



# Advancing methods for life-course research

Capturing life-phases in a categorical variable

*Kathrin Komp*  
*Jürgen H.P. Hoffmeyer-Zlotnik*

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**Department of Sociology**  
901 87 Umeå, Sweden  
Telephone: 090-786 50 00  
[www.umu.se](http://www.umu.se)

# **Advancing methods for life-course research: Capturing life-phases in a categorical variable**

**Kathrin Komp**

Department of Sociology, Umea University, Sweden

**Jürgen H.P. Hoffmeyer-Zlotnik**

Institute of Political Science, Justus-Liebig University Giessen, Germany

## **Abstract**

International comparisons often strive to compare persons in similar situations across countries. In those comparisons, a person's age is frequently used to determine the situation a person is in. However, while information on a person's age is readily available, it allows for only limited conclusions on the life situation. This paper, therefore, suggests using life-phases instead of age when trying to capture an individual's situation. Life-phases are longer-lasting situations that most persons encounter within their lives. This paper discusses how life-phases can be captured with a categorical variable. Moreover, it analyses international survey data to determine the ideal number and characterization of life-phases in Western countries in the early 21<sup>st</sup> century. Finally, it discusses the opportunities for future research that such a categorical variable opens up.

**Keywords:** life-phase; gender differences; country differences; Europe; socio-demographic variable

## **Introduction**

International comparisons often strive to compare persons in similar situations across countries. In those comparisons, a person's age is frequently used to determine the situation a person is in. While information on a person's age is readily available, it allows for only limited conclusions. This is because age is a proxy variable, which means that researchers need to specify what they assume age to stand for (Sorensen, 2006). Often, researchers assume it to give an indication about a person's health status, employment status, or family situation (Gilly & Enis, 1982; Komp et al., 2012). However, while these characteristics relate to age to a certain degree, they are not perfectly represented by it due to within- and between-country variation. For example, women often have children at an earlier age than men do (Coltrane, 1989; Woodward et al., 2006). Another example, the French tend to retire at an earlier age than Danes do (Organisation for Economic Co-operation and Development, 2011). To more accurately capture the situation a person is in, we suggest replacing age with a different socio-demographic variable: the life-phase.

Life-phases are longer-lasting situations that divide the span of time from birth to death into distinct categories (Settersten and Mayer, 1997). They correspond to social roles and activities and are, thus, embedded in social structures (O'Rand, 2003; Mayer, 2004). Early models distinguished three life-phases: (1) youth, which is the time of education and socialization, (2) middle-age, which is the time of paid work (3) old age, which is the time of retirement (e.g. Kohli, 1986; White Riley & Riley, 2000). Recently, however, this model has been challenged for a number of reasons. One main point of criticism is that it is built around the male, work-centred life-course while it disregards the unpaid caring work women do (Fry, 2003; Laslett, 1996). Another major point of criticism is that the life-phases become more heterogeneous: youths do not always start working right after finishing their education, people stop working before the mandatory retirement age and any people are still healthy and active in old age (Guillemard, 1989; Maier et al., 2006). The suitable number and operationalization of life-phases in the beginning of the 21<sup>st</sup> century is thus disputed.

The present paper introduces a restructured life-course model, consisting of seven life-phases. This model accounts for gender-differences in activities, for the increasing heterogeneity within the previously proposed life-phases, and for country-differences in the life-course. On the following pages, we will first develop a life-course model with seven life-phases. Then, we will translate this model into a categorical variable, with each category representing one life-phase. Subsequently, we will use data from wave 4 of the European Social Survey to describe current population structures with this variable. Moreover, we will utilize the categorical variable to explore the added value that the three new life-phases and the gender-sensitive operationalization bring to the life-course model. Finally, we will discuss the strengths and limitations of the restructured life-course model and the corresponding categorical variable, and we will point out new research potentials that the newly introduced variable opens up.

### **Restructuring the life-course model**

Lives have a common structure. Part of this structure is natural, e.g. because physical development follows a certain order. For example, women can usually only become pregnant from some point in their teens on (Brooks-Gunn & Petersen, 1984). Other parts of the structure are socially constructed, e.g. because national laws require children to attend school until a certain age, or because pension regulations force people out of the labour market at a certain age (Devereux & Hart, 2010). The life-course model tries to capture this common structure.

For a long time, the commonly used life-course model was a tripartite one. This model uses the engagement in paid work to split the life-course into three distinct phases. The first phase, youth, describes the time before entering the labour market. It is usually dedicated to education and socialization. The second life-phase, middle-age, stands for the time when people engage in paid work. The last life-phase, old age, comprises of the years after retirement from paid work. These years are assumed to be characterized by declining health (Henretta & Lee, 1996; Kohli, 1988, White Riley & Riley, 2000).

The tripartite life-course model is popular due to its undisputed merit, which stems from its simplicity. This model is easy to understand, to apply, and to draw straightforward conclusions from. Because of these features, it is used as the basis for dependency ratios (Komp, forthcoming b). Dependency ratios are indicators that describe the age structures of populations. They are commonly used to describe the progression of population ageing and the pressure that population ageing exerts on pension schemes (Brucker, 2008; Calasanti & Bonanno, 1986). Therefore, they receive considerable attention in current political discussions.

Despite its merit, the tripartite life-course model also receives criticism. First, it is criticized for being work-centered. The model solely uses the engagement in paid work to split up the life-course, and it assumes that other activities and characteristics align with this split (Komp, forthcoming b). Scholars in gender studies point out that such a structure is based on a male perspective (Heinz & Krüger, 2001). While men's life-courses are strongly shaped by paid work, women's life-courses are strongly influenced by additional factors. Especially informal care-giving to kin has such a structuring effect for women, since they might episodically provide care at any age (Grenier, 2012; Moen et al., 1993). Therefore, a gender-neutral perspective would need to equally use paid work and informal care-giving for defining life-phases (Komp & Hoffmeyer-Zlotnik, 2011). Scholars in ageing research also criticize the work-centrism, pointing out that lives changed since the tripartite model was introduced. These scholars are particularly interested in the increasing healthy life-expectancy, which entails that retirement and the onset of poor health no longer coincide. Instead, the citizens of Western countries can nowadays expect to be healthy for years after retirement (Komp, forthcoming b). Scholars in ageing research, therefore, suggest adding the health status as an additional structuring variable to the life-course. They propose splitting the life-phase of old age in two, with the first part representing the healthy life-years after retirement ("third age" respectively "young old"), and the second part representing the retirement years spent in poor health ("fourth age" respectively "old old"; Laslett, 1996; Neugarten, 1974).

Second, the tripartite life-course model is criticized for oversimplifying working careers.

This model assumes that people start working right after they finish education, and that they remain in employment until they retire. Recent studies, however, show that working careers are more complex than this model suggests (Komp, forthcoming b). Many youths do not immediately get a job after finishing education and, therefore, transition a gap between the exit from the educational system and the entrance into the labour market (Bell & Blanchflower, 2010; Mayer & Hillmert, 2003). Moreover, working careers are often interrupted, e.g. because women need time to provide care to their kin, or because of spells of unemployment. Such interruptions can occur repeatedly, and they can also lead to people leaving the labour market for good (Brandt & Hank, 2011; Lewis et al., 2008; Theodossiou & Zarotiadis, 2010). Finally, retirees will have to consider working for pay more and more often. This phenomenon has already been documented for the United States, where the loss of pension benefits caused retirees to enter into paid work again (Bass, 2011). In Europe, this phenomenon started to gain attention in the wake of the economic crisis of 2008, and it promises to become more common in the future (Komp, forthcoming b).

The points of criticism raised suggest the necessity for a restructured life-course model. This model would have to treat care-giving to kin as an activity on a par with the engagement in paid work, and it would have to use health status to split the period of old age in two. Additionally, the restructured model would have to include additional life-phases that capture the possibilities of (a) inactivity after education, (b) inactivity during middle-age, and (c) paid work after retirement. Finally, the new model needs to be based on a new understanding of the life-course. It can no longer be considered a model that portrays an inevitable and universally valid sequence of activities. Instead, it has to be considered a toolbox that can describe a range of possible activities, which can be ordered in any number of sequences. Figure 1 displays the old and the restructured life-course model.

[Figure 1 about here]

The restructured life-course model displayed in Figure 1 includes seven life-phases: the three life-phases previously described, and four new ones. The three life-phases previously described (youth, middle-age, and old age) were redefined to consider paid work and informal caregiving. The four new life-phases (transition stages I-IV) were inserted to capture new life-situations that were not yet included in the tri-partite life-course model. Three of these four phases are located in between middle-age and old age, which shows that especially the time in between, on the one hand, the entrance into the labour market respectively the starting of a family and, on the other hand, health decline in old age became more heterogeneous. The resulting restructured life-course model is rather complex. This complexity is visible in the number of life-phases, the definition of the life-phases, and the range of possible life-phase sequences that might occur. We can, therefore, consider it an extensively restructured life-course model. Throughout the paper, we will study in how far this extensive restructuring enhances our understanding of today's lives. Based on our findings, we will later on delete those changes that do not enhance our understanding. We will, then, capture this new insight in a condensed version of the restructured life-course model.

### **Constructing the variable**

The construction of the variable "life-phase" is a straightforward task, because its characteristics are directly derived from the life-course model. The number of categories in this variable equals the number of life-phases in the life-course model, and each category derives its name and description from one of the life-phases. For the time being, we will draw from the extensively restructured model, which means that we will create a total of seven categories. After we finalized our analyses, we will consider the implications of our findings for the life-course model and suggest a consolidated version of the model and the variable.

[Table 1 about here]

Table 1 provides an overview of the category titles, descriptions, and characteristics. This table shows that we need a total of six characteristics to define the categories: the participation in the educational system; the participation in a compulsory military service; the engagement in paid work; the provision of informal care; the status of a retiree; and the health status. We will consecutively discuss each of these characteristics in the next paragraphs.

The first characteristic is the participation in the educational system. Such participation means that an individual is enrolled in a school, a university, a university of applied sciences, or a comparable programme. Through this enrolment, individuals, among other things, learn skills they need at the labour market and they take another step in their socialization process. Socialization is the process during which individuals internalize norms, values, and behavioural patterns. Thereby, they learn to navigate their specific culture and society (Crosby & Grossbart, 1984; Morawski & St. Martin, 2011). During the first years of life, socialization primarily occurs within the family context. Later on, educational institutions also take on a socializing function. Moreover, peers act as agents of socialization throughout the entire life-course. In contrast to peers, however, families and educational institutions knowingly and intentionally take on the task of socialization. We can, therefore, focus on these two locations of socialization while neglecting peer socialization when we construct the variable on life-phases.

The second characteristic is the enrolment in a compulsory military service. Such a compulsory service exists only in some countries, for example in Germany until 2011 (Bauer et al., 2012), and it usually applies to men only. Sometimes, the enrolment in this service can also be avoided by signing up for community service instead (Bauer et al., 2012). In the context of the variable on life-phases, this compulsory military service is important because it shows parallels to the educational system. In both cases, there is an obligation for enrolment, and the participation brings individuals gains in their education and socialization. In contrast to the educational system, however, the education and socialization in the military system is strongly focussed and it mainly addresses individuals in their role as citizens of their country. For the purpose at hand, we can

therefore consider compulsory military service as a functional equivalent to the enrolment in the educational system. If the military service is voluntary, however, then the equivalence is no longer given. In that case, it has to be considered an equivalent to an occupation.

The third characteristic is the engagement in paid work. Such engagement can occur at many stages of life. Pupils sometimes work to supplement their pocket money (Miller et al., 1991), and students might work to cover their student fees or their living expenses (Moreau & Leathwood, 2006). In middle-age, paid work might be the main productive activity, or it might be an add-on to care tasks (Hakim, 2006). In old age, finally, paid work might be necessary when the income from pensions is low (Bass, 2011). This ubiquity of paid work throughout people's life-courses raises the question when paid work is the main activity, and when it is secondary. Scholars developed two main approaches to answering this question: an objective and a subjective one. The objective approach centers on the number of working hours. Some scholars use this number as an indicator for the strength of the engagement in paid work, with a low number signalling secondary importance (e.g. Plaisier et al., 2008). The subjective approach draws on people's self-perception. People might judge their activities according to their personal values and preferences instead of their time use (Hakim, 2006), which entails that people can only decide for themselves what their main activity is. Consequently, some scholars look to questions about self-defined main activities when they want to know what role paid work plays in a person's life (e.g. Erlinghagen & Hank, 2006).

The fourth characteristic is the provision of informal care, meaning the activity of care-giving to friends or kin without payment (Ankri & Cassou, forthcoming). Like paid work, also informal care-giving can occur at almost any age. Children might already take on the role of a care-giver if their parents are e.g. in poor health or addicted to illegal substances (Burnett et al., 2006). During youth or middle-age, people might have children, which require care especially during the first years of life. Later on, people might provide informal care to their frail parents or partners (Bolin et al., 2008; Utz et al., 2002). Thus, informal care-giving resembles the engagement in paid

work in that it is ubiquitous in the life-course. Consequently, informal care-giving is another activity that is challenging to delimitate. This challenge is enhanced by the fact that informal care-giving merges seamlessly with acts of friendship and neighbourhood help. Some scholars, therefore, conclude that informal care-giving is an activity that transcends or cuts across established life-course structures, such as the ones described in the tri-partite life-course model (Calasanti, 1993; Grenier, 2012; Laslett, 1996). To nevertheless account for informal care-giving when defining life-phases, one can take a two-fold approach. First, one can underline the existence of activities that cut across life-phases. Second, one can utilize legal responsibilities for a person in need of care as a proxy for a strong engagement in informal care-giving. Such a responsibility is usually given for one's children, as long as they are minors. Additionally, such a responsibility is sometimes also given for frail older people because of long-term care insurances, as they exist for example in Germany and in the Northern Italian province of Bolzano Alto-Adige (Komp et al., 2009; Komp & Hoffmeyer-Zlotnik, 2011).

The fifth characteristic is the status of a retiree. This status can comparatively easily be determined when individuals have an uninterrupted work biography. In this case, people obtain the status of a retiree when they withdraw from paid work for good. When people have interrupted work biographies because of e.g. episodes of unemployment or care-giving obligations, however, the status of a retiree is more intricate to determine. In this case, the finality of a withdrawal from paid work can only be determined in hindsight. Consequently, the withdrawal from paid work by itself is an insufficient indicator for retirement. It should, therefore, be combined with an additional indicator for retirement, such as the receipt of old age pensions. When people abstain from paid work altogether, e.g. because they provide care to frail relatives or because they run a household, the status of a retiree becomes even harder to determine. In this case, no withdrawal from paid work can occur, and people might not be eligible for pension benefits. We recommend using the national mandatory retirement age as a demarcation line for retirement for these individuals (Komp et al., 2009; Komp & Hoffmeyer-Zlotnik, 2011).

The sixth and final characteristic is health status. This status is usually measured in one of three ways. First, it is sometimes measured by looking at specific illnesses, as they are either reported by individuals or diagnosed by general practitioners (see e.g. Ankri & Cassou, forthcoming). Second, it is sometimes captured in questions about self-rated health. These questions do not only collect information on objective health, but also on individual coping strategies and attitudes towards health limitations (Filipkowski et al., 2010; Levin et al., 2009). Third, health status is sometimes determined by looking at health-related limitations in daily activities. Such an approach is useful when one wants to consider what effects poor health has (Komp et al., 2009).

## **Method**

### Data

To test the restructured life-course model, we will analyse data from wave 4 of the European Social Survey. This data was collected in 2008 from individuals aged 15 years and older in 31 countries. From this dataset, we selected information on individuals in 10 European countries, representing the different types of welfare states: Finland and Sweden for the social-democratic type, the United Kingdom and Ireland for the liberal type, Germany and France for the conservative type, Greece and Spain for the rudimentary type, and Poland and Estonia for the post-paternalistic type (Cerami, 2006; Esping-Andersen, 1990; Ferrara, 1996). Scholars argue that welfare state types relate to population structures, because they influence the development of the same, and they influence how population structures are interpreted (Grenier, 2012; Komp et al., 2009; Mayer, 2001). The ten countries together include information on 20 893 individuals. After deleting cases with missing values, there still is information on 20 064 individuals in the dataset. An analysis of the missing values showed that the cases were missing at random. The resulting number of cases per country and gender is displayed in Table 2.

[Table 2 about here]

## Variables

For this study, we will need four variables: gender, country, and two categorical variables capturing life-phases. The variables ‘gender’ and ‘country’ are included in the European Social Survey. The variable ‘gender’ has the categories ‘male’ and ‘female’. The variable ‘country’ has the categories ‘Estonia’, ‘Finland’, ‘France’, ‘Germany’, ‘Greece’, ‘Ireland’, ‘Poland’, ‘United Kingdom’, ‘Spain’, and ‘Sweden’. The variables capturing life-phases are not included in the European Social Survey and, therefore, need to be constructed from the information included in this dataset. One of these variables captures life-phases according to the model we described in Table 1, which considers paid work and informal care-giving as activities that structure the life-course. The other variable captures life-phases according to a life-course model that pays attention to the structuring effects of paid work, but neglects the structuring effects of informal care-giving. In the following paragraphs, we will first describe the variable that is based on considerations of paid work only. Then, we will describe how we changed this variable to also capture the effects of informal care-giving.

We started out by constructing the variable that pays attention to paid work but neglects the effects of informal care-giving. For this variable, we first constructed the category “*youth*” by including all individuals that described their main activity during the last seven days as “being in education”. We then added those individuals to this category that were in compulsory military service or in compulsory community service. To identify these individuals, we first looked at the age-distribution of all individuals in countries with compulsory military service, who claimed that “community or military service” had been their main activity during the last seven days. The age-distribution revealed two groups: individuals in one group were 27 years or younger, while individuals in the other group were in their 50s or older. We coded those individuals doing community or military service, who were aged 27 years or younger and who lived in countries with compulsory military service, as youths.

The second category, the “*transition stage I*”, was coded as follows: individuals who (a) described their main activity during the last seven days as “unemployed” or “homemaker, looking after children or other persons”, (b) had never worked, and (c) were below the mandatory retirement age.

The third category, “*middle-age*” comprises all those individuals, who stated that their main activity during the last seven days was “in paid work (or away temporarily) (employee, self-employed, working for your own family business)”. Moreover, we were included career soldiers in this category. We considered all those individuals career soldiers, who either did military or community service in a country without compulsory military service, or who were in the older age group of soldiers in countries with compulsory military service.

The fourth category, the “*transition stage II*”, consists of two groups of people. The first group are all those unemployed individuals who had worked at some point in the past. The second group are people who described their main activity during the last seven days as “homemaker, looking after children or other persons”, had worked before, and were below the mandatory retirement age.

The fifth category, the “*transition stage III*”, summarized individuals who show two characteristics. First, they either describe their main activity during the last seven days as “retired”, or they are “homemakers, looking after children or other persons” while being above the mandatory retirement age. Second, they state that they did any paid work during the last seven days.

The sixth category, the “*transition stage IV*” comprises of individuals with three common characteristics. First, they describe themselves either as “homemakers, looking after children or other persons” while being above the mandatory retirement age, or as retirees. Second, they did not do any paid work during the last seven days. Third, they describe their health status as very good, good, or fair.

The seven and last category, “*old age*”, consists of two groups of people. The first group is the one of all those individuals who described their main activity during the last seven days as

“permanently sick or disabled”. The second group contains individuals who (a) describe themselves either as “homemakers, looking after children or other persons” while being above the mandatory retirement age, or as retirees, (b) did not do any paid work during the last seven days, and (c) describe their health status as “bad” or “very bad”.

The second variable capturing life-phases can be constructed rather easily on the basis of the first categorical variable we just described. This second variable differs from the first one in that it also considers informal care-giving an activity that structures the life-course. For our analyses, we operationalized informal care-giving as having children under age. We can simply add this characteristic to the variable by enacting two changes. The first change is that people who have children under age are re-grouped into the category “*middle-age*”, if they have not yet been in this category before. The second change is that people who are in the category “*transitional stage I*” in the first version of the categorical variable, but who have had children at some point, are re-grouped into the category “*transitional stage II*”.

### Analysis

We analyse the data in two steps. In a first step, we focus on the variable capturing life-phases that were operationalized using the engagement in paid work and informal care-giving. We apply a population weight to the data and then run frequencies for the life phases: once split by country, and then once split by gender and country. In a second step, we compare the two operationalizations of the variable capturing life-phases: the one based on paid work and informal care-giving, and the one based on paid work only. To compare these operationalizations, we combine information on both variables in cross-tables. The percentages in the diagonal of the cross-tabulation indicate how many individuals are in the same category in both operationalizations. We compile such cross-tables for the entire dataset and then split by gender and country.

### **Findings**

Figure 2 shows the prevalence of life-phases per country. This figure reveals similarities and differences between the countries. The similarities lie in which life-phases are most pronounced, while the differences lie in the extent of the life-phases and in the existence of transition stage I. In all countries in our sample, middle-age is the most common life-phase, amounting to 56 to 74 per cent of the population. The share is particularly low in Poland and particularly high in Greece. The second biggest life-phase is ‘transition stage IV’, which is the time of good health after retirement. The percentage of individuals in this life-phase ranges from 12 per cent in Greece to 24 per cent in Finland. The third most common life-phase is ‘transition stage II’, which is the time of inactivity before retirement. This life-phases comprises 2 (Finland and Sweden) to 11 (Ireland) per cent of the populations in our sample. On the other end of the scale are the transition stages I and III. Transition stage I, which is the time between education and the entrance into the labour market, respectively child-bearing, exists in only some of the countries. In Greece it makes up for 5, in Spain for 3, and in Ireland and France for one per cent of the population. In the other countries in our sample, it does not exist at all. Transition stage III is even less pronounced to a degree that it is virtually inexistent in any of the countries in our sample. These insights indicate two things. First, while paid work after retirement is a current topic, it is not yet common enough to be included in the restructured life-course model. We can, therefore, delete this life-phase in order to construct a parsimonious version of the model. Second, the number of life-phases we need to pay attention to differs between countries. In Greece, Spain, Ireland, and France we would need 6 life-phases, while 5 life-phases are sufficient for the other countries in our sample.

[Figures 2 and 3 about here]

The conclusions on the accurate number of life-phases become even more concise when we consider the situation of men and women separately. Such a perspective reveals that the prevalence of life-phases does not only vary across countries, but also across gender. *Transition stage I*, for

example, is much better pronounced among women than among men. This stage captures individuals who left the educational system, and neither entered the labour market or had children. Figure 3 illustrates that this stage is particularly common among Spanish and Greek women. To a smaller extent, it also exists among French women, Greek men, Irish men and women, Polish women, and British men. Moreover, this Figure shows that *transition stage II* is also more common among women than among men in most countries. This stage stands for the time that people of working age spend unemployed or as a homemaker without young children. The gender-difference is particularly well-pronounced in Spain and Greece, where it amounts to 12 respectively 6 per cent. In the Northern countries Sweden and Finland, in contrast, there is no gender-difference in the prevalence of this life-phase. Two per cent of the men and women in both countries were in this phase in 2008, which is the lowest share in our sample. This gender-differentiated perspective on life-phases underlines the gender-specificity of life-courses. When we look at the life-course of women in Southern Europe, we should include ‘transition stage II’ in the model. When considering men in Southern Europe or the inhabitants of the other European regions, we can exclude this life-phase.

Table 3 compares the two ways of operationalizing the life-phases. It shows in how far people move to a different life-phase once one adds informal care-giving to the list of productive activities that structure the life-course. Values of 100 per cent in the diagonal of this table indicate that people belong to the same life-phase in both operationalizations of the variable. The lower the values in the diagonal are, the bigger the difference between the operationalizations of the variable. The values in the cells off the diagonal give information on differences between the operationalizations. These values tell us which shifts occur in the variable when informal care-giving is introduced into the process of operationalizing life-phases.

[Table 3 about here]

The table reveals that changes in the operationalization affect only parts of the life-course model. Youth, middle-age, transition stages III and IV and old age are largely unaffected by the details of the operationalization. More than 92 to 100 per cent of the people in these life-phases remain in the same category when the operationalization is changed. This finding indicates that studies on people in the educational system, in paid work, or in retirement can use the more parsimonious life-course model based on paid work only. Studies on transition stages I and II, however, should be sensitive towards the structuring effects of informal care-giving. On 36 respectively 45 per cent of the individuals remained in these stages when the operationalization changed. About one third of the people who were in ‘transition stage I’ changed to ‘middle-age’, and another third changed to ‘transition stage II’. In more concrete terms this means that many people who had never worked after finishing their education were either raising children or had been doing so. The same rationale is reiterated by the changes in ‘transition stage II’. When informal care-giving is added to the operationalization, about every second person changes from ‘transition stage II’ to ‘middle-age’. This means that about 50 per cent of the people who withdrew from paid work before retirement did so because they are raising children.

To get a more detailed impression of these differences, we compared the operationalizations for each gender and country separately. Table 4 presents the results of these comparisons. It shows how many respondents remained in the same life-phase when the operationalization changed. This value, therewith, equals the value of all the cells in the diagonal of Table 3. The closer this value is to 100 per cent, the less difference does the inclusion of informal care-giving in the operationalization make.

[Table 4 about here]

Table 4 shows that the details of the operationalization affect only a small share of the people in our sample. 92 per cent of these individuals remain in the same life-phase when informal

care-giving is added to the operationalization. This share is ten per cent higher among men than among women. The life-phases of 97 per cent of the men in our sample are independent of the details of the operationalization. In Estonia and Spain, the percentage even reaches 99 per cent. Among women, in contrast, only 87 per cent are consistent in their life-phases. This value is comparatively low in Ireland (79 %) and Greece (82 %), and it is comparatively low high in Sweden (96 %) and Finland (93 %). These findings suggest that we can neglect informal care-giving for the sake of parsimony in some contexts. When we study men, for example, it seems justifiable to neglect informal care-giving in the operationalization of the life-phases. The same conclusion holds true for women in Northern Europe. For women in the rest of Europe, however, informal care-giving has a stronger structuring effect on the life-course.

## **Discussion**

Life-course research is a flourishing field of study, which also receives attention outside the academic community. For example, policy-makers recognized that efforts to counter population ageing will need to employ a life-course perspective (Esping-Andersen et al., 2002; Komp, forthcoming a). This working paper contributes to these studies and discussions, in that it advances their methodological basis.

In this paper, we developed and tested the life-course model. The original model consisted of three life-phases, which were constructed around the engagement in paid work. We looked into discussions on the number and definition of these life-phases, and we expanded the life-course model accordingly. The restructured model we came up with consisted of seven life-phases, which were defined around paid work, informal care-giving, education, and health status. Then, we tested the restructured life-course model with international survey data.

Findings suggest that the suitability of each version of the life-course model differs across countries and gender. In Northern Europe, for example, there is little economic inactivity before retirement (transition stage II), while this situation is well-pronounced in Continental Europe.

Another example, an orientation phase after finishing education and before entering the labour market and having children (transition stage I) is common among Southern European women, but not that common among men in the same countries. Moreover, the extended operationalization of life-phases, which also includes informal care-giving, turns out to make an empirical difference in only some cases. It is relevant for women of working age, who do not participate in the labour market in Southern, Eastern, Continental, and Anglo-Saxon Europe. It does not make a big difference, though, for men, the inhabitants of Northern Europe, and people in education, in retirement, or in paid work. However, all countries and both genders in our sample have in common that transition stage III, which is a phase of paid work after retirement, is weakly developed. The latter finding is in line with previous research, which states that this phenomenon is theoretically important, but not yet widespread in Europe (see Komp, forthcoming b).

The findings help us to decide in how far the restructuring of the life-course model improves our understanding of the life-course in current Western societies. Considering the findings, it seems that some steps of restructuring were more helpful than others, with the relevance differing across countries and gender. When we now remove the less helpful parts of the restricting process, then we end up with a more parsimonious model. Such parsimony is desirable, because the model is supposed to represent reality in an accurate yet simple way. One important step in the simplification process is that we can remove transition stage III, meaning the time of paid work after retirement, from the model. When we remove this life-phase, we end up with a split of old age in two: a time of good health after retirement (transition stage IV), and a time of poor health after retirement (old age). Such a split is in line with the current mainstream discussions in gerontology. These discussions suggest exactly such a split when talking about recent changes in old age, and they also developed names for these new parts of old age. The time of good health after retirement is called 'third age' or a time for being 'young old'. The time of poor health after retirement, in contrast, is called 'fourth age' or the time for being 'old old' (e.g. Carr & Komp, 2011; Laslett, 1996; Neugarten, 1974).

[Table 5 about here]

Further steps of simplifying the model require us to differentiate between gender and regions. Table 5 gives an overview of the most parsimonious model that we could construct based on our findings. We found that depending on which population group we focus on, we might need four, five, or six life-phases. Moreover, we found that depending on the population group, we might also need to use an operationalization that either includes or excludes the engagement in informal care-giving. This conclusion that different life-course models exist underlines what critical perspectives in life-course research state: that people and their life-courses differ, and that we can therefore not construct one single model capturing everybody's lives (Grenier, 2012).

Even though this paper has got its merits, it also has some limitations. First, it studies a limited number of countries only. More countries from Europe and also from outside the European region might reveal different life-course patterns. We should, therefore, be careful when applying the insight gained in this study onto other countries. Second, the study analyses data from one point of time only, which means that the findings reflect the situation in 2008. Other life-phases and life-course structures might have existed in the past, and they might also emerge in the future. We should keep this possibility in mind when we use the models developed in this paper to data from other years. Third, the paper at hand used a cross-sectional perspective, while the life-course as such is a longitudinal phenomenon. This analysis is therefore useful for developing a tool to capture the life-course. However, it does not exhaust all the potential that life-course research presents. In future studies, the variable we developed still needs to be tested in longitudinal studies, and it might have to be adjusted after such tests.

There are numerous research contexts for which the categorical variable capturing life-phases is useful. First, this variable allows people to quickly gain an overview of the structure of a population. This can be done with descriptive statistics. Second, it allows for choosing individuals

who are in comparable situations for country-comparative research. This variable would, thus, be used in the initial stage of the analysis process. Third, the variable can be used to categorize situations, which is helpful for sequence analyses. Such analyses can show us whether people transition through all life-stages, and in which order life-phases occur. Fourth, the variable could be used as an explanatory variable in various analyses, seeking to explain e.g. activity patterns over the life-course.

Summing up, this paper contributes to life-course research by advancing its methodological foundation. We suggest a categorical variable that captures life-phases, and we indicate how this variable can be adopted to fit country- and gender-differences in the life-course. Moreover, we point out several research contexts and kinds of analysis for which the variable is helpful. Future studies can, therefore, use this variable as a flexible tool that can be utilized for various research purposes. Considering its wide usability, it might even be worthwhile to include this variable as a generated variable in international datasets.

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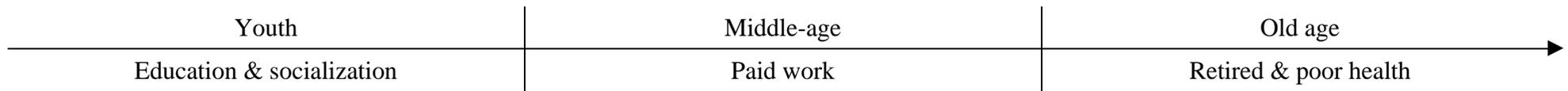
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Figure 1: Life-course models

*Tri-partite life-course model*



*Extensively restructured life-course model*

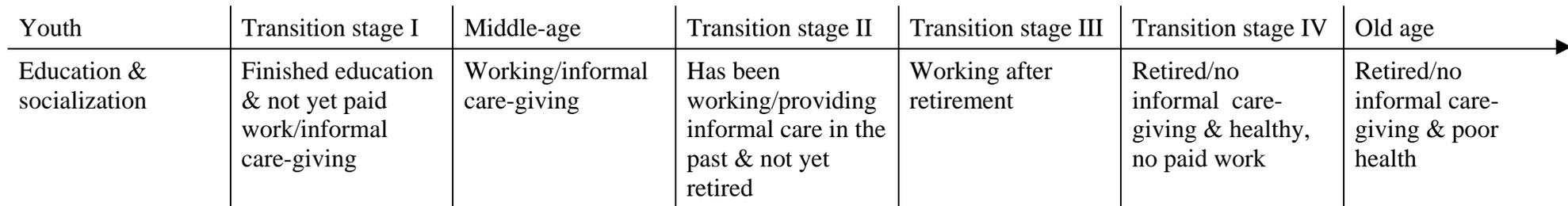


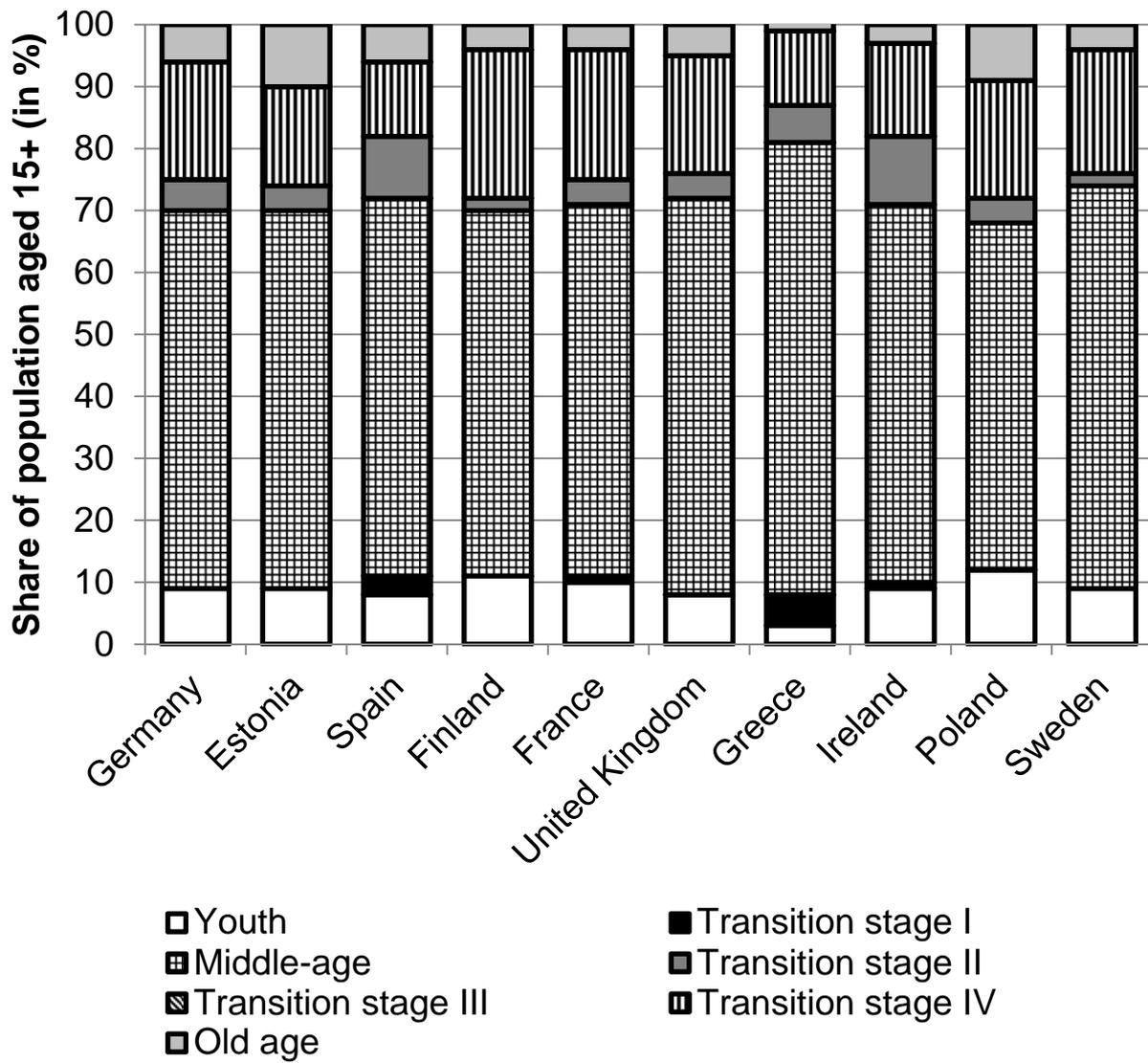
Table 1: The categories of the variable “Life-phases”

<b>Title of category</b>	<b>Description</b>	<b>Characteristics</b>
Youth	Education & socialization	- before entering the educational system or in the educational system (school, university, ...) or in compulsory military service
Transition stage I	Finished education & not yet paid work/informal care-giving	- not in the educational system or compulsory military service - no informal care-giving - no engagement in paid work - has not been working and/or providing informal care in the past
Middle-age	Working/informal care-giving	- engagement in paid work (employment, self-employment, ...) and/or providing informal care
Transition stage II	Has been working/providing informal care in the past & not yet retired	- no informal care-giving - no engagement in paid work - has been working and/or providing informal care in the past - no status of a retiree
Transition stage III	Working after retirement	- status of a retiree - no informal care-giving - engagement in paid work
Transition stage IV	Retired/no informal care-giving & healthy, no paid work	- status of a retiree - no informal care-giving - no engagement in paid work - good health status
Old age	Retired/no informal care-giving & poor health	- status of a retiree - no informal care-giving - no engagement in paid work - poor health status

Table 2: Sample size, per country and gender

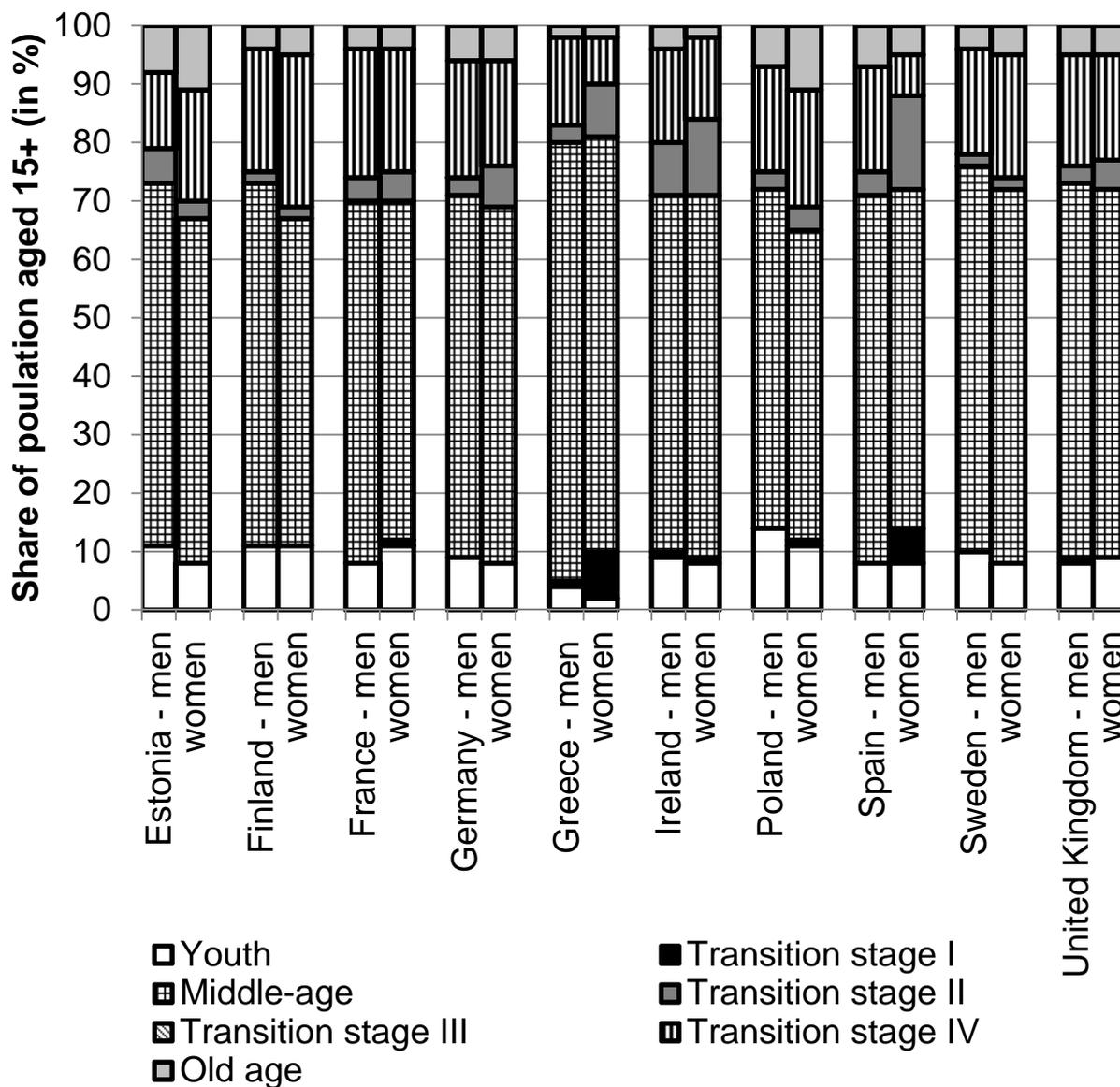
<b>Country</b>	<b>Sample size</b>		<b>Total</b>
	<b>Women</b>	<b>Men</b>	
Estonia	925	676	1601
Finland	1098	1044	2142
France	1103	921	2024
Germany	1225	1406	2631
Greece	1032	893	1925
Ireland	903	771	1674
Poland	808	750	1558
Spain	1269	1198	2467
Sweden	882	896	1778
United Kingdom	1216	1048	2264
<b>Total</b>	<b>10461</b>	<b>9603</b>	<b>20064</b>

Figure 2: Life-phases in European countries, in 2008



(own calculations with data from the European Social Survey)

Figure 3: Life-phases in European countries per gender, in 2008



(own calculations with data from the European Social Survey)

Table 3: Correlation between the two ways of operationalizing the variable “life phases” (in %)

		Life-phases: Operationalization based on paid work and informal care-giving							Total
		Youth	Transition stage I	Middle-age	Transition stage II	Transition stage III	Transition stage IV	Old age	
Life-phases: Operationalization based on paid work	Youth	97	0	3	0	0	0	0	100
	Transition stage I	0	36	30	34	0	0	0	100
	Middle-age	0	0	100	0	0	0	0	100
	Transition stage II	0	0	55	45	0	0	0	100
	Transition stage III	0	0	0	0	100	0	0	100
	Transition stage IV	0	0	1	0	0	99	0	100
	Old age	0	0	8	0	0	0	92	100

Table 4: Overall correlation between the two ways of operationalizing the variable “life phases” (in %), per gender and country

<b>Country</b>	<b>Correlation (in %)</b>		
	<b>Women</b>	<b>Men</b>	<b>Total</b>
Estonia	92	98	95
Finland	93	99	96
France	90	97	93
Germany	89	97	93
Greece	82	97	89
Ireland	79	92	86
Poland	88	98	93
Spain	83	99	91
Sweden	96	98	97
United Kingdom	87	97	91
<b>Total</b>	<b>87</b>	<b>97</b>	<b>92</b>

Table 5: Most parsimonious life-course model, by gender and region

<b>Population group</b>	<b>Model</b>
Men and women in Northern Europe	4 life-phases: youth, middle-age, third age (= transition stage IV), fourth age (= old age) operationalization based on paid work, neglecting informal care-giving
Men in Southern, Eastern, Continental, and Anglo-Saxon Europe	5 life-phases: youth, middle-age, transition stage II, third age (= transition stage IV), fourth age (= old age) operationalization based on paid work, neglecting informal care-giving
Women in Eastern, Continental, and Anglo-Saxon Europe	5 life-phases: youth, middle-age, transition stage II, third age (= transition stage IV), fourth age (= old age) operationalization based on paid work and informal care-giving
Women in Southern Europe	6 life-phases: youth, transition stage I, middle-age, transition stage II, third age (= transition stage IV), fourth age (= old age) operationalization based on paid work and informal care-giving