Chapter 3

Health care policies and institutions – A new set of indicators

This chapter presents indicators of health care policies and institutions, drawing on new data collected by the OECD. It focuses on those policies and institutional features which most affect the supply and demand of care, equity in access and the ability of governments to control public spending. This chapter also provides a snapshot of OECD countries' scores for each of the 20 policy and institutional indicators.

Introduction

An important question for both policy makers and citizens is how the design of institutions and health care policy affect the efficiency of health care systems. However, consistent cross-country information on health policies and institutions had been missing. To fill this void, the OECD has collected detailed information on health policies and institutions governing health insurance and coverage, health care delivery, and the allocation and management of public health care spending. Responses to a questionnaire launched in 2008 have been received from 29 OECD countries (the US government has not responded). This wide-ranging dataset (269 mainly qualitative variables, referred to below as the Survey on Health System Characteristics) was transformed into 20 core indicators on health policies and institutions that take values ranging from 0 to 6.[1]

Policy settings as seen through the prism of indicators

In pursuing the two core policy objectives – improving the population health status and promoting equity in access – under a budget constraint, OECD countries have relied on various instruments. In describing this set of market mechanisms, regulations and management principles, a tree structure has been adopted (Figure 3.1 and Table 3.1). The main considerations shaping this tree structure are as follows:

- The main policies and institutions affecting the health status of the population are those governing the behaviour of providers, payers and users. Policy approaches differ considerably across countries. Some countries have relied on a command-and-control approach while others have given market signals a more prominent role to steer the demand and supply of health care services. However, given the market failures in the health care sector, market-orientation and regulation are often complementary (Smith, 2008*a*). In practice, many countries that typically relied mainly on a command-and-control approach have gradually introduced market mechanisms. And the United States, where market mechanisms for health insurance have been prevalent, has now tightened regulations.[2]
- The level of basic health insurance coverage is a key determinant in promoting equity in access. While a vast majority of OECD countries have reached almost universal coverage, there are still some differences in the scope of goods and services covered, as well as the level and distribution of out-of-pocket payments.
- In controlling public spending, approaches to set and share the spending envelope and the allocation of responsibilities across levels of government play a key role. The regulation of prices paid by third-party payers and of the workforce and equipment is also important.

1. Paris *et al.* (2010) present the information collected through the questionnaire in great detail.

2. The 2010 health reform included provisions that limit insurance companies' ability to charge premiums based on individuals' characteristics and prohibit them refusing to sell or renew insurance contracts due to an individual's health status.

Steering demand and supply of care: indicators on market mechanisms and regulations

In regulating the demand for, and supply of, health care services, countries have relied on command-and-control approaches and market mechanisms or a mix of the two. *Command-and-control approaches*, including public delivery of health care services and controls on health care employment and prices, have contributed to keep public spending under control but have often had adverse side effects, including low productivity, long waiting times and dissatisfaction with health care systems. On the other hand, the pervasiveness of serious *market failures* (Annex 3.A1) in the health care sector means that markets alone cannot produce efficient outcomes (Arrow, 1963; Docteur and Oxley, 2003; Ennis, 2006; Hsiao and Heller, 2007). The Survey on Health System Characteristics reveals that the actual mix between command-and-control approaches and market mechanisms differs significantly across countries. Also, countries relying intensively on market mechanisms tend to implement simultaneously various regulations to steer the demand and supply of health care services.

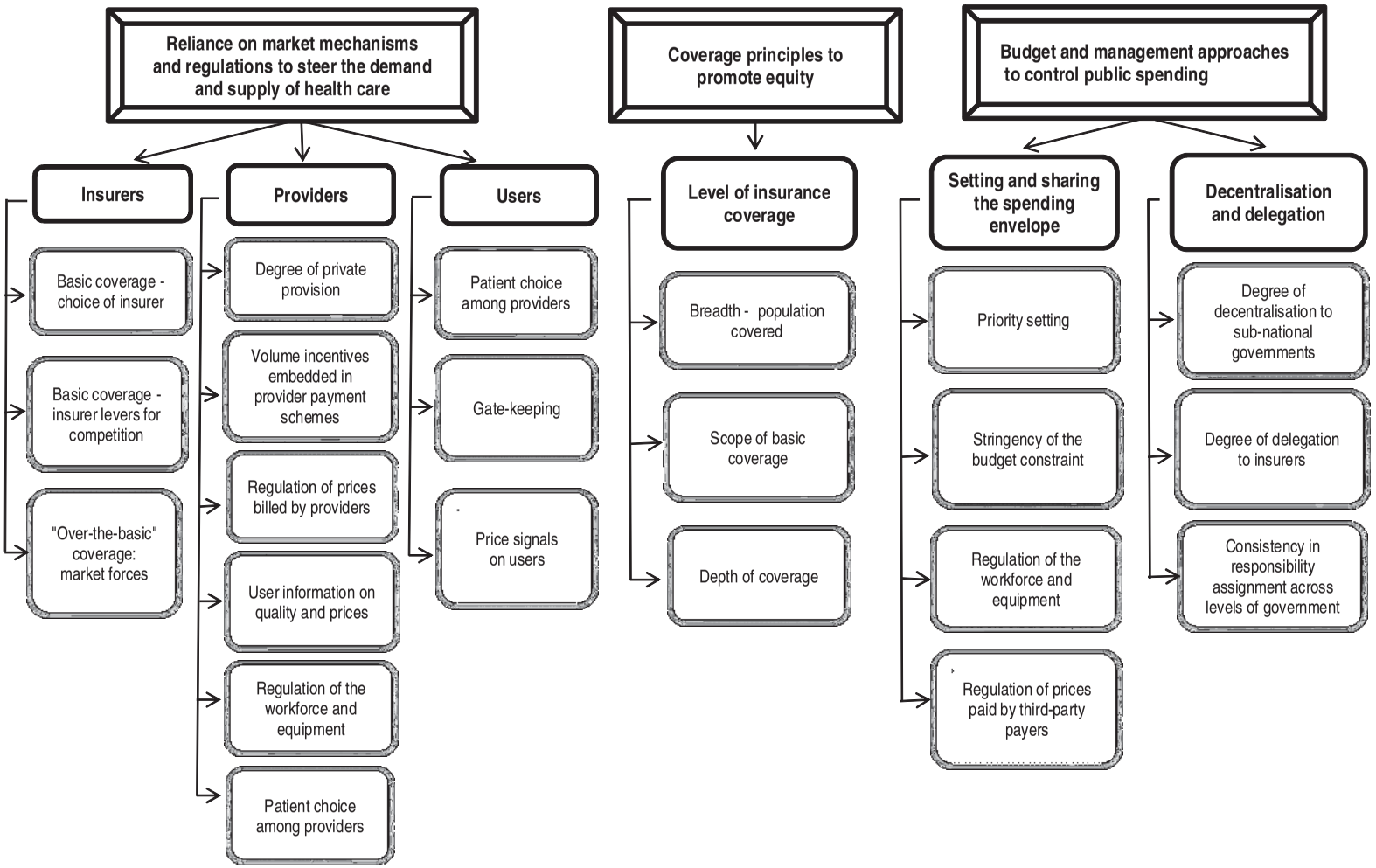
Market signals and regulations affecting users

Countries have relied on various instruments to steer user demand for health care services. Three indicators have been built (Annex 3.A2 explains how policy and institutional indicators have been built from the qualitative responses to the questionnaire and other data):

- *Price signals for users*. In some countries, patients pay for a significant share of the health care costs through out-of-pocket payments and this may contribute to contain excessive demand for health services. However, increasing out-of-pocket payments can lower demand not only for health care services of limited value, but also for necessary services, reducing the chance of early diagnoses and risking higher future care costs (OECD, 2004). Inequity has also been a cause of concern as at least some disadvantaged patients will suffer catastrophic financial or health effects if charges are not capped (Smith, 2008*b*).[3] Out-of-pocket payments accounted for over 30% of total health care spending in Greece, Korea, Mexico and Switzerland and less than 7% in France, Luxembourg and the Netherlands (Figure 3.2, Panel A).
- *Gate-keeping*. To steer patient demand, in many countries patients are required, or face incentives, to register with a general practitioner (GP) and/or they need a GP's referral to access specialist care.

3. The RAND experiment studied health care costs, utilisation and outcomes in the United States between 1974 and 1982. It randomly assigned 5 809 persons to insurance plans that either had no cost-sharing, 25%, 50% or 95%, with a maximum cap of USD 1 000; and 1 149 persons to a HMO with no cost-sharing. The experiment showed that cost-sharing reduced "appropriate or needed" medical care as well as "inappropriate or unnecessary" medical care. The reduction in use harmed the health status of those who were both poor and sick (Manning *et al.*, 1988).

Figure 3.1. **The tree structure for the indicators on health policies and institutions**



Source: OECD.

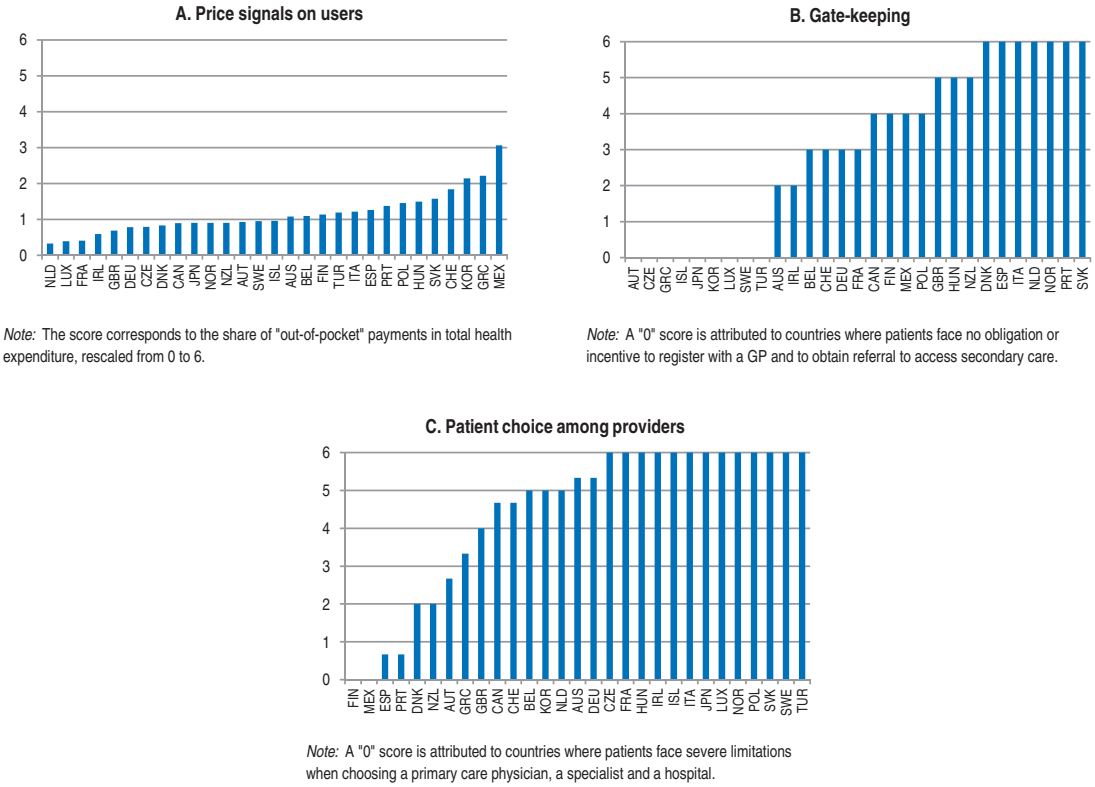
Table 3.1. **Overview of the indicators on health policies and institutions**

Reliance on market mechanisms and regulations to steer the demand and supply of health care	Main criteria taken into account
1. Insurers	
1.1 Basic coverage - choice of insurer	Type of coverage (single national or local schemes, multiple insurers). In case of multiple insurers, number of insurers, market shares and ability of people to choose their insurer.
1.2 Basic coverage - insurer levers for competition	Insurers' ability to modulate the benefit basket, the level of coverage or premiums and to contract with providers. Existence of a risk-equalisation scheme. Availability of information for consumers on premiums/coverage and on insurers' performance.
1.3 "Over the basic" coverage: market forces	Share of population covered by non-primary insurance (duplicate, complementary or supplementary private health insurance) - share of health care expenditures financed out of private health insurance and degree of market concentration.
2. Providers	
2.1 Degree of private provision	Breakdown of physicians and hospital services according to their nature (public or private).
2.2 Volume incentives embedded in provider payment schemes	Physician and hospital payment modes scored according to incentives to generate volume of services.
2.3 Regulation of prices billed by providers	Regulation of drug prices and of prices billed by physicians and hospitals.
2.4 User information on quality and prices	User information on quality and prices of various health care services.
2.5 Regulation of the workforce and equipment	Quotas for total number of medical students and by speciality; regulation of practice location; policies to address perceived shortages; regulation of hospital high-tech equipment and activities (number of hospitals and beds, specific services, high cost medical equipment) and control of recruitment and remuneration of hospital staff.
2.6 Patient choice among providers	Degree of freedom in choosing among primary care physicians, specialists and hospitals.
3. Users	
3.1 Patient choice among providers	Degree of freedom in choosing among primary care physicians, specialists and hospitals.
3.2 Gate-keeping	Obligation or incentive to register to a GP and/or to get referrals to access secondary care.
3.3 Price signals on users	Extent to which patients face out-of-pocket expenses (cost-sharing and "over-the-counter").
Coverage principles to promote equity	
4. Level of insurance coverage	
4.1 Breadth - population covered	Proportion of the population covered by basic health insurance.
4.2 Scope of basic coverage	Range of goods and services covered by basic health insurance.
4.3 Depth of coverage	Level of the costs covered for key goods and services included in the basic benefit package, actual level of coverage by health insurance (including PHIs) and out-of-pocket payments for essential care.
Budget and management approaches to control public spending	
5. Setting and sharing the spending envelope	
5.1 Priority setting	Definition of the health benefit basket; criteria taken into account in defining it; effective use of health technology assessments (HTA); definition and monitoring of public health objectives.
5.2 Stringency of the budget constraint	Rules and/or targets to fix the health budget and its allocation across sub-sectors and/or regions.
5.3 Regulation of the workforce and equipment	Quotas for total number of medical students and by speciality; regulation of practice location; policies to address perceived shortages; regulation of hospital high-tech equipment and activities (number of hospitals and beds, specific services, high cost medical equipment) and control of recruitment and remuneration of hospital staff.
5.4 Regulation of prices paid by third-party payers	Regulations of prices paid by third-party payers for primary care physicians, specialists, hospital services and drugs.
6. Decentralisation and delegation	
6.1 Degree of decentralisation to sub-national governments	Number of key decisions taken at a sub-national government level.
6.2 Degree of delegation to insurers	Number of key decisions taken at the insurer level.
6.3 Consistency in responsibility assignment across levels of government	Number of decisions falling under the responsibility of more than one government level and consistency in responsibility assignment.

Source: OECD.

- *Patient choice among providers*. Another approach to contain demand is to restrict patient choice. Figure 3.2 (Panels B and C) reveals that most countries restrain user choice (*e.g.* to providers settled in a given geographical area and/or a network of providers) and/or have gate-keeping arrangements – the Czech Republic, Iceland, Japan, Luxembourg, Sweden and Turkey are the exceptions.[4]

Figure 3.2. **Market signals and regulations impacting on users' behaviour**



Source: OECD Survey on Health Systems Characteristics 2008-2009; OECD Health Data 2009.

Market mechanisms and regulations affecting providers

Enhancing competitive pressures on providers can have a number of positive impacts, such as increasing productivity, reducing costs and improving the quality of care. There are potentially adverse effects as well, reflecting market imperfections, including the risk of promoting services that are unnecessary and of losing control over public spending. The approaches followed – *i.e.* the mix of market mechanisms and regulations imposed on providers – are very diverse. They include:

- *Volume incentives embedded in provider payment schemes* have long varied significantly across countries (Simoens and Hurst, 2006). Some have paid physicians through salaries and hospitals on the basis of a prospective global

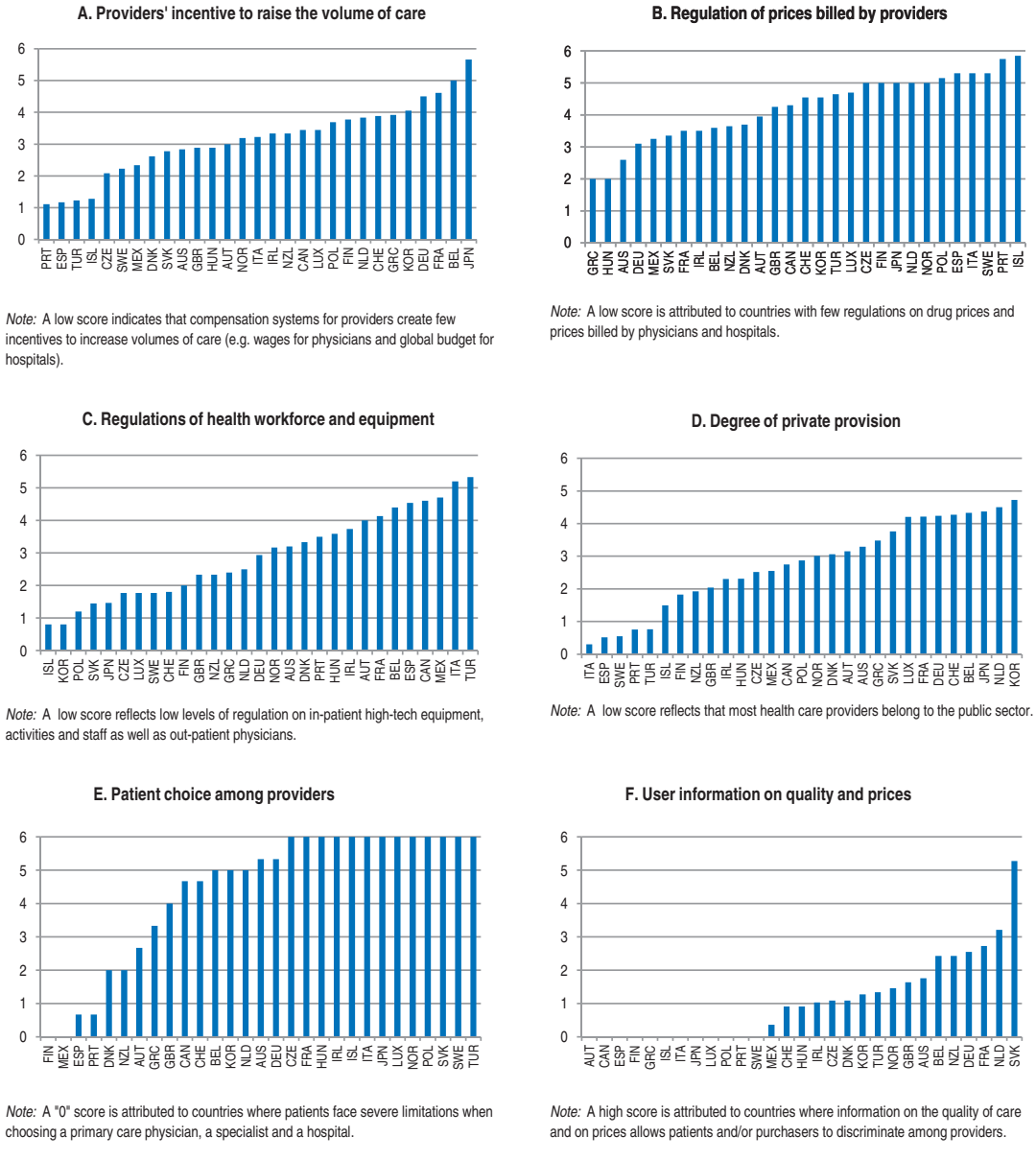
4. In the absence of a regulatory constraint, user choice may still be restricted *de facto* by geographical constraints – in those regions where the distance to alternative providers is long – by the limited number of providers and/or by long waiting times.

budget and both are expected to make providers less responsive to demand than fee-for-services traditionally used in other countries. There has been some convergence in policy settings in recent years, however, as many countries have adopted payment per case for hospitals (Busse *et al.*, 2006) and/or have moved to a mixed physician payment system (combination of fee-for-services and capitation). Still, the Survey reveals that payment schemes for providers embody few incentives to respond to demand for health care services in some countries, including Iceland, Portugal, Spain and Turkey (Figure 3.3, Panel A). For out-patient care, the countries relying mostly on wages to compensate both primary and specialist physicians (including Finland, Mexico, Portugal and Sweden) are also among those with the lowest number of consultations *per capita*. In contrast, reliance on fee-for-services and payment per procedure is widespread in Belgium, Canada, France, Germany, Japan and Switzerland, creating strong incentives for providers to adjust to demand, though with a risk of "supply-induced demand".[5]

- The *regulations of prices billed by providers* also shape provider incentives. On the one hand, low prices may trigger a substitution effect and lower the volume of health services as treating patients becomes less lucrative. On the other hand, an income effect may result in more care as physicians attempt to compensate for the income loss. In practice, fee changes in Norway have had little income effect (Grytten, 2008), while in Japan, strict regulation of physician fees has been accompanied by very short and repeated physician consultations (OECD, 2009*b*). The Survey suggests a wide cross-country variation in the stringency of price and fee regulations (Figure 3.3, Panel B), with little regulation of providers' prices in Australia, Germany and Mexico and frequent under-the-table payments, which are by definition unregulated, in Greece and Hungary.
- *Regulations of the health workforce and equipment* have been used intensively in some countries. The Survey reveals that many governments cap the number of medical students and their mix by specialty, implement a national pay scale for hospital staff, regulate practice location or the opening of new hospitals, while addressing perceived shortages and regional imbalances. Italy and Turkey intervene most while Iceland and Korea are located at the other extreme (Figure 3.3, Panel C). It should be noted, however, that there is only a weak correlation between the degree of regulation of the physician workforce and either the number of physicians *per capita* or the growth in the number of physicians over recent years.

5. The so-called physician-induced demand arises when patients are poorly informed and do not know how much health care they need while doctors have an incentive to push patients to consume more to boost their incomes (Delattre and Dormont, 2003; Grignon *et al.*, 2002; OECD, 2004; Shafrin, 2010).

Figure 3.3. **Market signals and regulations impacting on providers' behaviour**



Source: OECD Survey on Health Systems Characteristics 2008-2009.

- By increasing rivalry among suppliers, the *degree of private provision* in both the in-patient and out-patient care sectors strengthens competitive pressures, potentially reducing costs of provision, improving quality and fostering innovation (OECD, 2006*b*; Ennis, 2006). In the presence of market failures, however, such positive developments may not materialise. The Survey shows that the share of private hospital beds in the total number of acute care beds varies greatly across countries. It is virtually non-existent in some countries (including Canada, Denmark, Iceland, Norway, Poland, Sweden and the United Kingdom) and is above 50% in Belgium, Germany, Japan, Korea and the Netherlands. The indicator on the degree of private provision (Figure 3.3, Panel D) combines this

information with information on the predominant mode of provision for different types of out-patient physician services – from public centres to private solo practice.

- Providing *patient choice among providers* enhances consumer empowerment and stimulates competition. It thus strengthens provider incentives to improve quality and/or contain prices, in particular if money follows the patient and if information on the quality and price of services is made publicly available. Many countries have recently increased patient choice over where and by whom they will be treated (including Norway, Sweden and the United Kingdom). Still, the Survey reveals that patient choice among providers is very limited, if existing at all, in several countries, including Finland, Mexico, Portugal and Spain (Figure 3.3, Panel E).
- Improved *user information on the quality and prices* of health care services should reinforce competitive pressures by helping users to choose the most effective providers and thus motivate performance improvements.[6] Ample information may also be important where user choice is limited because purchasers and users can benchmark providers and push for an improvement in case of poor performance – *i.e.* yardstick competition. The difficulty in understanding the information may, however, limit its use, as seems to have been the case in the United States (Hurst, 2002; Hanoch *et al.*, 2009). Overall, the Survey suggests that user information on prices is still limited in some of the countries where providers do not apply the same price (including Belgium, the Netherlands, New Zealand and Turkey). Also, there is virtually no information on the quality of services of individual providers in the majority of OECD countries (Figure 3.3, Panel F).

Market signals and incentives affecting insurers

The availability of several publicly or privately financed options for basic health coverage increases consumer choice and thus competitive pressures. The higher the degree of user choice for basic coverage, the higher the pressures to adapt to consumer preferences (Colombo and Tapay, 2004) and to adopt new medical technologies (Dormont *et al.*, 2007). But multi-payer systems may also come with costs compared with an integrated system of financing (OECD, 2004): they may entail a loss of monopsonistic power for payers when negotiating with providers;[7] they may result in higher administrative costs (Woolhandler *et al.*, 2003); they may generate frustration among people when choice becomes overly complex (Hanoch *et al.*, 2009); and they may make it difficult to maintain equity in access and in financing. These have been important reasons for the Integration Reform in Korea which merged a large number of insurance companies into a single payer in July 2000 (OECD, 2003*a*). In addition, individual switching among insurers has often been limited by high transaction costs, a lack of

6. In the United Kingdom, Primary Care Trusts have been obliged to offer most patients a choice among hospitals. To help patients make effective choice, "NHS Choices" is a website that facilitates comparisons by providing information on items, such as waiting times, re-admission rates, as well as comments and ratings by patients (OECD, 2009*e*).

7. In the United States, however, private health insurers have been quite active in negotiating with providers, in particular in the context of managed care initiatives (OECD, 2004).

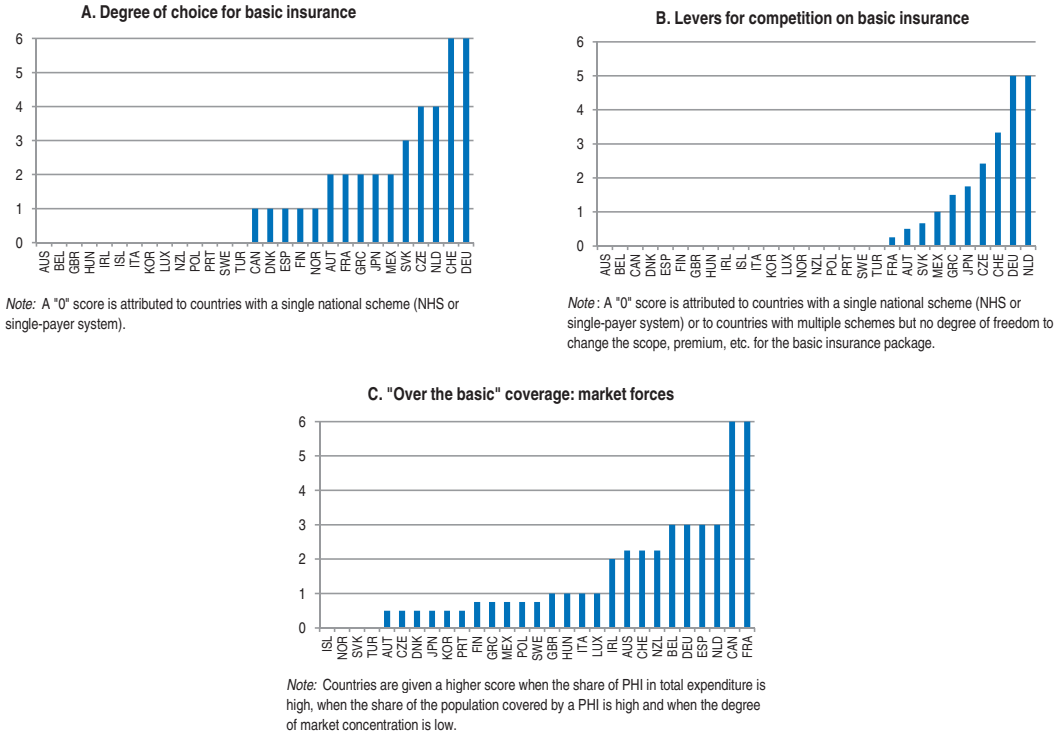
A corrigendum has been issued for this page. See: http://www.oecd.org/dataoecd/16/40/47468410.pdf.

portability of coverage and the absence of comparative information on insurers' performance.

Three main indicators have been built to characterise countries' reliance on market signals and regulations in delivering health insurance coverage. They are as follows:

- *User choice for basic insurance coverage*. Some countries have introduced or strengthened competition across insurers since the early 1990s. The Czech Republic, Germany, the Netherlands, the Slovak Republic and Switzerland are clear cases.[8] Still, the Survey shows (Figure 3.4, Panel A) that in most OECD countries, competition is virtually inexistent, as citizens have no choice among insurers for basic coverage (*e.g.* NHS countries and countries with a unique social insurance system). In some countries (*e.g.* France, Greece, Japan and Spain), the basic health coverage is linked to employment status or set at the regional/local level and, although there is no formal market, yardstick competition may arise.

Figure 3.4. **Market signals and regulations impacting on insurers' behaviour**



Source: OECD Health Data 2009; Survey on Health Systems Characteristics 2008-2009.

- *Levers for competition on basic insurance*. Those countries with wide user choice have relied on competitive levers to varying degrees. Competition tends to be stronger if insurers can adjust the benefit basket, depth of coverage and/or premia and can negotiate and contract with providers. In the Netherlands, for instance, the selective contracting clause, which allows health insurers to select health care

8. In Switzerland, free choice of insurer and open enrolment were introduced in 1996. In 2007, the Parliament decided to refine the risk equalisation scheme. This amendment will come into force in 2012.

providers and negotiate with hospitals and pharmaceutical companies, is considered as a central pillar of the recent market-oriented health care reform (RIVM, 2008; Leu and Matter, 2009). In those countries where there is competition in the basic insurance market, fair competition is underpinned by risk-adjustment schemes between insurance pools with a low risk and a high risk population, and competition is strengthened by the availability of information on insurance packages. The Survey confirms that levers for competition in the insurance market for basic coverage are virtually inexistent in most OECD countries (Figure 3.4, Panel B).

- *"Over-the-basic" coverage*. The share of both the population and spending covered by private insurers, over and above the "basic" insurance package – here called *"over-the-basic" coverage* – affects the intensity of market pressures in the health insurance market. Canada and France stand out in this respect, with more than two thirds of the population covered, private health insurance spending accounting for over 10% of total health expenditure and a rather low degree of market concentration (Figure 3.4, Panel C).

Overall, countries rely on different mixes of regulations and market instruments

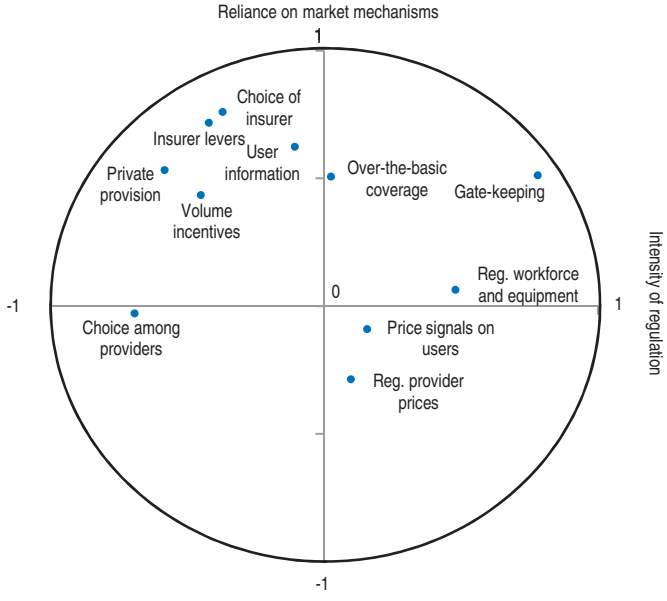
To assess how regulations and market mechanisms steering the demand and supply of health care services are combined within countries and to identify those which most differentiate countries, a principal component analysis (PCA) has been conducted (Annex 3.A3 provides technical details on the PCA). The PCA reveals that the main dimension differentiating countries is the degree of reliance on regulations, which corresponds to the horizontal axis (Figure 3.5, Panel A). Gate-keeping arrangements and regulations of health care resources and prices have the highest weights for the first principal component; they tend to be implemented simultaneously across countries (Table 3.2). In contrast, the degree of user choice among providers appears with a high but negative weight – those countries relying most on regulation tend to offer users little choice among providers. Countries which lie on the right side of Figure 3.5 (Panel B) are those with a high intensity of regulation – Portugal and Spain appear as highly regulated countries with very limited or no choice of providers.

The degree of reliance on market mechanisms to steer the behaviour of insurers and health care providers is the second main dimension differentiating countries. The second principal component (corresponding to the vertical axis) is mainly driven by the degree of competition in insurance markets (choice of insurers and insurance levers for the basic coverage package as well as market forces on the "over the basic" segment) and in provider markets (degree of private provision, volume incentives for providers and user information). The PCA thus suggests that countries most often combine various market instruments. Countries which lie in the upper part of Figure 3.5 (Panel B) are those with a high intensity of market forces on the provider and insurance markets. France, Germany, the Netherlands, the Slovak Republic and Switzerland are clear examples.

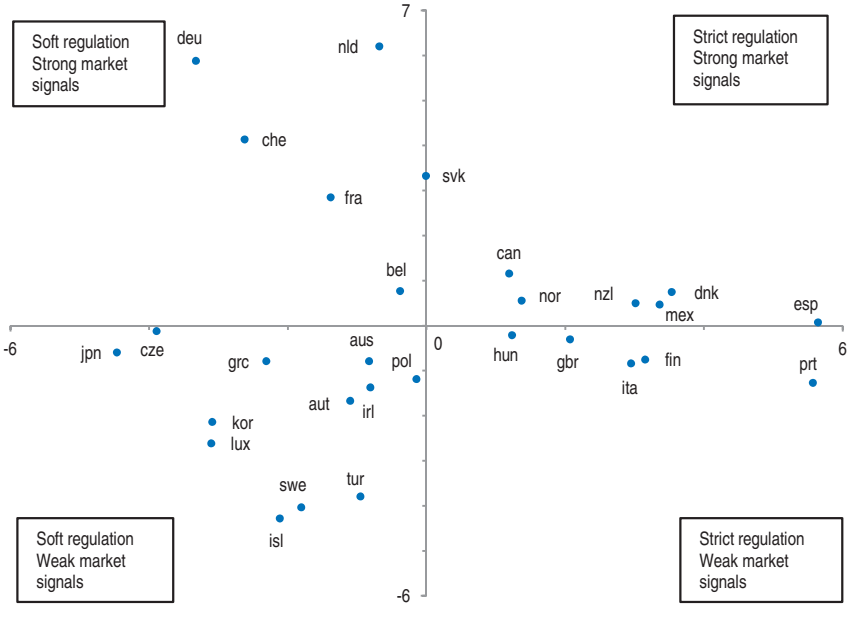
Figure 3.5. **Reliance on market mechanisms and regulations to steer demand and supply of care**

Results of a principal component analysis

Panel A. Correlation circle[1]



Panel B. Country relative position[2]



1. The axes of the chart correspond to the first two factors of the PCA, *i.e.* those that explain the greatest part of the cross-country variance of policy instruments. The values on the horizontal (respectively vertical) axis correspond to the correlation coefficients with the first (respectively second) factor of the PCA.
2. The values on the horizontal axis (resp. vertical) correspond to weighted averages of policy instruments, weights being determined by the eigenvector associated with the first (respectively second) factor of the PCA.

Source: OECD Survey on Health Systems Characteristics 2008-09.

Table 3.2. **Principal component analysis on market mechanism and regulation indicators**

	Principal components				
	1	2	3	4	5
Eigenvalue	7.7	6.6	3.6	2.7	1.9
Share of the variance explained (%)	29.8	25.5	14.1	10.5	7.2
Cumulative share of the variance explained (%)	29.8	55.4	69.5	80.0	87.2
Eigenvectors					
Choice of insurers	-0.24	0.53	-0.40	-0.09	0.31
Insurer levers	-0.22	0.40	-0.28	-0.11	0.28
Over-the-basic coverage	0.01	0.31	0.27	0.68	0.17
Private provision	-0.28	0.28	0.01	0.09	-0.51
Volume incentives	-0.18	0.19	0.09	0.18	-0.38
Regulation of provider prices	0.04	-0.12	-0.06	-0.22	0.34
User information	-0.05	0.31	0.24	-0.18	-0.21
Regulation of the workforce and equipment	0.23	0.03	0.15	0.44	0.36
Choice among providers	-0.51	-0.02	0.70	-0.28	0.30
Gate-keeping	0.68	0.48	0.30	-0.35	-0.04
Price signal on users	0.03	-0.02	-0.13	-0.01	-0.11

Source: OECD calculations.

The PCA also suggests that the degree of reliance on price signals for users hardly helps differentiating countries when due account is taken of other regulatory and market approaches. The variable is located very close to the centre of the circle (Figure 3.5, Panel A), signalling very weak correlations with the first two principal components which account for more than half of the variance.[9] And its weights on the next three main principal components are very low (Table 3.2). In practice, the level of out-pocket payments is low in many countries giving extensive choice to users, *e.g.* the Czech Republic, France, Germany and Luxembourg but high in several others (including Korea, the Slovak Republic and Switzerland). Put differently, market mechanisms to discipline providers (including user choice, private provision and compensation systems which create incentives to increase the volume of care) are not systematically accompanied by market mechanisms to discipline demand (price signals on users) or gate-keeping arrangements. This may suggest that, when setting user fees, political economy, fiscal and/or equity considerations play a greater role than willingness to ensure consistency in policy settings.

The mix of market instruments and regulations displays significant cross-country variation. While market-based and regulatory approaches are often presented as two distinct models, in practice they are more often combined than used in isolation. Some of the countries relying intensively on regulation also use market instruments to steer the demand and supply of health care services:

- Germany, the Netherlands and Switzerland all rely intensively on market mechanisms for managing both the basic coverage package and the supply of

9. Changing the coding system for the variable *price signals on users* – so as to magnify its dispersion by giving the maximum score of six to the country with the highest out-of-pocket payment to spending ratio and adjusting the other country scores consistently – does not alter this result.

services. But the Netherlands regulates prices billed by providers more tightly than the others.

- Canada and France also rely heavily on market mechanisms in managing the supply of health care services and health insurance, but only for the "over-the-basic" coverage, and rely on regulations simultaneously, though more for the health workforce and equipment than for provider prices.
- In Iceland, Sweden, and Turkey, competitive pressures are weak – private provision and incentives for providers to respond to demand are rather limited. Users are given an extensive choice among providers but regulation of provider prices is strict.
- Denmark, Finland, Mexico, Portugal and Spain are countries characterised by a monolithic, command-and-control, approach – little private provision, no choice of providers, little incentive for providers to respond to demand and strict gate-keeping.
- The other countries rely on a mix of relatively soft regulation and low competitive pressures for providers.

Promoting equity in health care access: indicators on health care coverage

Adequate access to essential health care services has long been a health policy goal in virtually all OECD countries. The comprehensiveness of insurance coverage is a key factor shaping access to health care services by disadvantaged groups. It largely depends on three key dimensions:

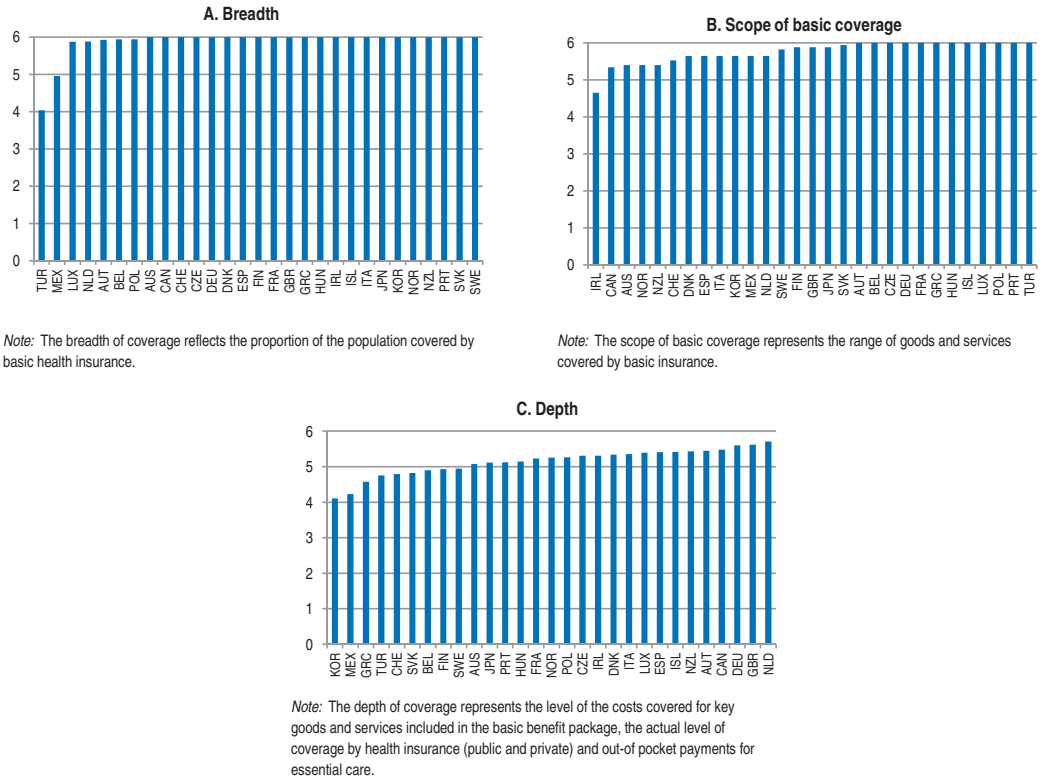
- The *breadth of basic insurance coverage*. OECD countries have now achieved close to universal coverage of the population for a core set of health services. Among the 29 OECD countries which responded to the Survey, Mexico and Turkey are exceptions (Figure 3.6, Panel A).[10]
- The *scope of basic coverage*. In virtually all the 29 countries covered, acute in-patient care, consultations for out-patient general practitioners and specialists, clinical laboratory tests as well as diagnostic imaging are included in the basic insurance package – Ireland is the exception as visits to GPs in the out-patient care sector are not covered by the basic package. Several countries exclude eyeglasses, dental care and dental prostheses from the basic coverage (Australia, Canada, Ireland, New Zealand and Norway) or some of these (Denmark, Finland, Italy, Japan, Korea, Mexico, Netherlands, Spain, Sweden, Switzerland and the United Kingdom). Overall, however, eyeglasses, dental care and dental prostheses account for a rather small share of total health care spending and the data suggest that there is very limited variation in the scope of basic coverage across OECD countries (Figure 3.6, Panel B).
- The *depth of insurance coverage*. Costs of in-patient and out-patient care are fully covered by the basic package in 11 countries while in several others out-patient care costs are covered at between 51 and 75%. Coverage by

10. Turkey has been moving towards universal, contributory social health insurance for many years and has now achieved that goal in legislation passed in April 2008 (OECD, 2008*b*).

A corrigendum has been issued for this page. See: http://www.oecd.org/dataoecd/16/40/47468410.pdf.

complementary, supplementary and/or duplicative insurance further contributes to reducing the level of out-of-pocket payments in several countries (in particular Canada, France, Ireland and Switzerland).[11] Overall, the depth of insurance coverage is lowest in Greece, Korea, Mexico, Switzerland and Turkey and highest in Germany, the Netherlands and the United Kingdom (Figure 3.6, Panel C).

Figure 3.6. **Health insurance coverage**



Source: OECD Survey on Health Systems Characteristics 2008-2009.

Controlling public spending: indicators on budget and management approaches

The sustainability of public spending on health care has become, and continues to be, a pressing policy issue in most countries. The following indicators cover two key aspects: the features for the setting and sharing of the spending envelope and the degree of decentralisation and delegation of decision-making.

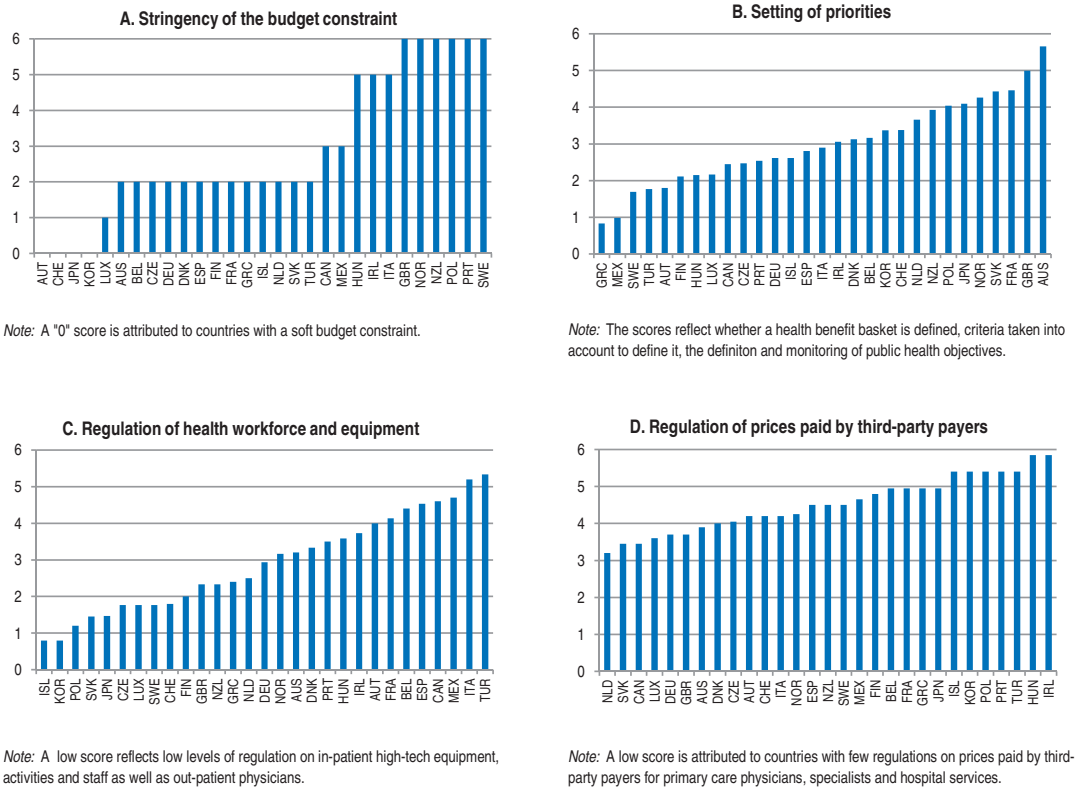
11. Almost 90% of the French population benefits from a *complementary* private health insurance to cover cost-sharing in the social security system and private insurances finance more than 13% of total health expenditure. The Netherlands and Canada have a large *supplementary* insurance market whereby private insurance pays for items that are not included in the basic coverage. *Duplicative* insurance provides faster access to medical services where there are waiting times in public systems. These markets are largest in Ireland, Australia and New Zealand (OECD, 2009*a*).

Setting the budget envelope, prices and volumes

To contain spending pressures, countries have adopted a variety of instruments:

- Some have tightened the *stringency of the budget constraint*, imposing caps on health spending either overall or by sector. The Survey shows that budgetary caps and controls have been widely used, in particular in countries where health care delivery is mainly a public sector responsibility (for instance, in New Zealand, Norway, Poland, Portugal, Sweden and the United Kingdom). In contrast, Austria, Japan, Korea and Switzerland do not impose a constraint on public spending on health *via* the budget process (Figure 3.7, Panel A).
- *Regulations of prices paid by third-party payers* and of the *health workforce and equipment* have also been used (Figure 3.7, Panels C and D). As an example, Belgium has set an aggregate budget cap since the mid-1990s to determine the global budget, complemented by budgetary targets for sub-sectors. Corrective measures – such as adjustment of fees and reimbursement rates – are taken when there is a risk of overrun (OECD, 2005*a*).
- Another, and sometimes complementary, approach has been to reinforce the *setting of priorities* (Figure 3.7, Panel B) – in particular through an effective use of health assessment technologies and well-defined criteria for the scope of the benefit basket.

Figure 3.7. **Budget and management approaches – Setting and sharing the spending envelope**



Note: A "0" score is attributed to countries with a soft budget constraint.

Note: The scores reflect whether a health benefit basket is defined, criteria taken into account to define it, the definiton and monitoring of public health objectives.

Note: A low score reflects low levels of regulation on in-patient high-tech equipment, activities and staff as well as out-patient physicians.

Note: A low score is attributed to countries with few regulations on prices paid by third-party payers for primary care physicians, specialists and hospital services.

Source: OECD Survey on Health Systems Characteristics 2008-2009; OECD Health Data 2009.

Distributing responsibility across levels of government or bodies

The allocation of health care responsibilities across government levels and/or to insurers shapes the degree of control over public spending on health care. Decentralisation could raise the responsiveness of the health care system to local needs, stimulate competition across jurisdictions and promote experimentation.[12] On the other hand, decentralisation might also result in undue institutional complexity, waste through duplication, lax control over spending when responsibilities overlap and insufficient exploitation of economies of scale (Diderichsen, 1995; Joumard and Kongsrud, 2003).[13] A few countries have recently transferred some responsibilities to sub-national governments (*e.g.* Italy and Spain) but many others (including Denmark, Ireland, Norway and Poland) have recentralised health care responsibilities (Bach *et al.*, 2009; Saltman, 2008).

To capture the degree and quality of decentralisation/delegation across levels of government or bodies, three indicators have been built:

- The *degree of decentralisation to sub-national governments* in decision-making over key health policy issues is shown in Figure 3.8 (Panel A). It reflects the actual decision autonomy of sub-national governments on key health care spending issues (including setting remuneration methods for providers and financing new health care facilities). It is the highest in Canada, Finland, Spain, Sweden and Switzerland.[14]
- *The degree of delegation to insurers*. Decision-making is, in some countries, also devolved to health funds. As an illustration, in Korea, insurance funds are involved in setting the basis and level of social contributions for health, remuneration methods for physicians and hospitals; they also finance new hospital buildings and high cost-equipment as well as their maintenance. Highly decentralised countries also tend to delegate little decision autonomy to insurers, Switzerland being the main exception (Figure 3.8, Panel B).
- The indicator on the degree of *consistency in responsibility assignment* across levels of governments measures the extent to which responsibilities are clearly defined, allocated consistently and with a minimal degree of overlap (Figure 3.8, Panel C). The degree of consistency in responsibility assignment declines when several levels of government are involved in key health care decisions (as it is for

12. In Sweden, county councils have significant responsibilities for managing the health care system. They manage hospitals, control the establishment of private practices and set the fees that must be adhered to by private providers to be reimbursed by the social insurance system. Decentralisation is considered to have raised the flexibility of the health care system and made it more innovative (OECD, 2005*b*).

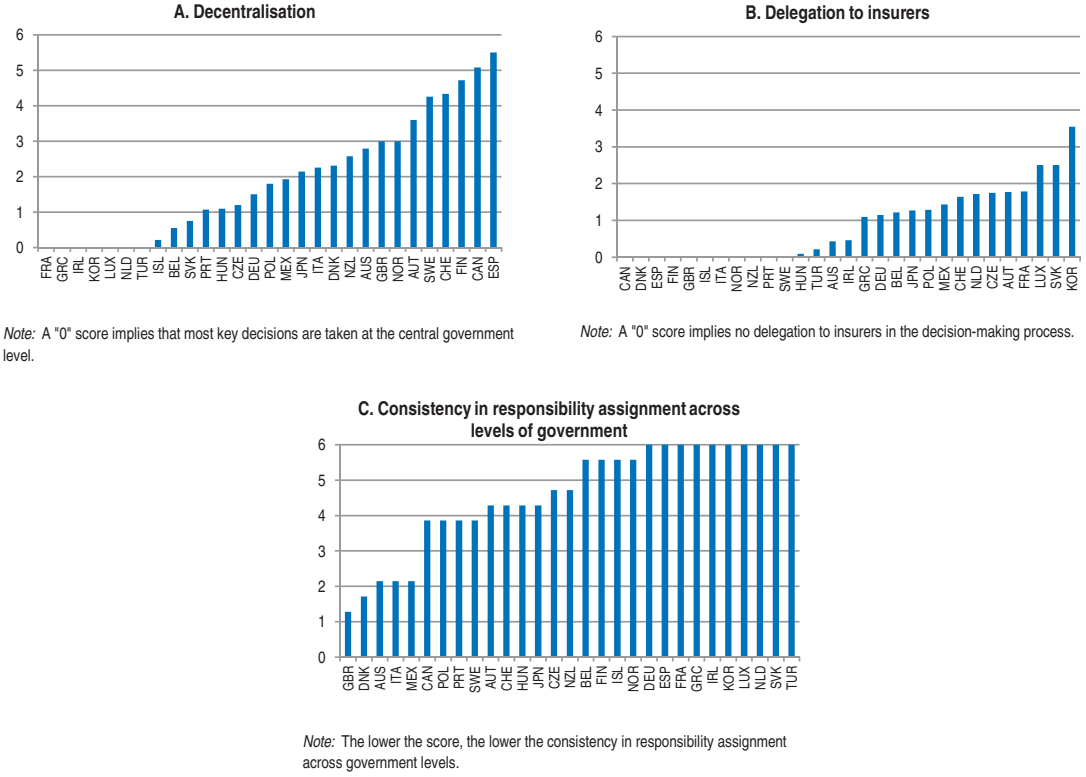
13. Fragmented decision making and funding arrangements often create cost- and blame-shifting between government levels. The *OECD Economic Surveys* for Australia and Norway provide examples (OECD, 2006*a*; OECD, 2002).

14. In most cross-country empirical studies, the degree of decentralisation is measured by the share of public spending of sub-central governments. However, a large spending share may not coincide with true spending autonomy since sub-central government spending may be influenced by central government regulations (Bach *et al*., 2009). For health care, however, sub-central government spending shares are closely related with the actual decision autonomy of sub-central governments as defined by the Survey.

example the case for financing high-cost equipment in Australia, Canada, the Czech Republic, Denmark, Italy, Japan, Mexico, New Zealand, Poland, Portugal, Sweden, Switzerland and the United Kingdom). It also declines when the assignment of different responsibilities may create inappropriate incentives (*e.g*. the financing of new hospitals at one government level and the maintenance of existing hospitals at another level, potentially resulting in duplication and/or under-provision and blame-shifting).

Overall, the stringency of the budget constraint and the degree of decentralisation are the two policy variables that most differentiate countries' budget and management approaches in controlling public spending. The PCA carried out on the subset of variables depicting budget and management approaches further suggests that consistency in responsibility assignment across levels of government tend to be lower in the most decentralised countries – Finland and Spain are exceptions – and that the delegation of responsibilities to health insurers is higher in centralised countries.[15]

Figure 3.8. **Budget and management approaches – Decentralisation and delegation**



Note: A "0" score implies that most key decisions are taken at the central government level.

Note: A "0" score implies no delegation to insurers in the decision-making process.

Note: The lower the score, the lower the consistency in responsibility assignment across government levels.

Source: OECD Survey on Health Systems Characteristics 2008-2009.

15. The main results of the PCA on budget and management approaches are presented in Annex 3.A4.

Annex 3.A1

Market failures and imperfections in health care systems

Competitive markets have long been considered by mainstream economists as leading to an efficient allocation of resources and maximisation of social welfare in many situations. The neo-classical economic theory demonstrates that the equilibrium attained in a perfectly competitive market is optimal in the Pareto sense, *i.e.* no other allocation of resources can make all market participants better off.[1] However, such a competitive equilibrium can only be achieved under certain conditions, many of which are violated in the health care sector. Since the pioneering work by Arrow (1963), a large body of literature has investigated the reasons for market failures in both health care services and insurance. This Annex provides an overview of these market failures and reviews government interventions designed to address them.

Market failures and imperfections in health care services

Externalities

The consumption of health care services can provide benefits not only for an individual but also to others. An obvious example is the treatment for communicable diseases and immunisation. In the presence of such externalities, consumption determined by the market is socially sub-optimal, calling for public intervention. In addition, some health-care related activities, in particular in research and development, have public goods characteristics (Smith, 2008*a*).

Informational asymmetries

The assumption of consumer sovereignty is generally violated in health care markets,[2] as providers often have a dominant market position over patients and payers (either insurers or government) because they have more information on the need for and appropriateness of medical care. Furthermore, there are limited opportunities for individuals to assess the quality of care from experience and individuals often have to make decisions while being vulnerable (Hurley, 2000). As a result, patients mainly rely

1. The Pareto-optimal allocation of resources might not be optimal from a social point of view. A change in allocation of resources which would greatly improve the situation of most market participants, while deteriorating modestly that of a few, would certainly be desirable from a social standpoint. In perfectly competitive markets, money transfers (tax and subsidies) can be used to achieve an equilibrium in line with social preferences (Arrow, 1963).

2. Consumer sovereignty refers to the fact that, in a perfectly competitive market, consumers ultimately dictate what is to be produced.

on medical advice. Hence, demand can be supply-induced, eventually leading to over-consumption.[3] A number of policies can mitigate informational problems. On the demand side, information on the quality of health care can be made available to patients. On the supply side, providers' autonomy can be limited through utilisation reviews, pre-authorisation programmes, practice guidelines and promotion of prevention – as in managed care settings. Compensation systems can also be designed to limit incentives to increase the volume of care – *e.g.* paying physicians by capitation or wages rather than fee-for-service.

Informational asymmetries also exist between health regulators and providers. Medical expertise is required to assess the effectiveness of medical practice. Hence, governments have granted health professionals large powers of self-regulation, thereby strengthening their position. Similarly, health care providers have an informational advantage over insurers, limiting the ability of the latter to assess the value of health care.

Barriers to entry and exit

Competitive markets assume free entry and exit. In the health care sector, entry of providers is highly regulated to ensure the quality of care.[4] In many cases, health care providers do not face a credible threat of closure. It is, for instance, politically difficult to close local hospitals (Smith, 2008).

Monopoly power

In many cases, health care providers enjoy some monopoly power, stemming either from technical characteristics of health care – *e.g.* economies of scale – or from government intervention aimed at guaranteeing the quality of care or by granting intellectual property rights. Economies of scale in the hospital sector imply that "in many specialties and geographic locations there exists little realistic choice of provider" (Smith, 2008). Patent laws grant a monopoly to new drugs and medical technologies (Hsiao and Heller, 2007).

Market failures and imperfections in the insurance sector

Uncertainty is a central feature of health care: individuals are facing uncertainties about the occurrence of a disease and the effectiveness of treatment. The ability to reach a competitive equilibrium in health insurance markets depends on the existence of a full set of markets covering these risks, but this proves impossible in practice because of a number of market failures, such as adverse selection and moral hazard.[5]

3. Behavioural economics suggests that a number of additional factors – *e.g.* limited ability of patients to process information or the desire to avoid regret – might contribute to what appears as demand inducements (Frank, 2004).

4. There may be technical obstacles to market entry: for instance, training doctors and building hospitals take a considerable amount of time.

5. Arrow (1963) argues that the fact that a full set of insurance markets does not exist explains the development of non-market social institutions.

Risk selection

The asymmetry of information between the consumer and the insurer about the former's health condition results in *adverse selection* – those with greater risks are more likely to subscribe to health insurance at a higher level than those in good health. Premiums set according to average risk will thus not be sufficient to cover claims. And rising premiums will lead low-risk individuals to cancel their insurance policies. Compulsory insurance is an obvious answer to adverse selection.

Cream-skimming or risk selection by insurers designates the ability of insurers to select low-risk individuals and avoid covering high-risk ones. Cream-skimming can be addressed through regulation limiting risk selection practices and/or by creating systems of risk-equalisation which allow redistribution between low- and high-risk insurance pools.

Moral hazard

When patients do not bear the full cost of medical care, they might be inclined to consume more than necessary. Similarly, health providers, knowing that their patients are well insured, might tend to prescribe more care than required, especially if they can derive a financial benefit. Avoiding compensation systems which provide incentives for providers to increase volumes of care and promoting evidence-based medical practice can mitigate moral hazard. Increasing cost-sharing can also reduce moral hazard, but with the risk of putting some individuals at risk financially and raising equity concerns.

Economies of scale

Fixed administrative costs and efficiency gains associated with risk-pooling generate economies of scale. Hence, having a large number of small firms will lead to technical inefficiencies, while having a small number of large firms will produce monopolistic positions. A single-payer is sometimes seen as a remedy in the presence of economies of scale (Hurley, 2000).

Annex 3.A2

Coding indicators on health policy and institutions – examples

To draw cross-country comparisons on a reasonable number of indicators on health policy and institutions, the wide ranging dataset obtained from the questionnaire (269 mainly qualitative variables) was transformed into a smaller number of quantitative indicators, bound between 0 and 6. In addition, some policy indicators were built directly from existing OECD databases (mainly Health Data and System of Health Accounts), with the implicit assumption that these captured well a policy dimension. Overall, the number of quantitative indicators for policies and institutions was restricted to 20. The rest of this Annex describes the principles and underlying assumptions to build three quantitative indicators as an illustration, the first two from the questionnaire and the last one using data from the System of Health Accounts.

Patient choice among providers

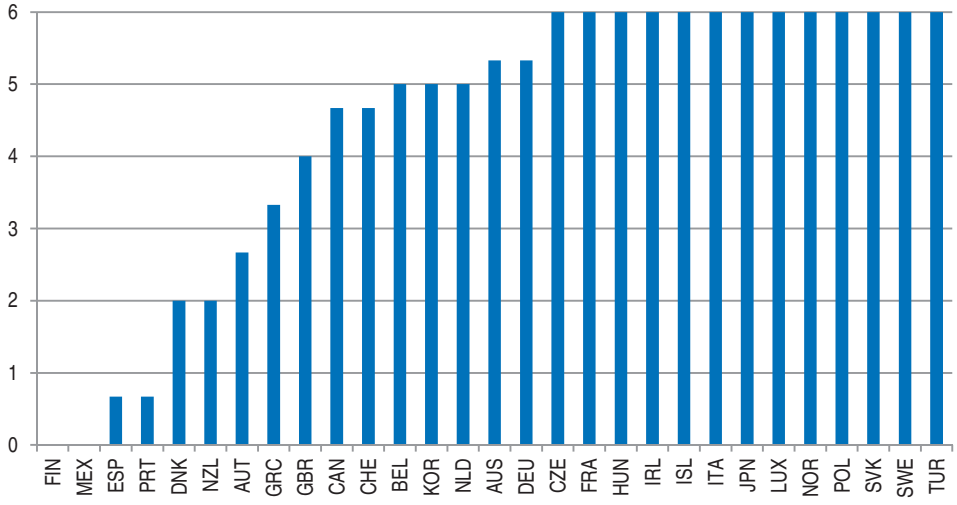
The questionnaire investigated whether patients are free to choose any doctor (or hospital), face incentives to choose one doctor (hospital) over another one, or have a limited choice, restricted to a geographical area or a network of providers for instance. The score was computed as an additive score, according to the rules presented in Table 3.A2.1. Countries with the highest scores are the ones where patients are offered the widest choice among providers (Figure 3.A2.1).

Table 3.A2.1. **Scoring the degree of patient choice**

Questions	Replies	Additive score
How is the choice of a primary care physician for patients?	Free	2
	Financial incentives (*e.g.* reduced co-payments) influence patient choice	1
	Limited (*e.g.* to a geographical area or a network of providers)	0
How is the choice of a specialist for patients?	Free	2
	Financial incentives (*e.g.* reduced co-payments) influence patient choice	1
	Limited (*e.g.* to a geographical area or a network of providers)	0
How is the choice of hospital for patients?	Free	2
	Financial incentives (*e.g.* reduced co-payments) influence patient choice	1.33
	Limited but with exceptions (*e.g.* waiting time)	0.67
	Limited (*e.g.* to a geographical area or a network of providers)	0

Source: OECD Survey on Health System Characteristics 2008-2009 (see Paris *et al.,* 2010 for more details).

Figure 3.A2.1. **Patient choice among providers**



Source: OECD Survey on Health Systems Characteristics 2008-2009.

Gate-keeping

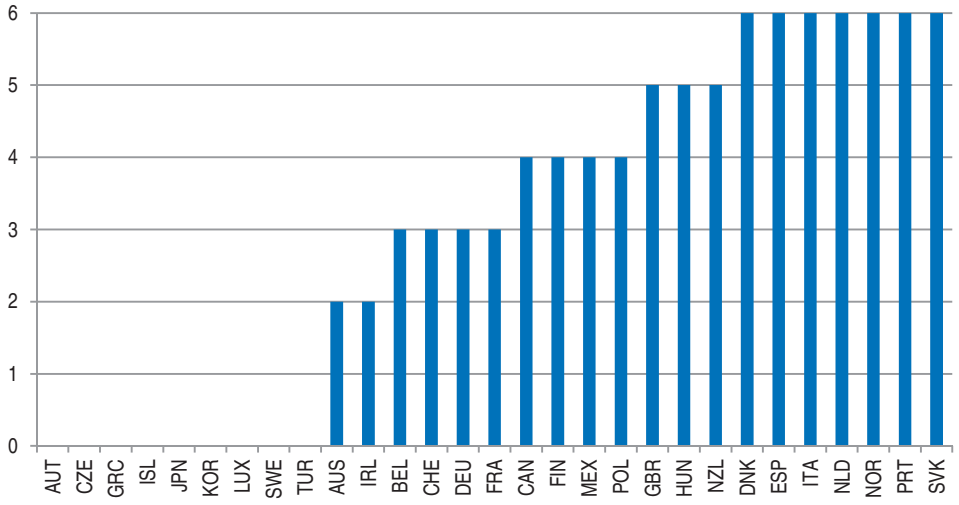
Information on the obligation or incentives to both register with a primary care physician and obtain referral to access secondary care was collected *via* the questionnaire. In transforming this qualitative information to a quantitative indicator bound between 0 and 6, the assumptions described in Table 3.A2.2 have been used. Those countries with the highest score for gate-keeping are those where constraints are the most stringent (Figure 3.A2.2).

Table 3.A2.2. **Scoring the level of gate-keeping**

Score in brackets		Referral to access secondary care by general practitioners		
		Required	Incentives	Not requirement, no incentive
Registering with a primary care physician	Obliged	Denmark, Spain, Italy, Netherlands, Norway, Portugal, Slovak Republic [6]	[4]	[2]
	Incentives	United Kingdom, Hungary, New Zealand [5]	Belgium, Switzerland, Germany, France [3]	[1]
	No obligation, no incentive	Canada, Finland, Mexico, Poland [4]	Australia, Ireland [2]	Austria, Czech Republic, Greece, Iceland, Japan, Korea, Luxembourg, Sweden, Turkey [0]

Source: OECD Survey on Health System Characteristics 2008-2009 (see Paris *et al.,* 2010 for more details).

Figure 3.A2.2. **Gate-keeping**



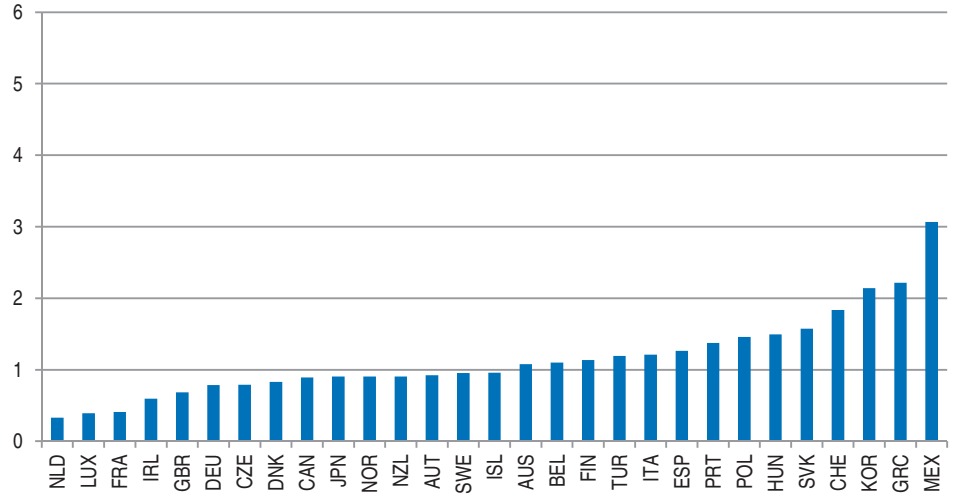
Source: OECD Survey on Health Systems Characteristics 2008-2009.

Price signals on users

The indicator *Price signals on users* reflects the degree to which patients face out-of-pocket payments (OOPs). Data are extracted from the System of Health Accounts, with the indicator defined as the share of OOPs to total health expenditure. In this database, OOPs include both cost-sharing for goods and services covered by the basic health insurance package, as well as the consumption of other health goods and services. For Mexico and Turkey, they also include health spending of the non-insured.

Out-of-pocket payments as a share of total health expenditures range from 5.5% to 51.1% across the OECD. Figures were rescaled on a 0 to 6 range. OOPs as a share of total health expenditure are the lowest in the Netherlands, Luxembourg and France while they are the highest in Mexico and Greece, followed by Korea and Switzerland (Figure 3.A2.3).

Figure 3.A2.3. **Price signals on users**



Source: OECD Health Data 2009.

Annex 3.A3

Principal component and cluster analyses

Going beyond the analysis of simple (bilateral) correlations, Principal Component Analysis (PCA) can be used to identify those institutional features which most differentiate OECD countries and to assess empirically how various institutional features are combined across countries. Cluster analysis can be used to group countries with comparable policy settings, *i.e.* specific combinations of policy instruments.

Principal component analysis (PCA)

PCA condenses the information contained in a set of indicators into a smaller number of uncorrelated principal components, which are linear combinations of the original indicators. If X is a (n,p) matrix of n countries and p indicators, the first principal component (eigenvector) v_1 is obtained by maximising the variance explained $v_1'X'X\ v_1$ under a normalisation constraint $v_1'v_1 = 1$. The second principal component is obtained by maximising $v_2'X'X\ v_2$ under the normalisation constraint $v_2'v_2 = 1$ and the condition that it is orthogonal to the first principal component $v_1'v_2 = 0$. Other principal components are derived in the same way. One can demonstrate that v_1 corresponds to the eigenvector associated with the largest eigenvalue of the covariance matrix X'X, v_2 to the eigenvector associated with the second largest eigenvalue and similarly for the other principal components. The eigenvalues represent the percentage of variance explained by each principal component and the p elements of the eigenvectors reflect the weights attributed to each indicator in the calculation of principal components (*e.g.* Table 3.2 in the main text).

The circle of correlations is a standard way to illustrate the relationship between principal components and indicators. The correlation coefficient between indicator i and principal component j is derived as $\sqrt{\lambda_j}.v_{ij} / \sigma_i$, where λ_j is the eigenvalue associated with principal component j, v_{ij} the component of eigenvector j corresponding to variable i and σ_i the standard deviation of variable i. These coefficients – sometimes referred to as factor loadings – are reported in the correlation circle (*e.g.* Figure 3.5, Panel A). The variables which exhibit the strongest correlations with the principal components, and hence have most weight in this analysis, are represented close to the circle. Variables situated in the centre of the circle have little significance on the dimensions identified by the principal components – they are little correlated with most of the other variables.

Country coordinates on principal components can be computed using the relevant eigenvectors v_j to weight indicator values, showing how countries score relative to each other on the dimensions associated with the axes (*e.g.* Figure 3.5, Panel B).

Cluster analysis

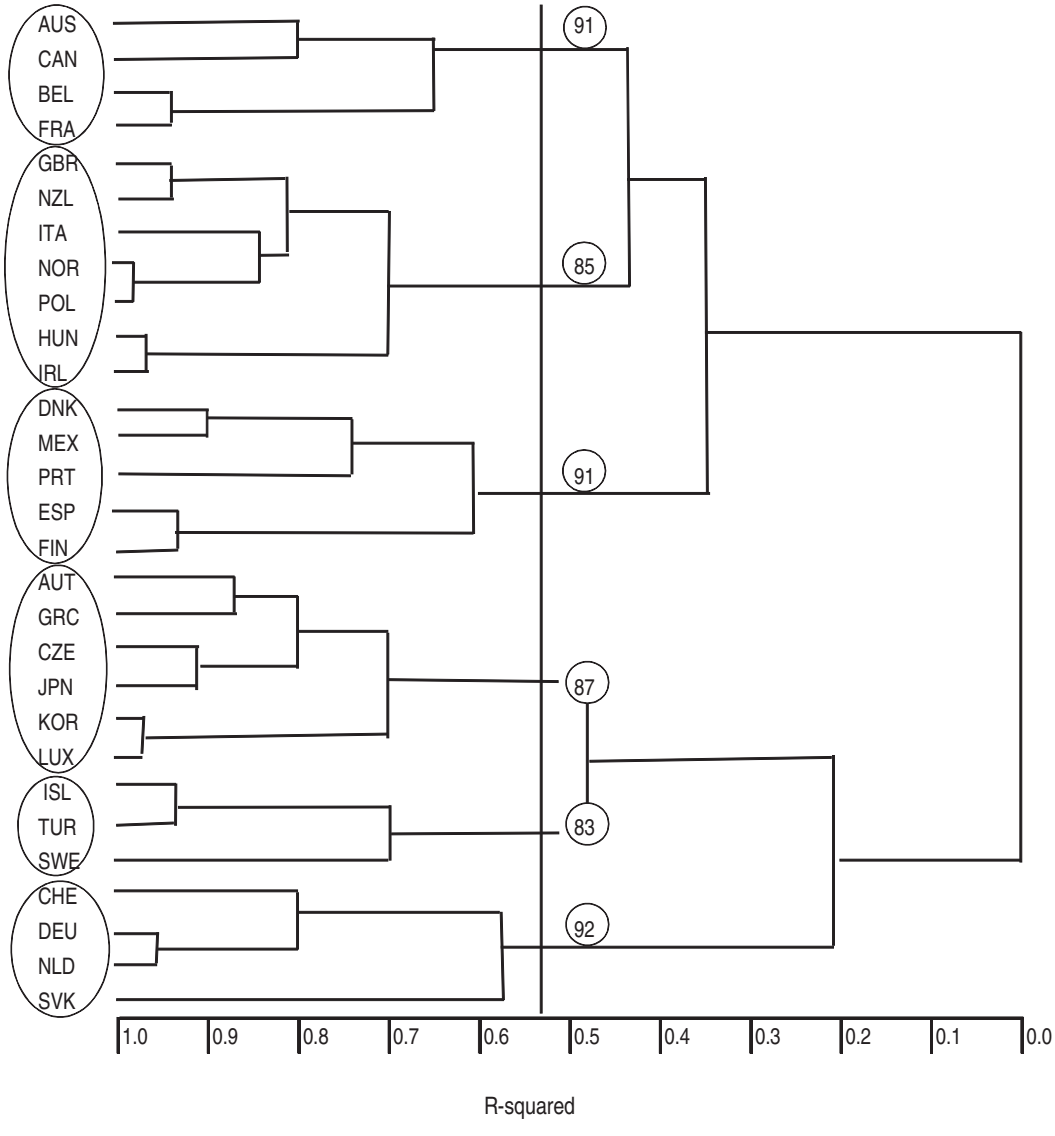
Cluster analysis provides a hierarchical and agglomerative (bottom-up) classification. The algorithm begins with each country as a separate cluster and successively groups countries into larger clusters, so as to minimise the within-cluster variance (Ward's Minimum-Variance Method).[1]

A tree diagram – also called dendogramme (Figure 3.A3.1) – showing successive clusters provides information on the loss of information resulting from each aggregation. It also allows partitioning the sample into groups of countries which share common characteristics on the variables included in the analysis.

The robustness of the clusters identified can be assessed with the approximately unbiased (AU) p-values calculated using the *pvclust* package (Suzuki and Shimodaira, 2006). The calculation of AU p-values is based on multi-scale bootstrap re-sampling, which is more accurate than the simple bootstrap (Efron *et al*., 1996; Shimodaira, 2002, 2004). The p-value represents the percentage of occurrence of a given cluster when a large number of bootstrap replications (*e.g.* 10 000) are performed.

1. PCA and cluster analysis are often performed on standardised variables. This is necessary when variables are measured in different units, because non-standardised variables would be assigned weights proportional to their variance. The indicators on health policies and institutions are on the same scale (0 to 6). Standardising the variables would give the same weight to small differences in variables that vary little across countries (*e.g.* breadth of coverage) and to large variations in variables that vary widely across countries (*e.g.* gate-keeping). Therefore, PCA and cluster analysis on health policies and institutions have been carried out without prior standardisation of the variables.

Figure 3.A3.1. **Dendogramme**



Note: This dendogramme reflects the results of the cluster analysis performed on the twenty institutional indicators (see Figure 3.1). The R-squared measures the ratio of the between-clusters variance to the total variance of the data. Hence, the reduction in the value of the R-squared resulting from each clustering step can be interpreted as the loss of information caused by the grouping of countries.

The numbers in the circles represent the confidence level in percentage associated with each cluster, *i.e.* the Approximately Unbiased (AU) p-values generated through multiscale bootstrap resampling.

Source: OECD.

Annex 3.A4

Principal component analysis on budget and management approaches

A principal component analysis (PCA) on the budget and management indicators identifies two main dimensions along which countries can be differentiated. The first one is mainly driven by the intensity of the budget constraint and, negatively correlated with it, the degree of delegation to insurers and consistency in responsibility assignment across levels of governments (Table 3.A4.1 and Figure 3.A4.1, Panel A). The countries on the right of the first (horizontal) axis are those where health coverage is mainly managed at the government level, with a tight budget constraint (Figure 3.A4.1, Panel B). Countries where the government has devolved health policy responsibilities to social security or individual insurance funds tend to be on the opposite side of the axis. The second important dimension relates to the degree of decentralisation across levels of governments. Decentralised countries score high on the second (vertical) axis. In most of them, coverage is mainly managed at the government level – *i.e.* they are situated in the right part of the chart – with Austria and Switzerland being exceptions.

Table 3.A4.1. **Principal component analysis on budget and management indicators**

	Principal components			
	1	2	3	4
Eigenvalue	5.6	3.2	2.0	1.5
Share of the variance explained (%)	39.5	22.9	14.3	10.8
Cumulative share of the variance explained (%)	39.5	62.5	76.8	87.6
Eigenvectors				
Priority setting	0.06	0.02	-0.57	-0.21
Budget constraint	0.75	0.55	-0.07	0.21
Regulation of workforce and equipment	0.17	-0.09	0.76	-0.34
Regulation of prices paid by third-party payers	0.00	0.19	0.14	0.08
Decentralisation	0.36	-0.75	-0.05	0.48
Delegation	-0.32	0.03	-0.18	-0.12
Consistency	-0.41	0.29	0.20	0.73

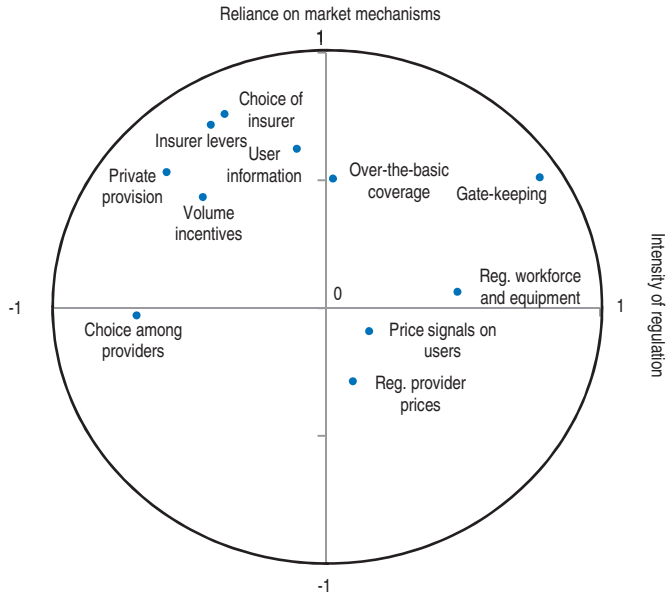
Source: OECD calculations.

A corrigendum has been issued for this page. See: http://www.oecd.org/dataoecd/16/40/47468410.pdf.

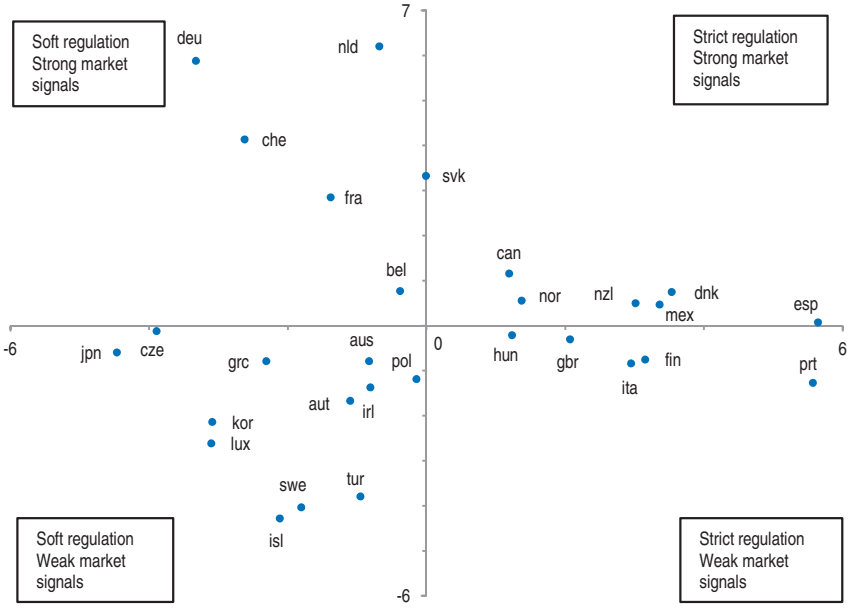
Figure 3.A4.1. **Budget and management approaches to control public spending**

Results of a principal component analysis

Panel A. Correlation circle[1]

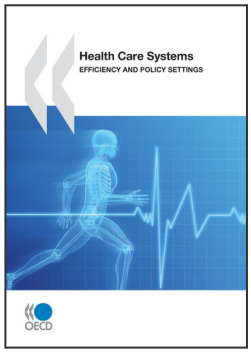


Panel B. Country relative position[2]



1. The axes of the chart correspond to the first two factors of the PCA, *i.e.* those that explain the greatest part of the cross-country variance of policy instruments. The values on the horizontal (respectively vertical) axis correspond to the correlation coefficients with the first (respectively second) factor of the PCA.
2. The values on the horizontal axis (respectively vertical) correspond to weighted averages of policy instruments, weights being determined by the eigenvector associated with the first (respectively second) factor of the PCA.

Source: OECD Survey on Health Systems Characteristics 2008-09.



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