conditions for greater survival of the population (life expectancy). In other words, that the healthcare system has a balanced effect on these different demographic and health indices.

Similarly, it can be assumed that insofar as a health system is less effective (a lower position in the IEHS ranking), there is not only a smaller contribution from the different factors, but also a loss of balance in the effectiveness of the actions to maintain the health conditions of the population from the perspective of the three indices used, which would be indicative of specific deficiencies in those systems.

Chart 3.2-b
Indicator of Effectiveness of Health Systems (IEHS): contribution to the composition of the indicator

Chart 3.2-b (continued)
Indicator of Effectiveness of Health Systems (IEHS): contribution to the composition of the indicator

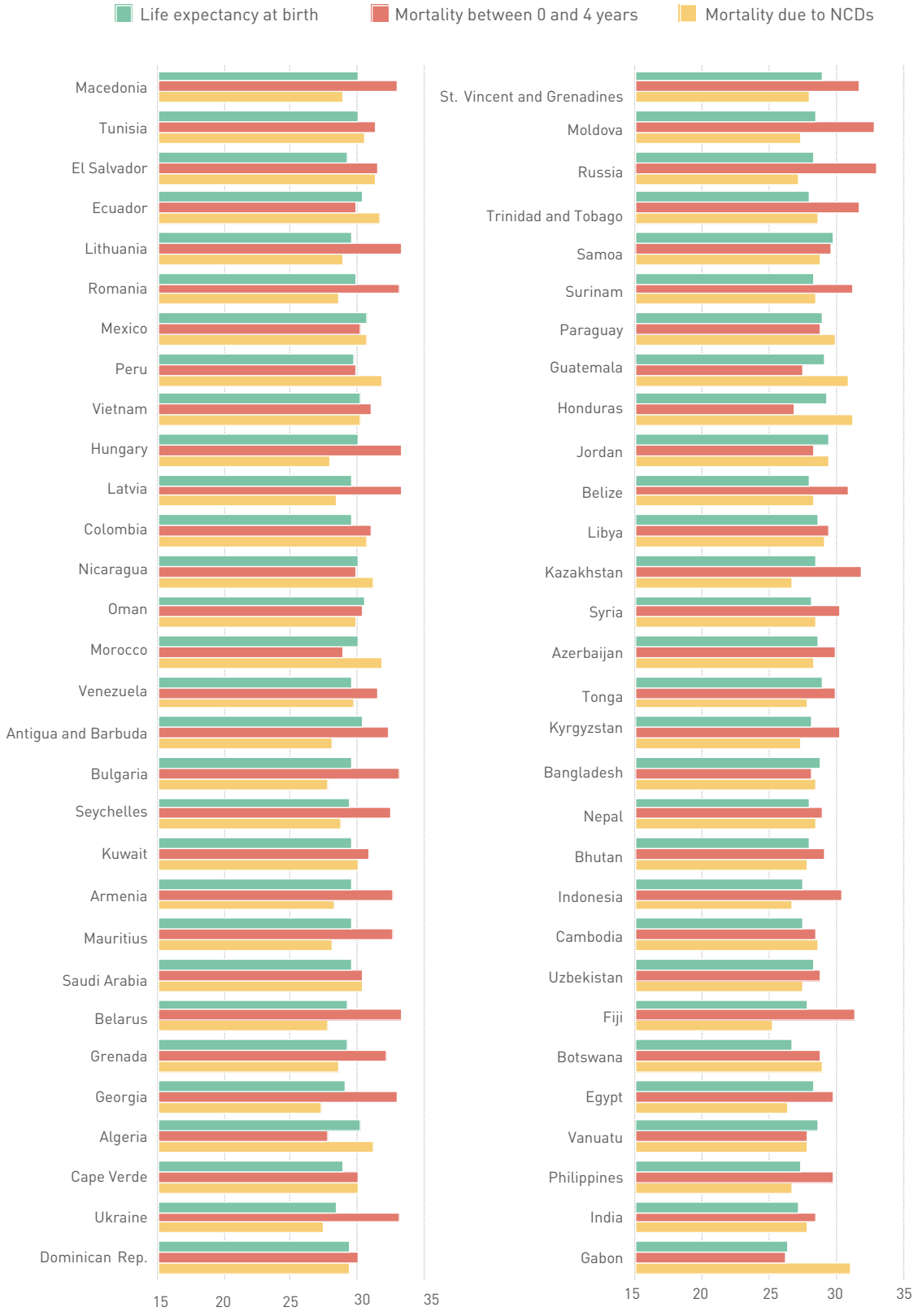
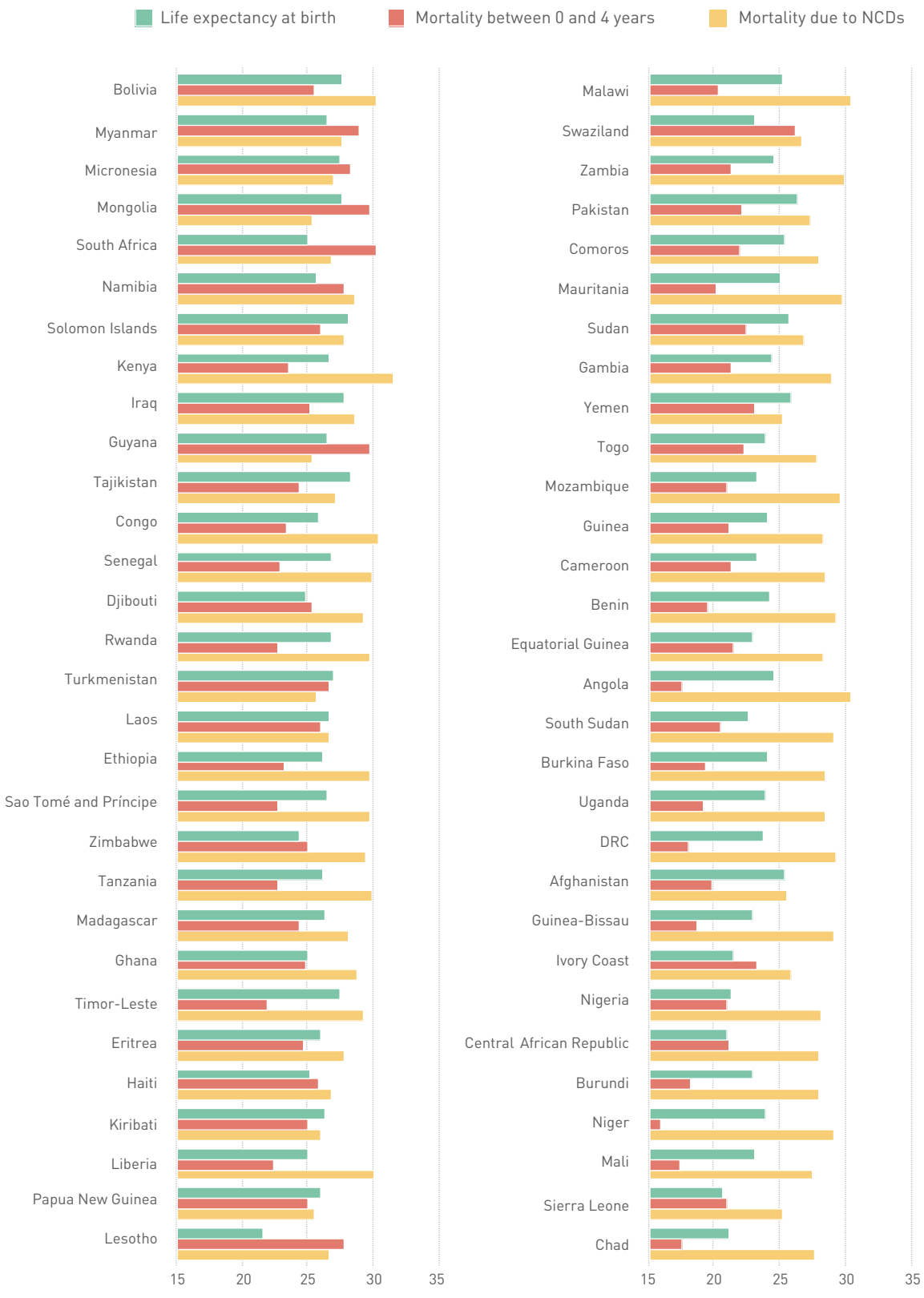
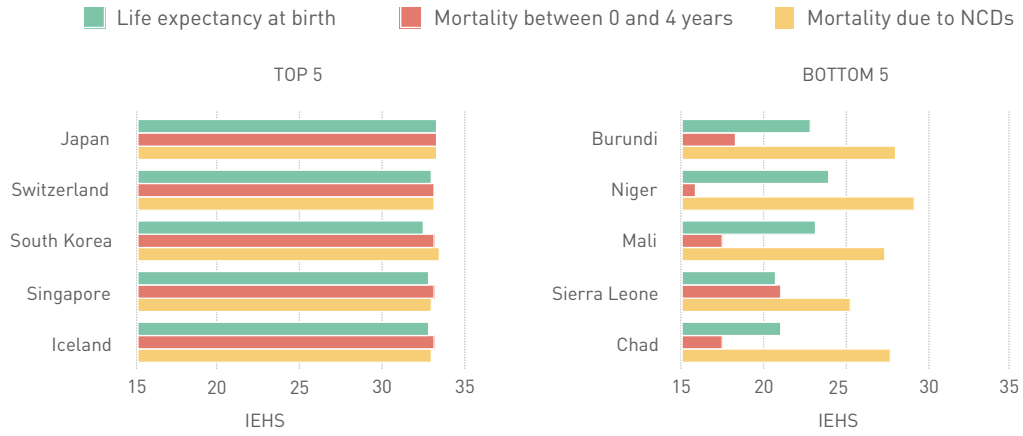


Chart 3.2-b (continued)
Indicator of Effectiveness of Health Systems (IEHS): contribution to the composition of the indicator



Source: MAPFRE Economic Research

Chart 3.2-c
Indicator of Effectiveness of Health Systems (IEHS)
Top 5 and Bottom 5 in the contribution to the composition of the indicator



Source: MAPFRE Economic Research

This situation is observed with greater clarity if we compare the Top 5 and the Bottom 5 of the IEHS, where we clearly see that different structure in the composition of the indicator (see Chart 3.2-c).

While the countries with the highest values in the ranking (Japan, Switzerland, South Korea, Singapore and Iceland) show well-balanced contributions from the three indices that make up the indicator, those with lower IEHS values (Chad, Sierra Leone, Mali, Niger and Burundi) show sharp differences in those contributions.

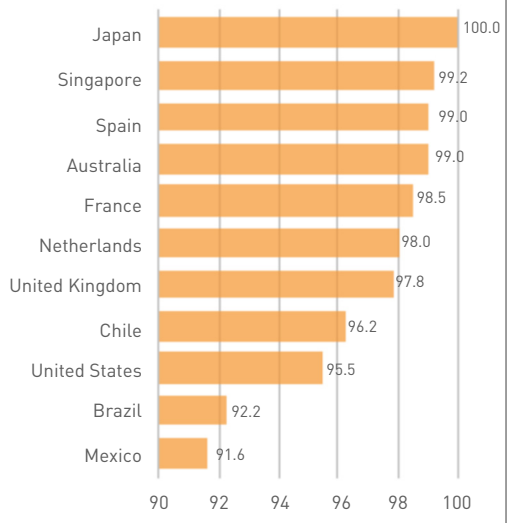
4. Summary and conclusions

4.1 Summary

There follows a summary of the main features of the eleven healthcare models covered by this study, emphasizing the role of the insurance industry in each of them. For the purposes of this summary, the analyzed healthcare systems are ordered according to the estimated value for the Indicator of Effectiveness of Health Systems (IEHS) in each case (see Chart 4.1-a).

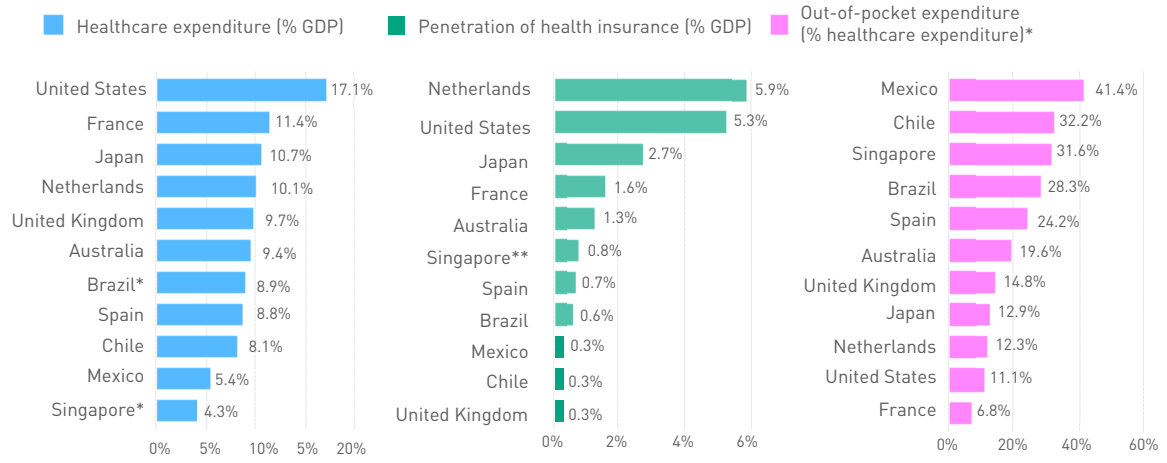
Moreover, in order to offer a general comparative view of the eleven systems analyzed in this study, Chart 4.1-b shows three indicators that summarize the main aspects with respect to the behavior of healthcare expenditure in those systems. Thus, the chart presents the indicator of total healthcare expenditure relative to GDP, as well as two additional indicators related to private health expenditure, the first being the penetration of private health insurance (premiums/GDP), and the second corresponding to "out-of-pocket" health expenditure as a percentage of total healthcare expenditure.

Chart 4.1-a
Indicator of Effectiveness of Health Systems (IEHS): selected markets



Source: MAPFRE Economic Research

Chart 4.1-b
Indicators of healthcare expenditure: selected markets, 2017
(expenditure / GDP, %; premiums / GDP, %; out-of-pocket expenditure / total healthcare expenditure, %)



Source: MAPFRE Economic Research (based on data from sources indicated in chapter 2)
* 2015 data ** 2016 data

Japan

According to the IEHS, Japan occupies first place among the eleven countries analyzed in this report, and in general among all of the 180 countries considered in the estimation of the indicator. Healthcare expenditure relative to GDP was around 10.7% in 2017, the third-highest in the sample (see Charts 4.1-b and 4.1-c).

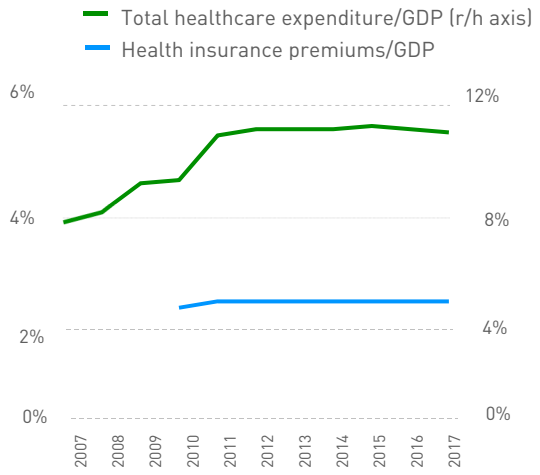
The Japanese healthcare model is of the Bismarckian type. However, it has features of the Beveridge model since there are some public protection programs aimed at extending healthcare coverage universally to all of the country's residents. The system is funded mainly through insurance premiums subsidized by taxes. The coverage is not free, but covers around 70% of healthcare expenses, and there are also programs for people with low incomes.

The relative weight of the different funding sources and the evolution of healthcare expenditure and health insurance premiums relative to GDP are shown in Charts 4.1-c and 4.1-d.

In Japan there are two mandatory employment-based health insurance programs: one for the public sector and employees of large companies, and the other for employees of small and medium-sized enterprises (with five or more employees), administered respectively by a Health Insurance Society and by the Japan Health Insurance Association (managed health insurance). Companies with 700 or more employees can set up their own health insurance society. The cost of the insurance is deducted from the employee's pay, and a contribution is also made by the employer.

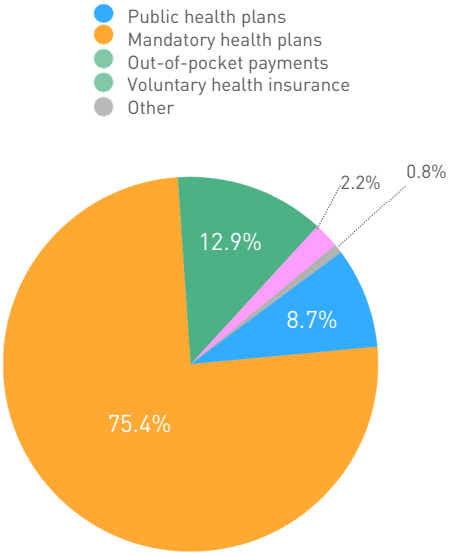
It should also be noted that Japan founded a unique health insurance structure for older people, making healthcare free for most people over the age of 70 years and subsidizing their 30% cost sharing. However, problems of sustainability arose due to its pronounced process of population aging, and currently the

Chart 4.1-c
Japan: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with Finaccord, OECD and OEF/Haver Analytics data)

Chart 4.1-d
Japan: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Latest available data.

eligibility age is 75 years, with the requirement of a small copayment.

The coverage provided by Japan's public health insurance system means that the relative size of private expenditure is reduced. The insurance industry generally markets private medical insurance as a complement to Life insurance, in the form of insurance for the reimbursement of costs, covering chronic illnesses and hospitalization. This offers the insured a global sum at the time of the diagnosis or hospitalization. Insurance against cancer has gathered momentum in recent times. There is also coverage taken out independently of Life insurance, but this is less common.

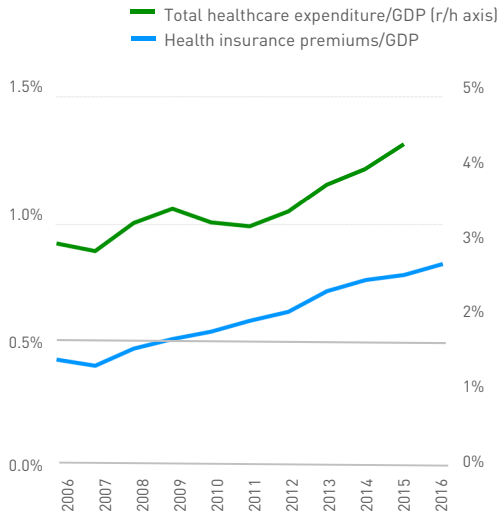
The largest health insurance company (according to data from the end of 2016) is Japan Post Insurance, with a health premium volume of USD 6,774.8 million and a market share of 10.7%, followed by Nippon Life Insurance, with a health premium volume of USD 5,617.8 million and a market share of 8.9%.

Singapore

In the case of Singapore, the IEHS puts it in second place among the eleven countries analyzed in this report, ahead of Spain and behind only Japan (see Chart 4.1-a). In terms of healthcare expenditure, the respective percentage was around 4.3% of GDP in 2015, the lowest among the selected sample (see Chart 4.1-b).

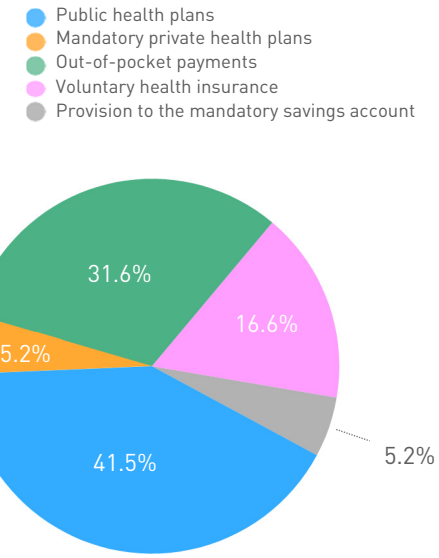
The Singapore health system corresponds to a mixed liberal model with certain elements of the Beveridge system. It offers universal coverage and seeks to guarantee high-quality and affordable basic medical services for the entire population. It is innovative as regards its form of funding, which includes an integral and mandatory social security savings plan (Central Provident Fund, CPF) for Singaporean citizens and permanent residents, intended to cover their future health needs, among other contingencies. This is a system that combines state subsidization with citizen savings (*MediSave*). This means that "out-of-pocket" health expenditure is relatively high, at around

Chart 4.1-e
Singapore: health insurance premiums vs total healthcare expenditure, 2006-2016
(% of GDP)



Source: MAPFRE Economic Research (with WHO, MAS and OEF/Haver Analytics data)

Chart 4.1-f
Singapore: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with WHO data)*
Latest available data.

31.6% of healthcare expenditure per capita. However, through this mechanism, the citizens have a fund that is built up while they are healthy in order to meet future healthcare costs.

The relative weight of the different funding sources of the health system in Singapore, as well as the evolution of healthcare expenditure and health insurance premiums relative to GDP, is shown in Charts 4.1-e and 4.1-f.

It should be noted that in Singapore, insurance companies authorized to operate in the Life segment can offer renewable temporary health and accident policies without an additional license. Thus, many Singaporeans choose to supplement the mandatory coverage in order to pay large hospital bills and cover costly outpatient treatment.

Companies occasionally offer this type of supplementary coverage to their employees, although this is not very common. In this regard, group health insurance premiums accounted for around 24% of premiums for this line of business in 2017, significantly less than the proportion represented by premiums on individual private health insurance policies.

The largest health insurance company is AIA Spore, with a health premium volume of USD 664.7 million in 2017 and a market share of 26.8% of the health business underwritten by the Life companies. It is followed by Prudential, with a health premium volume of USD 513.5 million and a market share of 20.7%.

Spain

According to the IEHS ranking, Spain holds third place among the eleven countries analyzed in this report, ahead of Australia and behind Singapore. In terms of healthcare expenditure, the percentage was around 8.8% of the country's GDP in 2017, eighth among the selected sample (see Chart 4.1-a).

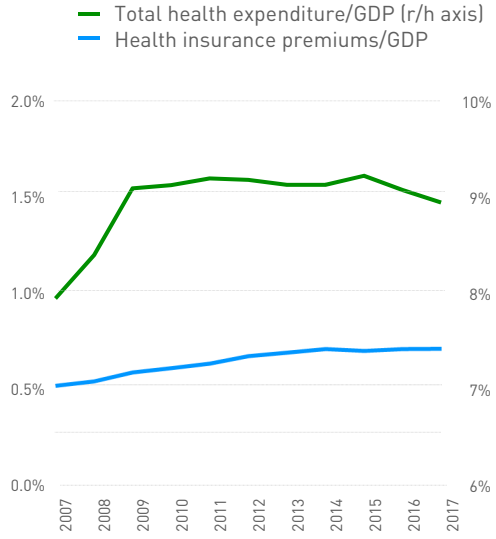
The Spanish healthcare system corresponds to the Beveridge model. It was designed at the end of the 1970s, when the Sistema Nacional de Salud [National Health System] (SNS) was created. It is mandatory coverage, as a work a system that provides universal coverage for Spaniards and for foreigners entered in the Register of Foreign Nationals who have resided in the country for more than three months, as well as for foreigners under the age of 18 years. For everyone else, there is emergency coverage in case of accident or serious illness. Civil servants can choose either to obtain coverage through a private insurance company that has signed an agreement with their respective mutual society or to receive coverage from the SNS.

The relative weight of the different funding sources of the health system in Spain, as well as the evolution of healthcare expenditure and health insurance premiums relative to GDP, is illustrated in Charts 4.1-g and 4.1-h.

It should be noted that despite the wide coverage of the Spanish healthcare system, out-of-pocket health expenditure is relatively high compared with other systems, representing 24.2% of total healthcare expenditure in 2015, fifth place in the selection of analyzed countries.

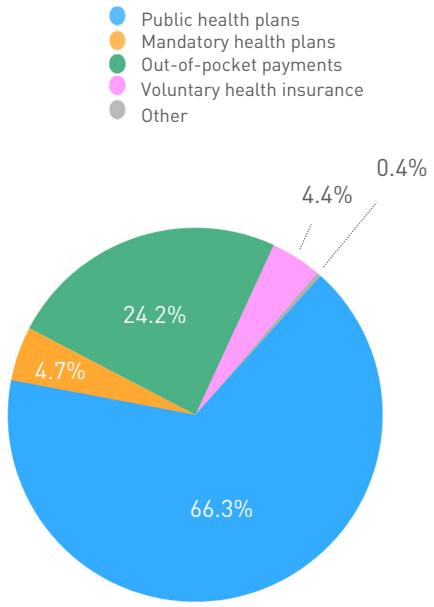
Some companies offer their employees supplementary health insurance in addition to the

Chart 4.1-g
Spain: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with ICEA, OECD and OEF/Haver Analytics data)

Chart 4.1-h
Spain: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

incentive. The tax regime applicable to this form of remuneration currently offers tax advantages, which are also applicable to individual insurance. However, within private health insurance coverage, individual insurance accounts for a larger proportion, at around 72%, with the rest corresponding to group insurance (28% of premiums).

A large part of the health insurance business is in the hands of insurance companies specializing in this line of business (monoline companies). According to data from the end of 2017, the largest health insurance company is SegurCaixa Adeslas, with a health premium volume of USD 2,567.8 million and a market share of 28.8% of the health business. This company is followed by Sanitas (BUPA), with a health premium volume of USD 1,421.6 million and a market share of 15.9%.

Finally, it is important to note that the analysis of the aggregate combined ratio of this line of business at sectorial level shows positive technical results throughout the 2002-2017 period.

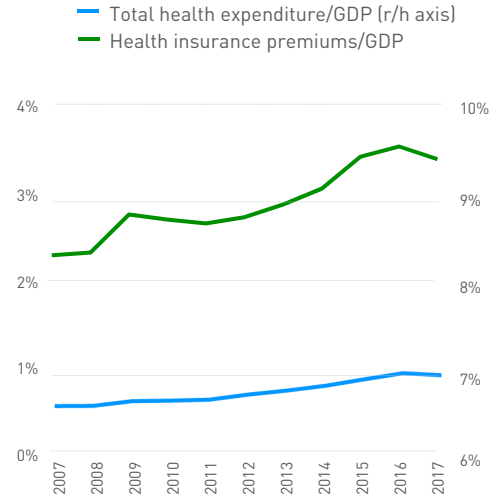
Australia

According to the IEHS, Australia occupies fourth place among the eleven countries analyzed in this report, ahead of France and behind Spain (see Chart 4.1-a). In terms of healthcare expenditure, the percentage was around 9.4% of the country's GDP in 2017, sixth in the sample (see Chart 4.1-b).

The current Australian health system corresponds to the Beveridge model of universal coverage funded through taxes. Public healthcare coverage for Australians and other permanent residents is provided through the Medicare program, which includes primary care costs, hospital costs and 85% of specialists' costs. It also covers certain services provided by opticians, nursing personnel, obstetricians and dentists. This coverage is funded by applying a 2% surtax on income tax.

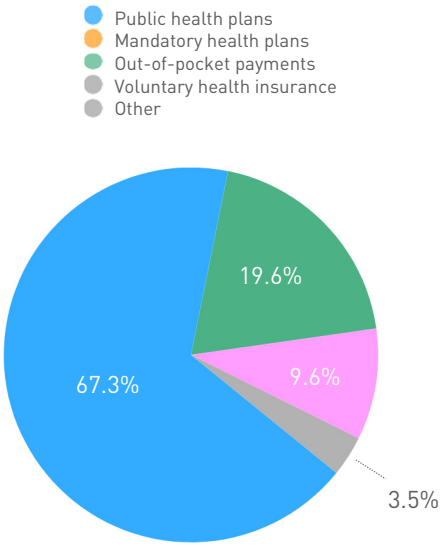
In addition to Medicare, and with the aim of alleviating the burden on the public system, a system of incentives has been established

Chart 4.1-i
Australia: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with APRA, OECD and OEF/Haver Analytics data)

Chart 4.1-j
Australia: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

to encourage people to take out additional Private Health Insurance (PHI). The incentivization of private health insurance is achieved by applying a penalty through income tax, with a progressive surtax on the Medicare rate if private insurance is not taken out. This means that only people with low income levels would be exempt from penalization.

Those who have taken out private medical insurance can choose either to take advantage of their Medicare coverage by using public hospitals (without the ability to choose the specialist who will treat them, and subject to the public healthcare waiting lists), or to use their private insurance (with the ability to choose the specialist and avoid the public system's waiting lists).

The Australian federal government has an online comparator to facilitate price and coverage comparisons when taking out private health insurance[131]. There is a specific regulatory framework as regards the accuracy and appropriateness of the information that must be provided to consumers of health insurance in this comparator, and this consumer protection falls within the scope of the Private Health Insurance Ombudsman (PHIO), with powers of inspection over this market. Help is also available from the federal government, which may subsidize part of the private insurance premiums depending on the scope of the coverage and the financial means of the policyholder.

For Australia, the relative weight of the different funding sources and the evolution of healthcare expenditure and health insurance premiums relative to GDP are shown in Charts 4.1-i and 4.1-j.

In addition, some health funds in Australia provide coverage policies designed for specific companies or organizations, which may form part of the company's package of employee benefits. However, the relative importance of this pillar is residual compared with individual private coverage, given the incentives and tax breaks offered for taking out individual insurance.

The largest health insurance company by health insurance premium volume in 2017 was BUPA HI PYT Ltd, with USD 4,902.9 million in premiums and a health insurance market share of 27.7%. Moreover, the analysis of the aggregate combined ratio of this line of business at sectorial level shows positive technical results throughout the 2006-2016 period.

France

According to the IEHS ranking, France occupies fifth place among the eleven countries analyzed in this report, ahead of the Netherlands and behind Australia (see Chart 4.1-a). In terms of healthcare expenditure, the respective percentage was around 11.4% of GDP in 2017, the second-highest in the sample, behind only the United States (see Chart 4.1-b).

The French system is a Bismarckian model, with funding based on the withholdings made

Chart 4.1-k
France: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)

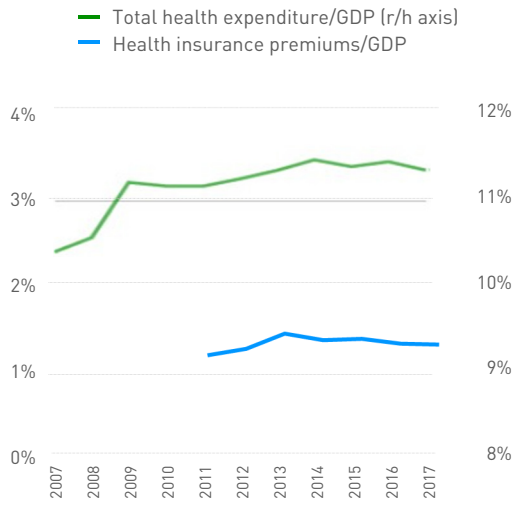
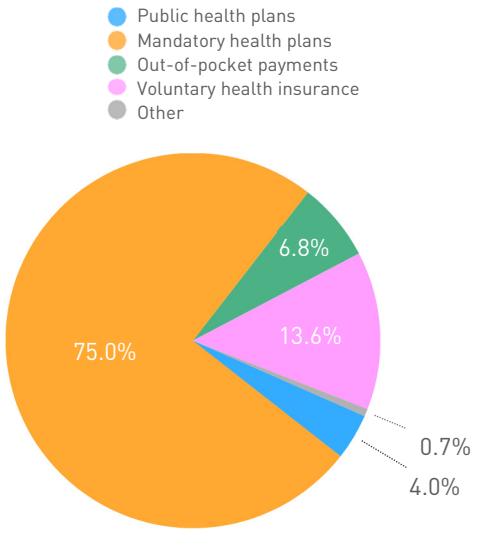


Chart 4.1-l
France: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

on employees' wages and employers' contributions, but with features of the Beveridge model in that it provides universal coverage and obtains additional revenue from specific taxes such as those on tobacco and alcohol, among others.

The relative weight of the different funding sources, as well as the evolution of healthcare expenditure and health insurance premiums relative to GDP, is shown in Charts 4.1-k and 4.1-l.

Most of the coverage is provided through mandatory health insurance plans (*Assurance Maladie*), linked to an employment relationship. Workers are automatically subscribed to one of the schemes according to their status, without the possibility of choosing for themselves. The scheme with the largest number of subscribers is the *Caisse Nationale d'Assurance Maladie des Travailleurs Salariés* [National Sickness Insurance Fund for Salaried Workers] (CNAMTS), which covers workers in the industrial and trade sectors, together with their family members. Residents who do not have coverage via a mandatory health insurance scheme are also covered by the public system (*Couverture Maladie Universelle*, CMU).

Despite the wide coverage of the French public health system, the penetration of private health insurance is significant. The main reason for this is that although the public coverage is considered to be universal (in that it reaches virtually the entire population), it does not cover the full cost incurred, but only around 70%, with the exception of the least privileged people, and it is common to take out supplementary private health insurance in order to achieve full coverage. This means that the percentage of out-of-pocket costs in healthcare expenditure per capita is low (6.8%), indeed the lowest in the sample of systems analyzed (see Chart 4.2-b).

The largest health insurance company by health insurance premium volume in 2017 was Groupe VYV, with USD 5,648.8 million in premiums and a health insurance market share of 13.5%. It was followed by AXA France and Groupama, with market shares of 5.8% and 5.4%, respectively.

The Netherlands

In the case of the Netherlands, the IEHS puts its health system in sixth place among the eleven countries analyzed in this report, ahead of the United Kingdom and behind France (see Chart 4.1-a). In terms of healthcare expenditure relative to GDP, the corresponding percentage was around 10.1% in 2017, the fourth-highest in the sample (see Chart 4.1-b).

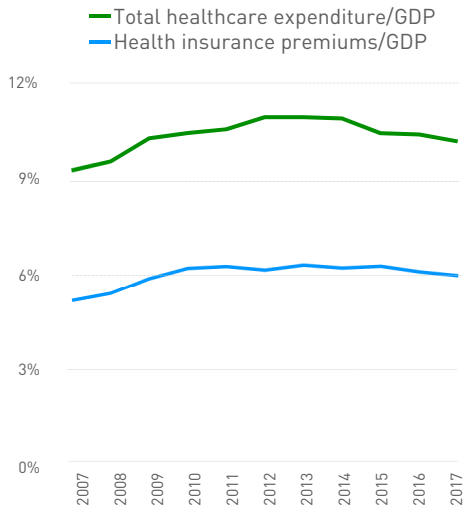
The Dutch health system is a mixed liberal model with elements of the Beveridge system. This is a model that provides universal coverage through mandatory medical insurance managed by private insurance companies. The insurance premium breaks down into two parts: the first is a standard amount that must be paid by each insured person over the age of 18 years, while the second is a variable amount that depends on the person's income level. For children and young people up to the age of 18 years, the government pays the cost of the insurance out of public resources.

There is a basic package of coverage to which everyone is entitled. Insurers must ensure that the services included in the basic package are available for all their insured parties. They are obliged to accept all applicants and cannot differentiate premiums according to the insured person's health risks. The insured person can change insurer each year.

There is a deductible for medical treatment costs that is applied to most of the healthcare services in the basic package. The deductible is an amount that must be paid by the recipient of the medical care before the insurer begins to bear the cost. However, there are medical services for which the deductible is not applied, for example the general practitioner. In 2018, the government set the deductible at 385 euros. In addition, for certain medical costs in the basic package, a personal contribution or copayment must be paid.

The insurance companies can offer two types of policies: "*natura*" or "*restitutie*" [reimbursement], or a combination of both. The "*natura*" policy is a form of service provision insurance and means that the insurance companies must offer treatment to their policyholders through medical service providers contracted by their own insurer.

Chart 4.1-m
Netherlands: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



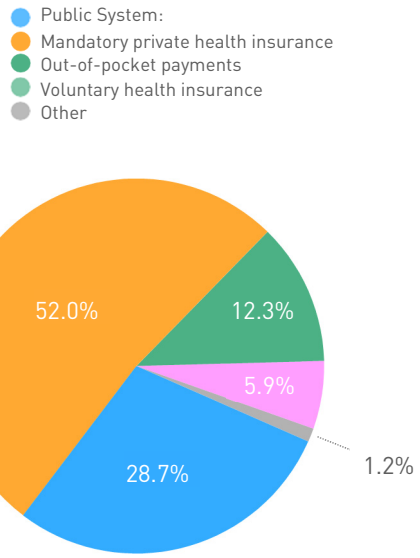
Source: MAPFRE Economic Research (with VVV, OECD and OEF/Haver Analytics data)

The "*restitutie*" policy, meanwhile, is a form of expense reimbursement insurance that entitles the policyholder to reimbursement of his/her medical treatment bill and gives freedom of choice of provider. In principle, the policyholder pays the bill out of his/her own pocket and this is then reimbursed by the insurance company, although if the treatment is very costly it is paid directly by the insurer.

The relative weight of the different funding sources, as well as the evolution of healthcare expenditure and health insurance premiums relative to GDP in the Netherlands, is shown in Charts 4.1-m and 4.1-n.

In the Netherlands it is common for insurance companies to offer supplementary health insurance to cover the costs not covered by the mandatory private insurance. Despite the predominant role of the insurance companies in the Dutch health system, it should be noted

Chart 4.1-n
Netherlands: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)

* Latest available data.

that the percentage of average healthcare expenditure per capita for the public system is significant, mainly due to long-term care programs funded through taxes.

The Dutch health insurance market is dominated by insurance companies specializing in this line of business (monoline companies). The largest health insurance company by health insurance premium volume in 2015 (latest available data) was Zilveren Kruis Achmea Zorg, with USD 9,862.2 million in premiums and a health insurance market share of 20.7%. It was followed by CZ Zorg and VGZ, with market shares of 14.4% and 13.6%, respectively. The analysis of the aggregate combined ratio of this line of business at sectorial level shows negative technical results over the last two years.

United Kingdom

According to the IEHS, the United Kingdom occupies seventh place among the eleven countries analyzed in this report, ahead of Chile and behind the Netherlands (see Chart 4.1-a).

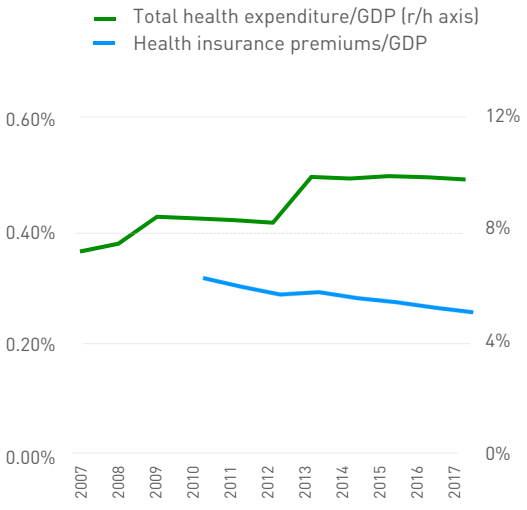
In terms of healthcare expenditure relative to GDP, the indicator was around 9.7% in 2017, the fifth-highest in the sample (see Chart 4.1-b).

The United Kingdom's healthcare system is based on the Beveridge model. It is implemented through the National Health Service (NHS), which is mostly funded through taxes. The coverage is universal and free of charge for legal residents, regardless of their ability to pay.

For the United Kingdom, the relative weight of the different funding sources and the evolution of healthcare expenditure and health insurance premiums relative to GDP are shown in Charts 4.1-o and 4.1-p.

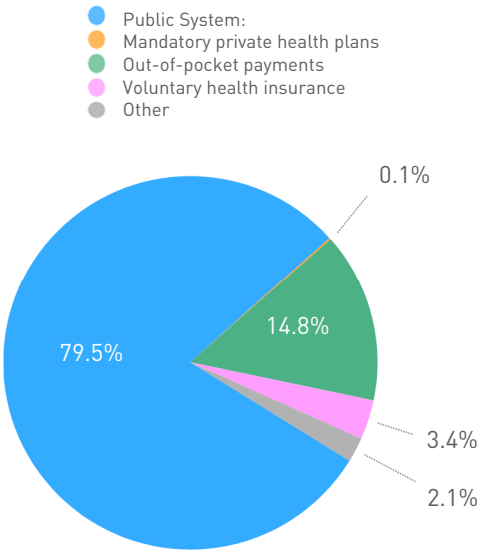
Given the scope and free coverage of the NHS, only a small percentage of the UK population (around 11%) has any type of private medical insurance. The nature of this private insurance varies, from coverage for specific diseases such as cancer to broader packages that include complementary therapies and diagnostic tests. The vast majority of these policies, around 82%, are for corporate group insurance.

Chart 4.1-o
United Kingdom: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with ACPR, OECD and OEF/Haver Analytics data)

Chart 4.1-p
United States: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

The latest public information available from the ABI (2013) places the insurance company BUPA as the market leader, followed by AXA PPP Healthcare. These are the two main companies by market share, and have held these positions for more than two decades.

Chile

According to the IEHS, Chile's health system occupies eighth place among the eleven countries analyzed in this report, ahead of the United States and behind the United Kingdom (see Chart 4.1-a). In terms of healthcare expenditure relative to GDP, the respective percentage was around 8.1% in 2017, ninth in the sample (see Chart 4.1-b).

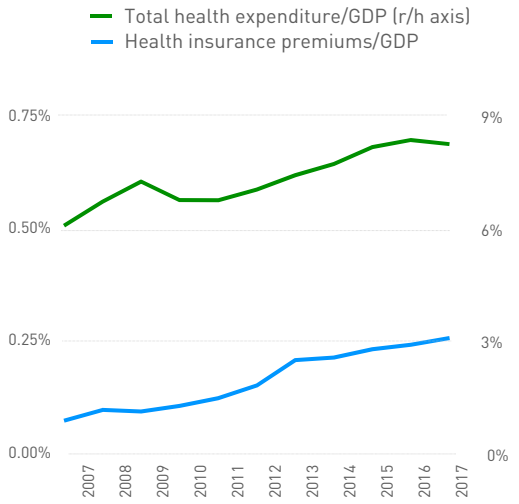
The current Chilean healthcare system corresponds to a mixed Bismarckian model with elements of the Beveridge model, combining a public insurance scheme called the Fondo Nacional de Salud [National Health Fund] (Fonasa) and private insurance plans managed by the Instituciones de Salud Previsional [Health Insurance Institutions] (Isapres), which are born out of the idea of improving the healthcare offering and citizens' ability to choose. The funding for the Chilean health system comes from different sources, mainly the State and contributions from employees and employers.

According to the most recent information available, out of Chile's population of 17.6 million people, around 13.5 million are subscribed to Fonasa (Fondo Nacional de Salud) and 3.4 million to an Isapre, while 0.4 million are covered by insurance provided by the armed forces and police. The rest of the population (around 0.3 million) is not covered by any health plan or insurance.

The relative weight of the different funding sources, as well as the evolution of healthcare expenditure and health insurance premiums relative to GDP, is shown in Charts 4.1-q and 4.1-r.

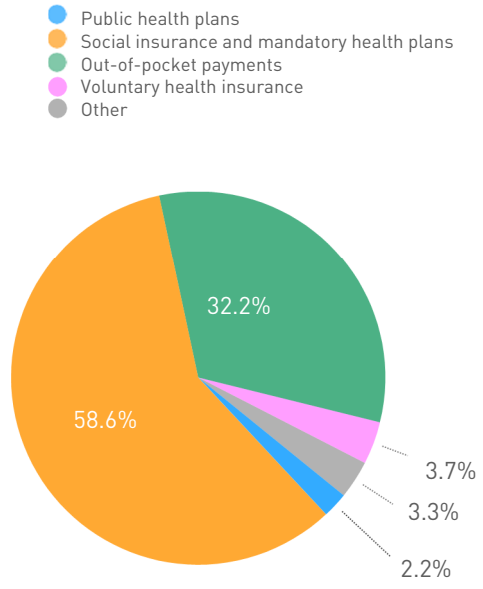
It is important to note the high percentage of out-of-pocket health costs, which in 2015 represented 32.2% of the total healthcare spending per capita, the second-highest in the sample of systems analyzed, after Mexico (see Chart 4.2-b).

Chart 4.1-q
Chile: health insurance premiums vs total healthcare expenditure, 2007-2017(% of GDP)



Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile [Chilean Insurers' Association], OECD and OEF/Haver Analytics data)

Chart 4.1-r
Chile: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with Asociación de Aseguradores de Chile and Finaccord data)
* Latest available data.

Voluntary private health insurance supplementary to the mandatory coverage consists mainly of group policies taken out by an employer or a negotiating body, such as labor unions or corporate internal units. This type of insurance accounts for around 80% of the health insurance taken out with insurers other than the Isapres, with an upward trend over recent years.

In 2017, the insurance companies took 527,831 million pesos in health premiums (USD 814 million). Of this figure, 98.6% represents premiums written by Life insurance companies. The largest group by health insurance premium volume in 2017 was MetLife with USD 179.7 million in premiums and a health insurance market share of 22.1%, followed by Chilena Consolidada with USD 93.1 million in premiums and a market share of 11.4%.

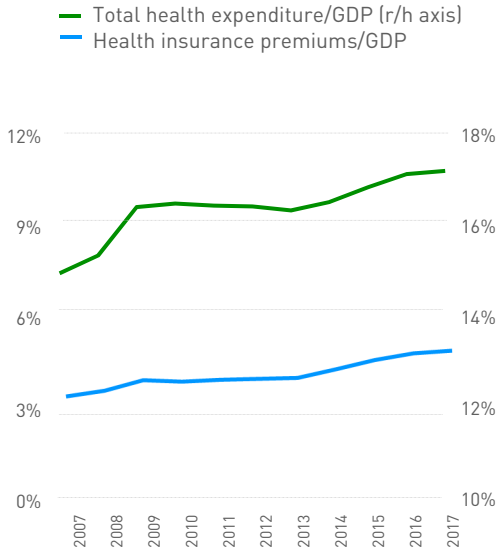
United States

The IEHS puts the health system of the United States in ninth place among the eleven countries analyzed in this report, behind Chile and ahead of Brazil (see Chart 4.1-a). This situation contrasts with the percentage of healthcare expenditure relative to GDP, which in 2017 was around 17.1%, the highest among the selected sample and one of the highest in the world (see Chart 4.1-b).

The US healthcare model corresponds to a liberal type of model, since there is no truly universal public healthcare coverage. However, there are a number of public protection programs for certain more vulnerable sections of the population, which seek to make up for the shortcomings of the free market. The most important of these are Medicare for adults, Medicaid for people with limited resources, and CHIP (Children's Health Insurance Program) for children. Programs of this type currently cover a significant percentage of the population, around 40%.

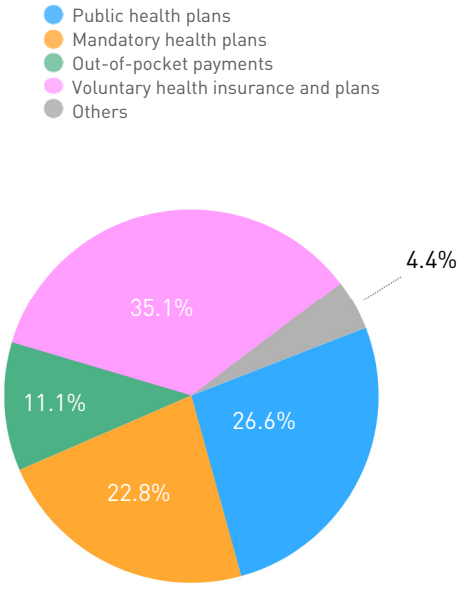
The relative weight of the different funding sources, as well as the evolution of healthcare

Chart 4.1-s
United States: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with NAIC, SNL, OEF and Haver Analytics data)

Chart 4.1-t
United States: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD and WHO data)
* Latest available data.

expenditure and health insurance premiums relative to GDP, is shown in Charts 4.1-s and 4.1-t.

The area of coverage of the public health system in the United States opens up significant scope for coverage through corporate health schemes by the private sector. The penetration of health insurance (health premiums/GDP) was 5.3% of GDP in 2017. The majority of health insurance policies (around 56%) are for corporate group insurance. Companies have traditionally not been obliged to offer healthcare coverage to their employees. However, the "ACA" law of 2010 (Patient Protection and Affordable Care Act) made it mandatory for certain companies, depending on their size, to provide their employees with medical insurance.

Unlike large companies, small and medium-sized enterprises with fewer than 50 workers are not obliged to offer healthcare coverage to their employees, beyond occupational accident insurance.

They occasionally incorporate it as part of the employee's remuneration package, although this is not very common, given the high cost that it entails for them. In these cases, the employee tends to bear part of the cost of the insurance. With the aim of encouraging these companies, a number of measures have been introduced, such as tax credits and the creation of an online health insurance market to make it easier for them to take out this type of insurance and access a wider offering, called the Small Business Health Options Program (SHOP).

In addition to the mandatory coverage through the above programs and the large companies' mandatory health plans for their employees, the ACA law established the obligation to take out private insurance, with certain minimum requirements, for all persons not covered through such programs and plans. Among other measures, it was established that people for whom it is mandatory to take out this type of insurance cannot be rejected on the grounds of pre-existing medical conditions, nor can annual limits on the coverage be imposed. The policy must cover at least 60% of the actuarial cost, and the premium cannot be calculated on an individualized basis.

To this end, a specific regulation was established to allow these people access to private insurance at a reasonable cost, with the creation of an online market for these policies and subsidies for payment of the premiums for people whose incomes are above the threshold for access to Medicaid but below a minimum determined according to the federal poverty level (currently 400%).

The introduction of this obligation takes into account the greater capacity of the insurance companies to negotiate the costs of the services with the healthcare providers, which people do not have at individual level, and this can help to reduce the final cost of the coverage which, in the United States, is very high. These negotiations are complicated even for the insurance industry, taking into account the size and negotiating power of providers such as pharmaceutical companies or medical associations in this country.

In addition, with the aim of increasing the offering and making it easier to take out this type of insurance, it is negotiated on a digital platform managed by the different states (or otherwise at federal level), which also inform the insured persons about the possible assistance available to them depending on their circumstances.

The policies negotiated in this insurance market (on so-called exchanges) are standardized, and by law must provide quite wide coverage in terms of benefits. They may also cover different percentages of healthcare bills: 60%, 70%, 80% or 90% (bronze, silver, gold and platinum categories, respectively).

Around 79% of private health insurance business is underwritten by companies specializing in this line of business (monoline companies). Of the rest, around 20% is underwritten by Life insurance companies, and the remaining 1% by Property and Casualty companies (P&C, Non-Life business, not including health insurance).

The largest group by health insurance premium volume in 2017 was UnitedHealth Group with USD 138,531.4 million in premiums and a health insurance market share of 13.5%, followed by Kaiser Foundation and Anthem with 8.2% and 6.3%, respectively. The analysis of the aggregate combined ratio of this line of business at sectorial level shows positive technical results throughout the 2007-2017 period.

Brazil

According to the IEHS, Brazil occupies tenth place among the eleven countries analyzed in this report, behind the United States and ahead of Mexico (see Chart 4.1-a). In terms of healthcare expenditure relative to GDP, the indicator was around 8.9% in 2015, the seventh-highest in the sample (see Chart 4.1-b).

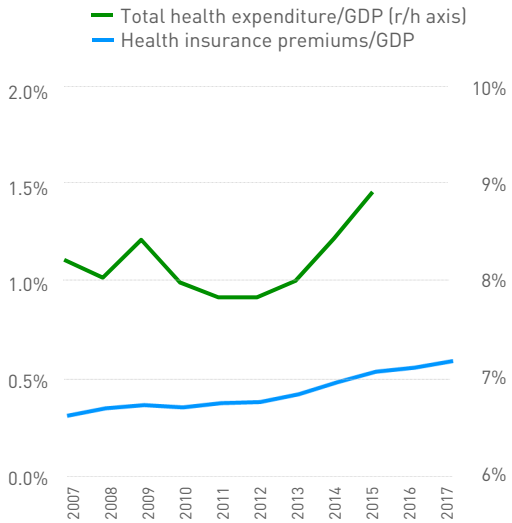
The current Brazilian healthcare system corresponds, in general, to the Beveridge model. However, despite the existence of free universal public coverage, the involvement of the private sector is significant, through supplementary health coverage.

The current configuration of the Brazilian health system is the result of a process of structural transformation at the end of the 1980s, when it moved from a social security model (which covered only people with a contract of employment) to a national health service model, with the creation of the Sistema Único de Salud (SUS) providing universal access and funded by taxes. The SUS was created in 1988, at the time of the inclusion in the Constitution of the right to free comprehensive healthcare for the entire population.

For the Brazilian health system, the relative weight of the different funding sources and the evolution of healthcare expenditure and health insurance premiums relative to GDP are illustrated in Charts 4.1-u and 4.1-v.

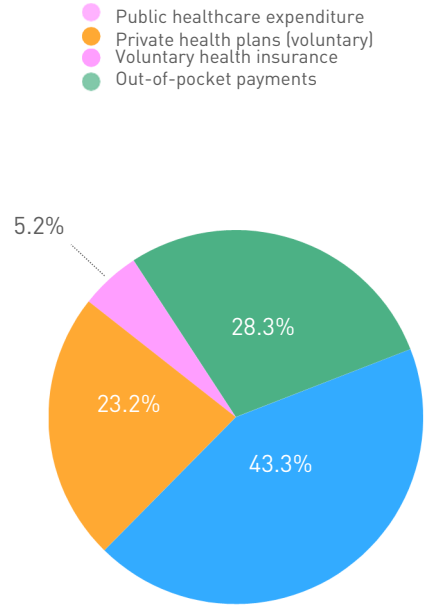
The private health sector as a whole is called the Sistema de Atención Médica Suplementaria [Supplementary Medical Care System] (SAMS), and is supervised by the Agencia Nacional de Salud Suplementaria [National Supplementary Health Agency] (ANS). The users are companies and families, who purchase group or individual Health Plans and Health Insurance.

Chart 4.1-u
Brazil: health insurance premiums vs total healthcare expenditure, 2007-2017
(% of GDP)



Source: MAPFRE Economic Research (with ANS and OEF/Haver Analytics data)

Chart 4.1-v
Brazil: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

The Health Insurance is characterized by being mainly of the reimbursement type, allowing a free choice of doctor or hospital, while the Health Plans mainly cover the provision of services within a predefined medical or hospital framework. The Health Plans also have the option of reimbursement, but are taken out less frequently.

The Operadores de Planes de Salud [Health Plan Operators] (OPSs) are classified into eight types: (i) group medicine; (ii) group dentistry; (iii) specialized health insurers; (iv) administrators; (v) medical cooperatives; (vi) dental cooperatives; (vii) philanthropic institutions, and (viii) self-managing operators. As at January 2018, the Supplementary Health System comprised 1,054 OPS entities, providing coverage to around 70 million beneficiaries. Of this total, 48.8 million were covered through corporate group schemes, 8.6 million through group affiliation (other groups) and 13.1 million through individual policies.

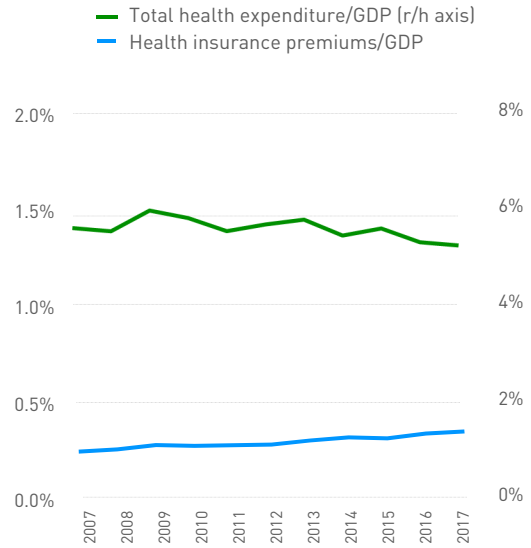
The largest health insurance company by health insurance premium volume in 2017 was Bradesco with USD 6,391.7 million in premiums and a health insurance market share of 51.7%, followed by Sul América with a 34.4% share. The analysis of the aggregate combined ratio of this line of business at sectorial level over the 2007-2017 decade shows negative technical results over the last three years, a deterioration compared with previous years in which the results were generally positive.

Mexico

The IEHS ranking puts Mexico's health system in last place among the eleven countries analyzed in this report, behind Brazil (see Chart 4.1-a). In terms of healthcare expenditure relative to GDP, the percentage was around 5.4% in 2017, tenth in the sample (see Chart 4.1-b).

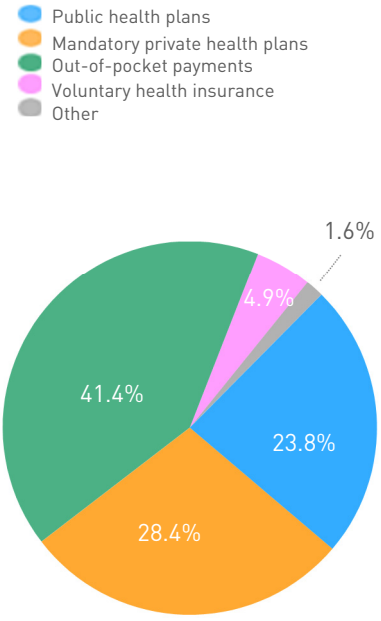
In general terms, the Mexican healthcare system corresponds to a mixed Bismarckian model with elements both of the Beveridge system and of the free-market model. Three major components can be identified in this system: (i) social security institutions linked to an employment relationship; (ii) health services for the uninsured population (Seguro Popular),

Chart 4.1-w
Mexico: health insurance premiums vs total healthcare expenditure, 2007-2017(% of GDP)



Source: MAPFRE Economic Research (with CNSF and OEF/Haver Analytics data)

Chart 4.1-x
Mexico: breakdown of average expenditure per inhabitant, 2015*
(%)



Source: MAPFRE Economic Research (with OECD data)
* Latest available data.

and (iii) private services, which are currently the predominant feature of the system, considered individually.

The institutions that make up the social security system are the Instituto Mexicano del Seguro Social [Mexican Institute of Social Security] (IMSS) for private-sector employees, the Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado [Institute of Insurance and Social Services for Public Workers] (ISSSTE), and the Instituto de Seguridad Social de las Fuerzas Armadas Mexicanas [Institute of Social Security for the Mexican Armed Forces] (ISSFAM). In addition, the state governments have created social insurance schemes for their employees ("State ISSSTEs"), and some decentralized bodies, such as Petróleos Mexicanos, have independent medical services.

The Seguro Popular offers coverage through two packages of health benefits: the Catálogo Universal de Servicios Esenciales en Salud [Universal Catalog of Essential Health Services] (CAUSES), and the interventions funded through the Fondo de Protección Contra Gastos Catastróficos [Fund for Protection from Catastrophic Expenses]. In addition, there is a program called IMSS-Prospera, which offers marginalized populations in rural and urban areas a free basic package of primary care and preventive health services.

The relative weight of the different funding sources, as well as the evolution of healthcare expenditure and health insurance premiums relative to GDP, is shown in Charts 4.1-w and 4.2-x. There is a notably high percentage of out-of-pocket health costs, which in 2015 represented 41.4% of the total healthcare expenditure per capita, the highest in the sample of systems analyzed (see Chart 4.1-b).

Health expenditure by the Mexican private health subsystem represented 2.6% of GDP in 2017. The private sector includes those people who, due to their employment situation, do not have access to social security (self-employed, unsalaried casual workers, unemployed), are not registered for Seguro Popular, do not receive treatment in the public health services and state health systems, or are not beneficiaries of the IMSS-Prospera program.

The private insurance companies offer two types of coverage: insurance against major medical expenses, and health insurance taken out with Instituciones de Seguros Especializadas en Salud [Specialized Health Insurance Institutions] (ISES). These are insurance institutions authorized to operate as insurers against accidents and illness in the health line. They are permitted to sell private insurance, and the objective must always be to protect or restore the health of the insured person directly and with their own resources, a combination of the two, or through actions performed for the benefit of the insured.

Premiums for medical expenses insurance amounted to 67,830 million pesos (USD 3,588 million) in 2017, of which half was for group insurance and the other half for individual insurance. Meanwhile, health insurance revenues amounted to 3,518 million pesos (USD 186 million) in premiums in the same year. As a whole, private health insurance expenditure in 2017 amounted to 71,348 million pesos (USD 3,774 million).

The largest health insurance company by health insurance premium volume in 2017 was Grupo Nacional Provincial with USD 904.3 million in premiums and a health insurance

market share of 24%, followed by AXA Seguros and MetLife with 17.5% and 15.6%, respectively. It should be noted that the analysis of the aggregate combined ratio of this line of business at sectorial level shows negative technical results throughout the 2007-2017 period.

4.2 Main conclusions

General aspects

After analyzing the main characteristics of the sample of healthcare models selected for the purposes of this study, we observe that the traditional templates previously used to characterize them (Bismarckian, Beveridgian or free-market) currently appear to be blurring. In this regard, from the analysis performed we see that there is a generalized trend toward the extension of healthcare coverage universally to all the residents of each country (as recommended by various international organizations, including the World Health Organization), employing to this end variants of the original models or a combination of them.

Against this backdrop, and regardless of the specific health model, the public sector plays a fundamental role in establishing the necessary public policies to ensure that providers of healthcare services (public or private) fulfill their obligation to provide adequate healthcare to the people who are entitled to it. The manner in which this coverage is provided follows different patterns, with a diversity in the typology and participation of healthcare institutions and providers, in the sources of funding and even in the very scope of the coverage.

It is important to note that from the analysis of international experience performed in the study, it emerges that the ultimate objective of having universal healthcare coverage is not always to achieve free coverage for the entire resident population, but rather to offer special free or highly subsidized protection only for the most vulnerable sections of the population, seeking thus to remedy the intrinsic deficiencies of the healthcare model concerned or, ultimately, the shortfalls of the market. For the rest of the population, the objective of universal coverage sometimes results in a sharing of costs, and indeed in some systems is limited to seeking to ensure coverage at a reasonable cost (as in the health system of the United States).

Notable examples of cost-sharing systems are France and Japan, where universal coverage is not total but covers around 70% of healthcare expenses. In Singapore, on the other hand, there is subsidization of up to 80% of treatment bills for serious illnesses in public hospitals, while Australia covers primary care expenses, hospital costs and 85% of specialists' costs. In the case of the Netherlands, private insurance companies that provide mandatory coverage start paying the healthcare bill above a certain threshold, currently 385 euros, although there are services to which this does not apply. There is also greater protection for the most vulnerable sectors of the population in all of the analyzed countries.

Against this backdrop, two important aspects emerge from the analysis of the healthcare systems considered in this study. The first is that the aim of advancing toward universal coverage has resulted in the establishment of mechanisms complementary to those considered in the models originally employed. The second is that these complementarity schemes have involved greater participation by the private sector, whether through stimuli for companies to participate in providing supplementary healthcare coverage for their employees or through greater participation by private insurance companies as specialized managers in the provision of healthcare services.

In the international analysis, we see that the role of the insurance companies is largely determined by the healthcare model of the territory in which they operate. Normally they play a role complementary to that of the

public sector, with some notable exceptions such as in the Netherlands, the United States and Japan. In the Netherlands and Japan, the high penetration of health insurance is due to public policy decisions to the effect that the insurance companies should participate in the mandatory universal coverage system. In Japan, meanwhile, the insurance companies that manage the mandatory coverage linked to an employment relationship are publicly owned, so that the role of the private insurance companies offering voluntary health insurance is limited and of a markedly complementary nature. In the United States, the very substantial participation of the insurance industry is largely due to the free-market healthcare model adopted.

Thus, in those countries where the objective is to offer universal coverage with a sharing of costs or at a reasonable cost, an opportunity opens up for the participation of voluntary health insurance through the private insurance companies. Sometimes it is the companies themselves that offer employees and their families insurance complementary to the mandatory coverage, as a work incentive. The United States and France are good examples in this regard. In any event, there is always the alternative of taking out voluntary individual coverage. Sometimes, in order to encourage this behavior, private coverage through voluntary health insurance enjoys the benefit of a favorable tax regime.

In those countries where the objective is to offer free universal healthcare coverage, such as Brazil, the United Kingdom and Spain, the volume of supplementary health insurance provided by private companies is lower, but does not disappear. Furthermore, the percentage of out-of-pocket health costs in these countries is high, even higher than those of other systems based on cost-sharing. Sooner or later, the cost to the public purse of free universal healthcare produces budgetary sustainability problems that eventually result in funding problems and longer waiting lists, giving rise to coverage shortfalls, and this also opens up space for the development of voluntary private insurance.

Good practices in public policies

From the review of international experience conducted in this study, there are a number of public policies that should be highlighted, since they constitute good practices that have supported the ultimate objective of advancing toward the universalization of healthcare services coverage for the population.

Savings plans to cover health expenses

Compulsory medium- and long-term saving to cover healthcare needs has always been one of the aspects regarded as key to improving the medical care provided to citizens.

In this regard, Singapore's healthcare system includes a savings plan for its citizens to cover their future health needs, called "MediSave". Through this mechanism, the citizens have a fund that is built up while they are healthy in order to meet future healthcare costs. This is a system that combines a state subsidy of up to 80% of hospital costs for serious illnesses with a mandatory savings system.

Incentives for taking out voluntary insurance

From the point of view of complementarity, the establishment of incentives for taking out voluntary insurance, as mechanisms for widening and eventually universalizing healthcare for the population, represents a key measure. In this regard, and with the aim of alleviating the burden on the public health systems, some countries have established a system of incentives for taking out voluntary health insurance to complement the care provided by the first-pillar schemes.

In Australia, for example, the incentivization is achieved by means of a penalty applied through income tax, by imposing a progressive surtax on the Medicare rate (applicable to all

Chart 4.2.
Summary of good practices in public policies

Source: MAPFRE Economic Research

taxpayers for the funding of the public system) if private insurance is not taken out. This means that the only people exempt from the penalization mechanism are those with lower income levels who do not take out private insurance. Those who have taken out medical insurance can choose either to take advantage of their Medicare coverage by using public hospitals (without the ability to choose the specialist who will treat them, and subject to the public healthcare waiting lists), or to use their private insurance (with the ability to choose the specialist and avoid the public system's waiting lists).

In Spain, some companies offer their employees supplementary health insurance in addition to the mandatory coverage, as a work incentive. The tax regime applicable to this form of remuneration currently offers tax advantages, since exemption from income tax is granted for the income in kind entailed for the employee, on the sums paid for him/her, his/her spouse and his/her offspring, subject to certain quantitative limits. In the United States, Brazil and Mexico, tax credits are also granted for taking out this type of work incentive, or for taking out individual private health insurance.

Online markets and comparators

Various countries in which private health insurance plays a significant role in the general health scheme have introduced, by law, online comparators to facilitate price and coverage comparisons when taking out private health insurance.

In the United States, with the aim of encouraging small and medium-sized enterprises to take out private health insurance for their employees, in addition to tax credits, an online health insurance market has been created to make it easier for them to take out this type of insurance and access a wider offering, called the Small Business Health Options Program (SHOP). There are also digital platforms for taking out individual insurance, managed by the different states, or otherwise at federal level (called "exchanges"), with standardized policies which by law must provide quite wide coverage in terms of benefits. These policies

may also cover different percentages of healthcare bills: 60%, 70%, 80% or 90% (bronze, silver, gold and platinum categories, respectively). These markets were created at the time of the introduction of the obligation to take out private health insurance for those people not covered by the public protection programs (Medicare, Medicaid or CHIP).

Strengthening of the role of private insurance

In a number of the systems analyzed, the strategy for the universalization of coverage has explicitly addressed the strengthening of the role of private health insurance.

In this regard, the Dutch health system provides universal coverage through mandatory medical insurance managed by private insurance companies. Insurance companies that decide to take part in the mandatory coverage system must ensure that the services included in a basic package of coverage are available to all their insured parties. They are obliged to accept all applicants and cannot differentiate premiums according to the risks to the health of the insured person. The insured person can change insurer each year.

In the United States, in addition to the mandatory coverage through the programs for vulnerable people and the large companies' mandatory health plans for their employees, the ACA law established the obligation to take out private health insurance, with certain minimum requirements, for all persons not covered through such programs and plans. Among other measures, it was established that people for whom it is mandatory to take out this type of insurance cannot be rejected on the grounds of pre-existing medical conditions, nor can annual limits on the coverage be imposed. The policy must cover at least 60% of the actuarial cost, and the premium cannot be calculated on an individualized basis.

It is important to note that the introduction of this obligation takes into account the greater capacity of the insurance companies to negotiate the costs of the services with the healthcare providers, which people do not have at individual level, and this can help to reduce the final cost of the coverage which, in the United States, is very high. These negotiations are complicated even for the insurance industry, taking into account the size and negotiating power of providers such as pharmaceutical companies or medical associations in this country.

Correction of market failures

In those countries that have established a health system with free-market characteristics, there are public protection programs for certain more vulnerable sections of the population, which would otherwise be unable to access healthcare coverage at a reasonable cost. This is the case in the United States, with the Medicare program for elderly people, Medicaid for people with limited resources, and CHIP for children. They currently cover a significant percentage of the population, around 40%.

The challenges for health systems: by way of conclusion

Having an adequate and sustainable health system is an essential component of the public policy scheme of any government. However, health systems around the world, regardless of the specific scheme on which they are based, face enormous challenges for the future.

The current generalized increase in government debt volumes and fiscal deficits, aggravated by higher pension and health costs (largely due to the generalized process of population aging), makes it difficult to stretch the public funding budget intended to cover free and cost-sharing universal healthcare.

Notable in this regard is the case of Japan and the effort being made by the country's government to obtain information through its municipal authorities in order to determine the seriousness of the problem. Analysis of this information shows that people over the age of 64 years account for more than 58% of the total healthcare expenditure, and within this group

those over the age of 70 years receive around 30% of that proportion. This country founded a unique health insurance structure for older people, making healthcare free for those over the age of 70 years and subsidizing their 30% cost sharing. However, problems of sustainability arose due to its pronounced process of population aging, and currently the eligibility age has been extended to 75 years, with the further requirement of a small copayment.

Also notable in this regard is the case of the Netherlands, where, despite the wide mandatory coverage with a predominant role played by the insurance companies in the health subsystem, the percentage of average healthcare expenditure per capita for the public system is significant, largely due to the long-term care programs funded through taxes.

Japan and the Netherlands are just two examples of what is believed to be a generalized process worldwide, which is also impacting other health systems. This aging process will undoubtedly determine the design of future public policies as the current generations live longer, with an inevitable increase in health and pension costs for which governments will need to prepare themselves. In terms of the conceptual framework of this study, these policies would need to be based on the pillars of employment-related voluntary supplementary coverage (second pillar) and individual private coverage (third pillar), due to the increase in pressure on the public accounts as the population aging process advances. In this way, the healthcare systems will be able to partially alleviate those pressures on their operation, as well as to devote greater resources to long-term and palliative care.

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