Classifying Long Term Care Systems – a Conceptual Framework for Comparative Research

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Abstract

The organization of long term care (LTC) varies temporally and spatially, particularly as regards the relevance of informal versus formal care and financing mixes. The present study develops a *multi-dimensional, actor-centered typology of LTC systems* that can be used as an analytical device for comparative research on both the theoretical and empirical manifestations of LTC regimes. In it, we argue that classification and the use of typologies are fundamental to carrying out systematic comparative research. We begin by conducting a literature review of extant classifications of LTC systems in order to gather evidence on existing approaches. Our findings point to a paucity of multi-dimensional frameworks that allow for the comprehensive description and comparison of LTC systems. Instead, what can be found is an overwhelming reliance on disparate conceptual criteria and methods that fall short for the purposes of typology construction. We therefore argue for the necessity of developing a new typology that can do a better job at (a) capturing the most significant features of systems and (b) facilitating comparative research by serving as a universal analytical roster by which to sort and select cases. For this purpose, we draw mainly on the use of *deductive logic* in order to avoid conceptual biases owing to the limited scope of empirical referents (e.g. only western Europe) that tend to color inductively driven approaches. Methodologically, the procedure of, firstly, constructing and, secondly, reducing a *typological attribute space* is employed. We establish the significance of *three dimensions* – service provision, financing, and regulation – that make up any type of LTC system and then proceed to define sub-dimensions specific to these dimensions. A focus on *actors*, we argue, is particularly useful for analyzing variation between different types of LTC systems. Five relevant groups of actors are identified: state, private (collective) actors, private individual and informal actors, societal actors and global actors. We conclude by outlining the plausibility of resulting types and reflecting the usage of our typological framework.

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1. Introduction

In the face of population aging and the increased prevalence of complex co-morbidities and degenerative conditions such as dementia often accompanying longer years of life (Rechel et al. 2013), the demand for long term care (LTC), which refers to health and personal care services to support daily living over a prolonged period (Colombo et al. 2011), has been on the rise and is expected to continue to do so: while future trends in disability are difficult to gage, demographic changes coupled by the decreasing availability of carers will necessitate a growing investment in the formal care sector (Colombo et al. 2011). This is not only true for the world's most developed economies such as found in Europe and North America where more than one in five persons is currently aged 60 years or over, but even more so in the developing economies of Latin America, Asia and Africa (UN DESA Population Division 2017). Indeed, it is in the Global South[2] that two-thirds of the world's older population currently resides (ibid). By the year 2050, the number of elderly aged 80 years and over is expected to increase threefold worldwide, with 8 of 10 older persons coming from developing countries (UN DESA Population Division 2017).

Given such developments, LTC policy, which represents the youngest area of welfare state and social protection, has become a burgeoning subject of study. Despite growing interest, however, research is thus far characterized by a lack of conceptual clarity and a tendency toward methodological under-complexity. Moreover, irrespective of its growing relevance for the Global South, most scholarship is centered on the countries belonging to the Organization of Economic Co-operation and Development (OECD), especially Europe, leading to understandings of LTC that are ill suited for comparative research involving highly disparate systems and levels of development.

The present study's aims are twofold: first, we take inventory of the state-of-the-art in LTC research, with an exclusive focus on the use of *typologies* to classify developments observed worldwide. Typologies provide useful analytical devices for identifying, classifying, and comparing any social phenomenon. Accordingly, typological research has a strong tradition in the study of neighboring social policy fields, most notably in the case of LTC's closest policy rel-

[2] Note that our use of the term 'Global North' generally refers to countries with advanced economies that are also members of the OECD (for full list, see http://www.oecd.org/about/membersandpartners/). The 'Global South' refers here to the non-OECD world, with three notable exceptions: Chile, Mexico, and Turkey which are members of the OECD while still being emerging countries. These we include in our definition of the Global South.

ative – healthcare (see e.g. Wendt et al. 2009; Böhm et al. 2013). As our review of extant approaches will demonstrate, a typological framework that can be applied cross-nationally and globally is thus far lacking. This is largely owing to an overreliance on inductive observations that concentrate on Europe. As such, the second aim of the study is to develop a *multi-dimensional, actor-centered typology of LTC systems* that uses *deductive logic* to arrive at dimensions and attributes characterizing any system, irrespective of its stage of development or national context.

The study is organized as follows: we begin by providing a background on the logic and utility of classification, as relates to the development of typologies through the use of *inductive* versus *deductive logic*, as well as that of the *ideal type* first defined by Weber (1949). After considering the relative strengths and limits of each typological approach, we then proceed to review extant classifications of LTC systems. Identifying 16 typologies that have been brought forward in the literature so far, we evaluate their regional scope, employed methods and criteria used for classification. We then proceed to outline the *methodological procedure* we use in building our typology, drawing on the typological tools of *deduction, attribute space* and *reduction*. Finally, we *propose a multi-dimensional, actor-centered typology* to classify LTC systems. Our study concludes with next steps for research.

2. Background

Inductive versus deductive logics to classify

Whether pertaining to the study of LTC, 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 identified in the first place? Logical expositions of classification point to two types of processes: the *deductive*, in line with the Cartesian method of deduction that departs from so-called '*self-evident propositions'* (based on human reason or what Descartes referred to as '*intuition'*) regarding some social or natural phenomenon (Lavine 1984, p. 94). Self-evident, which is to say, theoretical propositions will have empirical referents which are expected to co-vary in predictable ways to form *types* (Freeman and Frisina Doetter 2010, p. 164). It is by measuring the proximity between empirical instances and deductively derived types that the theoretical assumptions informing a classification may find support (ibid). Differently, in the case of *inductive logic*, the definition of types follows from empirics rather than theory. It is in the observation of cases or empirical manifestations of a phenomenon, as well as the search for systematic relationships among variables within and among cases that

theory is constructed and types defined. Accordingly, whereas the deductive approach is bound (only) 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. The two approaches present opposing benefits and risks: the former, deductive, being independent of any specific empirical references, allows for the generation of categories that are far more universally applicable. The flipside, however, is that these same categories may result in the creation of types that are far too abstract and unrealistic to be meaningful. In the case of the latter, inductive approach, by virtue of its resting on empirical observation, the definition of relevant and accurate classificatory types is facilitated. However, by the same token, the generalizability of such types to (yet) unobservable or difficult to get at cases is often limited, at best.

The utility of the ideal type

While the reconcilability of the deductive and inductive approaches is not easily achieved in any single systematic or purposeful way, in practice, when classifying, researchers tend to oscillate between what they intuit to be possible and what they categorically observe. Such reflexivity is embodied in the Weberian notion of the *ideal type*, which is said to best exemplify the characteristics or attributes of a given category or class (Freeman and Frisina Doetter 2010, p. 165). More specifically, an ideal type follows from "the one-sided *accentuation* of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent *concrete individual* phenomena" (Weber 1949, p. 90, emphasis original). These are said to be arranged into unified analytical constructs, which may serve as "conceptual instruments for comparison with and measurement of reality" (ibid, p. 97). In this sense, the ideal type emerges by observing one or more empirical instances of a given phenomenon, extrapolating the most extreme or 'one-sided' features of those instance(s) to arrive at an idealized version – the ideal type[3] – which, in turn, serves as a classificatory compass upon which to gage all other relevant empirical instances.

While being an abstraction and idealization of the real, the ideal type nevertheless takes empirical observation as its starting point, thereby freeing it somewhat from the aforementioned concern associated with strictly deductive approaches as being too divorced from reality. At the

[3] As discussed elsewhere by Freeman and Frisina (2010) and in earlier work by Hekman (1983), it is important to note that the term 'ideal' not intended in the normative sense of the word. Rather, Weber used the concept to signify both social structures and patterns of meaningful social action, as well as the relationship between the two. Weber emphasized especially the ideational component underlying all assumptions regarding empirical phenomena. Ideal therefore refers to ideational.

same time, given its use of idealization, which at least partially draws on deductive logic,[4] the ideal type manages to get around the strictly biased approach of inductive classification that is confined to a limited set of observable cases. Hence, Weber's ideal type provides one of the few, if not only attempt at explicitly trying to marry both types of logic. It therefore provides a useful template for generating typologies that group empirical cases in terms of their proximity to an ideal type. Still, given that Weber's method requires some reference to the real or empirical, at least as a springboard for greater abstraction to follow, the ideal type may be less useful as a classificatory tool in instances where there is no a priori knowledge of the case(s). Moreover, as applies to deductive logic, if the process of idealization is taken too far by the researcher, ideal types may too suffer from a lack of empirical relevance.

The social phenomenon in question: what is a 'system'?

Just as the present study's aim to provide a critical overview of extant typologies of LTC requires some consideration as to how classificatory types are arrived at in the first place, as well as to the pros and cons of their inherent logics, it is also crucial to reflect upon the social phenomenon in question. That is, what is a system? This seemingly trivial question gets at the heart of how researchers define their unit of observation in any study on LTC systems. Where and when any system begins and ends is a highly subjective call, depending entirely on how the researcher formulates his/her criteria for inclusion. This subjectivity, which often results in very different notions of what a system entails, is a common roadblock to comparative research: If researcher A defines a system in terms of dimension or variable X, and researcher B defines a system in terms of dimension or variable Z, how can their respective findings be compared?

The complexity of this situation is compounded when one considers the possibilities for differences to emerge amongst researchers' choice of period of observation, inclusion and ordering of variables and dimensions, selection of cases, and combinations thereof. Hence, the understanding of a system is a conceptual moving target, one which requires its own critical appraisal when conducting comparative research. This is not a matter that can easily be resolved, as universal or all-encompassing approaches to defining systems, particularly where typologies are concerned, are often infeasible or otherwise irrelevant to researchers interested in only a particular dimension or set of variables pertaining to a system. Typologies rarely set out to capture all aspects of a phenomenon, but rather concentrate on the categories or attributes deemed most significant by the researcher at the time. In cases where those attributes are drawn exclusively

[4] By way of illustration, if cases A and B are instances of C, then in their most extreme form they can be expected to have the following properties X, Y, Z, rendering them ideal type D.

from empirical referents, the concept of the system will be limited to the observable world, which is to say, borne of the biases involved in induction.

Deductive logic may provide a useful means of moving beyond these biases, in so far as it forces the researcher to begin by asking a number of fundamental questions. In the case of LTC systems, this might involve questions about the very *functions* of a system: What tasks does any LTC system have to perform? How are these functions bound together to form a system? Following existing work on healthcare systems (Wendt et al. 2009; Böhm et al. 2013; Rothgang et al. 2010), we conceptualize a LTC system along three dimensions: service provision, financing and regulation. The delivery or *provision* of care is the "basic function" that constitutes the ultimate goal of any LTC system, whereas *financing*, as a means to remunerate care providers, can be considered a "second basic function." Thirdly, *regulation* is part of any LTC system, as all actors and activities that "produce" LTC are embedded within an overarching regulatory structure. The logical premises underlying the three dimensions, as well as the actors and attributes they subsume, will be outlined in a subsequent section of this paper in which we present the methods and results of our typology of LTC systems.

While our approach draws principally on deductive logic as a means of classification, we also recognize the researcher's need to develop a system of classification that is practicable and meaningful for the empirical world. Hence, in what follows, we also emphasize the necessity of *reduction* to avoid arriving at an abundance of implausible system types owing to deductively-led combinations of dimensions and attributes that in summation are nonsensical. The understanding of plausibility, however, should not be made in reference to extant empirical referents that risk strong biases. Rather, we argue in favor of reduction defined in terms of what makes sense in line with a *theoretical* understanding of how a system works as an aggregate of parts or attributes – e.g. attribute A logically co-exists with attribute B, but is not expected to emerge in the presence of attribute C. This line of reasoning is akin to Lazarsfeld's (1937) notion of 'functional reductionism.' It is bearing in mind the utility, limitations and significance of various typological approaches that we now turn to the present study's review of existing LTC typologies.

3. Review of existing LTC typologies

No widely accepted comprehensive typology of LTC systems has been developed yet. To get an overview of existing typologies, we conducted a literature review combining two procedures: first, we retrieved typologies from comparative literature on LTC, including summaries

in handbook articles, where we 'followed' cross-references to identify relevant classifications. Second, we conducted systematic keyword searches in English, German, Spanish and Portuguese languages in academic databases, as well as online search engines.[5] In total, our review identified 16 classifications that group countries according to (certain aspects of) their LTC arrangements, which are summarized in table 2 in the appendix. The list contains classifications that clearly and exclusively focus on LTC and adhere to one of the following criteria: either, the authors themselves speak about a typology or types (11 of 16) or we recognized their classification as being similar to a typological instrument (5 of 16, authors using the terms model, regime and paradigm). Three of the typologies do not explicitly compare the whole LTC system but a (notable) subset of the system: Burau et al. (2007) and Bettio and Verashchagina (2012, pp. 91–92) analyze models or types of *home care*, whereas Colombo et al. (2011, p. 215) focus on *personal care* arguing that that in this realm there is "more variation in public coverage arrangements […] across OECD countries".[6] All reviewed studies have been published during the past 20 years, the earliest contribution we could find being Pacolet et al.'s (1999, 26-27, 128) combination of social protection and LTC insurance types. In the present section we will compare and evaluate multiple features of the 16 typologies: temporal and spatial coverage, methodology and employed dimensions and criteria.

Temporal and regional scope

The reviewed typologies refer to different *time frames* ranging from the 1980s and early 1990s (Rothgang 2009, pp. 27–36; Ranci and Pavolini, pp. 270–271) to the late 2000s and early 2010s (Halásková et al. 2017). Not all authors specify their reference years, yet in general the majority of types and clusters seem to be based empirically on the 1990s and 2000s. The number of *classified cases* per typology vary from five (Timonen 2005) to 31 (MISSOC Secretariat 2009) countries. Two typologies (Bettio and Verashchagina 2012; Colombo et al. 2011) rather provide typical examples instead of classifying their whole universe of cases. The 13 remaining reviewed typologies assign in sum 191 cases to their types of which Sweden and Germany were the most popular featuring in every study. Regarding the *regional coverage*, existing classifications overwhelmingly focus on Europe, with 95 % of all cases belonging to this region.[7] The non-European cases – Japan, the Republic of Korea, the United States, Australia, New Zeeland

[5] For more information on the keyword search terms and databases used see Frisina Doetter et al. 2018. The review was conducted in 2018.
[6] The typology of Da Roit and Le Bihan (2010)is not listed here because they develop a quite encompassing "typology of long-term care configurations", even if their article is mainly analysing cash-for-care schemes.
[7] Regions and sub-regions are used in accordance with the United Nation's M49 standard, see https://unstats.un.org/unsd/methodology/m49/

and Cyprus – are, except Cyprus, all member states of the OECD. Within Europe, 62 and 60 countries belong to Northern and Western Europe, respectively, while there has also been considerable, but less focus on the Southern (36 cases) and Eastern European (24 cases) sub-regions (see figure 1). Furthermore, not only the empirical but also the theoretical focus of the authors is often on Europe (or the Global North more generally), as is sometimes visible from the denotation of the typologies (e.g. "Elderly care regimes in the EU", Simonazzi 2008; "A typology of long-term care systems in Europe", Kraus et al. 2010). We can therefore conclude that there is a – conceptual and empirical – focus on European and in general OECD countries, as well as a focus on the last three decades in the classificatory literature on LTC.

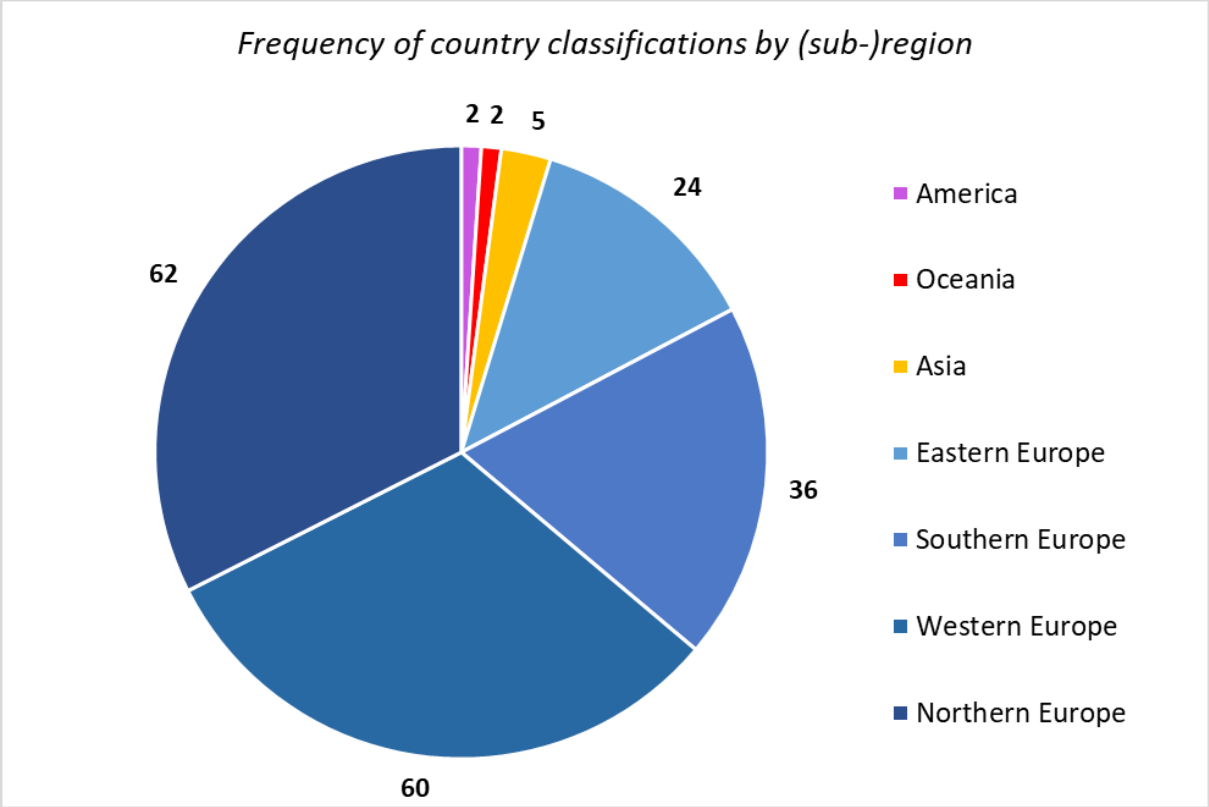

Figure 1: Frequency of countries classified in 13 extant LTC typologies by (sub)region, source: own illustration

We will not review the *resulting types* or country clusters in detail, as there is no adequate foundation for comparison with all typologies employing different criteria for distinguishing types. However, some observations can be made: firstly, the majority of types are at least labeled in one of the following ways: by region (e.g. "Public Nordic," "Mediterranean"), social protection (financing) scheme (e.g. "Bismarck oriented," "social insurance model," "means-tested system") or responsible actor (e.g. "statist paradigm of LTC," "family care model").

Consequently, despite the typologies' different bases, similar (labeled) types emerge across classifications. Most evident is the common characterization of one or several Nordic countries in a public, service-centered, "universal" type, but there are for example also (partly) overlapping characterizations of informal care based LTC system types or social insurance types.

Methods employed in existing typologies

Evaluating the employed *methods and procedures* of typology construction proved quite difficult, as many approaches are rather rudimentary and do not outline their methodology. In total, five publications specify explicitly how they arrive at their framework. Three typologies – the two approaches in Kraus et al. (2010) and Halásková et al. (2017) – use the quantitative method of cluster analysis, empirically grouping countries with similar LTC characteristics. Consequently, these typologies are based on inductive logic. Both papers clearly outline their process of data collection and selection and construction of indicators. Furthermore, there are two classifications which are developed by combining existing classifications or theoretical models to form a new typology. With their theoretical-conceptual foundations, both of these classifications are – in contrast to the cluster analyses – rather based on deductive logic. Firstly, Burau et al. (2007, p. 55) draw on Anttonen and Sipilä's (1996) models of social care services for their first typological dimension, while employing the theoretical concept of "gender order" (see Pfau-Effinger 2004, pp. 37–60) for the second, constructing a four-type matrix. Secondly, Rothgang (2009, pp. 27–32) constructs a three-dimensional typology by overlapping welfare regime types stemming from comparative welfare state research – originally based on Esping-Andersen (1990) – with Pacolet et al.'s (1999) classification of social protection for LTC.[8]

All remaining reviewed studies do not, to our knowledge, specify clearly how they arrive at their typologies or types. However, some make an explicit statement about the data (collection) that they base their typologies on. Da Roit and Le Bihan (2010) conduct an "analysis of policy documents and regulation, together with a systematic review of existing studies" while the MISSOC Secretariat (2009) executes an analysis of social security regulations. Others base the classification of cases on systematized quantitative and qualitative data (Ranci and Pavolini 2013, pp. 270–271; Colombo et al. 2011, pp. 215–229; Pacolet et al. 1999, 49-66, 105-128), while the remaining studies rely on (short) case descriptions or do not provide any indication about the (data) basis of their assignment. Regarding the logic of typology construction, in addition to the two typologies identified above, there are three other approaches that could have

[8] The typology presented by Simonazzi (2008) seems to be originally also based on Pacolet et al. (1999), however there is no clear indication of how the author arrives at the type she adds to the existing framework.

been derived with deductive logic (Pacolet et al. 1999; Timonen 2005; MISSOC Secretariat 2009), that is starting out with defining concepts and assigning empirical cases as a second step (cf. Bailey 1994, p. 32). We can thus conclude from reviewing the methods and procedures, that the bulk of existing typologies is developed inductively, and in many cases methodologically uninformed or unreflected.

Provision (7)	
Form of care provision (informal vs. formal)	*Da Roit & Le Bihan 2010; Kraus et al. 2010 (Approach II); Nies et al. 2013; Pacolet et al. 1999*
Location of care provision (institutional care)	*Halaskova et al. 2017*
Total number of care recipients	*Halaskova et al. 2017*
Actor providing care	*Timonen 2005*
Financing (10)	
Form of financing scheme (contributions vs. taxes)	*Colombo et al. 2011; Joshua 2017; MISSOC Secretariat 2009; Pacolet et al. 1999; Rothgang 2009; Simonazzi 2008*
Source of financing (public vs. private)	*Kraus et al. 2010 (approach I); Kraus et al. 2010 (approach II); Timonen 2005*
Total expenditure	*Halaskova et al. 2017*
Regulation (9)	
Coverage (specification of entitlements; population covered)	*Colombo et al. 2011; Joshua 2017; Kraus et al. 2010 (approach I); Kraus et al. 2010 (approach II); Ranci and Pavolini 2013; Simonazzi 2008*
Choice (of care recipient)	*Da Roit and Le Bihan 2010; Kraus et al. 2010 (approach I); Kraus et al. 2010 (approach II)*
Regulation of benefit package	*Burau et al. 2007; Da Roit and Le Bihan 2010; Kraus et al. 2010 (approach I)*
Regulation of quality	*Kraus et al. 2010 (approach I)*
System (6)	
Integration of LTC system	*Colombo et al. 2011; Kraus et al. 2010 (approach I); MISSOC Secretariat 2009; Pacolet et al. 1999; Ranci and Pavolini 2013; Rothgang 2009*
Other (4)	
Gender and labor market policy	*Burau et al. 2007*
View of informal care	*Da Roit and Le Bihan 2010*
Demand for care	*Nies et al. 2013*
Stratification	*Rothgang 2009*

Table 1: Criteria and dimensions used in extant long term care typologies, source: own illustration

Criteria and dimensions featuring in extant typologies

The reviewed classifications use various *criteria* to distinguish types of LTC. As discussed earlier, we argue that a LTC system needs to be classified along the three dimensions of provision, financing and regulation to adequately capture the whole system. To map and evaluate the employed criteria we have summarized them thematically and assigned them to the three dimensions plus a category that is concerned with the whole system and a miscellaneous section. The result is displayed in table 1. The summary and assignment is based on the information – e.g. description of variables – explicitly provided by the authors as well as interpretation of descriptions of types and typologies in the cases where a clear outline of categories was not available.[9]

Six of the 16 reviewed typologies include at least one criterion which is concerned with the *provision* of LTC services. Most typologies include information on the form of care delivery, looking at the amount of informal and/or formal LTC services provided (see table 1). A similar but more differentiated distinction is employed by Timonen (2005, p. 32), who distinguishes three providing actors – state, family and private sector. Furthermore, Halásková et al. (2017) incorporate the location of care with indicators on the share of LTC spending for and recipients in institutional care as well as the total amount of spending. Moving to the next dimension, we can find ten classifications concerned with aspects of *financing* of the LTC system. Here, most studies compare their cases by distinguishing what we called "form of financing scheme" in the overview. Simply put, these classifications distinguish LTC programs financed through taxes or social insurance contributions. In addition, there are three approaches that are more interested in comparing the source of funds according to a distinction between private and public spending. However, there is no typology that *combines* these criteria to differentiate multiple schemes or sources.

To the dimension of *regulation,* we found nine typologies that are at least concerned with one of the following criteria: coverage, choice, the benefit package and quality. In general, the two typologies developed by Kraus et al. (2010) are very prominent in the regulation dimension as they have measured several sub-dimensions of regulation. Six classifications are interested in comparing the extent of coverage in the LTC system, mainly analyzing if the entitlement to

[9] With this approach it was possible to include most typologies, even if criteria were often inconsistent or vague. Two classifications had to be excluded from the analysis however due to unspecified or unclear criteria (Bettio and Verashchagina 2012; Camacho et al. 2008) It has to be noted, however, that the former choose this route purposefully: "Rather than assembling information of dubious comparability across several countries, therefore, we present below a selection of *typical cost types,* each corresponding to a distinctive organizational setting for home care provisions." (Bettio and Verashchagina 2012, p. 92).

public benefits is “universal” or restricted, e.g. by means-testing. Some typologies also look at the possibility of (potential) care recipients to choose (the form of) services; this is mainly operationalized by looking at the availability and regulation of cash benefits (Kraus et al. 2010; Da Roit and Le Bihan 2010). In addition, the determination of what we called “benefit package” – that is, which services and transfers can be accessed in a LTC system – is also of interest to some authors who look at the extent of state support for formal and informal care respectively. In addition, we found a considerable amount of six typologies that looks at the *system as a whole*, investigating if (and how) LTC systems are internally integrated and/or how they are embedded in the general system of social protection in a country and overlap, for example, with health or social care services. Furthermore, the typologies employ four criteria – gender and labor market policy, the demand for care, the view of informal care and the outcome of stratification – that did not fit any of the dimensions.

Overall, the reviewed typologies capture many aspects of LTC systems, and the classical distinctions used in social policy research – restricted vs. inclusive entitlements, taxes vs. contributions – have been employed widely. Often used criteria that are more specific to the policy field are the division between formal and informal care arrangements and the fragmentation vs. integration – or even existence – of a LTC system. Yet, turning back to the level of the individual typologies, it is evident that only one classification, namely Kraus et al.'s (2010) second approach, includes criteria of all three constitutive dimensions of an LTC system. The types derived in this analysis are clustered transparently using quite comprehensive criteria and each display a specific configuration of public and private spending shares, use of formal and informal care and role of support for informal care and cash benefits (Kraus et al. 2010, pp. 31–32). However, as outlined above, there are several reasons – especially owing to limited regional coverage and the biases of induction – why we argue a new typology of LTC systems is in order.

4. Method: Steps of building a deductively-led typology

In building our typology of LTC systems, we proceeded in two main steps: firstly, we established the typology’s *attribute space* which is secondly *reduced* to arrive at our final types. Both of these concepts or “tools” – the typological property or attribute space as well as the procedure of reduction – can be traced back to Hempel and Oppenheim (1936, pp. 67–77) and the following elaboration and application to social science research by Lazarsfeld (1937), as well as Bar-

ton (1955).[10] The development of our typology is based on their considerations as well as subsequent writings outlining this method of typology building (e.g. Kluge 1999; Bailey 1994).The instruments of attribute space and reduction are well suited for developing a typology in a systematic, transparent and reproducible way (Kluge 1999, p. 109) while the approach is perfectly compatible with employing deductive logic (cf. Kuckartz 2010, p. 559; Bailey 1994, p. 32). Our concrete procedure is outlined in the present section.

The concept of the attribute space takes its departure from the conception of types as a *combination of attributes* according to which they can be classified and compared (Lazarsfeld 1937, p. 120; Kluge 1999, p. 93). Consequently, each typology can be depicted – graphically, for example, in form of cross-tabulation or a coordinate system – as a n-dimensional attribute space in which every type can be placed, according to its unique combination of attribute values (see e.g. Kluge 1999, p. 93; Barton 1955, pp. 40–44). Our typology of long-term care systems is constructed from three dimensions while each of these dimensions has several *attribute values* or *sub-dimensions*: for example, as outlined in the subsequent section, the dimension that looks at the typological attribute of service provision has five attribute values denoting each a different actor responsible for providing care. By thinking about our typology in terms of an attribute space we were bound already at the beginning of the development process to carefully consider the choice of dimensions/attributes as well as the attribute values/sub-dimensions and their (logical) combination. As outlined above, we started to build the typology in a deductive logic asking which dimensions are constitutive of any LTC system. In answering this question, we considered both characteristics which are often used to describe and compare the organization of LTC as well as classificatory and comparative work on other social policy fields, especially on related fields like health care and social care/services in general. After having arrived at our three-dimensional attribute space, we conceptualized the sub-dimensions, arriving at up to five attribute values per dimensions. For this purpose, it is useful to think of each of the dimensions as a *concept* of its own whose different levels have to be conceptualized to arrive at adequate secondary concept level sub-dimensions and, in a latter step, also operationalizations (cf. Goertz 2006, p. 6; Collier et al. 2008, pp. 158–159). Consequently, the three-dimensional attribute space of the typology of LTC systems contains 100 possible types (see figure 2).

[10] The original German term of attribute space used by Hempel and Oppenheim (1936, p. 67) is "Merkmalraum" (cf. Kuckartz 2010, p. 557). In English, both the terms attribute space and property space have been used interchangeably. We mainly use the term attribute space and consequently speak of attributes or dimensions and attribute values or sub-dimensions as the components of the typology.

How do we arrive now at a more manageable condensed typology that can fulfil the aim of reducing empirical complexity? This is achieved in the second step by the "typological operation" of *reduction*, that is the elimination or merger of certain attribute (value) combinations – i.e. types – according to certain principles (Lazarsfeld 1937, 126-127, 138). Different forms of reduction have been distinguished in the literature (see Lazarsfeld 1937, pp. 128–129; Barton 1955, 54-50; Bailey 1994, pp. 26–32; Kluge 1999, pp. 101–103). We mainly executed a *functional reduction* eliminating theoretically implausible types. This is done by hypothesizing a hierarchy of actors and functions used in the typology, similar to the procedure employed by Böhm et al. (2013) to reduce the typology of health care systems developed by Wendt et al. (2009). We do not implement other forms of reduction in this paper to keep the typological framework widely usable. However, we encourage researchers to apply both the procedure of simplifying dimensions – i.e. combining different sub-dimensions – and pragmatic reduction – i.e. combining different types – to adapt the typology to one's specific research question. In a latter step in our research project when empirical cases of LTC systems will be classified systematically, it is also possible to execute a further functional reduction eliminating empirically *unlikely* types indicated by "empty cells" in the typology. The subsequent section proceeds with developing the typology.

5. A multi-dimensional, actor-centered typology of long term care systems

Following the logic and procedures introduced above, the present chapter proposes a typological framework for comparing LTC systems. In constructing the typology's attribute space, we chose to concentrate on *three overarching dimensions* which each embed (up to) *five groups of responsible actors* on the sub-dimensional levels. Both the selection of dimensions and actors is specified in detail in the subsequent sections.

Three dimensions of LTC systems

The rational of employing a multi-dimensional framework is based on the notion that "different modes of social policy intervention" (Seeleib-Kaiser 2008, p. 11) exist which can be linked to different instruments of governance and, ultimately, different outcomes (see e.g. Barr 2012, pp. 71–78). In the social policy literature, different modes or *dimensions* of welfare policy have been emphasized in publications concerned with the mix of public and private welfare or the trend of privatization (Seeleib-Kaiser 2008, pp. 11–12; Barr 2012, pp. 72–73) and a similar strand of research that analyses the "mixed economy of welfare" (e.g. Powell 2007, pp. 9–15;

Johnson 1999, pp. 23–24). In general, all these authors arrive at a *three-dimensional account* supplementing the issue of provision with an analysis of financing and regulation.[11] The multi-dimensional framework is also specifically employed in the study of social (and health) *services*, where it becomes particularly evident that the responsibility for service provision, financing and regulation may diverge. Already in the 1990s, Alber (1995) outlined a framework for studying social services – and specifically also LTC – comparatively. Therein, he proposed to look at four dimensions respectively: the regulatory structure, the financing structure, the delivery structure and consumer power (Alber 1995, pp. 141–142). The former three categories have subsequently several times been applied to study LTC – or specifically home care – without elaborating the choice in detail (Burau et al. 2007, pp. 31–32; Österle and Rothgang 2010, 381; Rothgang and Fischer 2019, p. 648). Similarly, in comparative research on health care systems, Wendt et al. (2009) and Rothgang et al. (2010, pp. 10–15) have argued for using the three dimensions of service provision, financing and regulation as well.

These strands of literature thus point to the usefulness of utilizing a multi- and specifically three-dimensional account for comparing LTC systems as this enables the researcher to analytically capture and compare varieties of LTC systems accurately. Thus, in line with the research outlined above, we conceptualize long-term care systems along the *three dimensions* of provision, financing and regulation. The delivery or *provision* of care is the "basic function" that constitutes the ultimate goal of any LTC system, whereas *financing* can be considered a "second basic function" (cf. Rothgang et al. 2010, pp. 10–11). Provision thus refers to the actual task of caring, which can consist of multiple interlinked activities like washing, cooking or providing emotional support. The function of financing occurs explicitly when the supply of LTC services and goods is remunerated but can also be regarded as being implicitly present in the case of unpaid care provision in the sense of foregone earnings. In contrast to the "industry structure" that comprises the dimensions of provision and financing as it is concerned with the actual production of goods and services, *regulation* belongs to the "governance structure" which is made up of institutions and actor constellations that can modify and change the industry structure (Mayntz and Scharpf 1995b, pp. 16–19). Specifically, we use the term regulation to refer to intentional interventions in the activities and behavior of individual and/or corporative actors which comprise the LTC system, that is care providers, (potential) care recipients and financing bodies (cf. Koop and Lodge 2017, p. 97; Rothgang et al. 2010, pp. 13–14). Our conceptualization of regulation is specifically broad, comprising all kinds of interventions in the industry

[11] However, Powell (2007, p. 12) and Barr (2012, p. 72) also discuss the dimension of "decision" which can either replace regulation or form sub-dimensions in the regulation dimension.

structure, including the aspects of regulating decision making and choice mentioned as a separate dimension in the literature (see above).

Five types of relevant actors

So far, we have settled for having a three-dimensional typology. For the sub-dimensional level, we argue that an *actor-centered approach* is useful for analyzing variation between different LTC systems. Specifically, we are interested in which (stylized) types of actors – or, expressed differently, which *societal sectors* – are responsible for providing, financing and regulating LTC. With this approach, our main interest lays in (quasi) *corporative actors* that constitute either a formally organized group of persons or a "quasi group" of people or organizations sharing certain attributes and reacting in a similar way (cf. Mayntz and Scharpf 1995a, pp. 49–51). The analysis of which actor does what in organizing and supplying social protection and services is a key concern of welfare studies. The role(s) that different actors play can lead to diverse types of welfare arrangements with implications for societal (power) structures and the amount and distribution of welfare, influencing, for example, the degree of (de)familiarization (Leitner 2013) and (de)commodification (Esping-Andersen 1990). With regard to LTC, authors like Lyon and Glucksmann (2008) and Timonen (2005) explicitly show for some exemplary European cases that LTC arrangements vary with regard to actor constellations or paradigms, indicating the relevance of classifying LTC systems with reference to actors. Furthermore, different kinds of actors are theorized to correspond in an ideal typical way to different rationales or motives of (inter)action – for instance: the state to hierarchy, the family to love or guilt – (Sipilä et al. 2003, pp. 12–14; Rothgang et al. 2010, pp. 14–15), which can shape processes and outcomes of care provision and overlap or clash with individual and societal preferences. The importance of these interaction modes and, consequently, the role of actors becomes also especially evident in the literature dealing with the privatization or marketization and (re)familialization or informalization of LTC. In constructing our typology, we therefore decided to ask the following question for each dimension of the LTC system respectively: *Who* is (mainly) responsible?

There are several actors – or corresponding sectors – which have been identified as being relevant in providing, financing and regulating social policy in general and LTC specifically. A traditional and widely used distinction in welfare studies is the dichotomy of public/state versus private/market (see e.g. Esping-Andersen 1990, pp. 79–82; Béland and Gran 2008; Seeleib-

Kaiser 2008; Gingrich 2011, pp. 26–30).[12] In a LTC system, it is possible that both types of actors can (potentially) assume an important role and in fact they are frequently mentioned in the analysis of LTC systems, be it in their role as financers (e.g. Costa-Font and Courbage 2012), providers or regulators (e.g. Meagher and Szebehely 2013). We therefore include both *state* and *(collective) private actors* in each dimension in our typology's attribute space.[13] The term "state" is an abstraction which we use as an umbrella term for the set of public institutions making up the political-administrative system of a country (cf. Schultze 2005; Johnson 1999, pp. 30–31). As LTC policy is often organized and/or delivered on the regional or municipal level (for Europe see Rodrigues and Nies 2013, p. 194; Spasova et al. 2018, p. 13), we apply a broad conception of the state including all state levels, that is central, regional or local/municipal institutions. In contrast, by private (collective) actors we refer to commercial or profit-oriented entities like companies, banks and insurances (cf. Klenk 2019, p. 89). For example, a commercial insurance offering policies to insure the risk of becoming care dependent is a concrete actor in the financing dimension while a for-profit nursing home corporation can operate in the dimension of provision. Following our broad conception of regulation (see above), private collective actors can also regulate LTC systems, normally by relying on market mechanisms.

So far, we have identified the state and collective private actors as relevant sub-dimensions. These two sectors are important, but we maintain that they are not sufficient to compare LTC systems adequately. In the literature on the mixed economy of welfare as well as the (related) (long term) care literature, two other types of actors are frequently highlighted: the family, household or *informal sector* and the voluntary, third, non-profit or *societal sector* (e.g. Johnson 1999; Powell 2007; Sipilä et al. 2003; Pijl 1994; Lyon and Glucksmann 2008; Burau et al. 2007, pp. 30–31; Rothgang and Fischer 2019).[14] Both are, empirically and theoretically, of utmost relevance in the field of LTC. The former is of particular importance in the service provision as the majority of care worldwide is (and was historically) provided in informal care settings, mostly by female family members (WHO 2015, p. 130; Brodsky and Clarfield 2017, p. 459). We therefore include the sub-dimensions of *informal actors* in the dimension of provision. The

[12] In this dichotomy, the term „private" is understood in contrast to the state or government as denoting for-profit actors that use market mechanisms as mode of exchange. The term private can however also be used to refer to the personal space in the sense of family or community relationships (see informal and private individual actors below). When employing this use of the term, "private" market participants can also be conceptualised as public because an (ideal typical) marketplace is generally open and transparent.

[13] Even if the state is a highly aggregate and abstract concept, states are often conceptualized as actors, as Wendt (2004) points out.

[14] The terminology used to denote the sectors/actors varies between authors. The set of four actors has also been called "welfare diamond" (Pijl 1994).

analytical distinction between formal and informal care is frequently employed in research on LTC, albeit the two forms/settings are not clear cut and rather represent a continuum (Timonen 2008, p. 111; Pfau-Effinger and Rostgaard 2011, p. 2). In general, formal care is more regulated and provided in an organized setting by paid and (semi-)professional (self-)employees whereas informal care provision is less regulated and provided in the "family context" (see e.g. Timonen 2009; Theobald 2011, p. 158). Our definition of informal actors comprises thus care givers from the recipient's social network (e.g. family members, relatives, neighbors, friends) as well as informally hired domestic care providers (e.g. live-ins). In addition, the family or household can also appear as a private financing body, which can buy LTC services using direct payments – so called out-of-pocket expenditure (Rothgang and Fischer 2019, pp. 648–653). We thus include a similar, but not identical, group denoted as *private individual actors* in the financing dimension. In the dimension of regulation, we choose to exclude informal/private individual actors as they do not possess any regulatory power over third parties – each informal actor could only regulate in a very narrow sense by regulating itself.[15] The exclusion of this group of actors from the regulation dimension can already be regarded as a first functional reduction of the (potential) attribute space.

The fourth group in the welfare diamond, which we call *societal(-based) actors* (cf. Wendt et al. 2009), has in many countries a long history in organizing and supplying care (Johnson 1999, p. 143). Similar to the other actors, the societal sector comprises different forms of organizations like mutual aid associations or advocacy groups, but shares certain defining criteria: The organizations are neither governmental nor profit-maximizing, but formal, self-governing and voluntary (Johnson 1999, pp. 147–148). Furthermore, as Streeck and Schmitter (1985) point out in their outline of the governing principle of associations, the concept of societal actors is closely linked to the organizations of collective self-interest groups. Societal actors can be present in each of the three dimensions: For example, welfare associations can provide institutional or home care services, social insurances can be responsible for financing LTC while both can function as regulatory actors in a LTC system.

So far, we have settled on including four types of actors in our typology – state, private (collective) actors, private individual and informal actors as well as societal actors – which feature in the mostly western-centered and European social policy and care literature. Yet, following the

[15] Compare Koop and Lodge (2017, p. 100) for how different definitions of regulation deal with the separation of regulator and regulatee: While in our conceptualisation this separation is not a necessary condition, we maintain that there should at least be the possibility of exerting some influence on third party actors, even if they are confined to the same sector.

deductively-led logic for distinguishing relevant actors, it is sensible to expect that these types of actors are – or potentially can be – also of importance in the Global South. Existing empirical evidence certainly points towards their suitability for comparing LTC in diverse regions; for instance, Razavi (2007, pp. 20–23) applies the concept of the care diamond to the context of developing countries while the World Health Organization (WHO 2017) report on LTC in Africa outlines the importance of informal, private (collective) and societal actors in providing care in different African countries. Still, especially when having the specifies of social policy in the Global South in mind, there is yet another set of actors that could arguably play a role in LTC provision, financing and/or regulation: *global actors*. In line with Kaasch and Martens (2015, pp. 8–9) we define global actors broadly as "an individual or corporate body with the capacity to make a change in global social policy". Global actors derive their status from being external or non-domestic actors in a certain national setting – a state can thus also appear as a global actor if it finances, for instance, services outside its jurisdiction. Of all our actor groups, global actors are probably the most heterogenous, taking such diverse forms as international governmental or societal or private for-profit actors (cf. Yeates 2007; Kaasch and Martens 2015).[16] As LTC is not a very developed field in global social policy (yet), the relevance of global actors for classifying LTC systems remains at this point still mostly theoretical. While seldom intervening directly in one of the dimensions of the LTC system, non-domestic actors like the WHO, the OECD or the non-governmental organization HelpAge International *have* engaged in the field of LTC mainly be providing guidelines or technical support and contributing to agenda-setting (see WHO n.d.; OECD n.d.; HelpAge International n.d.). A similar function is assumed by regional organizations, most notably the European Union (EU), which could potentially be a relevant external actor in LTC systems of its member states. One concrete example of engagement of global/regional actors in LTC can be found in Asia where HelpAge International, its local branch HelpAge Korea and the ROK-ASEAN[17] cooperation fund have implemented a program for strengthening home care for older people in several countries in Southeast Asia (see HelpAge Korea 2014).

[16] In theory, the category of global actors could again be split up in external state, external societal and external (collective) private actors. However, we decided against this differentiation as the low (empirical) relevance of the actor group in LTC makes this level of detail unnecessary for our purpose.
[17] Republic of Korea and Association of Southeast Asian Nations

Provision	Financing	Regulation			
		State	Societal Actors	Private Actors	Global Actors
State	State	*Type 1*	*Type 26*	*Type 51*	*Type 76*
	Societal Actors	*Type 2*	*Type 27*	*Type 52*	*Type 77*
	Private collective actors	*Type 3*	*Type 28*	*Type 53*	*Type 78*
	Private individual actors	*Type 4*	*Type 29*	*Type 54*	*Type 79*
	Global actors	*Type 5*	*Type 30*	*Type 55*	*Type 80*
Societal Actors	State	*Type 6*	*Type 31*	*Type 56*	*Type 81*
	Societal Actors	*Type 7*	*Type 32*	*Type 57*	*Type 82*
	Private collective actors	*Type 8*	*Type 33*	*Type 58*	*Type 83*
	Private individual actors	*Type 9*	*Type 34*	*Type 59*	*Type 84*
	Global actors	*Type 10*	*Type 35*	*Type 60*	*Type 85*
Private Actors	State	*Type 11*	*Type 36*	*Type 61*	*Type 86*
	Societal Actors	*Type 12*	*Type 37*	*Type 62*	*Type 87*
	Private collective actors	*Type 13*	*Type 38*	*Type 63*	*Type 88*
	Private individual actors	*Type 14*	*Type 39*	*Type 64*	*Type 89*
	Global actors	*Type 15*	*Type 40*	*Type 65*	*Type 90*
Global Actors	State	*Type 16*	*Type 41*	*Type 66*	*Type 91*
	Societal Actors	*Type 17*	*Type 42*	*Type 67*	*Type 92*
	Private collective actors	*Type 18*	*Type 43*	*Type 68*	*Type 93*
	Private individual actors	*Type 19*	*Type 44*	*Type 69*	*Type 94*
	Global actors	*Type 20*	*Type 45*	*Type 70*	*Type 95*
Informal Actors	State	*Type 21*	*Type 46*	*Type 71*	*Type 96*
	Societal Actors	*Type 22*	*Type 47*	*Type 72*	*Type 97*
	Private collective actors	*Type 23*	*Type 48*	*Type 73*	*Type 98*
	Private individual actors	*Type 24*	*Type 49*	*Type 74*	*Type 99*
	Global actors	*Type 25*	*Type 50*	*Type 75*	*Type 100*

Figure 2: Attribute space of our multi-dimensional, actor-centered typology of LTC systems, source: own illustration

The plausibility of types

Finally, we arrive at five times five times four actors, constructing an attribute space with 100 types (see figure 2). However, some of the existing combinations, i.e. types, can be eliminated due to the implausibility of combinations (see chapter 4). The present paragraph suggests tentative rules for reduction. Firstly, all the "pure" types made up of one actor only – that is, for instance the combination state/state/state – are certainly plausible. Most combinations are however mixed types which incorporate several actors. As a guideline for evaluating those, it is

useful to consider the "hierarchy of actors and functions" that Böhm et al. (2013, pp. 260–262) have proposed to reduce a similar typology of healthcare systems. They argue that "the three dimensions are not entirely independent from each other, but follow a clear order, with regulation leading, followed by the financing dimension and, finally, service provision." This, especially the domination of the regulation dimension, seems to be a reasonable logic also for LTC systems. Furthermore, the authors theorize that it is unlikely that a strongly collectivized (or public) actor is "dominated" by the presence of a less collectivized actor in a higher-ranking dimension; for example, the state or a societal actor wouldn't provide services in a LTC system where private actors are responsible for regulation and/or financing. This logic has its benefits, but cannot be translated one-to-one to our typology because, firstly, there are different types of actors included and, secondly, the *power* of actors may vary depending on each specific national setting and constellation. For instance, global actors that take the form of international intergovernmental organizations may in certain countries – especially in the Global South – dominate state actors, but in other settings or the case of non-governmental global actors they might be subordinate to other actors. Still, in accordance with the hierarchy suggested by Böhm et al., we conclude that in most cases, the state is dominant, followed by societal actors and collective/commercial private actors, while, depending on the setting, global actors fit in somewhere in between state and societal. Owing to their limited power, individual private or informal actors have already been excluded from the regulation dimension. Combinations of out-off-pocket financing and private for-profit, societal or state provision may however exist as direct (co)payments are very common in the financing of LTC (Colombo et al. 2011, p. 235). Applying these rules, at least halve of the existing combinations can be deleted, making the remaining typology more concise. Due to the complexity and specify of each dimension-actor combination, we must leave more detailed considerations pertaining to the reduction for a later point, however.

6. Conclusion

Typologies have been criticized for obscuring within case details or putting diverging cases in the same "container". However, as a heuristic framework for reducing, ordering and making sense of empirical complexity, we find that typologies are an indispensable tool to enable systematic comparative work. Especially when working with a larger set of cases, the application of such a systematic conceptual framework can help to discover – sometimes unexpected – similarities and differences between LTC systems.

In the present article, we suggested a multi-dimensional conceptualization of LTC systems to capture and compare how different societies deal with the risk of care dependency. Building on the three constitutive dimensions of provision, financing and regulation, we proposed an actor-centered typology of LTC systems to facilitate global, cross-country analysis of LTC. Five relevant groups of actors were identified: state, private (collective) actors, private individual and informal actors, societal actors and global actors. In contrast to existing, mainly selective, inductive and (Europe-) specific classifications, our typology is, owning to the use of deductive logic, applicable to a wide array of settings and cases in Europe and around the world. A further advantage of our approach is its flexibility: due to the transparency in building and reducing the attribute space, the number of actors and types can be adapted to each researcher's individual need and preferences. Furthermore, it is possible to use our typology for classifying entities on different levels. On the one hand, it can be used to compare LTC arrangements on the *national level*, characterizing whole countries. However, as the organization of LTC is often regionally and organizationally fragmented, our typological framework can also be used to classify distinct LTC systems *within a country*.

One limitation of this article is that it focused on conceptual considerations, while mainly remaining theoretical. A later application of the typology to classify actual existing LTC systems, will have to "test" the use of the framework further. Moreover, when classifying cases, each of the (sub)dimensions must be operationalized. While we have tried to carefully conceptualize the (sub)dimensions in this article, an outline of (possible) operationalizations had be deferred to a later point. We thus conceive of the herein proposed typology as a first conceptual step in capturing the global variety of LTC systems.

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Appendix

Study	Criteria	Method	Region	Names of typology and types
Bettio and Verashchagina 2012	organizational setting (e.g. regarding provision, financing)	Not specified, based on qualitative description	European countries (esp. 4 ideal-typical cases)	Typical cost types of home care: • Cost type 1: comprehensive care but rationalized 'face time' in Nordic countries • Cost type 2: migrants-in-the-family in Mediterranean countries and Austria • Cost type 3: service vouchers in France and Belgium • Cost type 4: minimal reliance on care outsourcing in East
Burau et al. 2007	State support for formal and informal care State support for female labor market participation	combination of two existing typologies	9 OECD countries	Home care models: • Public service model • Family care model • Means-tested model • Subsidiary model
Camacho et al. 2008	inconsistent (e.g. financing, provision)	Not specified	9 European countries	Long-term care models in Europe (original: “Modelos de atención a la dependencia en Europ”): • Beveridge model • Bismarck model • Mediterranean model
Colombo et al. 2011 and Colombo 2012	Scope of entitlement (universal vs. means-tested) coverage through single or multiple programs	Not specified, based on data from OECD survey and qualitative description	OECD countries (example countries classified)	Typology of public LTC coverage: • Universal coverage within a single program • Mixed systems • Means-tested systems (plus additional sub-types)
Da Roit and Le Bihan 2010	Inclusivness Role and regulation of cash-for-care	Based on analysis of policy documents and regula-	6 European countries	Typology of long-term care configurations: • Social service model • LTC system based on a highly regulated cash-for-care scheme

	View and role of informal care	tions, systematic review of existing studies		• LTC system based on little-regulated cash-for-care transfers
Halásková et al. 2017	Spending on LTC Shares of older recipients Importance of institutional care	Principal component analysis, Cluster analysis	13 OECD countries	LTC system types: 3 country clusters (no names)
Joshua 2017	Not specified; coverage and form of financing scheme(?)	Not specified, based on qualitative description	10 OECD countries	Typology of Long Term Care Programs: • Social insurance model • Universal model • Means-tested model Hybrid approaches
Kraus et al. 2010, approach I	Organizational depth (e.g. access to public LTC, choice, quality, coordination of care) Financing generosity (public and private cost shares)	Index construction, Cluster analysis	21 European countries	LTC Typology focused on system characteristics (approach I): 4 country clusters (no names)
Kraus et al. 2010, approach II	Private and public spending Extent and support for informal and formal care Coverage (means- and needs-test)	Cluster analysis	14 European countries	LTC Typology focused on use and financing of care (approach II): 4 country clusters (no names)
Lamura et al. 2007 cited in: Nies et al. 2013	Extent of formal and informal care Demand for care	Not specified (original source not available)	16 European countries	Typology of European LTC regimes: • Public Nordic • Standard Care Mix • Family Based • Transition
MISSOC Secretariat 2009	Integration of system Statutory organization of scheme	Analysis of social security legislation	31 European countries	Typology of statutory organization(?) 6 country clusters (no names)

Pacolet et al. 1999	Type of social protection / welfare state Type of LTC insurance Availability of formal care (?)	Not specified, based on qualitative and quantitative description	16 European countries	Relation between type of social protection and type of long-term care insurance(?) • Beveridge oriented welfare states of the Nordic Countries, implicit long-term care insurance • Beveridge oriented welfare states, implicit LTC insurance • Bismarck oriented welfare states, explicit long-term care insurance • Bismarck oriented welfare states of the Mediterranean Countries, long term care insurance not on the political agenda
Ranci and Pavolini 2013	Coverage System Integration	Not specified, based on quantitative and qualitative description	10 European countries	LTC regime: • Universalistic regime • Semi-universalistic regime • Residual regime
Rothgang 2009	Stratification Type of financing scheme System integration	combination of existing typologies	15 European countries	Types of long-term care security (original "Pflegesicherungstypen"): • Scandinavian public welfare state • Central European insurance state with independent protection system for LTC • Central European insurance state without independent protection system • Anglo-Saxon public welfare state • South European insurance state
Simonazzi, 2008	Not specified (e.g. financing scheme, entitlement to care)	Not specified, based on existing typology(?)	16 European countries	Elderly care regimes in the EU: • Northern Europe/Beveridge oriented • Continental Europe/Bismarck oriented • Mediterranean • Central-Eastern-European

Timonen, 2005	Who finances care Who provides care	Not specified, based on qualitative description	5 European countries	LTC policy paradigms • Statist paradigm of LTC • Familialist/individualist paradigm of LTC • 'State pays, others provide' of LTC

Table 2: Overview of 16 extant classifications of LTC systems, source: own illustration