*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 often 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 supply, Type of provision, performance *as well as* institutional data on accessibility of systems. Third, we use various clustering methods, in order to derive at a flexible typology. These advancements increase the empirical basis of comparative LTC systems research and make results more comparable to other welfare and healthcare typologies.

**Introduction**

In most OECD countries demographic ageing poses serious challenges to the provision of long-term care (LTC) services. Increasing longevity and the ageing of the baby boom generation lead to an increase in the number of elderly people and increasing life expectancy will in many cases increase the duration of time in which LTC services are needed (Rechel et al., 2013; Colombo et al., 2011). Due to this expected double burden both the demand for LTC services will increase and with that also the costs for LTC service provision. Thus, 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 (Ranci and Pavolini, 2013). Many countries adopted marketization, economization and corporatization reform measures which often tremendously altered the scope and functioning of established LTC systems (Farris and Marchetti, 2017; Ungerson, 1997). Thus, increasing problem pressure and numerous reforms in recent years have altered LTC system in many OECD countries. Therefore, a new and updated LTC typology will include these changes and the results will help to grasp and categorize them.

**Theory**

*Long-Term Care*

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). Although this definition is independent of age most LTC recipient are above 65 years old (Colombo et al., 2011). Thus, for the elderly LTC systems are highly important and therefore we focus the typology on the services and systems for this age group.

*Long-term Care Classifications*

Typologizing welfare states or welfare state systems is not at least since Esping-Andersen's (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 divided 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 genuine 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.

Concerning dimensions and indicators, 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). Also the type of provision is often included in the supply dimension and operationalized via the percentage of people in ambulatory or residential care settings (Alber, 1995; Damiani et al., 2011; Halásková et al., 2017). The dimension of public-private mix of the systems is often part of healthcare typologies (Reibling et al., 2019) and for LTC typologies only those which specialize on specific aspects or those taking a broader view on social services integrate this dimension (Anderson, 2012) by the intensity of informal care (Bettio and Plantenga, 2004), the reach of public funds (van Hooren, 2012), the proportion of for-profit-providers (Da Roit and Weicht, 2013; Simonazzi, 2008) and the expenditure on or use of uncontrolled cash benefit schemes (Da Roit and Weicht, 2013; Simonazzi, 2008). Quality and performance indicators like the percentage of patients with pressure ulcers or unintended weight loss are not available for a larger comparative country sample (Halfens et al., 2013). Still, some typologies include quality and performance indicators. 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. Overall these dimensions and indicators are nearly all quantitative indicators, based on OECD or Eurostat data 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. Solely Kraus et al. (2010) use data which include the institutional setting and rules for access to the system, which are based on own primary data collection. This access dimension has been proven of high relevance for healthcare typologies (Reibling, 2010; Reibling et al., 2019) and is operationalized via means-testing for benefits, entitlement to residential care, home-care benefits and cash benefits as well as choice restrictions in Kraus et al.'s (2010) typology.

The results of these typologies are certainly influenced by their focus and aim but also by the number of included countries. The included country cases vary from about ten European and OCED 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 cases (Colombo, 2012). Despite the large variety in the number of clusters and the composition of those clusters in the different typologies some similarities and parallels can be depicted. The most robust cluster is a Scandinavian or northern European cluster that mostly includes Sweden, Norway, Denmark, Finland and often also the Netherlands (Alber, 1995; Colombo, 2012; Damiani et al., 2011; Kraus et al., 2010; Pommer et al., 2009). Clusters which include only Eastern European countries can be found in the typologies by Damiani et al. (2011), Halásková et al. (2017) and Kraus et al. (2010) In these clusters often Bulgaria, Hungary, the Czech Republic, Estonia and Slovakia are included yet also other Eastern European countries join. In some cases (a second) cluster which incorporates Eastern-European as well as Southern European countries is built (Damiani et al., 2011; Kraus et al., 2010; Colombo et al., 2011) including Italy, Spain and Greece. These countries are only depicted in a genuine Southern European cluster by Pommer et al. (2009). Continental European countries such as Germany, France, Austria, Belgium and Luxemburg can be found in many typologies together in one cluster but mostly together with some Eastern European or Northern European countries (Alber, 1995; Damiani et al., 2011; Halásková et al., 2017; Kraus et al., 2010; Pommer et al., 2009). Non-European countries are rarely included in the typologies. The typology by Colombo (2012), which categorize countries based on financing indicators include Japan and South Korea in a cluster with Germany, Luxemburg and the Netherlands due to their common social insurance approach, whereas New Zealand and Canada are in a cluster with Greece, Spain and Switzerland due to their universal but means-tested financing approach. Halásková et al. (2017) find Australia and South Korea in one cluster.

This short overview on existing LTC typologies shows room for extension. Most typologies only use quantitative indicators where a huge weight lies on financing indicators. Institutional indicators focusing on access to long-term care are rarely used. 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, cluster analysis has proven a successful method to derive at types of LTC systems (Halásková et al., 2017; Kautto, 2002; Kraus et al., 2010; Saraceno and Keck, 2010). 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[[1]](#footnote-1).

**Data and Methods**

We use indicators of the dimensions supply, public-private mix, performance and access.

supply

The dimension of supply contains indicators on the resources that the LTC systems have. We use LTC expenditure (health) (per capita (in US$ of purchasing power parities), which includes all expenditure on bodily related LTC (mainly ADLs) as a measure of financial input. We would have liked to include also LTC expenditure (social), which includes mainly IADLs (Halásková et al., 2017) yet data availability was extremely limited. We further include the number of LTC beds per 1000 population aged 65 or older as institutional supply of services and 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.

Public-Private Mix

The second dimension operationalizes the role of the state and of private actors. The share of private (voluntary and out-of-pocket) expenditure as share of the total expenditure is included as a measure of public and private involvement in payments for care. We also adopt the availability of cash benefits as an approximation for formal and informal care provision. Research has shown that the availability as well as the unrestricted usage of cash benefits fosters family and migrant care (Da Roit and Le Bihan, 2010; Da Roit and Weicht, 2013).

Access regulation

Access to care is a developed field in healthcare and healthcare typologies (Reibling, 2010; Reibling et al., 2019), but has only been adapted in LTC typologies by Kraus et al. (2010). Restrictions in the systems can pose barriers especially for lower social status groups to access care. Common barriers are means-testing of benefits and limitations of choice. We use three means-testing indicators: means testing-for cash-benefits, means-testing for in-kind benefits (ambulatory and institutional) and means-testing for any benefit (cash benefits, in-kind benefits, other care related benefits). Furthermore, we include three indicators on free and limited choice. Limitations in choice are regional restriction or restrictions due to insurance or benefit plans. The indicators are: choice of homes-care provider, choice of institutional care provider and choice between cash and in-kind benefits. The indicators are added up to a choice index and a means-testing index.

Performance

Measuring the performance of LTC systems is especially on an internationally comparative level still in its infancy. Indicators such as the number of institutional and home-based LTC patients with pressure ulcers or unintended weight loss are in many countries not even available on a national or regional basis (Halfens et al., 2013). Therefore, we can only use indicators that are not exclusively but to a large part determined by the quality and performance of LTC services. We use life expectancy of people aged 65 or older 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.

The typology includes 27 OECD countries. Chile, Mexico and Turkey, Austria, Canada, Greece, Iceland, Italy, Lithuania and Portugal 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 nearest neighbor imputations[[2]](#footnote-2). 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 place in the country. 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[[3]](#footnote-3). 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.[[4]](#footnote-4)

**Results**

The results of the cluster analysis reveal three clusters (see table 1). The first cluster includes all Eastern European countries of the sample and three Non-European countries of the Asian-Pacific area: Czech Republic, Estonia, Hungary, Latvia, Poland, Slovak Republic, Slovenia as well as Australia, Korea and New Zealand. The second cluster includes many continental and Northern European countries and Japan as the only Non-European country: Belgium, Denmark, Finland, France, Germany, Ireland, Luxemburg, Netherlands, Norway, Switzerland, Sweden and Japan. The third cluster is much smaller than the other two clusters cluster and comprises only the four countries Israel, Spain, the United Kingdom and the United States.

Table 1: LTC clusters and countries

|  |  |  |  |
| --- | --- | --- | --- |
| Cluster | 1 | 2 | 3 |
| Countries | AU, CZ, EE, HU, KO, LV, NZ, PL, SK, SL | BE, DK, FI, FR, DE, IE, JP, LU, NL, NO, SE, CH | IS, ES, UK, US |

Based on the cluster means we can characterize the three clusters. Cluster 1 is the “low developed LTC system cluster”. The cluster includes countries of Eastern Europe and Non-European OCED countries in which public LTC provision is still limited. The supply, especially the financial input into these clusters, is low compared to the other clusters and this affects also the performance of the systems which is relatively low. The systems are highly publicly financed and choice of services are majorly free and means-testing is relevant for only some of the countries. Still, the limited supply in these countries puts the access regulation indicators in perspective.

The second cluster includes Continental and Northern European countries and Japan. This cluster is the “universal developed LTC system type”. These countries share LTC system with high financial and institutional supply which mirrors in high performance levels. The financing is based on a medium level of private financing. The choice of benefits is rather free and means-testing is medium or low in these countries. Thus, public LTC system are rather high developed in these countries with only minor limitations for patients to access and finance their LTC costs.

The third cluster is the “private developed LTC system type”. The countries in these clusters share a medium supply in terms of financing and a low supply in terms of institutional provision. Financing is highly privatized and public services are often restricted by means-testing and choice restrictions. Still, the performance of these systems is relatively high. Thus, limited public provision and access to public provision is mitigated by private financing of services which leads to high performances.

**Discussion**

These results partly support earlier findings of LTC typologies but also provides new evidence on LTC system types. The “low-developed LTC system” cluster includes as earlier typologies a high number of Eastern European countries (Damiani et al., 2011; Halásková et al., 2017; Kraus et al., 2010) with the addition of three Non-European countries, Australia, New Zealand and Korea. The “universal developed LTC system type” combines the often found Scandinavian cluster (Alber, 1995; Colombo, 2012; Damiani et al., 2011; Kraus et al., 2010; Pommer et al., 2009) and the continental European cluster (Alber, 1995; Damiani et al., 2011; Halásková et al., 2017). The “private developed LTC system type” is rarely mentioned in the literature. Only Colombo et al. (2011) built a means-tested type including the UK and the US. Yet our analysis shows that also Israel and Spain belong to this type due to their mainly private approach to LTC provision which yields high performance results.

Although many reforms in countries’ OECD LTC systems focused on privatization and marketization of benefits (Ranci and Pavolini, 2013; Farris and Marchetti, 2017) in recent years and a larger variety of LTC system types could be expected our results do not show such an increased variety. This does not diminish the often large changes in many countries. Yet, it might show that these changes further increased the gap between well established LTC systems which at least try to provide inclusive LTC services with a high quality and countries which still rely heavily on informal LTC provision and only supply limited services to the most needy individuals. Into this explanation also fits the “private developed LTC type” which has always included the UK and the US (Colombo, 2012) but is complimented by Spain and Israel, which might have shifted into this cluster from other clusters.

**Conclusion**

We provided an updated, innovative and flexible LTC typology. We used the latest available data from the OECD database as well as a 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 (Colombo, 2012; Damiani et al., 2011; Halásková et al., 2017). Only in cases of smaller country samples which use more often 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 coporatization of care changed LTC systems all over the world (Farris and Marchetti, 2017), which makes a new and updated LTC typology necessary.

In terms of results we could show the validity of existing typologies but could also show that OECD LTC systems can mainly be divided in “low-developed”, “universal-developed” and “private developed” types and that despite many reforms the main dividing line in LTC systems is still *if* publicly organized LTC services are universally provided on a broad basis.

Still, typologies always imply 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 do. LTC can be provided via a separate LTC system or it can be partially integrated in healthcare, social assistance or pension systems, where different access and provision rules apply (Nies et al., 2013). 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 to migrant care workers (Colombo et al., 2011; Da Roit and Le Bihan, 2010). Unfortunately, indicators on informal care are not available and by nature not reliable. The only approximation, we have included, are cash benefits (especially unbound) which are an institutional measure to increase informal family and migrant care (Da Roit and Le Bihan, 2010; Da Roit and Weicht, 2013).

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1. In this draft we were not able to include this method. [↑](#footnote-ref-1)
2. For imputed values see table [XXXXXXXXXXX]. [↑](#footnote-ref-2)
3. Experts have been contacted since May 2018. The expert survey is not yet finished. Therefore, data and results are preliminary. [↑](#footnote-ref-3)
4. We will in the development of the paper adapt the new approach by Reibling et al. (2019), who are using different clustering methods in order to derive at a reliable as well as flexible clustering result. [↑](#footnote-ref-4)