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European Health System Typologies: Last 30 Years

Under Review

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Abstract

The quest of the researcher to classify national health systems into homogeneous groups has a long history. In this paper, the last 30 years are divided in two periods (1985–2000 and 2000–2015) in order to present and briefly describe the most influential national health system typologies.

Keywords: health systems, Europe, typologies, historical perspective

1. Introduction

European countries display diversified arrangements to provide health care, to finance, and to cover health insurance expenditures. These organized arrangements constitute the health system of each country.

The definition of health system has evolved over time since Alma Ata Declaration in 1978 [1]. Several definitions have been proposed, either by single authors (such as Weinerman [2] and Long [3]) or by institutions (such as the World Bank [4] and WHO [5]).

The most widely accepted definition was published in 2007 in the report “Everybody’s business: strengthening health systems to improve health outcomes: WHO’s framework for action, 2007” [6]. The definition of health system here is given as “a system of all organizations, people and actions whose primary intentions are to promote, restore or maintain health,” which includes efforts to influence determinants of health, as well as more direct health-improving activities.

The WHO definition implicitly considers the goals of a (national) health system. These goals are both final and intermediate [7]. The final goals of a health system are responsiveness to people's expectations, social and financial risk and fair protection, and improved health; the intermediate goals on their turn are improving access, improving coverage, delivering high quality and safe health services, promoting healthy behavior, and improving efficiency.

These goals justify the functions of health systems themselves. The WHO [5] proposes four functions of a health system which are (i) health service provision, (ii) health generation of resources (investment and training), (iii) stewardship, and (iv) health financing (collecting, pooling, and purchasing). The functions of the health systems may be described as follows:

(i) The *provision (also referred as delivery)* of health-care services which requires the management of resources and the creation of human resources, delivery of medications, medical services, and medical equipment.

(ii) The *generation of resources* which implies not only their management, but also their creation. While some inputs may be gathered in short term after the investment, other resources may take a long time to obtain and train as the human resources.

(iii) *Stewardship* or overall system oversight which sets the context and policy framework for the overall health system. This function is usually (but not always) a governmental responsibility, where the health priorities, the institutional framework, the activities that should be coordinated with other systems, and the information needed to support the decision-making process are set.

(iv) *Financing or funding* which includes collecting revenues, pooling financial risk, and allocating revenue. (a) The collection of revenue may be done in different ways, and it includes general taxation, donor financing, mandatory payroll contributions, mandatory or voluntary risk-rated contributions (premiums), direct household out-of-pocket expenditures, and other forms of personal savings. (b) Risk pooling refers to the management of financial resources in order to spread the risk from an individual to the pool of individuals, reducing in this way the overall risk for the system. (c) Strategic purchasing or financing of the supply side means the way providers and purchasers establish an interaction and develop service delivery models.

The functions of the health system have been used as dimensions or criteria of classification of health systems. Most traditional criteria used are proxies of financing and delivery functions. But other criteria have been used to capture features of resource generation and stewardship, such as health system actors, cost-sharing, medical technology, and decentralization. Several typologies have been proposed in the last 30 years; some are simple and based on a single criterion, and others are more complex and based on statistical analysis.

The aim of this work is to review the most influential typologies created in the last 30 years to classify the European health systems. The different typologies are summarized, and their most significant features are presented. The contribution of this article is mainly of twofold. On the one hand, it provides a synthesized historical review of how national health systems have been studied over time in Europe; on the other hand, it allows for the possibility to easily describe, criticize, and analyze the evolution of a single health system in the last 30 years.

Additionally, the implicit purpose of this work is to provide an informative and friendly view on how different authors have positioned European health systems in a criteria line or matrix. Some other works in the literature may devote some paragraphs to this theme, but no work is exclusively dedicated to the historical review of health system typologies. These typologies, which are considered as the most influential, were found after a literature review and scholar Google search based on the terms “health system classification”/“health system typologies.”

2. Why classify health systems?

The classification of national health systems in groups which share identical characteristics according to some predefined criteria has been of interest of researchers and policy makers. The purposes for the produced typologies are several. Firstly, classification is a step on the process of cognition and knowledge, and it also provides order in a world of infinite instances [8]. Secondly, it allows the international comparison of different national health systems, mainly in terms of their functions. Actually, the nature of classifying health systems is itself a reply to the conceptual need of labeling the different nature of health systems. Thirdly, clustering national health systems allows the assessment of their performance, across countries and time, measured by the attained goals. But also policy assessment and policy recommendation are possible uses from typologies by studying the best references or cases in each group [9]. Finally, a last potential contribution from the typologies of health systems is the historical and comparative analysis that may be developed.

The creation of typologies of health systems can result from a deductive or an inductive method of research [8]. In this work, typologies presented have a deductive nature because it covers more European countries. The inductive method is usually centered in few cases which are presented as examples.

The research to create typologies continues nowadays and so the debate about which dimensions and variables are to be considered, whether or not national health systems fall into defined groups, and which countries may best represent a particular type [8]. Despite this debate, researchers agree on one issue. There is no pure health system in Europe where health systems tend to be set of mixture characteristics. So, aggregating health systems to create a typology is usually based on the principle of the dominant characteristic(s) or on some proximity measure between different indicators.

3. European health system classifications: a historical perspective

The European health systems have been classified in a variety of ways in the last 30 years. Depending on the author, on the purpose, on the criteria, and on the moment, a typology is created. In this work, the last 30 years are divided into two periods, before and after the 2000s. In the more recent period, different proposals are grouped according to the method used to classify health-care systems. The methods used to create the typologies may be non-analytical

or analytical. The non-analytical is based on descriptive and/or qualitative analysis, while the analytical is sustained in statistical methods, such as principal component analysis and cluster analysis.

The diversity of proposals is relevant and provides value added on the general and analytical perspective about each health system. In **Table 1** of the Appendix, a synthesis of the set of typologies referred here is presented for a clear perspective of the 30 years of European health system classification. This table lists the author (year), type of analysis/methods, classifying criteria, and typology/countries in each typology.

3.1. Period 1985–2000

In the period 1985–2000, there are four well-known typologies in the literature: three of them are constructed using the unique criterion of funding, and the fourth typology and oldest is based on the three criteria of classification: coverage, funding, and ownership. There is a fifth typology worth to be referred, for curiosity, which is based on geographical neighborhood.

(1) Let us start from the oldest typology from these 30 years. This typology was proposed by OECD [10], in 1987, in a work supervised of George J. Schieber. Using the three criteria reflecting health system functions, health systems are classified into three types: *Beveridge model*, *Bismarck model*, and private insurance. This last type of health system could not be found in Europe. This typology was very well received, and it has been referred ever since. *Beveridge model* is defined by universal coverage, taxed funded, and public ownership of provision. The *Bismarck model*, on his turn, is defined by universal coverage, social contributions funded, and provision is done by public or private or both sectors. Despite the importance of this typology, it did not classify all European countries, and it placed some dominance in the criterion of financing.

(2) In another work proposed by the WHO under the direction of Saltmann and Figueras [11] and inspired by the OECD typology, three-group typology is proposed. Based on one criterion of funding, three groups are identified: the *Beveridge model*, the *Bismarck model*, and the *Mixed model*. The first two groups are identical to those identified before: the *Beveridge model* is mainly financed by taxes, and the *Bismarck model* is based on social insurance. The *Mixed model* gathers health systems which are in transition or in transformation. Systems in transition mean those who have strong features of the *Bismarck model* but are in transition to something

	Regulation	Financing	Provision
National health service	State	State	State
National health insurance	State	State	Private
Social-based mixed system	Societal	Societal	State
Social health insurance	Societal	Societal	Private
Private health-care system	Private	Private	Private
Etatist social health insurance	State	Societal	Private

Table 1. Six types of OECD health-care systems Böhm et al. [22].

else; the systems in transformation account for countries moving from an insurance-based system to a taxed-based system and those moving from a *Semashko system*¹ to an insured-based one (ex-communist countries).

(3) Finally, under the direction of Jakubowski et al., the European Parliament in 1998 [13] has also proposed a typology for classifying national health systems. The criteria of funding continue to be the differentiating factor between groups of countries. But now, the authors have introduced a second layer of funding, the supplementary health system funding. This latter funding accounts for both the direct payments and the private voluntary health insurance payment for supplementary health care. This typology is applied to 15 EU countries, and it reflects the variety of health systems across the European countries.

The typology considers four groups of countries, and their names describe the main features of the health systems in each group: (i) *public taxation/private voluntary health insurance and direct payments*; (ii) *public taxation/direct payments but no private voluntary health insurance*; (iii) *social contributions insurance/private voluntary health insurance, direct payments, and public taxation*; and (iv) *mixed compulsory social insurance and private voluntary health insurance/public taxation, direct payments*.

(4) The last typology presented for this period is proposed by Figueras et al. [14] in 1994 who have used a simple criterion: spatial neighborhood criterion. These authors clustered the national health systems in four groups: *Northern macro-region*, *Center Western macro-region*, *Center Eastern macro-region*, and *Southern macro-region*. This typology is clear and simple to apply. Nevertheless, it does not convey information about the type of health systems.

3.2. Period 2000–2015

The period 2000–2015 has brought several new proposals on how to classify health systems due to the increasing interest to compare health system on the international level. The set of typologies presented here is distinguished between the analytical and the non-analytical or descriptive. The latter set of typologies is more descriptive and does not use any statistical analysis to find groups of health systems, while the first set of typologies tends to be more sophisticated in their analysis to determine homogeneous groups.

3.2.1. Non-analytical typologies

(1) The use of the single criterion of funding is still a strategy used to derive groups of national health systems, as it can be found, for instance, in the works by Busse et al. [15] in 2007 and by Thompson et al. [16]. Their proposals are quite similar and countries are grouped identically. Both classify the national health systems in *tax-financed system*, *social insurance system*, and *mixed model* mainly privately financed. The difference is that Busse et al. differentiate the health systems with high of public share of financing from those with high private share.

¹The Semashko system [12] was born in the former URSS and implemented in the most former socialist countries. Health-care services are basically a total public health-care system, health facilities were owned by the State, and health professionals were paid by the State. The Semashko system provided a universal access to health care, and therefore no one was excluded. But after the collapse of the socialist regimes, the shortage of financial resources led to a higher contribution of patients who are now obliged to pay direct fees to providers.

(2) Blanchette and Tolley [17], in 2001, combine the private or public nature of involvement in financing and delivery functions, resulting in four types of health systems. The authors could only find two groups of health systems in Europe, in particular, the *publicly financed health systems with public or private delivery*. But they have analyzed a small set of European countries and left out the more mixed health systems.

(3) The criterion governing production/technology is introduced by Moran [18] in 2000. This criterion captures the way system of innovation is governed within a health system. Medical technology is largely produced by private actors, who also maintain their property rights, but the validation and safeguard of those property rights may be under the public responsibility. The author uses the term “state” as a notion that captures the institutions related with the governance of consumption, provision, and production. The four suggested clusters of health systems are *supply health-care state*, *entrenched command and state control*, *corporatist health-care state*, and *insecure command and control state*, which are next summarized.

(i) *Supply health-care state*: funding is done through private insurance, so access is limited; the public control of costs is limited; private hospitals and doctors remain relatively unchecked; and there are no real constraints to medical innovation adoption. This type of health system cannot be found in Europe. (ii) *Entrenched command and state control*: the governance of consumption is mainly public, and access is based on citizenship; there is strong control of resource allocation by the state; the governance of provision of public owned hospitals and of doctors is subject to extensive public control; and there is a moderate constraint to medical innovation. (iii) *Corporatist health-care state*: funding is made through social insurance contributions; the state has a limited control over health-care costs; the same is true for the governance of provision, where private hospitals are prominent and where there are only some constraints on the private interest of doctors; and there are only some constraints on medical innovation. (iv) *Insecure command and control state*: those are systems similar to the entrenched command and state control health-care systems, but there is nearly no control or influence relative to the private interests; and there is a state governance over provision and doctors, but there coexist a strong private sector, where state influence is very limited.

Despite the introduction of a new perspective to classify health systems, the author applies his typology to only six European countries; it would have been interesting to have it extended to more countries.

(4) Based on descriptive analysis of the relations across providers, payers, and users, in particular, the degree to which health-care financing and delivery is publicly controlled or administered. Docteur and Oxley [19] propose three types of health-care systems, in 2003: *public-integrated model*, *public-contract model*, and *private insurance/provider model*.

The *public-integrated model* combines on-budget financing of health-care provision with hospital providers that are part of the government sector; doctors and other health-care professionals can be either public employees or private contractors to the health-care authority; and complete population coverage is done under a strict budget. In the *public-contract model*, public payers contract with private health-care providers; the payers can be either a state agency or social security funds; often private hospitals and clinics are run on a nonprofit basis. A *private insurance/provider model* uses private insurance combined with private (often

for profit) providers; insurance can be mandatory or voluntary; and payment methods are usually activity based.

The typology proposed by these authors introduces an additional criterion of the control/administration. It is this criterion that allows characterizing health systems according to the type of relations established between the different parties of the health system. However, the classification is only applied to some European countries, and it follows closely the grouping of countries based on the dominance of the financing criterion.

(5) The most recent proposal on types of European health systems has been suggested by the European Union—Committee of the Regions [20], and it accounts for 27 EU countries, missing out Croatia. The original contribution of this work comes from the criterion used. The authors have used the role of local and regional authorities within health management systems to propose a typology. This typology yields five groups of health systems: decentralized, partially decentralized, operatively decentralized, centralized but structured at territorial level, and centralized. The name of each group describes the level of (de)centralization of the health system. The three criteria used to obtain this classification are (i) health funding by the Local and Regional Authorities (LRA); (ii) power and responsibility by LRA with regard to health-related legislative, planning, and implementation functions; and (iii) ownership and management of health-care facilities by LRA.

(6) A team of three researchers, Wendt et al. [21], in 2009 pursued the idea of building a typology based on the three criteria, financing, provision/delivery, and regulation/governance, according to the responsible actor—state/public, non-governmental/societal, and market/private. The resulting theoretical classification generates 27 potential health-care systems, but only 10 of them are plausible to find in real world. The empirical analysis was undertaken by Böhm et al. [22], 4 years later, using cluster analysis on 30 OECD countries. The result of that analysis is a set of six types of health-care systems described in **Table 1**.

3.2.2. Analytical typologies

Three typologies next presented share the analytical methodology. In fact, all three use cluster analysis to find out how the different health systems could form homogeneous groups. This form of creating a typology may be less intuitive, but it allows the description on the health system based on common traits sustained by the similarity of statistical information.

(1) In 2009, Wendt [23] used cluster analysis applied to ten health indicators to capture the classifying criteria of financing, provision, institutional characteristics, and health expenditures. The result of this analysis is the three types of health systems: *health service provision oriented*, *universal coverage-controlled access*, and *low-budget restricted access*, next described.

(i) The *health service provision oriented* is described by high level of total health expenditure, high share of public funding, and moderate private out-of-pocket funding; moderate level of inpatient and high level of outpatient healthcare; also by high level of autonomy of self-employed doctors; and high freedom of choice for patients.

(ii) Countries in the *universal coverage-controlled access* group have high share of public health funding, medium level of total health expenditure, moderate level of inpatient, and low level

of outpatient healthcare; the access to doctors is highly regulated, and doctors face strict regulation regarding their income arrangement.

(iii) The *low-budget restricted access* health systems are characterized by low level of total health expenditure which is related to the weaker economic position of these countries, high private out-of-pocket payments, high control of patients' access to medical doctors, low level of inpatient, and moderate level of outpatient healthcare; GPs receive in general a fixed salary, and income is strongly regulated and controlled.

(2) In the following year, another analytical typology is proposed by Reibling [24] who introduced new criteria for grouping national health systems. In particular, this author considered gatekeeping, cost-sharing, provider density (GPs, specialists, and nurses), and medical technology (magnetic resonance imaging units/MRI and computed tomography scanners/CT) as dimensions of classification. This author has based his proposal in cluster analysis over eighteen indicators and ended up finding four clusters:

(i) *Financial incentives states* that regulate patients' access to medical doctors mainly by cost-sharing, and there is a high availability of GP, nurses, and medical technology; (ii) *strong gatekeeping and low supply states* with no cost-sharing but extensive gatekeeping arrangements for doctor's visits, low numbers of health-care providers, relatively little medical technology, and some regulatory emphasis on provider density and technology; (iii) *weakly regulated and high supply states* with weak gatekeeping and a high supply of health-care providers; (iv) *mixed regulation states* that combine gatekeeping and cost-sharing arrangements, so there is a strong access regulation; physician densities are moderate, and medical technology is highly available.

(3) Finally, Joumard et al. [25] use a set of 22 indicators on institutional features to create a typology of health-care systems. The variables used in this analysis are several, and they may be grouped in those capturing: (i) the reliance on market mechanisms and regulations to steer the demand and supply of health care, (ii) coverage principles to promote equity, and (iii) budget and management approaches to control public spending. The authors perform a cluster analysis and find six groups of health-care systems: Group 1—private provision and private insurance for basic coverage; Group 2—private provision, public insurance for basic coverage, private insurance beyond basic coverage, and some gatekeeping; Group 3—private provision, public insurance for basic coverage, little private insurance beyond basic coverage, and no gatekeeping; Group 4—public provision and public insurance, no gatekeeping, and ample choice of providers; Group 5—public provision and public insurance, gatekeeping, limited choice of providers, and soft budget constraint; Group 6—public provision and public insurance, gatekeeping, ample choice of providers, and strict budget constraint.

4. Conclusion

Classifying national health systems has been a need of researchers to order and study the diversity of the observed reality. In the last 30 years, the European health systems have been classified according to several criteria which generated a set of different typologies. In this article, the most relevant typologies are presented. Six non-analytical typologies are presented. These typologies' main differentiating factor is the number and the type of criteria used to

deduce and describe the group of health systems. More sophisticated typologies are also presented in the period 2000–2015. These are based on statistical analysis and produce groups of countries which share common statistical traits based on how similar health systems are to each other and different from others. Three well-known typologies of this kind are referred.

The majority of typologies proposed and presented here is based on a descriptive and/or qualitative analysis of health systems. While this method is like filling in a line or matrix of criteria, it is more susceptible to criticism, in particular, from each country expert when comparing countries. Moreover, most of these typologies do not cover a wide range of European countries, preventing any potential comparison.

Recently, the increase of data availability and computer capacity to perform statistical analysis has motivated researchers to look for more objective and sophisticated typologies. Cluster analysis has been used to construct and propose three different typologies presented here. This type of statistical method is based on an algorithm aimed at identifying groups of countries that are similar to each other but different from countries in other groups. The key instrument to measure that similarity is the Euclidean distance. The results depend not only on the number and set of countries but also on the characterizing variables considered. For this reason, each typology is internally valid for a period/year, set of countries, and variables considered.

The most used criterion is financing which clearly reflects the central concern placed on this feature. Financing may be seen as a base of the health system functioning and where all the other functions are standing on. From this point of view, there is a consensual view that health systems may be dominantly Beveridgean, Bismarckean, mixed, or private type. While some countries may show some consistency over time, some countries do change their funding process along time. Future research may focus on how and why changes have occurred and what were the effects on the population health of such changes.

The second most used criterion is provision and delivery. Not only, these functions may be proxied and compared easily with data across countries; they also convey information about the functioning of the health system. The delivery/provision of health care is crucial to improve population health results and performance assessment. The ideas behind this function may be differentiated into access, availability, utilization, and coverage of health care. It is likely that future typologies, in particular, when considering similar health systems, will look for variables that may proxy each of these facets of provision.

Finally, it is worth to notice that authors seem pleased to baptize each group of countries in a typology. Except for those typologies based on the criteria of financing, where some agreement exists for the given names, the remaining typologies present different and creative labels for the groups found. This fact reflects the lack of comparability across typologies. Nevertheless, some researchers may find interesting to analyze the typologies for a single country, a long time, since it provides a multiple view of the health system along time.

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Appendix

Typologies of European health systems in the last 30 years.

Author (year)	Type of analysis/methods	Typology/countries
Classifying criteria		
Period 1985–2000		
OECD p. 24 [10] responsible author GJ Schieber	Non-analytical/descriptive Coverage Financing Ownership	Beveridge model—UK and Italy Bismarck model—France and Germany Mixed model—the Netherlands Private insurance—US, no European country
WHO, pp. 115–6 [11] responsible authors R. Saltmann and J. Figueras	Non-analytical/descriptive Financing	Mainly taxed based—Denmark, Finland, Iceland, Ireland, Norway, Sweden, and UK Mainly insurance based—Austria, Belgium, France, Germany, Luxembourg, the Netherlands, and Switzerland Mixed system—three subgroups Systems in transition (mainly Bismarckean type)—Israel and Turkey Systems in transformation I (from insured to taxed system)— Greece, Italy, Portugal, and Spain Systems in transformation II (from Semashko to insured system)—ex-communist countries
European Parliament, p. 18 [13] responsible authors E Jakubowski and R. Busse	Non-analytical/descriptive Financing	Main system/supplementary system Public taxation/private VHI and direct payments—Finland, Greece, Ireland, Italy, Sweden, Spain, and UK Public taxation/direct payments—Denmark, and Portugal Social contributions, insurance/private VHI, direct payments, public taxation—Austria, Belgium, France, Germany, and Luxembourg Mixed compulsory social insurance and private voluntary health insurance/public taxation, direct payments—the Netherlands
Figueras et al. [14]	Non-analytical/descriptive Spatial neighborhood	Northern macro-region—Sweden, Norway, Finland, Denmark, UK, and Ireland Center Western macro-region—France, Germany, Austria, the Netherlands, Belgium, and Luxembourg Center Eastern macro-region—Poland, Czech Republic, Slovakia, Hungary, Slovenia, Estonia, and Lithuania Southern macro-region—Italy, Spain, Portugal, and Greece
Period 2000–2015		
<i>Non-analytical typologies</i>		
Busse et al., p. xi [15]	Non-analytical/descriptive Financing Ownership	Tax-financed system High public share—Denmark, Finland, Ireland, Italy, Spain, Norway, Sweden, and UK High private share—Portugal Social security contribution system High public share—Belgium, France, Germany, Luxembourg, and the Netherlands High private share—Austria and Switzerland Mixed model (mainly private financed)—Greece

Author (year)	Type of analysis/methods	Typology/countries
Classifying criteria		
Thompson et al., p. 29 [16]	Non-analytical/descriptive Financing	Social insurance—Austria, Belgium, Czech Republic, Estonia, France, Germany, Lithuania, Luxembourg, the Netherlands, Poland, Romania, Slovakia, Slovenia, and Bulgaria Taxed financed—Denmark, Finland, Ireland, Italy, Malta, Portugal, Spain, Sweden, and UK Out-of-pocket financed—Cyprus, Greece, and Latvia
Blanchette and Tolley [17]	Non-analytical/descriptive Financing Delivery	Public financing and public delivery—Norway, Sweden, Denmark, and Finland Public financing and private delivery—Germany, France, and UK
Moran [18]	Non-analytical/descriptive Consumption Delivery/provision technology	Entrenched command and state control—Scandinavia and UK Supply state—US and no European country Corporatist state—Germany Insecure command and control state—Greece, Italy, and Portugal
Docteur and Oxley, p.10 [19]	Non-analytical/descriptive Financing Delivery/provision Control/administration	Public-integrated model—Nordic countries, Italy, Greece, and Portugal Public-contract model—Continental European countries and UK Private insurance/provider—Switzerland
European Union [20]	Non-analytical/descriptive LRA funding LRA power and responsibility LRA ownership and management	Decentralized—Austria, Italy, and Spain Partially decentralized Above EU average funding—Denmark, Estonia, Finland, Lithuania, Poland, Sweden, and Hungary Below EU average funding—Belgium, Czech Republic, and Germany Operatively decentralized Below EU average funding—Bulgaria, Latvia, Luxembourg, Romania, Slovakia, and Slovenia Null or low funding—the Netherlands and UK Centralized but structured at the territorial level—France, Greece, and Portugal Centralized—Cyprus, Ireland, Malta
Wendt et al. [21] and Böhm et al. [22]	Non-analytical/descriptive Financing Delivery/provision Regulation	National health service—Denmark, Finland, Norway, Sweden, Portugal, Spain, and UK National health insurance—Ireland and Italy Social-based mixed type—Slovenia Social health insurance—Austria, Germany, Luxembourg, and Switzerland Etatist social health insurance—Belgium, Estonia, France, Czech Republic, Hungary, the Netherlands, Poland, and Slovakia Private health-care system—no European country and US
<i>Analytical typologies</i>		
Wendt [23]	Cluster analysis Ten indicators for health-care expenditures Financing Delivery/provision Institutional characteristics	Health service provision oriented—Austria, Belgium, France, Germany, and Luxembourg Universal coverage-controlled access—Denmark, Great Britain, Sweden, Italy, and Ireland Low-budget restricted access—Portugal, Spain, and Finland (Greece and the Netherlands could not be grouped)

Author (year)	Type of analysis/methods	Typology/countries
Classifying criteria		
Reibling [24]	Cluster analysis Eighteen indicators for gatekeeping, cost-sharing provider density, and medical technology	Financial incentives states—Austria, Belgium, France, Sweden, and Switzerland Strong gatekeeping and low-supply states—Denmark, the Netherlands, Poland, Spain, and Great Britain Weakly regulated and high-supply states—Czech Republic, Germany, and Greece Mixed regulation states—Finland, Italy, and Portugal
Joumard et al. [25]	Principal component analysis and cluster analysis Twenty-two indicators for market mechanism coverage/provision financing and management	Group 1: countries relying heavily on market mechanisms—Germany, the Netherlands, Slovakia, and Switzerland Groups 2 and 3: countries with basic insurance coverage and heavy reliance on market mechanisms—Belgium, France/ Austria, Czech Republic, Greece, and Luxembourg Group 4: countries with limited private supply but wide choice of providers—Sweden and Turkey Groups 5 and 6: countries with heavily regulated public systems—Denmark, Finland, Portugal, Spain/Hungary, Ireland, Italy, Norway, Poland, and UK

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