



## Comparing apples to oranges? Minimizing typological biases to better classify healthcare systems globally



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### ABSTRACT

The present study explores the role of typologies as an analytical device in understanding both the theoretical and empirical manifestations of healthcare systems globally. In a first step, we explore the relative benefits and limits of different classificatory logics – inductive vs. deductive – before conducting a review of scholarship on healthcare system classifications. We argue that, in order to capture the role of global actors (international organizations, donor countries etc.) in low-to-upper-middle income economies, classificatory systems must account for potential territorial shifts across the dimensions of financing, service provision and regulation defining all healthcare systems. In its absence, comparative research involving countries of significantly different levels of economic development becomes obfuscated. In an effort to redress this gap in the literature, we lay out how state, societal, market and global actors feature across different dimensions of healthcare systems, putting forth a deductively derived and actor-centered typology.

### 1. Introduction

The study of *healthcare systems* has been the subject of a great deal of classificatory research. Owing to the use of disparate criteria for inclusion and analysis, however, studies tend to lead to vastly different systems of classification depending on the background and interests of the researcher. Whereas researchers focusing on country-members of the Organisation of Economic Co-operation and Development (OECD) typically conceptualize healthcare systems in terms of quantifiable indicators, for those working on low-to-upper-middle income (LMI) economies outside of the OECD context such data is often difficult to access. Instead, the latter tend to deal in qualitative understandings of healthcare that are difficult to directly compare with studies on their OECD counterparts. These differences have resulted in a paucity of classifications capable of capturing healthcare system developments worldwide, where dramatic divergences in levels of development exist between regions and where substantial differences in the role of *global actors*, such as international organizations and donor countries, may emerge (see e.g. [17,19]). Comparativists interested in such research have thus been left with *comparing apples to oranges*. We argue that this can be done differently.

In the present study, we advance a *deductively-led* typology of healthcare systems that is better suited for comparative research involving high heterogeneity of cases. This typology, we maintain,

can generate new insights and scholarship in two fundamental ways: first, it can help researchers to better identify (and rectify) extant gaps in data on healthcare systems that presently obfuscate comparative studies; and second, by arriving at a shared understanding of the healthcare system – in terms of basic *functions* and *key actors* – direct comparisons between countries can be made irrespective of their geographic or socio-economic context. This, in turn, can open the door to new research that sheds light on the role of *transnational interdependencies*, such as colonial ties or trade relations, which significantly color the relationship between economic regions of the world and likewise stand to imprint upon their social policy, including healthcare [8]. Moreover, direct comparisons of healthcare systems in terms of functions and actors can facilitate much needed research that theoretically links institutional arrangements to performance outcomes [23]. Finally, a *deductively-led* typology allows for flexibility in choosing different units of analysis: countries, subnational levels or the system-level.

It is bearing these larger research aims in mind that the present contribution puts forth a more universally applicable typology of healthcare systems. To do so, we begin by providing a brief background to the strength and limits of two classificatory logics: the *inductive* versus *deductive method*. We argue that deduction does a better job of generating typologies with the greatest universality. Following this, we critically review extant classificatory scholarship, identifying deficits in the form of empirical biases and an over-emphasis on national

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constellations to the exclusion of global actors. We then outline the methods of our study: the typology building for which we delineate the logic, dimensions, and actors employed by our approach. We conclude by reflecting on the potential of our typology to serve as an analytical roster for guiding future comparative research.

## 2. Background & theory

Whether pertaining to the study of healthcare systems, the social sciences, or sciences in general, before any critical discussion of classification and typologies can be undertaken, the basic question must be addressed: How are classificatory types generated in the first place? Logical expositions of classification generally point to two types of processes: the *deductive* that departs from so-called *self-evident propositions* regarding some social or natural phenomenon [20]. These will have empirical referents which are expected to co-vary in predictable ways to form *types* [14]. Differently, in the case of *inductive logic*, the definition of types follows from empirics rather than theory. Accordingly, whereas the deductive approach is bound to the confines of human reason, that is, *what the researcher can or cannot logically argue*, the inductive approach is limited to what the researcher can actually observe. As in the present study we are interested in developing a typology that can (also) be applied to cases that are yet under-researched, lack quantitative data, or are largely unknown, we rely on the strengths of the deductive method in what follows. In doing so, we argue that a deductively-based typology can provide both the conceptual neutrality and flexibility necessary for international comparisons of healthcare systems at a global scale. Before doing so, however, we briefly examine how other authors have developed typological frameworks for research involving high and LMI economies as cases for comparison.

## 3. Extant healthcare system typologies

Attempts to classify healthcare systems can be traced back to the ‘world scanning’ of health departments and medical care developed by Roemer in the 1960s. Since then, healthcare systems have been extensively classified in many studies spanning across nearly six decades. Although extant typologies vary in their scope of enquiry and period of observation, they often classify the same pool of cases [9]. The most influential and prominent typologies, for instance, only attempt to classify high-income countries, and often measure the public–private mix of the systems (e.g. [28,25,26,2,36,41]). This results in the development of classificatory tools that are useful for describing a specific set of cases that share similar features. We argue for the need for a comparative roster that must consider a larger pool of countries, and expand their classification criteria, in order to account for the great variance of healthcare systems globally – namely, the arrangements found beyond OECD countries which can involve a new set of actors that shape domestic healthcare policies: *global actors*. To assess what has been done so far in this regard, we review publications that meet two pre-defined criteria: They (1) claim the development of a *new* analytical tool for classifying healthcare systems; and (2) order systems of both high and LMI countries, or, make no reference to a specific geo-economic scope. The aim of the present review is to evaluate the suitability of extant typologies for large and global comparisons. We do so by considering the types of *dimensions* and *actors* covered by studies, as well as their *temporal* and *spatial adaptability*. The latter is necessary given that the typologies reviewed here have been developed over a sixty-year span (see Annex 1).

### 3.1. Temporal and spatial adaptability: Identified types and patterns of extant typologies

The great majority of classificatory tools covering both high and LMI countries were published in the last four decades of the 20th cen-

tury (8 out of 10), Wendt et al. [42] and Sam [35] being important exceptions. The first that consider nations of different economic levels were developed in the 1960s and 1970s, and they often classify and compare high-income countries with whole LMI regions and continents, i.e. Africa, Asia and Latin America [31,12,40]. In attempting to classify *regions* and not countries, they do not account for diversity within regions. Crucially, all typologies developed up to the end of the 1990s are informed by the Cold War context, and the clustering of countries frequently overlaps with economic and political circumstances. Lassez et al. (1997), for instance, stress the differences between systems according to their political and economic development, identifying three healthcare systems types: The *most advanced* type (e.g. UK, US, Germany), characterized by high levels of resources, use of technology and access to both public and private services; the *somewhat advanced* cluster (e.g. Hungary, Czech Republic), described as having high levels of access to public and private services, but lacking in resources and available technology; and the *less advanced* type (e.g. Russia, Mexico), in which healthcare systems lack in financial, human and technological resources, and the population have moderate access to health services.

Even though all the reviewed frameworks make an effort to include countries beyond advanced economies, five out of ten typologies highlight variation only within high-income nations. In the works of Roemer [31], Field [12], Maxwell [24], Terris [40] and Elling’s [10], socialists and LMI countries are all clustered into one (or two) type in contrast to advanced economies, where specific particularities are identified, such as differences in financing (private financing versus contribution versus taxation). Contrarily, the analytical frameworks developed by Roemer [32] and Cockerham [7] recognize healthcare system similarities between countries with different economic levels, emphasizing that the same types can be adopted even in nations with different state capacity. Roemer [32] classifies countries in four different types according to management, financing, coverage and service provision: *Universal and comprehensive* model (e.g. Norway, Great Britain, Sri Lanka and Tanzania), *welfare oriented* cluster (e.g. Canada, Japan, Egypt and Libya), *entrepreneurial and permissive* type (e.g. US and Ghana), and *socialist and central planned* model (Soviet Union and Vietnam). Cockerham [7] likewise mixes HI and LMI countries into four clusters (*fee-for-service*, *socialized medicine*, *decentralized national health* and *socialist medicine*) conforming to the public–private mix of the systems. For instance, four high-incomers plus Kenya are identified as being part of the *socialized medicine* model, and South Africa and the US are grouped into the *fee-for-service* model. Nonetheless, these approaches conceptualize a very limited number of types, which results in an oversimplification and thereby misrepresentation of the institutional reality and capacity of these healthcare systems.

At last, the most recent frameworks of Wendt et al. [42] and Sam [35] use different strategies to identify healthcare system patterns. The former develops a deductively derived typology in which there are 27 possible combinations of healthcare system dimensions (financing, service provision and regulation) and actors (state, societal and private). As the authors do not classify any case, the typology could potentially be used to classify systems in a global perspective. Meanwhile, Sam [35] finds four healthcare system clusters while analyzing 17 Western European and Asian countries. The only two middle income cases (Malaysia and Thailand) make up one of the clusters.

### 3.2. Dimensions and actors

Our review also identifies the dimensions and criteria used by authors to classify healthcare systems, as well as the types of actors included in the studies. As we understand healthcare systems in terms of three core dimensions – regulation, financing, provision – we summarize the criteria for classification along these three, as well as list any additional category used by authors (Table 1). Interestingly, all ten of the reviewed publications include aspects related to the *regula-*

**Table 1**  
Cases, criteria and actors of healthcare typologies.

Typology	Cases	Criteria and indicators	Actors <sup>1</sup>
OECD [28]	5 OECD-countries	Source of funding Public-private ownership Coverage	State Societal Private
Moran [25–26]	8 OECD-countries	State control over cost, doctors, hospitals, technology and coverage	State Private
Bambra [2]	18 OECD-countries	Private health expenditure Private hospital beds Coverage	Private State
Wendt et al. [42]	n/a	Predominant actor: Financing Provision Regulation <sup>2</sup>	State Societal Private
Wendt [45]	32 OECD-countries	Total health, public, out-of-pocket-expenditures Number of specialists, nurses, GPs and pharmacists Mode of remuneration of GPs, Free-choice and direct access to specialists, Co-payment	State Private

<sup>1</sup> Unless otherwise noted, the assessment of actors is ours.

<sup>2</sup> Wendt et al. [42] does not operationalize dimensions.

tion of healthcare, such as access and the relationship between government and providers. They mostly attempt to determine the extent to which actors are involved in managing the system. *Service provision* and/or aspects of provision are considered in seven out of ten typologies, and the way authors operationalize this dimension varies from available technology, personnel, ownership of facilities, medical care and knowledge. The third most common criterion is *financing*, which is addressed in six studies. Often, typologies map the sources of financing or the total amount of resources available.

Overall, the typologies covering countries from different regions capture the main dimensions of healthcare systems, but there is great variance in the way these are measured, particularly in the regulation and service provision dimensions. Four typologies, however, use (additional) criteria that cannot be assigned to any of these pre-defined dimensions: *Nature of economic system* used by Terris [40] identifies whether systems are pre-capitalist, capitalist or socialist, labels commonly used during the Cold War. Elling's [10] *class struggles* and *economic distribution* derive from the theory of the capitalist political economic world-system, reflecting that the strength of the workers' movement and economic justice are decisive factors for determining health conditions and services. *Health outcomes* [35] includes information on the performance of the system. These, however, go beyond the aim of describing and explaining formal arrangements and the institutional and actor setup of the systems, and they are rarely included in the comparative healthcare system typologies scholarship.

Table 1 displays the universe of actors considered in the reviewed typologies. All frameworks account for the role of the state and private actors in organizing the healthcare system. Seven out of ten studies solely measure the public–private mix of the systems, considering the responsibility of only state and private actors. Roemer [31], Field [12] and Wendt et al. [42] expand the number of actors, going beyond the public–private mix, acknowledging particularly the role of social insurance contributions and non-profit organizations in financing, delivering and managing healthcare. This universe of actors seems justifiable in earlier typologies, when the influence of transnational and international organizations was still overshadowed by public and for-profit actors [3]. However, typologies developed over the last decade still fail to account for the influence of global actors, despite their considerable role in Latin America, Africa and Asia (ibid).

Notably, Wendt et al. [42] come close: By employing a theoretically-driven logic to classifying healthcare systems, they introduce an analytical roster that accounts for greater differentiation and heterogeneity of types. Their approach, mainly deductive, allows the authors to arrive at all three core dimensions of the healthcare system – regulation, financing, and service provision. Still, like their contem-

poraries, Wendt et al. (ibid) fall short of accounting for the potential role of global actors, thereby perpetuating a theoretical bias for national constellations in healthcare. This betrays the authors' focus on OECD countries where the need for engagement by external actors is far removed from the reality of healthcare systems. Nevertheless, Wendt et al.'s approach provides an important starting point for the present study's typology soon to follow.

As can be derived from our review, thus far typological research suffers from major limitations that impede their ability to capture the great variety of current healthcare systems. Each of the reviewed frameworks has been informed by a particular historical and socio-economic paradigm, resulting in the grouping of countries into singular categories embedded within specific environments. What can be seen is that although the analyzed typologies make an effort to include a greater range of cases, encompassing countries with different economic and healthcare system development levels, these frameworks continue to be better suited for describing advanced economies, as they often do not highlight differences within LMI nations. Further, despite the fact the reviewed literature uses numerous criteria to operationalize dimensions and differentiate types, they often only measure the public–private mix of the systems, accounting solely for the responsibility of state and for-profit actors. Typologies developed throughout the 20th century, therefore, are not able to capture the particularities of current systems that are increasingly interconnected, and where external financing and other forms of involvement by non-domestic actors can play a prominent role. However, even the most recent frameworks do not recognize the existence of players beyond national contexts. In what follows, we put forth an analytical framework that can address these limitations.

#### 4. Building a novel typology

The aim of our typology is to order the world of healthcare systems, developing an analytical grid upon which to place systems according to similarities and differences. One condition for the typology is to overcome the OECD bias of most existing typologies and to provide an equally useful classification for LMI economies. Irrespective of the theoretical contribution any study wishes to make, what is necessary for scholarship with a global scope is a conceptualization of the healthcare system that is independent of the whims of data availability, and which lends itself to both quantitative and qualitative research agendas. We pursue an actor-centered approach to distinguishing system types along deductively derived dimensions. The focus on actors reflects our assumption that, irrespective of differences in levels of resources going into healthcare systems, the range of potential actors

involved in their financing, service provision, and regulation remains the same, thereby providing a unit of observation that is directly comparable. Moreover, an actor-centered approach is especially suited for research tasked with identifying the role of the state (or public responsibility) versus that of societal or private actors in healthcare, whether the latter are nationally or globally situated.

#### 4.1. Dimensions of the healthcare system

We begin our exercise in deduction by asking, what tasks are central to the functioning of any healthcare system? This leads us to our first assumption that any healthcare system must *provide* services, irrespective of the expansiveness or quality of the care itself. This core task echoes international understandings of the healthcare system in terms of activities aimed at the improvement, maintenance, and prevention of deterioration of the individual's health status [27]. Hence, implied in the notion of healthcare is something that must be done or delivered. Given that services involve qualified expertise, infrastructure and technology which incur high costs, the healthcare system also has to arrange *financing*. As costs are difficult to meet at the individual level, this typically requires third-party payers [26]. Last but not least, in light of its complexity, the healthcare system has to *regulate* the various interrelations between providers, financing institutions, and care recipients evolving from its core functions. Regulation may entail the basic coordination of actors within the system through particular modes or principles (e.g. hierarchy vs. competition), as well as more ambitious attempts to achieve social protection through the enactment of laws guaranteeing universalism. Taken together, the healthcare system can be said to consist of three dimensions: *service provision, financing, and regulation*. We now ask, which actors can be responsible for the carrying out of these functions?

#### 4.2. Actors in the healthcare system

Beginning with service provision, providers of care logically include doctors, nurses and other health professions working in individual practices or in clinical/hospital settings, as well as professional associations representing their interests as a collective [13]. As concerns financing, the role of care recipients as purchasers of services, as well as third-party payers, be it employers, private health insurance, mutual insurance societies, charities, social insurance schemes or the government, come to the fore. Regulation, meanwhile, is principally in the hands of the state, but may also be delegated to societal institutions or left to market participants. We assume that each of these actors regulates in line with certain principles or modes of coordination: the state can be expected to follow in a hierarchical, top-down manner through the passing of laws and reforms, the definition of standards, the monitoring and enforcement of quality etc. Differently, societal actors engage in the mutual self-regulation of corporate bodies such as social health insurances. The market, meanwhile, can emerge as a regulator through the principles of supply and demand, as well as competition, as characterizes the private insurance sector [33].

Given the *relational* nature of the regulatory dimension, a secondary question arises concerning the types of relationships between healthcare system actors –namely, what are the *objects* of regulation? Or, put differently, whom does the state (or other actors) actually regulate? In addressing this question in a deductive manner, three bi-directional relationships emerge: first, that between financing bodies and patients/beneficiaries; second, between financing bodies and service providers; and third, the relation between patients/beneficiaries and service providers. By way of example, in the case of state-led regulation, the state may define the conditions for remuneration of doctors by financing bodies, just as it can define the types of services to be provided by law to patients/beneficiaries by doctors. By differentiating the types of relations as objects of regulation, our aim is to have a

better appreciation of the extent and reach of any regulatory actor within the healthcare system.

Bearing the diversity of actors in mind across the three dimensions, as well as the special (relational) complexity characterizing regulation, we then proceeded to systematically categorize actors along a *public–private axis*. This approach has also been applied in earlier typological research (see Table 1) to capture the extent to which the state (relative to other actors) shapes healthcare. The axis spreads from high levels of collectivization to the individual. The highest aggregate level is represented by *state actors*. Next, *societal actors* can be identified as non-governmental actors entrusted with responsibilities to support the general public interest. The other end of the axis is represented by *collective private* actors and finally *individuals* and *households* with their vested interests. This range of actor types reflects the national constellation of healthcare producing different forms and levels of pooling the health risk and providing social protection for the sick. The actor types also refer to welfare regimes and general concepts of organizing social protection through state hierarchy, by supporting societal institutions, or based on markets [11].

However, it stands to reason that where national actors are either insufficient or altogether incapable of providing healthcare that the necessity for outside support may surge. Indeed, global social policy scholarship highlights the role of non-domestic actors, in particular as researchers aim to transfer the analysis of classical welfare states to emerging and developing welfare states [15,18]. As the chief aim of our typology is to address healthcare systems globally, one necessary criterion is the incorporation of this fourth actor type alongside domestic actors in the public–private axis and for each dimension. Just as their domestic counterparts, non-domestic actors also represent a range of collective levels from the most aggregate supranational/international organizations down to foreign individuals and households. Table 2 below provides an overview of our applications of the public–private axis to categorize both domestic and non-domestic actors in healthcare. For our purposes, we refer to non-domestic actors as *global actors*. This term is elsewhere used in global policy scholarship to emphasize the ability of such actors to assert control over their own agendas, independent of national mandates (see e.g., [44,29]). Here, we use the term to denote the non-domestic and often transnational quality of such actors without making assumptions about the extent of their autonomy.

#### 4.3. A closer look at global actors

Thus far, whenever actor constellations have been used to classify healthcare systems, to our best knowledge, only domestic actors were accounted for. This neglects the potentially large role of international interdependencies, particularly of a financial nature (e.g. foreign aid, bi-lateral transfers from other states, IGOs, INGOs, private donors etc.), that may come to define the healthcare systems of LMI economies [34,37]. Indeed, where national healthcare systems are severely under-resourced or else absent, a complex set of actors including international governmental organizations (IGOs), international non-governmental organizations (INGOs), public–private partnerships, or transnational networks may become involved [18]. Such actors can also take responsibility for the provision of care by running hospitals or employing medical staff. While the role of global actors can be expected to be most visible during periods of acute crises (e.g. disease outbreaks or war), where the incapacities of national actors to respond to the health needs of the population is an enduring feature, these actors may also emerge as quasi-stable contributors to a healthcare system.

In the regulation dimension, the influence of global actors stands to be more indirect and related to the role they assume in financing and provision. Such support can be linked to the conditionalities countries have to comply with to receive further assistance [1,39]. Thus, in contrast to national counterparts, global actors cannot be assumed to

**Table 2**  
Categorizing actors in healthcare systems and examples.

	Domestic	Non-domestic/Global
State	Government (national, regional, local), health ministry, health authorities	Supra- and International organizations (EU, WHO, World Bank, OECD, IMF, etc.), foreign governments
Societal	Non-governmental regulatory bodies of health insurance funds and healthcare providers, social health insurance funds, panel doctor associations, non-profit organizations providing healthcare, charitable organizations, unions, etc.	Non-governmental organizations and foundations (Doctors Without Borders, Red Cross, International Federation of Red Cross and Red Crescent Societies, other humanitarian aid associations)
Private collective	For-profit providers of healthcare, private health insurance funds, enterprises and	Internationally operating medical industry, international private health insurance funds,
Private individual	Individuals and households	Individuals and households

behave in any uniform way. Depending on their political attributes (whether state-backed IGOs versus small-scale private donors), as well as the financial resources they bring into receiving countries, global actors entertain a variety of roles and degrees of influence. Moreover, their role can also be expected to be impacted by the specific context of engagement in which they are operating: not all receiving countries will respond to external involvement in the same way. As a category of actors, therefore, they are difficult to make general claims about. However, what is clear is that the inclusion of global actors is necessary in any encompassing typology of healthcare systems. This adds a new territorial element to the three dimensions which has thus far been neglected in classificatory work.

#### 4.4. A global typology defined

How do these different actor types unfold in each of the three dimensions? Beginning with our leading dimension, *regulation* is referred to as the domain of the state. Except in cases of state failure, the state can be expected to have the final authority to define the competence of all other actors in the healthcare system. This ultimate competence can be considered meta-regulation. In the proposed classification, however, we rather focus on the question, which actor directly defines the relations between care recipients/beneficiaries, financing institutions and providers (i.e., objects of regulation), as this likely has greater bearing on the day-to-day functioning of the system. Alongside direct control of regulatory issues, the state can entrust societal actors with regulatory competence. Societal actors such as social health insurance funds are still subject to state control and need to serve the general public interest. By the same token, the state may entrust private actors with regulatory powers or establish markets in which private collective or individual actors determine relations by contract.

Regarding the role of global actors, while ultimately subject to the sovereignty of states, they may shape national regulations indirectly by advising or more-or-less coercive prescriptions that can constrain or even define the policy choices of national actors. Considering countries with limited bureaucratic capacities and strong dependence upon foreign aid, a more explicit role in regulation may evolve, also in consent with national actors. Global actors might be legitimized by the fact that they take the core responsibility in financing and providing healthcare. As a result, four actor types fall under regulation: state, societal, private, and non-domestic.

As concerns *financing*, by asking which actor is responsible for financing the healthcare system, one also gets at the question of financing schemes. Similar to other typologies, we identify tax financing as state, and social insurance as the main societal form of financing. Concerning private financing schemes, we differentiate between *private collective actors* and *private individual actors* in financing. Private collective actors refer to private health insurance schemes. Such insurance is likely voluntary and provides a limited form of solidarity

between those currently sick and the healthy. While risk-rated premiums are crucial to private health insurance schemes, there is still some pooling of risks within specific risk groups. By contrast, private individual financing means that the individual patient or the respective household has to bear the full costs without any risk-pooling. Finally, again with respect to LMI economies, global actors have to be considered as a separate source of financing shaping the healthcare system. In financing, we can therefore distinguish five actors in total: state, societal, private collective, private individual and non-domestic actors.

Actors in *provision* are again categorized along the public–private axis. While public provision is a direct way of pursuing government interests in healthcare, private healthcare delivery tends to strengthen the autonomy of providers, who mainly follow their individual interests [21]. In addition to the public–private dichotomy, there is also a middle ground of providers that are autonomous from public authorities, yet still pursuing the general public interest: e.g. charities, non-profit organizations or foundations under public law. Such providers can be categorized as societal. As in the case of regulation and financing, service provision may also be characterized by the role of global actors, whether IGOs or INGOs, when they serve as the main source of doctors and medical facilities in a country. Hence, alongside the state, societal, and private, the present typology includes global actors as part of the service provision dimension. Table 3 below provides an overview of all actors and their specific roles under each dimension of the healthcare system.

#### 4.5. The healthcare typology matrix

Taking all dimensions into account, the proposed number of actor types each dimension can assume ( $4 \times 5 \times 4$ ) translates into 80 potential healthcare system types (see Table 4 below). The attribution of actors to dimensions can be based on different methods. This depends largely on the sample of real cases, the availability of data, as well as the knowledge of the healthcare system under consideration. The researcher also can decide on the proper unit of analysis: countries, subnational levels or the systems-level as in the sense of a cohesive set of regulations pertaining to a specific group of the population. This is particularly helpful for studying emerging public healthcare systems which often focus on specific groups or regions before expanding to a larger part of the population. Hence, a core strength of the present deductive typology is its flexibility regarding different forms of operationalization adjusted to the research question and interests of researchers, as well as in line with data availability.

By logically mixing all possible combinations of actor types across three dimensions of the healthcare system, the resulting classificatory roster remains, at first glance, rather abstract and complex due to the high numbers of types it produces. We can expect that some of the derived actor combinations might only be with little-to-no real world relevance. Böhm et al. [4] who worked with a similar typological approach have suggested that there is a hierarchy of dimensions and

**Table 3**  
Global typology of healthcare systems overview.

Actor	Role in each dimension
<i>Financing</i>	
State	Taxation/other state revenues
Societal	Social insurance contributions
Private collective	Private insurance contributions
Private individuals	Out-of-pocket-expenditure
Global	External/Foreign spending
<i>Provision</i>	
State	Public provision
Societal	Provision non-profit organizations
Private	Private for-profit provision
Global	Provision by global actors
<i>Regulation</i>	
State	Regulation by government/parliament
Societal	Regulation by associations of social insurance and providers
Private	Regulation by private insurers or providers of services in out-of-pocket transactions
Global	Regulation by international governmental organizations (IGOs) and non-governmental organizations (INGOs)

actors which can help to rule out certain combinations as implausible. Accordingly, they “expect that the degree of collectivization (state, society, and private) of superior dimensions limits plausible characteristics of subordinate ones” (ibid, p. 261). Applying these rules, it appears unlikely that the state is the main provider of healthcare services while the (superior) financing dimension is dominated by societal or private actors. However, Böhm et al. [4] revealed one real type represented by Slovenia that challenges their assumptions by the combination of state provision of healthcare services and societal financing by social insurance contributions. There is also indication of systems in the Global South where the healthcare infrastructure is mainly public while (private) out-of-pocket financing is the major funding source (e.g. Azerbaijan, Armenia or Nigeria, [16,30,22]). Moreover, applying hierarchy assumptions to global actors is ambiguous. Given the aforementioned varied role these actors may have, we cannot generally assume a certain hierarchical position. For example, the same IGO may engage very differently with one receiving country versus another, and this may depend on any number of factors such as the amount of money at stake, the political ties between the major donors within the IGO and the receiving country, the nature and conditions on the ground of the receiving country etc.

This said, the deductive approach allows for a tool that is sensitive enough to detect sub-systemic changes over time, in which one predominant actor-type may give way to another within one or more dimensions of healthcare. This may be the result of specific reforms that expand or contract the role of extant actors within the system. It may also arise from the entry of a new actor type which may change the system’s equilibrium altogether, resulting in the birth of a different system either in place of or in parallel to the status quo.

Among all possible actor constellations, we can identify pure types as the most extreme or most consistent manifestations of system attributes across the three dimensions (i.e. where one actor dominates all three dimensions). These types (highlighted in Table 4) can provide useful orientation for comparative researchers interested in identifying cases (or groups thereof) based on their proximity to one of several pure types. Based on tentative assessments of dominant actors, examples for state dominance in all three dimensions (Type 1) have been widespread before 1990 in soviet countries [5], where most private practice was prohibited and financing as well as regulation under control of the state. In those countries, changes in actor dominance were most evident after the economic transformation with the implementation of social insurance in some, soaring private individual spending in

**Table 4**  
Matrix of potential healthcare system types.

Actors in regulation	Actors in financing	Actors in provision			
		State	Societal	Private	Global
State	State	<b>Type 1</b>	Type 2	Type 3	Type 4
	Societal	Type 5	Type 6	Type 7	Type 8
	Private collective	Type 9	Type 10	Type 11	Type 12
	Private individual	Type 13	Type 14	Type 15	Type 16
	Global	Type 17	Type 18	Type 19	Type 20
Societal	State	Type 21	Type 22	Type 23	Type 24
	Societal	Type 25	<b>Type 26</b>	Type 27	Type 28
	Private collective	Type 29	Type 30	Type 31	Type 32
	Private individual	Type 33	Type 34	Type 35	Type 36
	Global	Type 37	Type 38	Type 39	Type 40
Private	State	Type 41	Type 42	Type 43	Type 44
	Societal	Type 45	Type 46	Type 47	Type 48
	Private collective	Type 49	Type 50	<b>Type 51</b>	Type 52
	Private individual	Type 53	Type 54	<b>Type 55</b>	Type 56
	Global	Type 57	Type 58	Type 59	Type 60
Global	State	Type 61	Type 62	Type 63	Type 64
	Societal	Type 65	Type 66	Type 67	Type 68
	Private collective	Type 69	Type 70	Type 71	Type 72
	Private individual	Type 73	Type 74	Type 75	Type 76
	Global	Type 77	Type 78	Type 79	<b>Type 80</b>

other countries as well as liberalization of the provision dimension substantially altering the healthcare system type. The pure state type is not necessarily limited to socialist economies as also governments in capitalist societies can decide to put public authorities in place to regulate, finance and provide healthcare services. Examples for the pure societal type (type 26 in the matrix) may be represented by community-based health insurance programs which have been suggested to increase healthcare coverage in Global South countries [38]. In those systems societal actors are present through participatory decision-making and management, solidarity through contribution financing or community-rated premiums, and their non-profit character (ibid, p. 15). In pure private types (individual and collective, Types 51 and 55) the government takes only responsibility for framework regulations of markets. Healthcare will have to be purchased directly or covered by voluntary health insurance using risk-rated premiums. Very high out-of-pocket spending shares of 70 percent and more in some countries of the Global South (e.g. Comoros, Myanmar, Nigeria, Yemen, etc.) indicate that the existence of individual private systems must be taken into account [43]. Finally, the pure global actor type (Type 80) where all dimensions are dominated by non-domestic actors can serve as a further reference point. Global actors have not been considered in typological works despite their relevance in many healthcare systems. The pure type with global actors taking on all main responsibilities of the healthcare system likely indicates a failed state or the temporary collapse of domestic regulations due to natural disasters or war. For example, the healthcare system in Haiti after the 2010 earthquake relied heavily on international help with more than 60 percent of health spending coming from international donors and 400 humanitarian organizations delivering medical care in the country while coordination was provided by national health authorities with support by the WHO [43,6]. The relevance of global actors can most easily be measured in the financing dimension. In 2017, external financing over one third of total health spending could be observed in ten countries, of which nine were located in Africa. In Mozambique as an extreme case, global actors financed between 60 and 80 percent of total health spending [43]. Global actor involvement in regulation is less obvious, but often financial support is linked to conditionalities which can affect regulatory issues such as the access of providers to the healthcare market or remuneration schemes, etc. [9]. It is a matter of empirical application of the typology to evaluate in which fields of the matrix real world systems cluster and which changes over time can be observed.

## 5. Discussion and conclusion

In the global typology of healthcare systems put forth in this study, we aim to redress the biases of extant classificatory scholarship, often borne of the empirical interest in the OECD-world, to the neglect of LMI economies and the special role played by global actors. In endeavoring to do so, we rely on the strengths of deductive logic which allow for greater conceptual neutrality and flexibility. Our resultant typology can serve as an analytical roster to guide comparative research, especially where an interest in the role of actors and their responsibility for the key functions of the healthcare system are at stake. By focusing on actors, the typology is particularly well suited to studying the role of the state – relative to other major actor types – in the regulation, financing and service provision of healthcare. Still, by focusing on the question of “who” rather than the “how” or “what”, the present typology misses important system attributes such as the level of resources, the generosity of benefits, or the content of regulatory action characterizing a system. For researchers interested in outcomes or performance, information on the latter may be indispensable. This said, an actor-centered approach may nevertheless serve as an important starting point for understanding how the dominance of specific actors may be correlated with different kinds of input and output vari-

ables (e.g. amount of financing, hospital infrastructure.) that can come to impact performance in a country. Where strong patterns are visible, evidence can help to inform policy making across a variety of national contexts. Such evidence may be particularly useful for emerging and developing welfare states, where healthcare systems are just coming into fruition or maturity.

While restricting its focus to actors, the present typology is otherwise open for different ways of operationalizing the dominance of actors according to data availability and system context. Owing to the discretion afforded to the researcher in terms of unit of analysis and the operationalization of dimensions, the typology provides a universal toolkit for studying healthcare systems irrespective of their level of development. Hence, it allows us to counter the proverbial *apples to oranges* problem in comparative research. Better still, the typology can serve as a basis for generating new and comprehensive standardized data in areas of the world where only fragments of the healthcare system have yet to be accounted for. And this can lead us to more robust comparisons of apples to apples and oranges to oranges.

Still, the utility of this typology, as any other, requires critical testing as a next step in order to gage its empirical applicability. Testing the typology will also demonstrate whether it is necessary to indeed unpack the category of global actors in terms of their varied roles and levels of involvement in national healthcare systems. This is what we will endeavor to achieve in future research.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.hopen.2021.100035>.

## References

- [1] Babb SL, Carruthers BG. Conditionality: forms, function, and history. *Ann. Rev. Law Soc. Sci.* 2008;4(1):13–29. <https://doi.org/10.1146/annurev.lawsocsci.4.110707.172254>.
- [2] Bamba C. Worlds of welfare and the health care discrepancy. *Soc. Policy Society* 2005;4(1):31–41. <https://doi.org/10.1017/S1474746404002143>.
- [3] Batniji R, Songane F. Contemporary global health governance: origins, functions, and challenges. In: Brown GW, Yamey G, Wamala S, editors. *The handbook of global health policy*. Wiley-Blackwell; 2014.
- [4] Böhm K, Schmid A, Gotze R, Landwehr C, Rothgang H. Five types of OECD healthcare systems: empirical results of a deductive classification. *Health Policy* 2013;113(3):258–69. <https://doi.org/10.1016/j.healthpol.2013.09.003>.
- [5] Borisova L. Health care systems as determinants of health outcomes in transition countries: developing classification. *Soc. Theory Health* 2011;9(4):326–54.
- [6] Boslaugh S. *Health care systems around the world: a comparative guide*. London: SAGE Publications; 2013.
- [7] Cockerham W. *Medical sociology*. Englewood Cliffs, NJ: Prentice Hall; 1992.
- [8] CRC. Collaborative Research Centre 1342, Global Dynamics of Social Policy, Summary of the research programme; 2020, March 20. Retrieved from <https://www.socialpolicydynamics.de/f/6ddf0e8df8.pdf>.
- [9] de Carvalho G, Schmid, A, Fischer J. Classifications of health care systems: Do existing typologies reflect the particularities of the Global South?. *Glob Social Pol*; November 2020 [Online First]. <https://doi.org/10.1177/1468018120969315>.
- [10] Elling RH. Theory and method for the cross-national study of health systems. *Int J Health Serv* 1994;24(2):285–309. <https://doi.org/10.2190/7JKX-RDCD-V6F0-87M3>.
- [11] Esping-Andersen G. *The three worlds of welfare capitalism*. Cambridge, UK: Polity Press; 1990.

- [12] Field MG. The concept of the "Health System" at the macrosociological level. *Soc Sci Med* 1973;7:763–85. [https://doi.org/10.1016/0037-7856\(73\)90118-2](https://doi.org/10.1016/0037-7856(73)90118-2).
- [13] Freeman R. *The politics of health in Europe*. Manchester: Manchester University Press; 2000.
- [14] Freeman R, Frisina L. Health care systems and the problem of classification. *J Comp Policy Anal* 2010;12(1–2):163–78. <https://doi.org/10.1080/13876980903076278>.
- [15] Gough I. Globalization and regional welfare regimes. the East Asian case. *Glob Soc Policy* 2001;1(2):163–89. <https://doi.org/10.1177/146801810100100202>.
- [16] Ibrahimov F, Aybaniz I, Kehler J, Richardson E. Azerbaijan: health system review. *Health Syst Trans* 2010;12(3):1–118.
- [17] Inoue K, Drori GS. The global institutionalization of health as a social concern. *Int Sociol* 2006;21(2):199–219. <https://doi.org/10.1177/0268580906061376>.
- [18] Kaasch A. *Shaping global health policy. Global social policy actors and ideas about health care systems*. Houndmills, Basingstoke: Palgrave MacMillan; 2015.
- [19] Kickbusch I. The development of international health policies - accountability intact? *Soc Sci Med* 2000;51(6):979–89. [https://doi.org/10.1016/S0277-9536\(00\)00076-9](https://doi.org/10.1016/S0277-9536(00)00076-9).
- [20] Lavine TZ. *From socrates to sartre: the philosophical quest*. New York: Bantam Books; 1984.
- [21] Maarse H, editor. *Privatisation in European health care. A comparative analysis in eight countries*. Maarsen: Elsevier; 2004.
- [22] Makinde OA, Sule A, Ayankogbe O, Boone D. Distribution of health facilities in Nigeria: implications and options for Universal Health Coverage. *Int J Health Plan Manage* 2018;33(4):e1179–92. <https://doi.org/10.1002/hpm.2603>.
- [23] Marmor T, Wendt C. Conceptual frameworks for comparing healthcare politics and policy. *Health Policy* 2012;107:11–20. <https://doi.org/10.1016/j.healthpol.2012.06.003>.
- [24] Maxwell R. *Health care. The growing dilemma*. New York: McKinsey and Company; 1974.
- [25] Moran M. *Governing the health care State. A comparative study of the United Kingdom, the United States and Germany*. Manchester: Manchester University Press; 1999.
- [26] Moran M. Understanding the welfare state: the case of health care. *Brit J Pol Int Relat* 2000;2(2):135–60. <https://doi.org/10.1111/1467-856X.00031>.
- [27] OECD, Eurostat, WHO. *A system of health accounts 2011. revised edition*. Paris: OECD Publishing; 2017.
- [28] OECD. *Financing and delivering health care: a comparative analysis of OECD countries*. OECD Social Policy Studies, (4). Paris: Organisation for Economic Co-operation and Development; 1987.
- [29] Orenstein MA, Schmitz HP. The new transnationalism and comparative politics. *Comp Pol* 2006;38(4):479–500. <https://doi.org/10.2307/20434013>.
- [30] Richardson E. Armenia: health system review. *Health Syst Trans* 2013;15(4):1–99.
- [31] Roemer MI. Health departments and medical care—a world scanning. *Am J Public Health Nations Health* 1960;50(2):154–60. <https://doi.org/10.2105/Ajph.50.2.154>.
- [32] Roemer MI. *National health systems of the world*. New York: Oxford University Press; 1991.
- [33] Rothgang H, Cacace M, Frisina L, Grimmeisen S, Schmid A, Wendt C. *The state and healthcare: comparing OECD countries*. Houndmills, Basingstoke: Palgrave Macmillan; 2010.
- [34] Ruger JP. Global health governance and the World Bank. *Lancet* 2007;370(9597):1471–4. [https://doi.org/10.1016/S0140-6736\(07\)61619-5](https://doi.org/10.1016/S0140-6736(07)61619-5).
- [35] Sam Y. Studying the health care systems in seven east asian countries by the cluster analysis. *Devel Soc* 2014;43(1):81–107. <https://doi.org/10.21588/dns.2014.43.1.004>.
- [36] Santerre RE, Neun SP. *Health economics: theory, insights, and industry studies*. Mason, OH: Cengage Learning; 2010.
- [37] Schieber G, Baeza C, Kress D, Maier M. Financing health systems in the 21st century. In Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, Evans DB, Jha P, Mills A, Musgrove P, editors. *Disease control priorities in developing countries*, 2nd ed.; 2006.
- [38] Soors W, Narayanan D, Varatharajan D, Criel B. *Community Health Insurance and Universal Coverage: Multiple paths, many rivers to cross*. World Health Report Background Paper No 48. Geneva: World Health Organisation; 2010.
- [39] Stubbs T, Kentikelenis A, Stuckler D, McKee M, King L. The impact of IMF conditionality on government health expenditure: A cross-national analysis of 16 West African nations. *Soc Sci Med* 2017;174(1):220–7. <https://doi.org/10.1016/j.socscimed.2016.12.016>.
- [40] Terris M. The three world systems of medical care: trends and prospects. *Am J Public Health* 1978;68(11):1125–31. <https://doi.org/10.2105/ajph.68.11.1125>.
- [41] Toth F. Classification of healthcare systems: can we go further?. *Health Policy* 2016;120(5):535–43. <https://doi.org/10.1016/j.healthpol.2016.03.011>.
- [42] Wendt C, Frisina L, Rothgang H. Healthcare system types: a conceptual framework for comparison. *Soc Policy Admin* 2009;43(1):70–90. <https://doi.org/10.1111/j.1467-9515.2008.00647.x>.
- [43] WHO, World Health Organisation. *Global Health Expenditure Database; 2020*. Last Accessed 10.12.2020. <https://apps.who.int/nha/database>.
- [44] Yeates N, Pillinger J. *International health worker migration and recruitment. Global governance, politics and policy*. London: Routledge; 2019.
- [45] Wendt C. Changing healthcare system types. *Social Policy Administration* 2014;48(7):864–82.