*Typologizing OECD Long-Term Care Systems*

**Abstract**

Providing long-term care (LTC) to the elderly is a major challenge for all welfare states. The financing, provision, regulation, accessibility and performance of LTC systems differ widely across countries, however. To address differences and similarities in these dimensions systematically, we aim to typologize OECD LTC systems. Due to the maturation, economization and marketization of LTC systems an updated and extended typology is needed. Furthermore, compared to earlier typologies, we make three advancements. First, earlier typologies focus either on social services in general or on one aspect of LTC such as migration or family caregiving. Our approach clearly focuses on characteristics of LTC *institutions*. Second, earlier typologies used either solely quantitative OECD or Eurostat data or data on institutional and regulatory aspects of LTC systems. We integrate both approaches by using quantitative OCED data on financing, provision and performance *as well as* institutional data on regulation and accessibility of systems. Third, we use quantitative clustering methods, which are widely used in healthcare and welfare state typologies but not yet in LTC typologies. These advancements increase the empirical basis of comparative LTC systems research and make results more comparable to other welfare and healthcare typologies.

**Introduction**

Demographic ageing is a major concern in the developed countries and poses challenges to the social security systems. Thereby especially long-term care systems get into focus. This is because the amount of people in the critical age frame in which long-term care needs accelerate is increasing. Furthermore, due to increasing life expectancy there is the concern of increasing duration of time in need of care [xxxx]. Due to this expected double burden countries reshape their LTC systems on the one hand to make them more efficient and financially robust and on the other hand to increase the access and performance of LTC systems. Thus, in recent years LTC system have been under construction in many OECD countries. Marketization, economization and corporatization are processes that describe the reform processes in many OECD countries’ LTC systems (Farris and Marchetti, 2017; Ungerson, 1997).

When talking about LTC a clear definition is needed. The OECD defines LTC as: “range of services required by persons with a reduced degree of functional capacity, physical or cognitive, and who are consequently dependent for an extended period of time on help with basic activities of daily living (ADL). This “personal care” component is frequently provided in combination with help with basic medical services such as “nursing care” (help with wound dressing, pain management, medication, health monitoring), as well as prevention, rehabilitation or services of palliative care. Long-term care services can also be combined with lower-level care related to “domestic help” or help with instrumental activities of daily living (IADL).” (Colombo et al., 2011: 11–2). This definition is independent of age of the recipient yet, most LTC recipients are above 65 years [xxxx]. Thus, for the elderly LTC systems are highly important and we focus the typology on the services and systems for this age group.

**Theory**

**Long-term Care Classifications**

Typologizing welfare states or welfare state systems is not at least since Esping-Andersen (1990) seminal study a common endeavour in welfare state research. His work and the following adaptions and discussions (Ferrera, 1996) still provide a basic template for case selection and evaluation also in social service research (Rostgaard, 2002). Nevertheless, since then a number of different typologies including LTC or LTC facets were published. These typologies can be devided into three groups. A first group of typologies focuses on social services generally, in which LTC is included among other parts such as childcare into these typologies (Anttonen and Sipilä, 1996; Bettio and Plantenga, 2004; Kautto, 2002; Leitner, 2003; Saraceno and Keck, 2010). A second group of typologies focuses genuinely on LTC for the elderly, although often (due to data reasons) also disability is included in these typologies) (Alber, 1995; Colombo, 2012; Damiani et al., 2011; Kraus et al., 2010; Halásková et al., 2017; Pommer et al., 2009; van Hooren, 2012). A third group of typologies focuses on special aspects of LTC and zoom in on migration in the context of LTC (Anderson, 2012; Da Roit and Weicht, 2013; Simonazzi, 2008; van Hooren, 2012; Simonazzi, 2008), cash for care schemes in LTC (Da Roit and Le Bihan, 2010) and informal care by families (Di Rosa et al., 2011; Leitner, 2003; Pfau-Effinger, 2014; Simonazzi, 2008).

Because, our focus lies on building a genuinely LTC typology the second group of typologies is the most relevant for us. In these typologies we see a huge variety in the (number of) included country cases, data, methods and results.

The includes country cases vary from about ten European cases (Alber, 1995; Halásková et al., 2017; Pommer et al., 2009) to about 20 and more European (Damiani et al., 2011; Kraus et al., 2010) and OECD (Colombo, 2012). OECD and Eurostat are the databases on which nearly all typologies are based (Alber, 1995; Colombo, 2012; Damiani et al., 2011; Kraus et al., 2010) only Pommer et al. (2009) use Share-Data for their typology and are thus the only ones using micro-data for their analysis. Only Kraus et al. (2010) use data which includes the institutional setting and rules for access to the system which are based on the legislative account of the system.

Concerning methods, especially those typologies which include only a small number of countries and aim to develop more theoretical clusters mainly use their descriptive evaluations to find similarities and differences between cases and to derive at more theoretical clusters (Alber, 1995; Simonazzi, 2008; van Hooren, 2012). Those typologies which have a stronger empirical, quantitative focus mainly use cluster analysis for building clusters (Halásková et al., 2017; Kautto, 2002; Kraus et al., 2010; Saraceno and Keck, 2010).

Concerning dimensions and indicators, again we see a huge variety. A dimension that is taken into account in all typologies is **supply**. This includes in most typologies financial resources (Alber, 1995; Colombo, 2012; Damiani et al., 2011; Halásková et al., 2017; Kraus et al., 2010), but also staff and staffing levels (Alber, 1995) and bed density in institutional LTC (Alber, 1995; Damiani et al., 2011) are included. Also the **type of provision** is a dimension that is often operationalized via the percentage of people in ambulatory or residential care settings (Alber, 1995; Damiani et al., 2011; Halásková et al., 2017). Quality and performance indicators in LTC are hard to get. Yet some typologies try to include these. Damiani et al. (2011) use the share of people over 80 reporting good or very good health and the perceived limitations in ADLs for people aged 65 or older. Kraus et al. (2010) use institutional indicators of mandatory quality assurance systems and the degree and functioning of integrated services. Because most typologies use OECD or Eurostat data the indicators are foremost quantitative. More institutional dimensions and indicators, which are commonly used in healthcare typologies, which also focus on services and are in its construction comparable to LTC typologies are rarely used. Therefore such a dimension as access, which is commonly used in healthcare typologies (Reibling, 2010; Reibling et al., 2019) is only included by Kraus et al. (2010). They include means-testing for benefits, entitlement to residential, home-care benefits and cash benefits as well as choice restrictions.

Focusing on results, Pommer et al. (2009) find three clusters, which are similar to those, based on common welfare state typologies (Esping-Andersen, 1990; Ferrera, 1996): a nordic model including Sweden, the Netherlands and Denmark, a continental model including Belgium, France, Austria and Germany and a Mediterranean model including Italy, Spain and Greecce. Colombo's (2012) typology finds three clusters, too, which are based on the financing and coverage of the LTC systems: universal coverage within a single system, mixed systems and means-tested systems. Only the US and England belong to the last cluster; the first cluster is dominated by northern and continental European countries, Japan and Korea. The typology by Damiani et al. (2011) finds four clusters which are essentially a mix of the former two typologies: one including mainly eastern European and some southern European countries, one southern European cluster including two eastern European countries, and two clusters that include northern and continental European cluster. Kraus et al. (2010) present two typologies in their study. The first one finds two distinct eastern European countries and two distinct clusters including both continental and northern European countries. The second typology find four clusters, two where nearly all clusters include countries from all European regions. Halásková et al. (2017) focus on expenditure and the number of LTC patients and find three clusters, the first, including Australia and Korea, the second including the Czech Republic, Estonia and Hungary and the third including nordic and continental European countries.

This short overview on existing LTC typologies show room for extension of these typologies. First, by focusing on indicators a huge weight lies on financing indicators. Furthermore, most typologies only use quantitative indicators and neglect institutional indicators focusing on access to long-term care are rarely used. Thus, we want to include more indicators of the important dimension and thereby decrease the influence of financing indictors and increase the weight of institutional indicators. Second, many typologies have a European focus or only use a small sample of countries. We would like to extend these typologies by using an OECD sample with as many countries as possible. Third, as show earlier cluster analysis has proven a successful method to derive at types of LTC systems. Still, we want to use the innovative approach by Reibling et al. (2019), who use multiple cluster analysis for a high reliability of results and a flexibility of the typology.

**Data and Methods**

We use indicators of the dimensions supply, public-private mixFocusing on the typologies that focus genuinely on LTC we can make up several dimension and indictors that are used are used (see table XX):

supply

We include LTC expenditure (health) (per capita (in US of purchasing power parities). This includes all expenditure on bodily related LTC (mainly ADLs). We would have liked to include also LTC expenditure (social), which includes mainly IADLs (Halásková et al., 2017). We include the number of LTC beds per 1000 population aged 65 or older. Yet there were to many missing data. We were also not able to include data on staff and staffing level as a measure of human resources. We use the number of LTC recipients in institutions measured as the percentage of all people aged 65 years and older as a measure of actual supply of spots in these facilities.

Type of provision

The second dimension focuses on who is providing and financing LTC. We operationalize this via the share of private (voluntary and out-of pocket) expenditure as share of the total expenditure. We also include the availability of cash benefits here, because research has show that the avaibaility of cash benefits fosters family and migrant care []

Quality and Performance

We use the life expectancy of people 65+ which is not only but also determined by the quality of LTC services and similar to Damiani et al. (2011) the percentage of the population who are 65 or older, who perceive their health as good or very good.

Access regulation

Earlier work has shown that access to LTC system is crucial for XXX. We use two indexes for measuring access. First an index on means testing for benefits that includes if home and residential care benefits are means-tested. Second a choice index is built which includes provider choice and choice of benefits.

The typology includes 33 OECD countries. Chile, Mexico and Turkey are excluded due to too many missing values. The quantitative indicators are based on the OECD health data (date of extraction 10.12.2018) (OECD, 2018). We use the average value of the years 2014 to 2016, because not each country provides data for each specific year. For the indicators life expectancy and perceived health status this method yielded complete data. For all other quantitative indicators missings remained. Those missing values have been imputed by using interpolation of values by earlier country values and (mean) growth rate and nearest neighbor imputations[[1]](#footnote-1). For the institutional indicators a variety of information from different sources have been coded by the first author. The main sources were the Missoc database (MISSOC, 2018), the Health in Transition reports (European Observatory on Health Systems and Policies, 2018) and the ESPN reports of the European Union (European Commission, 2018). In LTC systems it is often the case that no national but regional or municipal rules apply. In these cases the codes refer to the dominant rules. In case of ambiguous information, more information on the indicator has been searched. Furthermore, all codes for the institutional indicators have been checked by national LTC policy experts[[2]](#footnote-2). Final codes for the institutional indicators were discussed and determined by all authors of the paper.

Cluster analysis is the standard method in welfare state typologies (Jensen, 2008; Reibling, 2010; Wendt, 2014) as well as in LTC typologies (Halásková et al., 2017; Kautto, 2002; Kraus et al., 2010; Saraceno and Keck, 2010) for classifying and developing system types. All clustering methods have in common that they build clusters on the similarity or dissimilarity of cases. We decide for k-means clustering.[[3]](#footnote-3)

**Results**

**Conclusion**

We provided an updated, innovative and flexible LTC typology. We used the latest available data from the OECD database as well as unique institutional dataset, which we developed ourselves and which has been checked by country policy experts. This is furthermore an innovative approach because most typologies rely heavily on quantitative indicators, especially when a larger country sample is included [xxxx]. Only in cases of smaller country samples which rely also more on qualitative comparisons institutional indicators are considered. Thus a larger country sample as well as a mix of quantitative and institutional indicators has only been adopted by Kraus et al. (2010). But in the last century marketization, commodification and coproatization of care changed LTC systems all over the world (Farris and Marchetti, 2017), which makes a new and updated LTC typology necessary. Furthermore the used clustering method provides a flexible typology in that a countries have partial membership in clusters.

Still typologies imply alwayse generalizations. For example, in many countries LTC services and access have a high regional fragmentation (Spasova et al., 2018), which cannot be displayed on a brought basis in an internationally comparative typology. Furthermore, LTC systems have not that clear boundaries as other welfare state systems such as healthcare, unemployment or pensions. LTC can be provided via a separte LTC system or it can be partially integrated in healthcare, social assistance or pension systems, where different access and provision rules apply [Leichsenring]. Furthermore, LTC is in many countries still a new issue in the welfare state, because the provision was traditionally devolved to families and now increasingly devolved to migrant care workers. Unfortunately, indicators on informal care are not available and by nature not reliable. The only approximation are cash benefits (especially unbound) which are an institutional measure to increase informal family and migrant care [da RoitXXX].

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1. For imputed values see table [XXXXXXXXXXX]. [↑](#footnote-ref-1)
2. Experts have been contacted since May 2018. The expert survey is not yet finished. Therefore, data and results are preliminary. [↑](#footnote-ref-2)
3. We will in the development of the paper adapt the new approach by Reibling et al. (2019), who are using differnet clustering methods in order to derive at a reliable as well as flexible clustering result. [↑](#footnote-ref-3)