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RESEARCH

A care regime typology of elder, long-term care institutions

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Abstract
This study generates a classification of 26 European OECD countries with respect to care regimes. Care regimes are 'social joins' on the nexus between the state and the family, grouping countries into 'types' that have similar characteristics with respect to state care institutions. The latter are formal arrangements by the state that may alleviate citizens' care burdens either financially, in kind, or both. We build upon the literature on the dimensions of defamilialisation and familialism and empirically test how these two dimensions indicate different types of care regimes. We expect to find at least three different regime types that combine either high reliance on defamilialisation or on supported familialism, or the lack of both. We collected macro-data of 26 countries on five indicators of elder care institutions from various sources and subsequently performed latent profile analysis to group these countries into classes of similar state care arrangements. The results reveal three care regime types: 'strong Defamilialisation/Supported Familialism'; 'moderate Defamilialisation/Supported Familialism'; and 'Familialism-by-Default'. This classification contributes to developing a theoretical framework of care institutions and can guide other scholars in understanding contextual differences in socio-economic causes and consequences of elder care in Europe.

Keywords Care regimes · Elder care · Institutions · Latent profile analysis · Typology

Introduction

In this article, we build upon previous research on the search for European care regime typologies. Care regimes are 'social joins' at the nexus between the state and the family that may alleviate citizens' care burdens through financial support and/or services (for an extensive discussion, see Bettio and Plantenga 2004). In contrast to general welfare regimes that focus on social transfers in general and were developed primarily with a focus on the relationship between the state and the market (and later included the family as well (Esping-Andersen 1990, 1999)), care regimes centre on the relationship between the state and the family, emphasising both financial support and services provided by the state's (health) care system. Constructing a care regime typology is needed as research on (elder) care increasingly takes a cross-national comparative approach, making an understanding of the institutional context crucial. State care institutions affect various care outcomes for individuals, including the amount of informal care support provided and (mental) health (Brandt et al. 2021; Lacey et al. 2024). Moreover, as these institutional contexts consist of multiple-interrelated institutional characteristics, we argue that these characteristics should be considered simultaneously, which might also include functional equivalents (Rostgaard 2004) (for a more extensive discussion on the usefulness of regime typologies, see (Van Damme and Spijker 2023)). Several scholars have

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attempted to derive such a clustering of countries for the late 1990s and early 2000s. Many studies have built upon the pioneers in this field (e.g. Anttonen and Sipilä, 1996; Bettio and Plantenga 2004), amplifying the number of countries analysed as well as the number of characteristics of social protection system for dependent older people (Pacolet et al. 2000). These studies have identified the existence of different dimensions of care systems, such as system characteristics, along with differences in the use and financing of care[1] (Kraus et al. 2010). Furthermore, they have developed the theoretical foundation of care regime typologies by distinguishing between defamilialisation, supported familialism, and familialism-by-default (Saraceno and Keck 2010). However, previous research has often been theoretically unsatisfying, either because it covered too many different dimensions (e.g. Kraus et al. 2010), did not get a clear empirical clustering of countries (e.g. Saraceno and Keck 2010), or relied on ranking countries by 'eye-balling' the data rather than using rigorous empirical cluster analysis (Bettio and Plantenga 2004; Pacolet et al. 2000).

A few more recent studies, such as those by Ariaans et al. (2021) and Pavolini (2021), using data from around 2018, employed cluster analyses. Ariaans et al. included indicators of state-provided LTC (financial and in kind), as well as access to LTC systems (choice of provider and type of benefit as well as benefit means testing). Pavolini, on the other hand, examined the overall organisation of public LTC systems; types of social protection provision; eligibility criteria; and financing of LTC systems and related these factors to public expenditure on LTC and the extent to which these expenditures are cash benefits. Despite these advances, there are still shortcomings in the connection between theory and the conceptualisation and operationalisation of indicators measuring care provision. None of these studies uses a comprehensive theoretical framework that describes the underlying dimensions on which the empirical clustering of countries could be based.

In this article, we build upon the theoretical framework of Saraceno and Keck (2010) and empirically check our expected classification using latent profile analyses (LPA). We loosely build upon a study by Van Damme and Spijker (2023) that classified countries into care regimes based on intergenerational upward and downward support. Since this article serves as a guide for other articles in this collection on caregiving for older people and its consequences, we focus specifically on elder care. Elder care, and its consequences for those providing it, is influenced by the state care arrangements within the context in which these citizens live. As European societies age, the capacity of care institutions to help alleviate the care burden becomes increasingly critical.

We selected the year 2009 for data collection because this typology will be applied in subsequent articles in this collection to explain country differences in caregiving and its consequences. Since these chapters use data from SHARE 2004–2017 and ELSA, it was necessary to gather information from this earlier period. After all, seeking to explain the consequences of caregiving within the context of care institutions requires acknowledging that these institutions precede caregiving in the timeline.

A conceptual framework of regime differences in formal care institutions

Defamilialisation and familialism: the 'logic' of care regimes

Which is the main 'logic' that separates certain care regimes from others? The construction of regime typologies builds upon understanding 'real' types via 'ideal' types by comparing various essential elements of ideal types to 'the real world' (Arts and Gelissen 2002 based on Max Weber (1949)). The relevant essential elements ('logics') we distinguish from the literature cover two dimensions (for an extensive discussion, see Van Damme and Spijker 2023). Note that these dimensions are not two opposite poles of the same continuum, but two different measures: A) ***defamilialisation*** entails *unburdening families from care responsibilities and family dependencies* (Lohmann and Zagel 2016). This concept has received quite some discussion in the literature as various scholars have used different definitions (Kröger 2011; Leitner and Lessenich 2007; Saxonberg 2013). Here we build upon the most ample definition by Leitner and Lessenich (2007), considering not only the economic independence of individuals, but also social–emotional independence from family relationships. This independence can be reached in various ways, either by paid work, by welfare benefits, or by care services by the state. We focus here on the latter: a substitution through the state of care by family members; B) ***familialism*** covers the extent to which dependencies among family members are fostered. The state can either actively reduce the negative social and economic consequences of such family dependencies (which is referred to as 'supported familialism' or 'explicit familialism') (Leitner 2003). Or, the state can implicitly force people to be dependent upon their family members, which in some countries is reflected in the *obligation* to rely on family support ('implicit familialism'). By family dependencies, we refer to women's economic

[1] Kraus et al. (2010) distinguish between system characteristics such as organization and financing, as well as on cross-national differences in the use and financing of care, and performed two distinct cluster analyses each focusing on one of these dimensions (leading to two typologies: organizational and use of care).

dependence on a breadwinner, children's dependence on their parent's care, and elder people's dependence on their adult children. Familialism, therefore, entails *strengthening the role of the family*. Saraceno and Keck (2010) developed these ideas in their theoretical framework. They propose a threefold conceptualisation: familialism-by-default (when there is little or no state support for family care, meaning the responsibility falls entirely on the family), supported familialism (where the state provides financial support for caregiving but limited 'care in kind', i.e. LTC services that substitute family care or informal care in general)), and defamilialisation (where both care in kind and financial aid are provided to reduce family care responsibilities as much as possible). They also describe a rare fourth cluster. which focuses on 'optional individualism' (as termed by Lohmann and Zagel (2016)) or 'optional familialism'. In this model, both practical services and financial support policies are offered, allowing families the choice to share the caregiving responsibilities between the state and the family according to their preferences (Knijn and Kremer 1997; Leitner 2003).

Provision of services, through time or money, may take place directly by the state or indirectly via the market (which is reimbursed at a later stage). It is important to note that we do not differentiate whether this 'state' support is targeted at the caregiver or the care recipient. Ultimately, cash-for-care benefits provided by the state, regardless of whether they are targeted at the caregiver or the care recipient, alleviate the financial care burden for all (even though the care user may not always use these cash benefits to compensate the caregiver for their incurred costs). Note that care solely provided by the market implies within-country inequalities in care access that we do not consider here (see our reflection in the discussion).

Expectations on 'ideal' types combining defamilialisation and familialism

Based on the policies supporting defamilialisation or familialism, we expect that each of the care 'regimes' of countries we observe, has elements of these dimensions to certain degrees. More specifically, we anticipate identifying at least three 'ideal' types of elder care clusters: a defamilialisation group, a supported familialism group, and a familialism-by-default group. Previous research on earlier periods has identified similar distinctions between groups of countries. For instance, building upon Anttonen and Sipilä (1996), Bettio and Plantenga (2004) ranked countries based on 'eye-balling' scores on a variety of indicators, with data from the late 1990s. Their analysis distinguished two extreme models of social care services: a Scandinavian model of public services and a southern European family care model. Countries in the family care model rank high on informal caregiving, but their formal care arrangements are underdeveloped. In contrast, Scandinavian countries are located at the opposite extreme, with high levels of formal care support. This care regime has universalist public policies, covering a large part of the population, where the state substitutes rather than supports the family in caregiving responsibilities (Bettio and Plantenga 2004). These two extremes—the 'Nordic countries' with generous care institutions versus the 'Southern European countries' with a family care model—are confirmed by Saraceno and Keck's (2010) data, which places countries on a continuum from defamilialisation to familialism-by-default. Saraceno and Keck (2010) performed a cluster analysis, but did not achieve a satisfying classification of countries into distinct groups. In the studies of Bettio and Platenga (2004) and Saraceno and Keck (2010) less consensus was shown about the placement of other studied European countries into groups, as they are more ambiguous and less coherent, depending upon which LTC characteristic is considered (see Van Damme and Spijker 2023 for an overview of different classifications in the literature). Yet, we may expect a third 'ideal' type based on the logic of supported familialism. Bettio and Plantenga (2004) mention that Austria and Germany are characterised by mostly a private care strategy, based on the subsidiarity principle (Esping-Andersen 1990). While both countries rank medium on elder care institutions, there is a large reliance on the family (especially on women) for care provision. In these countries, the emphasis is less on care in kind, but rather on alleviating the financial burden of care. Thus, we expect that Austria and Germany are to be classified in a third 'ideal' type that of supported familialism.[2] Saraceno and Keck (2010) further note that, alongside Germany, the Czech Republic and Hungary have supported familialism characteristics. In the following section, we describe our selection of indicators, which not only update the classifications proposed by Bettio and Plantenga (2004) and Saraceno and Keck (2010), but also allow us to perform a more rigorous empirical country classification into care regimes.

Operationalisation, data, and method

Care institution indicators

In Table 1, we present the indicators used to measure the extent of elder care support by the state, based on Van Damme and Spijker (2023). We consider five indicators to measure the degree of unburdening and strengthening of family obligations. The institutional data on care

[2] Note that current German care policy can be classified under 'optional familialism'(Eggers et al. 2020), but this type of state care support was not yet present during our period of investigation.

Table 1 Elder care institutions and associated indicators for 26 European OECD countries. Data period 2009

Country	Public policy with respect to care for the old				
	LTC services Index[a]	Care leave[b]	Care allowances[c]	Caregiver support index[d]	LTC exp. as % of GDP/unhealthy LE65[e]
Austria	−0.35	0.33	0.33	1.00	0.24
Belgium	−0.21	1.00	0.67	0.50	0.63
Czech Republic	0.15	0.00	0.33	0.75	0.09
Denmark	1.23	0.67	0.33	1.00	1.10
Estonia	0.04	0.67	0.00		0.06
Finland	0.54	0.67	0.33	1.00	0.41
France	0.10	1.00	0.67	0.75	0.23
Germany	−0.13	0.33	0.67	0.75	0.23
Greece	−1.30	0.00	0.00	0.75	0.01
Hungary	−0.45	0.33	0.33	0.50	0.06
Iceland	0.15				0.45
Ireland	0.02	0.33	0.67	1.00	0.70
Italy	−0.74	0.00	0.33	0.50	0.16
Latvia	−1.07	0.00	0.33	1.00	0.07
Lithuania	−0.89	0.00	0.00	0.50	0.19
Luxembourg	0.87	0.33	0.67	1.00	0.38
Netherlands	1.51	1.00	0.67	1.00	1.01
Norway	1.96	0.67	0.67		0.98
Poland	−0.98	0.67	0.33		0.09
Portugal	−1.30	0.00	0.00	0.75	0.03
Slovak Republic	−1.30	0.00	0.67	0.25	0.00
Slovenia	−0.28	0.67	0.00		0.18
Spain	−0.51	1.00	0.33	1.00	0.19
Sweden	1.92	0.67	0.67	0.75	1.05
Switzerland	−0.28	0.00	0.33		0.58
UK	0.60	0.00	0.67	1.00	0.29

a. Index of LTC facilities, 2009: Composed of three standardised items: i) LTC beds in institutions and hospitals, per 1 000 population aged 65 and over; ii) LTC workers as share of the population aged 65 and over (1); and iii) the coverage rate for formal home care for people aged 65 years and over (2). Each indicator is corrected for percentage private spending and then standardised (1); b. Care leave, paid counted twice, unpaid leave counted once (3); c. Sum of financial benefits for caregivers, users, and tax credits divided by 3 (3); d. Caregiver support index. Consists of counselling, information provision, respite care, and training. Each component is scored as yes (1) or no (0), and then we averaged over the four items) (4); e. LTC public expenditure (includes both health and social components) as share of GDP, corrected for number of expected unhealthy years after reaching age 65 (unhealthy LE), 2009. Unhealthy is defined here as being severely limited in carrying out activities in daily living (GALI) (5).

Sources: 1. Health at a Glance: OECD indicators, OECD (2011): Specific tables: 8.7 on Beds, 8.6 on LTC workers, 7.5.1 on Type of financing; 2. Veraschchagina and Bettio (2012) Fig. 4; 3.Colombo et al. (2011: p. 139); 4. Courtin et al. (2014); 5. Health at a Glance: OECD indicators, OECD (2011) and European Health and Life Expectancy Information System (2022): Specific Table: Activity Limitation (SILC, Limited But Not Severely, Not Limited and Severely Limited)*, in 28 European Countries, by Sex, at Age 65, from 2004 to 2016, accessed 18th of October 2022.

arrangements in OECD countries were primarily collected from 2009, where available (see introduction for rationale). We opted solely to include formal institutions (social policies) and not informal ones that reflect the cultural context of the countries under study. Our focus here is specifically on the welfare state's efforts as indicated by their social policies, even though we acknowledge that there might be cultural, economic, and demographic differences between countries. However, addressing these factors would require another paper.

Indicators on elder care institutions

(1) *Long-term care services* Drawing upon Verbakel's (2018) work, we constructed an index that measures LTC services in kind. However, our index deviates from Verbakel's as we focus solely on the availability of LTC services. excluding care needs and financial support. The LTC service index is based on the mean standardised value of three components: (a) the number of LTC beds in institutions and hospitals per 1000 people aged 65 + ; (b) coverage rates for formal home care for people aged 65 years; and (c) the number of LTC workers per 100 people aged 65 + . These data are taken from the report 'Health at a Glance' (OECD 2011), except the home care indicator, which comes from Veraschchagina and Bettio (2012). Note that the indicator on home care is a coverage or take-up rate, although we would have preferred to focus exclusively on care provision, rather than take-up. However, we were unable to find data on home care availability for 2009.

(2) *Care leave* Time provided by the state to support care for an ill relative is measured by the indicator available care leave arrangements, either paid or unpaid. Paid leave is given a weight of two. This indicator, therefore, can have the values 0 (no leave), 1 (unpaid leave only), 2 (paid leave only), and 3 (both paid and unpaid leave). The score is then divided by 3 to obtain a value between 0 and 1. The required information comes from Colombo et al. (2011: Annex 4.A1, p.139).

(3) *Care allowances* We separate the familialism dimension from the defamilialisation dimension by including state financial support provided to either the caregiver or care recipient (summing both, without differentiating between them). Tax credits serve as a functional equivalent to cash-for-care benefits. Hence, we combine these three measures to create an indicator ranging from 0 (no-cash-for-care support) to 3 (financial benefits for caregivers, users, and tax credits). Although no country provides all three types of financial support, this sum is then divided by 3 to get a value between 0 and 1 (Colombo et al. 2011: Annex 4.A1, p.139).

(4) *Caregiver support index* The fourth state service indicator is an index based on whether caregivers utilise any of four related services to improve their situation: counselling, information provision, training, and respite care. Care encompasses various types of interventions including day care services, and in-home respite, to provide temporary relief from the care burden. The goal of such breaks is to restore the caregiver's capacity to manage the care load.[3]

(5) *Long-Term Care expenditure* This is a separate financial indicator that represents a state's general financial support to alleviate elder LTC. It measures public expenditure on LTC (based on both the health and social component) as a share of GDP (OECD 2011), corrected for the total number of unhealthy life years after age 65 (EHLEIS, 2022).

Method

Latent profile analysis

We perform a latent profile analysis (LPA), which differs from traditional cluster analyses (such as k-means) as it is a model-based probabilistic clustering method. Using the associations between the five indicators, we estimate the posterior probabilities per country, given their latent class (or 'ideal' type). In line with the theoretical concept of hybrid countries that possess elements of more than one class, we may identify such cases where countries are equally likely to belong to one or another class (i.e. their posterior probabilities are much lower than 1 for various latent classes). Another advantage of LPA over (hierarchical) cluster methods is that there is no initial partitioning (i.e. meaning cases cannot be reassigned to a better fitting cluster in subsequent stages of the process) (Gore Jr 2000). LPA assumes a normal distribution of the indicator values within each latent class, although other distributions are possible (Vermunt and Magidson 2002).

Each latent class (1, …, K) has a density $f_k(x_i|\mu_k, \sigma_k^2)$, where x_i is an observed value for country i on a continuous indicator m, and μ_k and σ^2_k are its mean and variance in class k. The joint mixture model is given by

$$f(x_i) = \sum_{k=1}^{k} \pi_k f_k(x_i|\mu_k, \sigma_k^2) \quad (1)$$

where π_k is the relative class size, the class probability, or the 'mixture weight'. That is, each country's density in the mixture distribution is a sum of the class-specific normal densities weighted by the class probabilities (Bauer 2022). We estimated various models with a different number of classes and compared their fit. Of the 2-class, 3-class, 4-class, and 5-class solutions, the 3-class solution performed the best. For the 2-class solution, the BIC value was 317, the AIC 292, and the proportion of classification errors was 0.0471; for the 3-class solution, the respective values were

[3] We are aware that there are large differences between countries in the length, types of coverage, and amount of subsidy for respite care. Unfortunately, we have no data on these.

BIC 316, AIC 280, and classification errors 0.0194; for the 4-class solution, BIC 329, AIC 284, and classification errors 0.0532; and for the 5-class solution, BIC 345, AIC 290, and 0.0092 classification errors. Although models with fewer or more than three classes also showed a good fit, we selected the 3-class solution due to its low BIC value, relatively low classification errors, clear separation of countries into distinct latent classes, and the presence of sufficiently large group sizes. Notably, we conducted separate sensitivity checks by excluding Iceland (due to many missing values); replacing the financial support indicator by the amount of minimum care allowance (though this indicator also has many missing values); and adding two indicators of informal care support (confidence in the LTC health care system and intergenerational solidarity norms) (see Online Resource).

Table 2 Latent class profile for elder care institutions for 26 countries, standardised indicators. Data period 2009

	FbD	Moderate DF/SF	Strong DF/SF
Relative size	0.420	0.419	0.161
Indicators			
LTC services (continuous)			
Mean	**-0.640**	0.031	1.552
Care leave[a]			
Low	0.596	0.218	0.081
Medium low	0.195	0.222	0.161
Medium high	0.178	0.358	0.362
High	0.032	0.201	0.396
Mean	**-0.528**	0.268	0.743
Care allowances[b]			
Low	0.446	0.012	0.004
Medium low	0.441	0.398	0.297
High	0.113	0.590	0.700
Mean	**-0.697**	0.506	0.619
Caregiver support index[c]			
Low	0.117	0.006	0.003
Medium low	0.387	0.081	0.059
Medium high	0.328	0.290	0.257
High	0.168	0.623	0.681
Mean	**-0.647**	0.407	0.499
LTC expenditure (continuous)			
Mean	**-0.784**	0.081	1.936

FbD familialism-by-default; *Moderate DF/SF* moderate defamilialisation/moderate supported familialism; *Strong DF/SF* strong defamilialisation/strong supported familialism

See notes under Table 1 for definitions of the indicators and data sources. a. For care leave: Low is equivalent to the standardised value of − 1.125, Medium low − 0.02205, Medium high 0.5293 and High 1.632; b. For care allowances: Low is − 1.789, Medium is 0, High is 0.8944; c. For caregiver support index: Low is − 2.304, Medium low is − 1.232, Medium high is − 0.1607, High is 0.9107. White cells with bold text refer to the lowest mean scores, medium gray means medium mean scores, and the dark gray cells are high mean scores

Findings

Labelling the latent classes

In this section, we theorise the specific characteristics of each care regime. Table 2 presents the latent class profile, on which we base our labelling of classes. We identify three distinct classes, the first class represents 42% of all cases (11 countries), the second covers also 42% (11 countries), and the last class 16% (4 countries) of the total. Examining the membership probabilities for the indicators given membership in the first class, we see that the probabilities for services in kind, financial support, and caregiving responsibilities do not lie with the state. The differences with the third class are striking and mainly oppositional. The first class has the lowest conditional probabilities on all five indicators, whereas the third class has the highest scores on all

Table 3 Latent class posterior predicted probabilities for elder care institutions for 26 countries. Data period 2009

Country	FbD	Moderate DF/SF	Strong DF/SF
Austria	0.05	0.95	0.00
Belgium	0.00	1.00	0.00
Czech Republic	0.85	0.15	0.00
Denmark	0.00	0.00	1.00
Estonia	1.00	0.00	0.00
Finland	0.00	1.00	0.00
France	0.01	0.99	0.00
Germany	0.12	0.88	0.00
Greece	1.00	0.00	0.00
Hungary	0.99	0.01	0.00
Iceland	0.00	1.00	0.00
Ireland	0.00	1.00	0.00
Italy	0.99	0.01	0.00
Latvia	0.98	0.02	0.00
Lithuania	1.00	0.00	0.00
Luxembourg	0.00	1.00	0.00
Netherlands	0.00	0.00	1.00
Norway	0.00	0.00	1.00
Poland	0.96	0.04	0.00
Portugal	1.00	0.00	0.00
Slovak Republic	1.00	0.00	0.00
Slovenia	0.99	0.01	0.00
Spain	0.08	0.92	0.00
Sweden	0.00	0.00	1.00
Switzerland	0.00	1.00	0.00
UK	0.00	1.00	0.00

FbD familialism-by-default; *Moderate DF/SF* moderate defamilialisation/moderate supported familialism; *Strong DF/SF* strong defamilialisation/strong supported familialism

indicators. This justifies labels of ***familialism-by-default*** for the first class versus the label of ***strong defamilialisation and strong supported familialism (strong DF/SF)*** for the third class, respectively. Finally, there is a middle class that has elements of both *defamilialisation* and *familialism*. We would be tempted to label this class ***supported familialism***, were it not for the fact that, against our expectations, LTC expenditure is not high for this regime. We thus refer to this regime as '***moderate***' care support.

In Table 3, we present the predicted probabilities for the countries. We immediately notice some expected regional differences, but we also see within-region differences. The last class (comprising the Nordic countries and the Netherlands) is the most defamilialised, while the first class (containing the Southern and Eastern European countries) is the least, thus again justifying label '***familialism-by-default***' for class 1 and '***strong DF/SF***' for class 3. However, inconsistent with our expectations based on the theoretical framework of Saraceno and Keck (2010), we identify a class characterised by a moderate amount of formal elder care support, as is also shown in Table 2. Note also that the countries in this class belong to the 'North-West European' region rather than the 'Eastern European' region as might have been anticipated.

In Table 4, we see that the average score of this ***moderate*** defamilialisation/familialism care regime is indeed 'moderate' on all of the indicators. Only Ireland has a high ranking on LTC expenditure, which makes it a *hybrid* case in this care regime, while France, Belgium, and Spain have a high ranking on the care leave indicator. The ***moderate DF/SF*** class also includes Iceland, Finland, Luxembourg, Austria, Germany, and the UK, but also Switzerland (with

Table 4 Latent class averages of three latent classes based on care institutions standardised indicators for 26 OECD countries. Data period 2009

Type	Country	LTC services index	Care leave	Care allowances	Caregiver support index	LTC exp. as % of GDP/unhealthy LE65	Total standardised score
1	Netherlands	1.86	1.63	0.89	0.91	1.86	1.43
1	Norway	1.95	0.53	0.89		1.79	1.29
1	Denmark	1.22	0.53	0.00	0.91	2.12	0.96
1	Sweden	1.18	0.53	0.89	−0.16	1.97	0.88
Class average strong DF/SF		***1.55***	***0.80***	***0.67***	***0.55***	***1.94***	***1.14***
2	Iceland	1.07				0.24	0.65
2	Luxembourg	0.73	−0.02	0.89	0.91	0.05	0.51
2	Ireland	−0.22	−0.02	0.89	0.91	0.97	0.51
2	France	0.06	1.63	0.89	−0.16	−0.39	0.41
2	Belgium	−0.15	1.63	0.89	−1.23	0.76	0.38
2	Spain	−0.28	1.63	0.00	0.91	−0.48	0.36
2	Finland	−0.10	0.53	0.00	0.91	0.13	0.29
2	UK	0.35	−1.12	0.89	0.91	−0.20	0.17
2	Austria	−0.01	−0.02	0.00	0.91	−0.36	0.10
2	Germany	−0.24	−0.02	0.89	−0.16	−0.38	0.02
2	Switzerland	−0.86	−1.12	0.00		0.64	−0.34
Class average moderate DF/SF		***0.03***	***0.31***	***0.54***	***0.43***	***0.09***	***0.28***
3	Poland	−0.93	0.53	0.00		−0.77	−0.29
3	Czech Republic	0.06	−1.12	0.00	−0.16	−0.78	−0.40
3	Latvia	−0.97	−1.12	0.00	0.91	−0.85	−0.41
3	Hungary	−0.59	−0.02	0.00	−1.23	−0.85	−0.54
3	Slovenia	−0.40	0.53	−1.79		−0.54	−0.55
3	Estonia	−0.37	0.53	−1.79		−0.88	−0.63
3	Italy	−0.39	−1.12	0.00	−1.23	−0.58	−0.67
3	Slovak Republic	−0.74	−1.12	0.89	−2.30	−1.03	−0.86
3	Portugal	−0.74	−1.12	−1.79	−0.16	−0.94	−0.95
3	Greece	−0.95	−1.12	−1.79	−0.16	−1.02	−1.01
3	Lithuania	−1.04	−1.12	−1.79	−1.23	−0.48	−1.13
Class average FbD		***−0.64***	***−0.57***	***−0.73***	***−0.70***	***−0.79***	***−0.68***

FbD familialism-by-default; *Moderate DF/SF* Moderate defamilialisation/moderate supported familialism; *Strong DF/SF* Strong defamilialisation/strong supported familialism. See notes under Table 1 for definitions of the indicators and data sources. Bold, italic numbers refer to the average of all the standardized values of countries belonging to the same latent class

a score that is closer to the FbD class). While the UK and Ireland in the general welfare state literature are often classified separately due to their liberal market welfare state regime, Ireland sometimes also has been observed to have elements of countries of the 'Mediterranean' region due to it being traditionally a strict Catholic country (Arts and Gelissen 2002). In our LPA results this is not demonstrated as it performs much better in state care compared to the Southern and Eastern European countries. Surprisingly, Spain emerges also as a country in this regime. Its classification within this group appears to be highly influenced by its extensive financial support for elder care leave. We found some slightly different results when not including Iceland or when replacing the care allowance indicator by the minimum amount provided (yet having many missing values). The most important difference is that Germany in this case belongs to the familialism-by-default class instead of the moderate DF/SF regime. When adding two informal care indicators, the classification does not change compared to the main results presented here.

To give more insight into the ranking of countries on the indicators and their care regime membership, we portray the scores of each country on each of the five indicators on the one hand and a general average index score on the other hand (Fig. 1). This index is the average of the standardised values of all five indicators and as such is a general measure of state elder care support. The markers of the countries show care regime membership of each country. We clearly see that for most indicators, the strong DF/SF countries are on the right side of the figures (indicating high support, meaning that the state in these countries offers comprehensive public services for elder care) and the familialism-by-default countries are on the left side of the figures (indicating a lack of formal care support per indicator and in the general index). As all the strong DF/SF countries rank high in both care-in-kind services, as well as financial support for caregiving, we could, to some extent, interpret these countries as also belonging to an 'optional familialism' care regime (Leitner 2003).

Discussion and conclusion: towards a long-term elder care regime typology

In this article, we have empirically constructed three classes of countries based on how care institutions shape intergenerational responsibilities between the state and the family. We built upon the threefold distinction of defamilialisation, supported familialism, and familialism-by-default by Saraceno and Keck (2010), as well as the literature on defamilialisation and familialism, initiated by Leitner (2003) and clarified and summarised by Lohmann and Zagel (2016). Although Saraceno and Keck (2010) suggested to cluster countries in these three major groups, their cluster solution did not show an interpretable solution in line with their theoretical framework. In contrast, we indeed found three 'ideal' types of care regimes ('strong DF/SF'; 'moderate DF/SF'; and 'familialism-by-default'), even though the supported familialism care regime could not be identified (but we found a 'moderate' care support type). Our regimes will be used to explore regional variation in caregiving outcomes across Europe in several articles within this collection.

Given the absence of a comprehensive theoretical framework for care institutions (as well as limited data across numerous country contexts), a typology helps us to gain insight into general contextual care institutions effects. A solid theoretical background facilitates hypothesis testing and consequently enables us to draw reliable conclusions about the impact of the institutional context on various micro-level outcomes (Arts and Gelissen 2002), with most importantly the impact on people's (informal) caregiving as an outcome. Through this empirically tested typology, we aim to contribute to the development of an extensive theoretical framework for care institutions and the potential impact of cross-national differences in state elder care arrangements in Europe.

Strengths and limitations

In this article, we chose to take a bird's eye view of the 'essential' features of regimes or 'ideal' types (Arts and Gelissen 2002 based on Max Weber (1949)) and not delve into within-country heterogeneities. After all, we attempted here to distil the 'essential' elements of care regime types by performing latent profile analyses and consequently identify hybrid countries based on predicted probabilities that point to countries having elements from more than one class (i.e. by predicted probabilities that were not either 0 or 1). However, because the classification of countries into classes was so rigid, we hardly identified hybrid cases based on posterior probabilities; the separation of classes was very high. It is important to also note the limitations and reliability of our care regime typology. Like any regime typology, it is easy to arrive at (slightly) different classifications when one emphasises certain characteristics more than others or incorporates additional characteristics. Furthermore, like any regime typology, there is also the issue of within-country heterogeneity. Our regime typology does not take differences within countries in intergenerational family solidarity (Dykstra and Fokkema 2011), gender, education, income, and wealth (Quashie et al. 2022; Verbakel et al. 2017) and urban versus rural (Glasgow 2000) differences into account. We believe this aspect warrants a separate paper to be left for

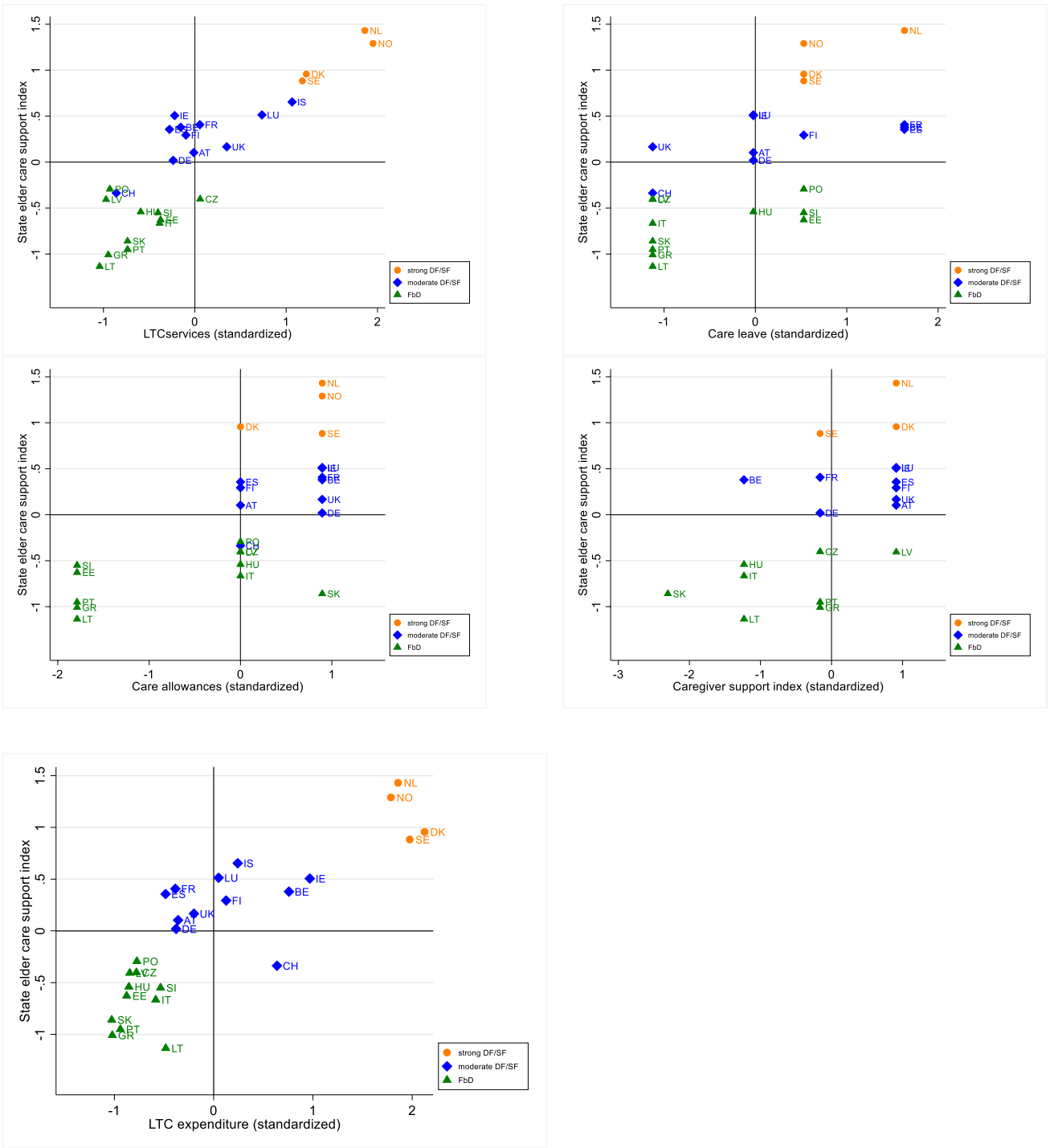

Fig. 1 Standardised scores on five indicators used for classifying 26 countries. Associations with general elder care support index. Data period 2009

future research. After all, all of these heterogeneities seem important, and focusing on one heterogeneity overlooks other important inequalities. In addition, we acknowledge that our country classification is only based on five indicators. The inclusion of additional and different indicators may alter the classification slightly. Note, however, that when including two informal care institutions as indicators, we came to the same classification.

Finally, generosity of policy does not necessarily correlate to social practice, with different cultural norms to

use care policies (for instance indicated by take-up rates) as important drivers of such practices. Our focus here was on the effort of welfare states to alleviate the care burden of its citizens, and we leave the incorporation of take-up rates to future research. Yet note that considering various cultural norms in our sensitivity analyses did not alter the classification.

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Author contributions Maike van Damme wrote the article, Maike van Damme and Jeroen Spijker collected the data from secondary sources, Jeroen Spijker created and structured the extensive excel file with the collection of indicators, Dimitris Pavlopoulos performed the analyses, all three authors read and commented on various versions of the manuscript.

Data availability The data are collected from secondary sources and include data from sources such as the OECD and Eurostat. All collected data on the institutional indicators are available from the authors upon request. Note that at the moment of publication we are also building a website where the data can be downloaded in the future.

Declarations

Competing interests The authors declare no competing interests.

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