TEMPORARY DESTANDARDISATION OF PARTNERSHIP FORMATION AND CONTINUOUS STANDARDISATION OF FERTILITY IN THREE GGS COUNTRIES

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ABSTRACT: *The hypothesis of destandardisation, which was popular in the 1980s and 1990s, has been revised and modified since the turn of the millennium because it has not been supported by empirical research (Kohli 2007). Destandardisation is still assumed to affect family formation more than other areas of the life course, though fertility and partnership appear to be developing differently and there are indications that a new phase of restandardisation has commenced.*

Comparative analysis of the life course using sequence analysis is scarce, despite this methodology often being regarded as superior to event history analysis when analysing social change (Elder 1985, Aisenbrey and Fasang 2010). To close this gap in research, this paper tests the hypothesis of destandardisation suggested by prior research in different European countries using sequence analysis. Family formation in three countries from different European regions (except for Eastern Europe) is evaluated using data from the first wave of the Generations and Gender Survey and simple versions of Optimal Matching Analysis to calculate average dissimilarities.

The main conclusion of this study is that destandardisation affected partnership formation, not family formation, and was only a temporary phenomenon. Because of the limited range of the available data, this research should be considered a starting point for further analysis on more countries, in order to assess generalisability, as country differences are apparent and the applicability of hypotheses potentially varies in different institutional contexts.

Keywords: Destandardisation, standardisation, life course research, family formation, fertility, partnership, sequence analysis, Optimal Matching Analysis, Generations and Gender Survey

INTRODUCTION

In the debate about changing European societies it is often hypothesised that living arrangements pluralise and life courses destandardise (Kohli 1985). De-

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standardisation in its most abstract form is defined as increasing dissimilarity between life courses (Elzinga and Liefbroer 2007). It is related to differentiation and pluralisation, and possibly – though not necessarily – developing parallel or dependent to these processes.[2] Empirical research proves that destandardisation is not the dominating and long-lasting process that it was initially believed to be (Kohli 2007). It is now thought to have been a temporary phenomenon affecting some life-course dimensions, followed by a new period of restandardisation.

Life-course research has up till now mainly focused on single transitions or a combination of them (Aisenbrey and Fasang 2012). The theoretical preference for the holistic concept of the 'trajectory' (Elder 1985) led to use of sequence analysis as a supplement to event history analysis. However, the number of studies published using sequence analysis on destandardisation of life courses remains small and, as a result, the advantages and disadvantages of the methodology and its different implementations are still being discussed amongst researchers. The main debate concerns the arbitrary decision in defining the costs and the clustering of respondents. Sequence analysis methodology is still assumed to be the preferred tool for holistic investigation of life courses, especially for processes of social change affecting the more abstract structure of life courses such as (de)standardisation. Periods need to be chosen carefully in order to enable comparison of the life courses of several different cohorts including younger respondents. Normally, a period starting from the age of 15 or 18 and ending at the age of 30 or 35 is chosen. Family formation is a particularly interesting field of research, because more changes are reported to take place than in other life-course dimensions (Kohli 2007), and previous research has proven the existence of destandardisation of life courses with regards to family formation in Europe (Hofäcker and Chaloupková 2011; Elzinga and Liefbroer 2007). Research suggests that this is being followed by a period of restandardisation (Fasang 2012 for Germany, Robette 2007 for French women). In addition, the dimensions of fertility and partnership appear to be developing differently (Robette 2010 for France). The main questions which remain open for a comparative analysis of European countries are (a) whether further support for the restandardisation hypothesis can be found for more cohorts and in other countries, (b) whether differences between the dimensions belonging to the area of family life courses (e.g. cohabitation, marriage and fertility) can be seen and what they mean for overall developments, (c) how these dimensions interact with each other and how they can be interpreted in the context of other research results, and (d) to what extent developments within different dimensions (and

[2] Differentiation is defined as increasing complexity of life courses, e.g. through a greater variety of the occurrence or duration of states or stages, and pluralisation as an increasing number of life-course states occurring in the life course as a whole or at a certain age of a cohort (Brückner and Mayer, 2005; see also Elzinga and Liefbroer 2007).

their combinations) differ between men and women. In order to answer these questions I will use the first wave of the Generations and Gender Survey (GGS) data from France, Norway and Italy to analyse standardisation and destandardisation of family formation.

First, I describe the meaning and the state of research on destandardisation of life courses, with a focus on family formation, and hypotheses relating to the questions above. Following this, I introduce sequence analysis, and explain the selection of measures for analysing (de)standardisation. Then I describe the data and the preparations for conducting the analysis, as well as the reasons for selecting the three countries. Finally, and after evaluating the hypotheses, I conclude with a revised hypothesis concerning (de)standardisation of family formation in Europe.

BACKGROUND AND PRIOR RESEARCH

Life-course theory in the 1980s hypothesised that life courses continuously destandardise as a result of on-going individualisation (Kohli 1985). In effect, individuals continue to free themselves from traditional embeddings (e.g. family and neighbours) and traditional norms. In addition, autonomous life-course decisions become more important, which can be interpreted as a second stage of individualisation (Beck 1986), whereby individuals more actively plan and then reflect upon their biographical life courses (Kohli 1985). Destandardisation is conceptualised as a universal development, consistent in various dimensions and experienced by all societies after passing through the first stage of individualisation. The first stage of individualisation is marked by rather anonymous, autonomous and standardised integration into society through emerging social institutions with nation-wide coverage, of which the welfare state and the labour market are the most important. It is accompanied by standardised consumption of industrial goods and information supplied by mass media, dominated first by radio and later by television. It replaces a less standardised, less institutionalised and more direct form of integration through personal contact in everyday life activities with the family, relatives, neighbourhood or local levels of political administration, in which goods are less often mass produced and there are a variety of printed sources of information available at the local level.

The theory of the Second Demographic Transition (SDT) (Lesthaeghe 2010) emphasises that the increasing importance of post-materialistic values, including self-autonomy and self-fulfilment, leads to postponement and a decline in rates of marriage and fertility, and an increasing pluralisation of family forms. A period of population decline therefore follows a phase of growth, in which the European population grows rapidly and spreads all over the world (van de Kaa 2010). It has been suggested that destandardisation is followed by a period of restandardisation (Fasang 2012; Mills 2004). If initially only certain parts of the population change their partnership and fertility behaviour, even in rather different ways in an attempt to find the best way to adapt their life courses to new circumstances, then life courses destandardise. Once there is higher acceptance of a new-life course pattern, life courses restandardise. This interpretation neglects the fact that Lesthaeghe initially conceptualised pluralisation as an integral part – and not a transitory phenomenon – of the SDT. Accordingly, destandardisation should stabilise at a somewhat higher level of dissimilarity instead of being reversed by another phase of standardisation. The idea of alternating phases of destandardisation and standardisation is still a valuable concept for empirical analysis, even if no reference to the SDT is made.

A hypothesis similar to the SDT, though based on different reasoning, stems from family sociologists, who interpret destandardisation as a return to historic normality (Peuckert 2008; Kohli 2007; Huinink and Konietzka 2007). Modernisation brought standardised life courses (at least to western Europe) through new social institutions, e.g. the welfare state, the school system and the labour market, which provide the same incentives and restrictions to all members of society. In the course of modernisation, the picture of the ideal family was transformed in many ways; extensive family solidarity was replaced by greater individualism, arranged marriage vanished and monogamy and gender equality spread (Thornton 2010). These standardising effects are now vanishing as a result of different processes of change that have taken place since the 1970s, such as mass unemployment and the decreasing influence of the concept of the core family (parents and children in one household) as the ideal way of life, resulting in a pluralisation of family forms and a differentiation and destandardisation of related life courses.

Empirical research suggests that destandardisation was not as influential in European societies towards the end of the twentieth century as originally hypothesised. Instead, the level of standardisation remained fairly high, while destandardisation was only gradual and depended on the type or sequence of events as well as the region examined (Mayer 1990; Kohli 2007; Buchmann and Kriesi 2011). The destandardisation hypothesis has been criticised for neglecting the connection between the micro- and the macro-level of change, and it cannot satisfactorily explain the processes and dynamics of change (Mayer 1990). The lack of empirical support for destandardisation and the persistence of standardisation in life courses surprised even its proponents. Kohli (2007: 259) revised his own hypothesis and diagnosed "institutional continuity coupled with some destandardisation" for the past decades. This implies that life courses at the end of the twentieth century were still rather similar to each other, and that changes in the 1950s and 60s were gradual. The influence of changes since the 1970s (i.e. values, mass unemployment and the women's movement) have been comparatively small. Differences between countries are reported to be higher than the differences between cohorts (Diewald 2010), highlighting the dependence of developments on country-specific institutions. The theory of path dependency stresses that different institutions are likely to prevail and preserve differences between countries (Zapf 1996; Mills and Blossfeld 2005; Pfau-Effinger 2000; Spéder 2007), with cultural and religious traditions appearing to have particularly prevailing and long-term effects (Mayer 2001; Bujard 2012).

Destandardisation, as regards family formation, has progressed furthest in northern and north-western Europe, while it is barely seen in southern Europe (Buchmann and Kriesi 2011, 488). Comparative research is often based on data from different sources and arising from differing methodologies, making comparison difficult. It often focuses on single transitions instead of holistically analysing life-course trajectories. The trend towards destandardisation of family formation is much clearer than in other areas of the life course (Buchmann and Kriesi 2011; Kohli 2007). The incidence and acceptance of new family forms is increasing, but the variability is limited and children are still mainly born to couples in a stable relationship (Kiernan 2001; Diewald 2010).

A limited number of studies are available that make use of sequence analysis to holistically examine the destandardisation of life courses. The results of the four most relevant studies are summarised, as follows:

1. Hofäcker and Chaloupková (2011) reported an increase of the average distance to the "traditional family trajectory" for men and women born between 1941 and 1972 in 24 European countries using data from the European Social Survey (Wave 3, ages 18–35). The speed of developments differed across European regions. Norway and France showed a similar pattern of development, with high distances to the traditional trajectory. Italy was not analysed.
2. Robette (2010) analysed single and multi-dimensional life courses (ages 18–35) of transitions to adulthood for French men and women born between 1954 and 1969 using data from *Familles et employeurs* (2004–2005). He found that fertility-related life courses standardised, while partnership-related life courses destandardised. Multi-dimensional life courses (including residential and occupational aspects) mainly destandardised. Among younger women, life courses restandardised, while the level of dissimilarity was stable among younger men. Female life courses were more destandardised with regards to fertility (higher difference) and to partnership (slight differences) though women of the oldest cohort had more standardised life courses.
3. Elzinga and Liefbroer (2007) compared family formation for women born between 1945 and 1964 using data from Family and Fertility Surveys (FFS) for ages 18–30. Traditional family-oriented life courses lost importance, while the increasing average dissimilarity of life courses, as

well as the increasing entropy of the distribution of life courses between life-course groups indicated destandardisation of family formation. France and Norway were among the most destandardised countries, while respondents from Italy and Spain had the most similar life courses. The results were significant for most countries (except some eastern European countries, in which differences between cohorts were considerably smaller than in western European countries) based on 90 per cent bootstrap confidence intervals.

4. Schizzerotto and Lucchini (2002) found considerable differences in transitions to adulthood (including non-family related events between ages 15 and 35) between Italy, Sweden and the United Kingdom, with the lowest dissimilarity in Italy and highest in Sweden. They concluded that there was no clear evidence of a continuous process of destandardisation in Europe, because the heterogeneity index and the proportion of typical sequences developed differently between different cohorts and within respondent groups. In Italy, female life courses were more dissimilar than those of men, though evidence was less clear in other countries. The authors emphasised that transitions to adulthood were postponed more in Italy than in the other countries because material constraints hindered reconciliation of family and career, causing a low level of dissimilarity. In Italy, female life courses were mainly destandardised, while male development fluctuated, with a tendency towards standardisation of life courses.

Concerning fertility, Robette (2010) distinguished between respondents having none, one, two or three or more children; in the other studies respondents were distinguished between respondents with or without children. The results suggest that with regards to family formation France resembles the Scandinavian countries, while southern European countries are developing differently. In France and the Nordic countries family policy is an important and lively policy field (Lappegård 2011). The decline in marriage and the increase in unmarried cohabitation are most prominent in the Nordic countries and France (Kiernan 2001), and the “tie between marriage and childbearing” loosened earlier in the Nordic countries than in southern, central and eastern Europe (Sobotka and Touleman 2008). In the Nordic countries and France this appears to have led to more stable fertility rates (Sobotka and Touleman 2008), while fertility has decreased in southern European countries, where family life still mainly follows traditional norms (Hofäcker and Chaloupková 2011).

The results described above leave much unresolved, particularly concerning general trends of (de)standardisation of family formation in Europe. Based on some theoretical arguments and the results presented by Fasang (2012) and Robette (2010), I expect destandardisation to have been a temporary phenomenon, followed by a period of restandardisation. Trends towards postponement of fertility and partnership, as well as of cohabitation starting before marriage, are expected to have caused destandardisation in the 70s and 80s when some couples initiated the trend. After it had been accepted by the majority of a cohort it became a new standard, leading to restandardisation. Therefore the following hypotheses are established, referring to life courses between the ages of 15 and 35:

(1) Destandardisation of family formation among older cohorts is followed by a period of restandardisation among younger ones.

Robette (2010) proved that partnership-related life courses destandardised in France, while they standardised in the dimension of fertility. Considering the postponement of fertility in Europe, which causes the life courses of young people to be less differentiated (i.e. to consist of fewer events), it is expected that this effect can also be found in other countries.

The second hypothesis for this research is therefore that:

(2) Fertility-related life courses standardise in Europe.

Because family formation is destandardising, the standardisation of fertility-related dimensions needs to be balanced by a destandardisation of partnership-related life courses. One should consider that the connection between marriage and cohabitation loosens and that it is often marriage that is postponed and not partnership formation (Kiernan 2001). It is therefore important to distinguish between cohabitation (indicating partnership formation) and marriage, and to investigate the connection between the two. It is expected that two-dimensional partnership-related life courses are mainly caused by the connection of cohabitation and marriage. Hypothesis (3) summarises these assumptions:

(3) Partnership-related life courses destandardise due to the loosening connection between cohabitation and marriage.

As a result of the loosening connection between the different steps of institutionalising partnerships (start of cohabitation and marriage) and postponed childbearing (Kiernan 2001), an increase in the dissimilarity of sequences combining marriage or cohabitation with fertility is expected for younger respondents.

(4) Two-dimensional life courses combining marriage or cohabitation with fertility destandardise.

Women start partnerships and family formation at younger ages than men, and therefore experience more events earlier on in life. It is expected that female life courses are more destandardised than those of men in the age range covered by this study (15–35), a fact suggested in previous research (Schizzerotto and Lucchini 2002; Robette 2010). It has not been analysed in more detail for one- and two-dimensional life courses in international comparisons, for example by focussing on the dimensions where gender differences are most pronounced. Women have their first child earlier than men, often with partners older than themselves. The men might have lived together with other women of their age prior to meeting younger women, with whom they decided to form a family. The differences with regards to fertility should therefore be more pronounced among young men and women than differences with regards to partnership, as described in the following hypothesis:

(5) The life courses of women are more destandardised than those of men, especially as regards fertility, and to a lesser extend with regards to partnership.

SEQUENCE ANALYSIS

Sequence analysis is used to investigate the average dissimilarity between respondents' family formation, which emphasises family formation as a holistic set of events or transitions. Life courses are represented as strings of symbols, each referring to a state for a specific time interval. It is a rather descriptive tool, allowing identification of phenomena or developments, and has to be supplemented with other methodologies to test hypotheses on causes or influences. The state is usually defined for either a month or a quarter of a year. In order to avoid splitting up events which belong together (e.g. moving together three weeks after marriage), quarters will be used in this study. Pure description of sequences has previously proven to be unsatisfactory, because of the variety of differences between the sequences in the samples (Anyadike-Danes and McVicar 2010). Life courses are therefore often clustered to ease description, and this requires calculating the pair-wise degree of dissimilarity. The first method to calculate dissimilarity between life courses and represent this dissimilarity as sequences of symbols was suggested by Abbott (1990, 1992, 1995), who implemented Optimal Matching Analysis (OMA), a method arising out of information theory (Levenshtein-distance, Levenshtein 1965) and often used in biotechnology in order to cluster DNA (Lesnard 2006, 2008). OMA compares sequences by counting the number of transformations (substitutions, insertions and deletions) needed to change one life course into another; it is therefore based on algorithmic modelling without making assumptions about the processes that generate the data (Aisenbrey and Fasang 2010). This differs considerably from stochastic modelling, which is used in regression analysis and related methodologies to model relationships between variables, and (in most cases) interpret them as stochastic influences on the generation of the dependent variable. The outcome of OMA (clusters, or dissimilarity to a pre-defined sequence) could also be used to model relationships between variables, but such an approach would be beyond the scope of this study.

Clustering life courses can be difficult, because life courses can be described as a continuum rather than as falling into distinct groups (e.g. Halpin 2010). This has resulted in some researchers grouping life courses into a large number of clusters (e.g. Anyadike-Danes and McVicar 2010). Describing the large number of cluster types is not only time consuming but potentially quite confusing, particularly when comparing the results of different cohorts with different prevailing life-course structures. Instead, it seems preferable to calculate the average dissimilarity of life courses per cohort and compare the results (Aisenbrey and Fasang 2010; Elzinga and Liefbroer 2007; Robette 2010; Fasang 2012). This approach has the advantage of providing clear and interpretable results, though the disadvantage is a high level of abstraction that does not allow identification of specific changes of states and events as their sequences are part of the overall process. For example, a possible result is that fertility destandardises, but it will not be clear whether this has been caused by an increase in the number of childless respondents or a reduction in the actual number of children.

Strong criticism concerning the use of OMA in the social sciences indicates that there is a need to carefully reflect on whether OMA is a suitable methodology for the current research question, and to select the exact specifications to be applied. For example, OMA in the social sciences has often been criticised for the lack of analogy between life courses and the sequencing of DNA – the main application of the methodology (see Aisenbrey and Fasang, 2010). However, OMA was originally developed in information theory to identify similarities and dissimilarities between strings of symbols, without making any assumptions about their meanings. Its suitability for analysing life courses should therefore not depend on analogies made between life courses and DNA. It is instead advisable to discuss whether the dissimilarity measured by OMA is measuring destandardisation in the way it is usually defined in the social sciences. I will base my analysis on the commonly used definition of Brückner and Mayer (2005: 31f.), who state that "destandardization would mean that life states, events and their sequences can become experiences which either characterize an increasingly smaller part of a population or occur at more dispersed ages and with more dispersed durations". This definition covers three aspects of destandardisation: (1) the occurrence, (2) the timing of states, and (3) the duration of episodes (i.e. the time between events). The duration of episodes is strongly linked to the timing of the events surrounding it; aspects (2) and (3) can thus be seen as one aspect representing timing.

The two aspects – occurrence and timing – are sometimes connected with the three central operations used in sequence analysis: deletions, insertions and substitutions (Lesnard 2006, 2008). OMA uses these operations to define the dissimilarity of two sequences, by counting the number of operations needed to transform one sequence into the other and, when required, weighting them with a cost scheme. The relative costs of the different operations are of particular interest in this context: they represent the relative importance of the differences overcome by the operation. An example may help to explain this connection: the cost of deleting element A is set to one, while the cost of deleting element B is set to two. Life course X (without A and B) is now considered to be more dissimilar to life course Y (including B but not A) than to life course Z (including A but not B). Element B 'adds' more to dissimilarity of the life courses than the element A; therefore differences with regards to B are considered to be more important than differences with regards to element A. Insertions may be disregarded, as an insertion in one sequence corresponds to a deletion in the comparator sequence. Deletion of element X in the life course causes all elements which follow X to 'move back in time', i.e. occur at an earlier stage in the life-course sequence representation. Lesnard (2006, 2008) emphasised that deletions overcome dissimilarity in the timing of states and events, i.e. 'alter timing', but preserve the occurrence of states and events. This is true, so long as only parts of episodes are deleted and the events are preserved, for example when finding the longest common subsequence of AAABBC and ABBCCC, which is ABBC. On the other hand, it is impossible to avoid deleting total episodes: the longest common subsequence of AAAAAABB and ACCCCAAA is AAAA, where the episodes B and C are no longer considered. Thus, timing and occurrence can both be affected by deletions. Substituting one element of a sequence for another is said to preserve timing but alter the events (Lesnard 2006, 2008) as it leads to the disappearance of states and events but preserves their timing. This is correct if total episodes are substituted (for example when transforming ABBBBDDD into ACCCCDDD). It is, however, incorrect if AAABBC is transformed into ABBCCC, as in this case the timing of events is altered by using substitutions. The concept of pseudo-substitutions (Hollister 2009) illustrates the connection between the two operations: two deletions may be used instead of one substitution to transform one life course into another, e.g. ABC and ADC. Distinguishing between types of difference that are overcome by these operations is therefore highly questionable. To summarise, the connection between the dimensions of destandardisation and the elementary operations of OMA is not clear cut; timing and the occurrence of states are altered by both operations. This means that both operations represent both aspects (occurrence and timing) of destandardisation to possibly different extents.

Another criticism is the arbitrariness of the assignment of the (relative) costs to the operations, particularly with regards to the relative size of costs for substitutions and deletions, which favour the use of either substitutions or deletions. I have therefore decided to use the two operations separately from each other to examine the resulting differences. The difficulty of assigning (relative) costs to the substitution or deletion of different elements still remains. With regard to substitutions, attempts have been made to define the costs based on theory, which from a methodological point of view requires quantitative data. Most life-course states are qualitative in nature and substitution costs therefore cannot be defined on a theoretical basis (Lesnard 2006, 2008). The number of children a respondent has or lives with is an exception, as it is of a quantitative nature; the city block distance could be calculated using the difference in the number of children the respondents has. The city block distance between state A (with one child) and state B (with three children) for example is two, e.g. the difference between the number of children of the respondent define the costs. This approach seems questionable, as it means treating the difference between no child and one child as equivalent to the difference between three and four children. I assume that the influence of the first child on the life of the respondent is higher than the influence of subsequent children. In a life course with three children, family plays an important role, which is expected to only slightly increase in importance with the addition of a fourth child. Respondents with one child, however, have considerably more constraints in their life as regards potential working hours than childless respondents. Because of this, I decided not to use the city block distance to calculate dissimilarity between fertility-related life courses, but to treat the number of children as qualitative information.

Other authors have suggested defining substitution costs based on transformation rates. This may be criticised for mixing synchronic and diachronic life-course perspectives (Halpin 2010). It is also often intuitively regarded as unreasonable, for example, when using the transformation rate from education to employment. A large proportion of the population in contemporary societies (if not all its members) leave education to enter the labour market at some point in their life course, the transformation rate is therefore high and the substitution costs low. However, the two states compared or substituted are still very different from each other. Furthermore, substitution costs have to be symmetrical (substituting element A with element B has to have the same cost as substituting element B with element A) in order to make the direction of comparison between life courses irrelevant. The transformation rates between education and employment in current societies differ considerably between the two directions; transformation-based substitution costs are therefore calculated on the basis of the average of the two (Rohwer and Pötter 1999, and applied in Widmer and Ritschard 2009). This implies mixing the two directions, which is questionable from a theoretical point of view in modern societies, in which most transitions are directional, i.e. individuals move through stages of their life courses in a specific sequence, and where the recurrence of earlier stages is uncommon (e.g. from full-time employment into full-time education) or even impossible (e.g. with regards to fertility or marriage). Indel costs are mostly kept stable in application of OMA in the social sciences, and different attempts to vary costs are dependent on (a) the type of state, (b) the length of the episode (Halpin 2010;

Rohwer and Pötter 1999) and (c) the surrounding elements ('localised indels', Hollister 2009, 247). To my knowledge, these suggestions have not been discussed in the research community, probably due to the fact that most caveats about varying substitution costs also apply to varying indel costs. They are therefore rarely considered in research and I have excluded them from analysis here. For this reason I use only use two dissimilarity measures based on simple versions of OMA:

1) Hamming distance: only substitutions are allowed and the cost of each substitution is one. Therefore, the Hamming distance counts the number of unequal positions in a sequence. The proportion of unequal positions shows the proportion of time during which respondents lived in different states (Hamming 1950, 1980).
2) Longest common subsequence: only deletions and insertions are allowed. The longest common subsequence of two life courses is identified by deleting all non-matching parts of two compared sequences.

Because of their simplicity, the measures are independent of the type of data to which they are applied. Despite trying to make as few assumptions as possible, the following can still not be avoided: by treating any substitution, deletion or insertion as equal by assigning similar costs, the dissimilarity of all states is considered equal. One may doubt that the difference between respondents is equal, when a person without children is compared to a person with one child, or to a person with eight children, or when a person living alone (not married, not cohabiting and with no children) is compared to a person without children and marriage but cohabiting or to a person married and cohabiting with children. The abstract analysis only measures the proportion of time in which life courses are dissimilar in any way, independent of the degree of dissimilarity during these periods. The proportion of times identifies the share of age-related quarters (e.g. first quarter at the age of 20), in which respondents experience dissimilar states (Hamming distance), and the share of time in which their life courses do not follow a similar pattern (longest common subsequence).

To be able to comparatively analyse the two measures, the costs for each deletion or insertion is set to half of the cost (0.5) of a substitution as applied in calculating the Hamming distance. The measures are normalised to 1 by dividing them through the length of the sequences (80). In this way an alignment using deletions and insertions only as pseudo-substitutions result in the same dissimilarity as the Hamming distance. This is, for example, the case in any two sequences with only one change in state at a different time, e.g. ABBBB and AAAAB. The greater the differences between the two measures, the more deletions are used for time-shift operations instead of pseudo-substitutions. More time-shift operations are likely to be applied if life courses are more complex, e.g. consist of more than two episodes with different start and end points but with a similar episode order. For example, using deletions or insertions at different points in AAABBBBA and ABBBBAAA or AAABBBC and ABBBCCC results in lower dissimilarity than when using them as pseudo-substitutions at the same time points of the sequence.

Analysis will be performed for each dimension separately, as well as for the combination of two and three dimensions. There are various ways of combining dimensions in sequence analysis, though a theoretically deepened discourse on their advantages and disadvantages is still pending. Generally, it may be distinguished by combining dimensions before, during or after comparison of sequences and calculating their dissimilarity based on OMA. Combining dimensions before analysis means incorporating multi-dimensionality into the definition of states and afterwards treating the combined states as similar to one-dimensional states. In this study the combination of fertility, cohabitation and marriage is represented by states composed of three elements: the first element indicates the number of (biologically own) children living in the household of the respondent, the second element represents the cohabitational situation (C = cohabiting, N = not cohabiting), while the third element specifies the marriage status (M = married, N = not married). If the status of the respondent is, for example, coded with "3CN" then this means that he or she has three children, is cohabiting with but not married to his or her partner. If only two dimensions are combined the status has only two elements. The advantage of this approach is that it implies treating the three life-course dimensions as interdependent. The disadvantage is that similarity of statuses can (when using the selected OMA specifications) only be described as a binary phenomenon (similar or not similar) and no gradation of dissimilarity can be determined.

Combining the dimensions during comparison means that dissimilarity for each age stage is defined as the number of dimensions in which differences occur (for a similar approach see Robette 2010). The total dissimilarity in the life course is the average dissimilarity of all life stages examined; this approach is therefore implemented as a type of OMA using substitutions. The results are in most cases similar to those of the third approach, if the dimensions are combined after the dissimilarity is identified for the whole life course in each dimension. The most important advantage of the second and third approach is that a gradual degree of dissimilarity can be defined, even for qualitative data, by identifying the share of different dimensions. A criticism of this approach is that different parts of the life course are not treated as interdependent, but as parallel developments. The third approach (calculating and combining two dissimilarity matrices) has the additional advantage that deletions may also be used as transformational operations, and it is therefore preferred over the second approach.

The first and the third approach are selected for analysis here, and life-course dimensions shall be treated as interdependent by using joint states for calculating one dissimilarity matrix, independently calculating separate dissimilarity matrices for each dimension, and then combining them afterwards. Combination will be achieved by adding the matrices (without weighting), and by treating dissimilarity in all of the three of the interpreted dimensions as equally important. The resulting average dissimilarity will be equal to the average of the dissimilarity measures of the one-dimensional sequences. It will therefore only be apparent for the three-dimensional sequences, as it can be estimated relatively easily for two-dimensional sequences. The comparison of the two selected approaches to combining life-course dimensions should reveal important insights into whether dissimilarity occurs within or between dimensions, i.e. different ways of combining dimensions. Because of the nature of the measures used (differences between life courses calculated pairwise), bootstrapping confidence intervals of 90 per cent will be used to assess the reliability of the data. They will be calculated from 1000 randomly selected samples, taking into account the sizes of respective cohorts (Efron and Tibshirani 1993; Carpenter and Bithell 2000).

DATA AND PREPARATION FOR ANALYSIS

The methodology (comparison of gender, dimensions and modes of combination) requires examination of developments in each country, which restricts the number of countries that may be properly analysed due to the sheer amount of data that would have to be described. Most countries for which data of the first wave of the GGS are available are from eastern Europe. Differences as regards dissimilarity of family formation are less pronounced in eastern Europe than in western Europe (Elzinga and Liefbroer 2007). Analysis of eastern European countries is therefore less likely to reveal interesting insights, and the influence of short-term variations or differences in the distribution of the respondents randomly selected for participation in each cohort would have hindered interpretation of results. All eastern European countries are therefore excluded from the analysis. Germany is excluded from the analysis because of doubts concerning the reliability of the retrospective data (Sauer et al. 2012; Kreyenfeld et al. 2013). Belgium is excluded because it resembles France in many aspects of family formation. As a result, data of the first wave of the GGS from Norway, France and Italy are selected for analysis. Some of the hypotheses have been partly investigated in previous research (mainly Elzinga and Liefbroer 2007; Robette 2010), but different methodological approaches were used and not all hypotheses can be evaluated based on their results. The hypotheses are therefore evaluated again using the methodological setup described above, while prior research results will support the analysis.

Respondents are categorised into cohorts of five years to ensure that each is of a sufficient size, as well as to smooth out short-term fluctuations and enable focus on relevant long-term developments. Family formation is analysed for ages 15 to 35 for cohorts born between 1935 and 1969. Older cohorts are excluded, because the size of the cohorts is too small to generate meaningful results. It would have been interesting to include a longer period (e.g. up to age 40), but this would have meant excluding more of the younger respondents. As change between cohorts is of particular interest, it was decided to restrict the length of the life-course period rather than the cohorts examined.

I have included three dimensions - fertility, cohabitation and partnership - so as to enable focus on family formation. In the first dimension, only (biologically) own children (e.g. no step or foster children), are incorporated, as they are most relevant and important for the respondent. As the focus of the analysis is on the first years of the family life only, it is expected that step and foster children are of minor importance. Children are only considered if they live in the household of the respondent and it is assumed that children living in the household of the respondent have the greatest impact on their life (course). The differences based on the number of biological children independent of living arrangements are small; supplemental analyses revealed that in all cohorts in the countries examined most children lived together with both parents up to their 35^{th} birthday. In analysing fertility I distinguished between 0,1,2,3 … (biologically) own children living in the household of the respondent. In the second dimension, cohabitation, I distinguish between single people and couples living together regardless of marriage. Singles and couples living apart together (LAT) are not distinguished, as it is hard to find a commonly accepted definition of LAT relationships and therefore hard to identify their exact start and end. The third dimension covers marriage. This dimension distinguishes between respondents formally married or not, regardless of their cohabitational status. In order to ease comparison between countries, other forms of official partnerships (e.g. PACS in France) are not considered. In any case, their effect would have been small because only few of the younger respondents opted for this type of partnership.

Some data were missing and had to be inserted to enable realistic comparison. In Italy, the birth of the child was taken as the starting point of the respondent living together with the child. In other countries the start of the episode, in which the respondent lived together with the child, was reported separately. As most children in Italy are born to cohabiting and married partners, children are most likely to live together with both parents from the beginning. Divorces were not reported explicitly in Norway, and the missing data were replaced by information about the end of the relationship; the two events are expected to be closely connected in most cases and divorce is not very common before respondents' 35^{th} birthdays. In Italy, the month of the divorce was not reported for any respondent, and it is therefore replaced by the dummy entry 'June'. In the examined age period (15–35), only a few respondents divorced and the influence of the missing information on the overall results is therefore expected to be small. In Norway, and to a lesser extent France, the months or even years of birth or leaving home of children and the months of the beginning or end of cohabitation or marriage were missing among older respondents. The month of the end of a relationship was sometimes missing in Italy. The data would have been biased if all of these events had been ignored; life courses in the older cohorts would appear less differentiated than they actually were in reality because respondents with many children or relationships are more likely to have forgotten the exact dates of their events and therefore be excluded. This would hamper realistic estimation of the differences between younger and older cohorts, a reason for replacing seasonal information by the middle month of the season and missing months by the dummy month of June.

Table 1
Sample size by cohort, number and share of respondents excluded from analysis

Country, birth cohort		Men				Women			
		Sample Total	Ex-cluded (nr)	Ex-cluded (%)	Sample ana-lysed	Sample Total	Ex-cluded (nr)	Ex-cluded (%)	Sample ana-lysed
France	1935–39	287	3	1.05	284	371	1	0.27	370
	1940–44	315	5	1.59	310	364	3	0.82	361
	1945–49	437	12	2.75	425	512	8	1.56	504
	1950–54	409	9	2.20	400	549	5	0.91	544
	1955–59	403	6	1.49	397	543	10	1.84	533
	1960–64	417	14	3.36	403	517	9	1.74	508
	1965–69	467	7	1.50	460	574	5	0.87	569
Norway	1935–39	415	11	2.65	404	410	9	2.20	401
	1940–44	568	10	1.76	558	535	16	2.99	519
	1945–49	688	16	2.33	672	647	9	1.39	638
	1950–54	657	8	1.22	649	709	10	1.41	699
	1955–59	678	13	1.92	665	711	10	1.41	701
	1960–64	669	10	1.49	659	742	16	2.16	726
	1965–69	797	12	1.51	785	842	15	1.78	827
Italy	1935–39	126	5	3.97	121	193	6	3.11	187
	1940–44	422	7	1.66	415	673	20	2.97	653
	1945–49	493	17	3.45	476	597	15	2.51	582
	1950–54	446	14	3.14	432	494	19	3.85	475
	1955–59	549	13	2.37	536	545	22	4.04	523
	1960–64	576	13	2.26	563	619	19	3.07	600
	1965–69	524	4	0.76	520	649	17	2.62	632

Source: GGS, own calculations.

For a number of children, particularly in the older cohorts, it was not possible to determine the date of leaving the parental home. In all cohorts the majority of children leave the parental home long after the 35th birthday of their parents. Therefore the missing events were replaced by the median age of the respondents at the time of the children leaving home, which was in all cohorts above the age of 35 and therefore does not affect the examined period. The remaining cases, in which information on children or relationships was missing or contradictory (e.g. the child leaving home before its birth) were excluded. The total share of respondents excluded did not exceed four per cent in any of the cohorts; it was not systematically higher in older than in younger cohorts (see Table 1). The exclusions therefore do not distort comparison between cohorts. Men and women are analysed separately, because their family-related life courses are expected to be considerably different. Men tend to start relationships and fertility later than women, while children are more likely to remain with their mother if the parents separate.

RESULTS

The dissimilarity indicated by the Hamming distance is usually higher (though in certain cases equal) than dissimilarity measured by the longest common subsequence. This is due to the fact that two deletions may be used as pseudo-substitutions, and the transformation of one sequence into another can be optimised by deleting the respective elements in only one of the sequences. Both measures reveal a similar pattern of change in phases and relative sizes. This supports the assumption that both operations overcome both kinds of possible dissimilarities between life courses (timing and occurrence of states), and that the attribution of any of the two to a specific kind of similarity or dissimilarity could be misleading. Because of the similar interpretations of the results of both measures, Tables 2 and 3 display only the Hamming distance. The dissimilarity measures indicate the share of age-related quarters, in which respondents experienced the same state with regards to the relevant dimension. For example: two French women born between 1935 and 1939 spent on average 63 per cent of their time in different states and 37 per cent in similar states (Table 3, row 3, column 3) when dimensions are combined before the analysis. They spent 30 per cent of their time in dissimilar states in the dimension cohabitation (Table 2, row 3, column 3), 32 per cent of their time in the dimension marriage (row 11) and 53 per cent in the dimension fertility (row 19), resulting in an average of 0.38 if dimensions are combined after analysis (Table 3, row 11, column 3). Average dissimilarities of three-dimensional sequences, in which the dimensions are combined a) in the definition of states (before comparing sequences), and b) after the calculation of an independent dissimilarity matrix for each dimension, are shown in Table 3 for three-dimensional life courses. The latter are not shown for two-dimensional life courses, as these values are easily estimated based on the one-dimensional life courses and are not needed for evaluating the hypotheses. Dissimilarities based on independent dimensions are lower, because similarity in one dimension is considered even if the respective sequences are dissimilar in any of the other dimensions. Significant changes are marked in grey, the direction is indicated by "+" (increase of dissimilarity = destandardisation) or "-" (decrease of dissimilarity = standardisation).

Interpretation of the three-dimensional life courses (Table 3, to evaluate Hypothesis 1 and part of Hypothesis 5) is easier, based on the knowledge about the one- and two-dimensional life courses (Table 2). I therefore start by evaluating hypotheses 2 to 5.

As suggested by the results of Robette (2007), Hypothesis 2 is verified, indicating an almost continuous decrease of dissimilarity of fertility-related life courses, presumably due to the postponement of fertility and leading to fewer events in the period of the life course examined (age 15 to 35). Standardisation is strongest among French and Italian women (reduction of 0.11 from 0.53 to 0.42 for French and from 0.46 to 0.35 for Italian), and least strong among French men (reduction of 0.06 from 0.39 to 0.33). Among some of the older cohorts slight (though insignificant) tendencies to destandardise are reported (French men, Italian women, Norwegian women). Among younger cohorts the differences (decreasing dissimilarity) are higher and significant (based on 90 per cent bootstrap confidence intervals) between a number of cohorts. The small level and temporary destandardisation therefore does not justify a rejection of Hypothesis 2.

Table 2

Average dissimilarities by country, cohort and gender for one- and two-dimensional life courses of fertility, cohabitation and marriage

		Type of sequence	One-dimensional sequence “cohabitation”							Two-dimensional sequence “cohabitation and fertility”						
		Cohort (born 19..–19..)	35–39	40–44	45–49	50–54	55–59	60–64	65–69	35–39	40–44	45–49	50–54	55–59	60–64	65–69
Hamming distance	France	Women	0.30	0.31	0.32	0.33	0.35	0.34	0.34	0.62	0.62	0.62	0.62	0.61	0.60	0.58
		Men	0.26	0.28	0.28	0.30	0.33+	0.32	0.32	0.49	0.52+	0.52	0.54	0.52	0.48-	0.50
	Italy	Women	0.27	0.27	0.29	0.32-	0.32	0.32	0.31	0.54	0.54	0.55	0.56	0.54	0.51-	0.46-
		Men	0.26	0.25	0.27+	0.27	0.27	0.27	0.27	0.42	0.40	0.42	0.38-	0.39	0.35-	0.35
	Norway	Women	0.34	0.33	0.30	0.31	0.33	0.33	0.34	0.61	0.61	0.59-	0.61+	0.61	0.60	0.59
		Men	0.30	0.28	0.28	0.31+	0.31	0.32	0.32	0.51	0.50	0.51	0.51	0.52	0.50	0.50
		Type of sequence	One-dimensional sequence “marriage”							Two-dimensional sequence “marriage and fertility”						
		Cohort (born 19..–19..)	35–39	40–44	45–49	50–54	55–59	60–64	65–69	35–39	40–44	45–49	50–54	55–59	60–64	65–69
Hamming distance	France	Women	0.32	0.32	0.34	0.35	0.37	0.36	0.33-	0.62	0.62	0.62	0.62	0.59-	0.56	0.52-
		Men	0.26	0.28	0.29	0.32	0.33+	0.28	0.27	0.49	0.51+	0.52	0.52	0.48-	0.40-	0.41
	Italy	Women	0.27	0.27	0.29	0.32	0.32	0.32	0.30	0.53	0.54	0.55	0.55	0.53	0.50-	0.45-
		Men	0.26	0.24	0.26+	0.27	0.26	0.26	0.25	0.42	0.40	0.41	0.37-	0.37	0.34-	0.33
	Norway	Women	0.34	0.33	0.32	0.34	0.36+	0.34-	0.31-	0.60	0.60	0.57-	0.58	0.58	0.56-	0.52-
		Men	0.30	0.29	0.29	0.32+	0.31	0.27-	0.24-	0.50	0.50	0.50	0.49	0.47	0.42-	0.41
		Type of sequence	One-dimensional sequence “fertility”							Two-dimensional sequence “marriage and cohabitation”						
		Cohort (born 19..–19..)	35–39	40–44	45–49	50–54	55–59	60–64	65–69	35–39	40–44	45–49	50–54	55–59	60–64	65–69
Hamming distance	France	Women	0.53	0.53	0.52	0.51	0.48-	0.45	0.42-	0.34	0.35	0.38	0.41	0.47+	0.49	0.50
		Men	0.39	0.42	0.43	0.42	0.37-	0.31-	0.33	0.28	0.31	0.33	0.38+	0.43+	0.44	0.45
	Italy	Women	0.46	0.47	0.47	0.46-	0.43-	0.39	0.35	0.28	0.28	0.31	0.34+	0.35	0.35	0.33
		Men	0.33	0.32	0.33	0.28-	0.28	0.24-	0.23	0.32	0.28-	0.29	0.29	0.29	0.28	0.30
	Norway	Women	0.51	0.52	0.50	0.51	0.48-	0.46	0.44-	0.36	0.36	0.34	0.39+	0.46+	0.48	0.50
		Men	0.42	0.42	0.43	0.40-	0.38	0.34-	0.34	0.31	0.32	0.33	0.39+	0.42+	0.44	0.44

Source: GGS Wave 1, own calculations.

Different developments are found with regards to *one-dimensional life courses of cohabitation and marriage*: moderate destandardisation among French and Italian women (increase of 0.05 with regards to cohabitation and marriage until the cohort born between 1955 and 1959), followed by restandardisation with regards to marriage (decrease of 0.04 in France and 0.02 in Italy). The development is similar among French men. Among Italian men the level of dissimilarity is fairly stable, with temporary fluctuations between 0.24 and 0.27. Stronger fluctuations are found in Norway (between 0.31 and 0.36), but no clear mid- or long-term trend can be identified. French and Norwegian men and women show a consistent and strong destandardising trend for *two-dimensional partnership life courses* (marriage and cohabitation treated as dependent dimensions, combined before analysis). However, changes are only significant for cohorts born between 1945 and 1959, and small between other cohorts. In Italy, only moderate destandardisation is found among women. Hypothesis 3, which assumes destandardisation of partnership based on the combination of cohabitation and marriage, is therefore only partly supported. Its main assumption, that the existence of destandardisation mainly stems from the combination of cohabitation and marriage, is verified for France and Norway. For France, destandardisation in cohabitation and the combination of de- and restandardisation in marriage falsifies the assumption that the increasing variety of combinations of the two dimensions are the *only* source of destandardisation. Standardisation with regards to marriage between the three youngest Norwegian and French cohorts was not expected, but does not contradict Hypothesis 3. The latter is, however, clearly not supported by the Italian results, where moderate changes can be seen (destandardisation among women, stability among men except for the youngest and oldest cohorts). In fact, the latter result is reasonable considering the fact that marriage and cohabitation are still strongly connected in the more traditional culture of family formation in southern Europe. Destandardisation as regards partnership is strongest among respondents born between 1945 and 1959, i.e. appeared between 1960 (oldest respondents reached the age of 15) and 1994 (youngest respondents reached the age of 35). The changes presumably took place mainly in the 1970s and 1980s, during which the majority of respondents lived through their twenties.

Hypothesis 4 expects destandardisation of *two-dimensional life courses combining cohabitation or marriage with fertility*, but it is not supported by the results. Life courses standardise in most groups and are stable in some groups (French men and Norwegian men and women), especially in the younger cohorts due to the dominating influence of fertility standardising and the at most moderate changes with regards to any of the two partnership dimensions. Hypothesis 5 is supported: women have more destandardised life courses than men in all of the (combination of) dimensions considered, differences are significant based on 90 per cent bootstrap confidence intervals in almost all cohorts analysed. The differences are smaller with regards to partnership than fertility. The three-dimensional life courses reflect gender differences in fertility and are also high (dependent dimensions) or moderate (independent dimensions); destandardisation of partnership dimensions more strongly influence the results.

Table 3

Average dissimilarities (Hamming distance) by country, cohort and gender for the combination of three dimensions (fertility, cohabitation and marriage)

Type of calculation		a) Three-dimensional states, dimensions combined before analysis (dimensions interdependent)						
Cohort (born 19..–19..)		35–39	40–44	45–49	50–54	55–59	60–64	65–69
France	Women	0.63	0.63	0.63	0.64	0.65	0.65	0.64
	Men	0.50	0.53+	0.55	0.56	0.55	0.52	0.55
Italy	Women	0.54	0.54	0.56	0.56	0.54	0.51-	0.47-
	Men	0.44	0.41	0.42	0.39-	0.40	0.36-	0.36
Norway	Women	0.61	0.62	0.60-	0.63+	0.64	0.65	0.64
	Men	0.51	0.51	0.53	0.54	0.55	0.53	0.54
Type of calculation		b) Dissimilarity calculated by dimension, combined after analysis (dimensions independent)						
Cohort (born 19..–19..)		35–39	40–44	45–49	50–54	55–59	60–64	65–69
France	Women	0.38	0.38	0.39	0.40	0.40	0.39	0.36-
	Men	0.30	0.33+	0.34	0.35	0.34	0.30-	0.31
Italy	Women	0.33	0.34	0.35	0.37	0.36	0.34	0.32-
	Men	0.28	0.27	0.29	0.28	0.27	0.26	0.25
Norway	Women	0.40	0.39	0.37-	0.39	0.39	0.38-	0.36-
	Men	0.34	0.33	0.33	0.34	0.33	0.31-	0.30

Source: GGS Wave 1, own calculations.

The patterns of reported change are similar between countries and gender for three-dimensional life courses and mainly support Hypothesis 1: after a phase of destandardisation, a period of restandardisation is indicated among the youngest two cohorts in France and youngest three cohorts in Norway. Initial destandardisation is only seen among Italian women, while standardisation is found for the majority of male cohorts, with some not significant short-term fluctuations indicating destandardisation. Combined after analysis, the changes among the younger cohorts are significant for most respondent groups for independent dimensions in France and Norway, but not for dependent dimensions combined before the analysis. This is due to the fact that standardisation of fertility is more directly reflected in the measures based on independent dimensions than in the measures based on dependent dimensions, and that destandardisation of the increasingly varying combinations of cohabitation and marriage prevent stronger restandardisation of the measures based on dependent dimensions. Only in Italy are significant changes between cohorts for dissimilarity found (based on dependent dimensions), reflecting the fact the partnership life courses do not destandardise as strongly there as in the other countries.

My results therefore differ somewhat from those found in other research. When one considers differences in the methodology this is reasonable. Restandardisation did not, for example, appear in the analysis of Elzinga and Liefbroer (2007), presumably because the youngest cohort in this study was not part of the analysis and the design of the states was different (only distinguishing between respondents with or without children, regardless of number). On the other hand, Robette (2010) also analysed respondents born between 1966 and 1969, and distinguished between four fertility-related states (no child, one, two, and three or more children) and found restandardisation of conjugal and multi-dimensional (including non-family-related) life courses among the youngest female French cohort, but stability among the youngest French male cohort. My results reflect his findings, also in terms of standardisation of fertility.

Despite Hypothesis 1 being supported by the results of the multi-dimensional analysis, the results of the one- and two-dimensional analysis suggest that the interpretation of alternating phases of destandardisation and restandardisation is not a good description of the processes of change. This is due to the fact that the phases result from a combination of different unidirectional developments within the areas of partnership (destandardisation) and fertility (standardisation), of which each dominates the other in specific cohorts. It would therefore seem advisable to describe both trends separately. The broad description of family formation experiencing a phase of destandardisation and restandardisation could be misleading, as it suggests that earlier developments are reversed later on, which is actually not the case.

SUMMARY AND CONCLUSIONS

Family formation in Italy, Norway and France was compared based on data of the first wave of the GGS. The main aim was to examine the suggested modifications of the hypothesis of destandardisation, by comparing countries, and to find out whether the findings can be generalised. The modifications referred mainly to hypotheses on restandardisation of life courses as well as differences between life-course dimensions and their combinations within the area of family formation. Simple versions of OMA (Hamming distance and longest common subsequence) were used to calculate average dissimilarities between cohorts, and 90 per cent bootstrap confidence intervals were applied to assess the reliability of the changes between cohorts and differences between genders.

The most general hypothesis assumed restandardisation of family formation following a period of destandardisation. France and Norway followed a similar pattern of destandardisation and restandardisation as regards three-dimensional family-related life courses (including cohabitation, marriage and fertility). In Italy, only female life courses initially destandardised. Destandardisation was mainly moderate and not significant, supporting prior research that standardising effects remain dominant (Kohli 2007). In the light of this research, the hypothesis concerning alternating phases of destandardisation and restandardisation is not plausible, because the phases are a result of the combination of two dimensions in which unidirectional developments are identified. Significant destandardisation was found only for the two-dimensional partnership-related life courses of respondents born between 1945 and 1959, who mainly formed relationships in the 70s and 80s. Destandardisation therefore seems to have been a temporal phenomenon, mainly caused by the loosening of connections between marriage and cohabitation. The data showed no restandardisation, but a stabilisation of dissimilarity with regards to partnership formation and the connection between marriage and cohabitation remained loose. Young men still have more standardised life courses than young women in terms of family formation, presumably due to some events occurring at later stages of their lives. The consistent standardisation of fertility (alone or in combination with marriage or cohabitation), as well as the restandardisation of one-dimensional life courses of marriage and cohabitation suggest specifying the destandardisation hypothesis as follows: *the standardising effects of fertility reductions remain highly influential with regards to family formation in Europe, interrupted by a phase of destandardisation due to loosening connections between marriage and cohabitation in the 70s and 80s. In southern Europe, only women are affected by temporary destandardisation, while male family-related life courses continuously standardise.*

Conclusions are only based on analysis of three countries for which reliable data of the first wave of the GGS are available. Because these countries represent different European regions and therefore a variety of contexts, they might represent general European trends. However, analysis of more countries is needed to test whether the conclusions are generalisable or whether they are specific to France, Norway or Italy. Developments in Italy appear to be particularly different from those in Norway and France, highlighting the fact that institutional contexts can play an important role in the processes related to family formation, and further investigation of the influence of specific institutional surroundings are needed.

The results of this research contradict some of the conclusions of previous research. However, these results are based on different definitions of life-course states, different measures of life-course dissimilarity and partly different ages of the life course (starting at age 15 or 18 and ending at age 30 or 35). Destandardisation in this analysis was sometimes found to be more influential (for example Elzinga and Liefbroer 2007), though other researchers have found differing developments with no clear support for either the destandardisation or the standardisation hypotheses (Schizzoretto and Lucchini 2002). I assume that these different findings mainly result from different ways of incorporating fertility into analysis. In this paper I used the total number of own children living in the household of the respondent, therefore distinguishing up to ten different fertility states. Other researchers have only distinguished between respondents with or without children (Elzinga and Liefbroer 2007), or between four states (without, with one, with two, with three or more children; Robette 2007). The latter research, which more closely resembles the approach taken here, also reported standardisation of fertility-related life courses for French men and women. In my analysis, older cohorts were found to be even more destandardised with regards to fertility than in previous research, because differences between families (with more than three children) were also considered. Greater destandardisation is sometimes a result of analysing different life-course stages; for example Elzinga and Liefbroer (2007) analysed life courses up till the age of 30 and destandardisation of partnership formation was therefore assumed to be more influential. Overall, the influence of standardising fertility was therefore more influential in this paper than in previous research. This is important, because the postponement and reduction of fertility is reflected better. The conclusions are in line with summaries of previous research (notably Kohli 2007) but add value in terms of sources of standardisation, restandardisation and temporal destandardisation within the field of family formation, as well as by analysing the phenomenon holistically with different configurations of sequence analysis and using comparative international data.

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