

Missing Gender Convergence of Work-Family Life Courses in West Germany: Multichannel Sequence Analysis of Early Adulthood Lifepaths

ABSTRACT

Background: Individualization of the life course changed the traditional patterns of family formation and division of labor between men and women, which according to theory are moving towards a more egalitarian, genderless model.

Objective: This study looks for evidence of a convergence of life trajectories of men and women in the second half of the 20th century in West Germany looking at family formation and labor force participation patterns.

Methods: Using sequence analysis, we compare life trajectories of three different birth cohorts of West German respondents between the ages of 18 and 42 (N = 4918), obtaining a set of five clusters, each a different type of combined work-family life trajectory. We then look at how sex and cohort of birth influence the probability of being selected in each of these clusters using logistic regressions.

Results: Our data show evidence for a cross-cohort polarization of women's trajectories towards either career centered or family care focused trajectories and a shift in male trajectories towards career-centered patterns but find no conclusive evidence for a convergence of life trajectories between sexes over time.

Conclusion: the shift towards egalitarian division of labor and common life course patterns between men and women is dependent on institutional context, and Germany still shows evidence for a traditional role division.

Contribution: we give an in-depth longitudinal descriptive analysis of life trajectories of German men and women and their change across generations, highlighting the importance of a sequence-based approach for life courses analysis.

1. INTRODUCTION

West Germany – or the Federal Republic of Germany (FRG) – is in sociological literature the paradigmatic conservative welfare state (Esping-Andersen, 1990; Arts & Gelissen, 2002), and it's known for actively enforcing traditional, conservative gender roles when it comes to matters such as female labor force participation and child care provisions (Korpi, 2000; Lewis, 1992). Still, this strong gendered division of roles was not monolithically stable across the 20th century (Beck & Beck-Gernsheim, 2002; Lewis, 2001), and the phenomena of life courses individualization influenced the life trajectories of West German people as well (Berger, Steinmuller, & Sopp, 1993).

De-standardization and individualization of life courses are related in the literature to the weakening of traditional social institutions. In this approach, the process of individualization is seen as de-traditionalization or de-institutionalization (Buchmann, 1989; Mills, 2007).

The erosion of the traditional gender-related institutions can favor the convergence of the life courses of men and women, mostly through the change and weakening of social norms that prescribed different life paths for men and women, one over all others, the idea of male breadwinner-female homemaker couples (McMunn et al., 2015; Simonson, Gordo, & Titova, 2011).

The aim of this research is therefore analyzing whether and how a shift from traditional gender-role related life patterns to more common, not gender-specific life trajectories happened in West Germany, during the second half of the 20th century.

Empirical research offers evidence supporting the theoretical expectations of an increase in variability of life courses across Europe, especially for what concerns younger cohorts. For England, McMunn et al. (2015) offer empirical evidence for an increase in similarities between men and women's career in England, with a greater proportion of women in

younger cohorts adopting male's employment patterns. Widmer and Ritschard (2009) find evidence for gender-related de-standardization of life courses for three different Swiss cohorts. However, men have much more linear and traditional careers than women. Focusing on Germany, Hillmert (2005) offers evidence for de-standardization of transitions to adulthood both for German Democratic Republic (GDR) and Federal Republic of Germany (FRG), coupled with convergence of both young men and women on a common pattern of transitions from adolescence to adulthood. Struffolino, Studer and Fasang (2016) find out that during the second half of the 20th century life courses in FRG were more de-standardized than in GDR for both men and women. For what concerns FRG's life trajectories, highly educated men and women have similar timing in their transitions. Simonson and colleagues (2011) find evidence for the increasing differentiation of women's life courses across cohorts together with a strong decrease of housewife-only careers and a sensible increase in labor market participation, although with part time careers.

This study contributes to the current literature by taking a longitudinal approach to the the consequences of individualization, investigating how this process influenced gender inequalities regarding labor force participation and the division of labor over the life course in West Germany.

We investigate a possible transformation of the traditional gender differences in labor market participation patterns, expecting the affirmation of a common, less gender-specific pattern of work and family history. To do so, we combine a longitudinal, cross cohort outlook with simultaneous comparison of multiple domains of the life course between life trajectories with the use of sequence analysis techniques in order to (1) identify meaningful patterns of joint labor market participation and family formation and (2) see how respondents' sex and cohort of birth impact on their probability of being selected in each pattern.

2. THEORETICAL FRAMEWORK

In the last three decades various scholars engaged themselves with the problem of individualization, claiming that modernity enabled the dissolution of traditional institutions shaping the lives of individuals (Beck, 1992; Beck & Beck-Gernsheim, 2002; Buchmann, 1989) and that “*the pattern of stable employment, progressive income levels and careers, welfare protection, early marriages and stable family lives, [...] appears to have been constricted to a fairly short and exceptional historical period*” (Brückner & Mayer, 2005, p. 31).

Bruckner and Mayer (2005) identify three major trends with respect to life course changes in the 20th century: (1) *deinstitutionalization*, or the loss of importance of institutionalized norms regarding time and sequence of states in the life course; (2) *destandardization*, or the increased variety in the individually experienced life courses between people; and (3) *differentiation* or *pluralization*, or the increase in the number of distinct states a single individual experiences.

Aisenbrey and Fasang (2010), identify and operationalize the last two concepts respectively as increase in differences *between* and *within* the individuals life courses. From one side of the individualization process, de-standardization of life courses increased the differences for what concerns paths experienced by different members of western societies, even when they share the same social attributes, e.g. the person’s sex. From another side, differentiation of life courses increased the variety of states that a single person crosses through their life (Buchmann, 1989; Elzinga & Liefbroer, 2007; Widmer & Ritschard, 2009)

The key concept that emerges from the debate on the individualization of the life course is the weakening of the “grip” of traditional norms and expectations on the individual, whom

is then left free to shape its own life course (Mills 2007). The process of individualization should, therefore, free actors from gender-specific constraints and enable them to pursue their goals freely, in every domain of the life course. In the words of Beck and Beck-Gernsheim (2002), “*individualization means the disintegration of previously existing social forms – for example [...] social status, gender roles, family, neighbourhood etc...*”.

Individualization of the life course as a phenomenon should however not be intended as a total lack of structure for the life courses of men and women, but as a reduction of the power of socially meaningful characteristics such as sex, religion, race to shape and constrain the life course of the individual. Life courses will continue to follow common patterns, and thus, individualization can be seen as a step towards the emergence of new patterns in a process of “re-traditionalization” (Mills, 2007; Huinink, 2013).

2.1 INDIVIDUALIZATION AND LABOR MARKET PARTICIPATION

One of the life course domains in which the process of individualization significantly impacted, especially for women, is labor market participation with the “liberation” of women from the housewife role (Huinink, 2013).

One mechanism through which individualization could have affected this shift from the strong homemaker-breadwinner gender division to a more egalitarian one is due to the shift in gender attitudes that comes along with the weakening of the influence of traditional institutions on people’s life courses (Beck & Beck-Gernsheim, 2002). Since the second half of the 20th century, in OECD countries, women started to participate more and more in the labor market (Jaumotte, 2003) and the education gap closed, if not reverted in the last years (Goldin, 2006; Goldin, Katz, & Kuziemko, 2006; Riphahn & Schwientek, 2015 among others). Women are then more incentivized - or at least less deterred – to profit from their

investments in human capital on the labor market. This idea relates to what Blossfeld and Drobnic (2001) refer to as the “*doing gender*” and “*identity formation*” models, which suggest that the social role of woman and even more the role of mother is not compatible with a full participation to the labor market, while this participation is required from the social role of father. The weakening of traditional gender roles as a shaping force of the life course lowers the access costs to the labor market for women, in terms of social acceptance and desirability.

Moreover, the increase in education and in the equality of the education received, that Beck and Beck-Gernsheim (2002) identify among the components of the process of individualization, decreases the comparative disadvantage that women have compared to men for participating to the labor market instead of taking the full time homemaking role (Becker, 1985; Blossfeld & Drobnic, 2001).

Lastly, without explicitly addressing it, Hakim, (2000, 2002).includes individualization of the life course between the five historical changes that made the development of preference theory possible. Using the resulting three possible patterns (home-centered, work-centered, or adaptive) as reflection of the individualization process on labor market participation leaves the door open for the permanence of ‘default’ life courses noted by Mills (2007), represented in this framework by the “*home centered*” lifestyle.

The general phenomenon of individualization of the work life and increased female participation to the labor market will however be mediated by the different institutional frameworks in which it happens, such as labor laws, regulations and availability of institutional support for women’s employment (Lewis, Knijn, Martin, & Ostner, 2008).

2.2 INDIVIDUALIZATION AND FAMILY TRAJECTORIES

On the demographical side of the problem, we can relate individualization with what is known as the second demographic transition (SDT) (Lesthaeghe, 2010; Van Der Kaa, 2002). In this framework, marriage and parenthood are no more “moral duties” or social expectations that have to be fulfilled, but strategically planned choices that have to fit in the life plan of the individual. Therefore, Van Der Kaa, (1987). follows this line of thinking and deems the second demographic transition as “*individualistic*”, contrasting it with the “*altruistic*” first demographic transition. This transition is not limited to fertility patterns however, but it is also linked with changes in the union patterns, with delayed marriages and increased divorces and cohabitations (Van der Kaa 2002).

SDT is more explicitly related with a change in value orientation by Surkyn and Lesthaeghe (2004). The two authors trace the origin of the phenomenon starting in 1960 with the newly gained importance in autonomy in moral, political and ethical spheres and in the rejection of traditional control and authority institutions. It must be noted that the diffusion of fertility and nuptiality patterns compatible with the second demographic transition and the joint diffusion of so-called postmaterialist value orientations are however not homogeneous across western countries. In fact, West Germany follows a ‘conservative’ pattern of SDT, with singlehood or cohabitation and postponement of fertility, but without the diffused decoupling of marriage and childbirth (Lesthaeghe, 2011).

Patterns of couple and fertility compatible with those of the Second Demographic Transition bring in any case evidence for increased individualization of the life course, or at least they support the hypothesis of a weakening of traditional ‘genderized’ life trajectories. Individualization and the loss of predominance of gendered trajectories, together with the changes in labor market participation and institutional environment, will enable for both men

and women later marriage ages, delayed and lower fertility and overall less stable or continuous relationships, especially for highly educated individuals (Vlasblom & Schippers, 2004).

2.3 INDIVIDUALIZATION OF LIFE COURSES IN THE GERMAN CONTEXT

The Federal Republic of Germany is considered as belonging to a conservative and corporatist type of welfare state (Esping-Andersen, 1990), and has been historically related to a male breadwinner family model (Esping-Andersen, 1990; Lewis, 1992). At the foundation of FRD, the female homemaker - male breadwinner household model was not only culturally dominant but also strongly promoted by the government and “*firmly established in the institutions*” (Pfau-Effinger, 2004). This tendency of favoring a strict gender roles division within the household with explicit institutional regulation continued for long time (Cooke, 2006). The male breadwinner model of family and its enforcing by state institutions are however decreasing in importance as time passes (Lewis, 2001; Meyer, 1998), due to changes both in culture and in the economic system. From 2002 onwards a series of legislative changes has been pushing in the direction of promoting a more egalitarian division of care and breadwinning roles, modifying the parental leave, introducing “daddy months” and promoting state-subsidized childcare (Lewis et al., 2008).

It is not a far stretch to assume that in Germany too, a convergence of life courses between genders should follow this de-traditionalization of the life course, still allowing for radical differences with the English case, due to the substantial differences in the environment in which choices are taken.

2.4 EXPECTED ANALYSIS OUTCOMES

Coherently with this framework, what we expect from the analysis part is to obtain a set of clusters roughly divisible in the three categories of “work centered” “balance oriented” and

“family centered” as proposed by Hakim in her preference theory (Hakim 2002), which represent different types of combined work-family trajectories. In addition, we expect that the younger cohorts have a reduced role of gender in determining the probability of being in a “work centered” cluster, which supports the hypothesized convergence of the life trajectories of women on the life trajectories of men. Therefore, we expect (1) smaller differences between men’s and women’s probabilities of being selected in work-centered clusters for the younger cohort, and (2) greater differences for the older cohort. Given the institutional context however, where women are incentivized by societal pressures and institutional arrangements to align their behavior to traditional gender roles, we would still expect a weak evidence of transition to a common model of life/work trajectory with full time employment but (3) a greater increase of trajectories of the “balancing” type over time.

3. DATA AND METHODS

3.1 DATA

We use biographic data from the German National Educational Panel Study (NEPS), Starting Cohort 6, 8th release (Blossfeld, Rossbach, & von Maurice, 2011). Starting Cohort 6 (SC6) is the NEPS sample aimed at adult respondents, and provides detailed biographic retrospective information of more than 10.000 persons born between 1944 and 1986 (Skopek 2013). For building labor market participation trajectories we used the Episodesplit dataset (Rompczky & Kleinert, 2017), an elaboration of the NEPS’s “Biographies” dataset that provides a continuous, non-overlapping spells structure. Marital and parental trajectories were built using the existing specific datasets.

The final analysis is conducted on a sample of 4.918 respondents, of both men and women, born in West Germany in three different birth cohorts, each five years wide (1946-1950,

1956-1960, 1966-1970). Furthermore, for each of the respondents, we have restricted the observational window to 300 state-month observations (25 years) in the early adult life stage, from 18 year of age to the last month of the 42nd year of age, for each of the three domains considered (parental status, marital status, labor market participation).

3.2 SEQUENCES AND LIFE COURSE DOMAINS

For what concerns family life trajectories, two sets of sequences are built, one regarding marital states, with an alphabet of four possible states (“Single”, “Married/In registered partnership”, “Divorced” or “Widowed”); and the second regarding the number of children of the respondent (“No children”, “One child”, “Two children” or “Three or more children”).

Concerning employment trajectories, we built a dataset with six possible sequence states: “In Education”, “Military service”, “Full-time Employment” (more than 35 hours/week), “Part-time Employment” (less than 35 hours/week), “Parental Leave” (or family related leave), and “Unemployed/Out of the labor force”. Periods coded as “Gap” or missing data periods were filled contextually where possible, using the information provided in the Episodesplit dataset. Where this information was not applicable, “Gap” periods were closed ‘from the sides’, half of the gap being re-coded in the preceding spell and the other half in the following spell.

This process sums up in three complete trajectories for respondent, each carrying information from a specific ‘channel’, and each sequence 25 years – 300 states/months long.

3.3 MULTICHANNEL SEQUENCE ANALYSIS

Sequence Analysis (SA) is a technique used to discover holistic sequence patterns, through the analysis of similarities between sequences (Cornwell, 2015, ch.5). A sequence is any ordered set of elements, chosen out of a pool of potential sequence elements called alphabet (i.e., in our case states of parenthood, marital states and labor force participation states).

Since it is centered on analyzing patterns and sequences of states, SA can help to bring the focus of life course research from the transition between states on the “course” itself (Aisenbrey & Fasang, 2010), and it is a powerful tool to be used when investigating trends and pattern of behavior.

The basic technique to pursue this objective is Optimal Matching (OM), (Cornwell, 2015; Abbot & Tsay, 2000). In OM, all the sequences in the sample are compared pairwise and “aligned” through operations of either insertion and deletion or substitution of their elements. The final distance between two sequences results from the minimum number of operations needed to transform one of the two sequences into the other, an operation called “sequence alignment”. Each single operation is assigned a “cost”, and the calculation of distances between sequences is a simple problem of optimization (Abbot & Hrycak, 1990; Gauthier et al., 2010). The aim is to build a dissimilarity matrix that sums pairwise “distances” of the sequences we are studying, where the distance between two sequences is the minimum “cost” of their alignment. Clustering algorithms are then applied on the distance matrix resulting from the sequence alignment process to identify groups of similar sequences.

For the study of multidimensional sequences that take in account multiple aspects of the life course at the same time, a recommended alternative to the use of OM is the use of Multichannel Sequence Analysis, or MSA (Gauthier et al., 2010, Pollock, 2007).

The peculiarity of MSA is that the substitution and insertion/deletion costs are calculated for each dimension or ‘channel’, and then, in order to produce a single distance matrix, the single channels’ contributions are summed or averaged by the number of dimensions we are considering. This approach allows for an analysis of sequences that span over different domains of life (e.g. occupational career and family) that is truly holistic and respects the interconnectedness of life domains (Pollock, 2007).

Since the focus of our research is to examine simultaneously both labor force participation and family formation patterns, our work uses MSA in lieu of simple OM. Moreover, to avoid arbitrary substitution costs assignment (Wu, 2000), we decided to use transition-likelihood based substitution costs (Aassve et al., 2007; Aisenbrey & Fasang, 2017), where the substitution cost of two states A and B is inversely proportional to the transition frequency between the two states. Therefore, the higher the observed frequency of a transition from state A to state B in the data, the lower the cost of substituting state A with state B when aligning two sequences.

Once the distance matrix was produced, we identified clusters of similar sequences using a Ward clustering algorithm. Both multichannel sequence analysis and the subsequent clustering of the sequences are implemented through the TraMineR and WeightedCluster Library for R (Gabadinho, Ritschard, Mueller, & Studer, 2011; Studer, 2013).

After obtaining a set of clusters each one representing a different pattern of labor market participation and family formation, we conducted a series of logistic regressions in order to analyze how the respondents' sex and cohort of birth influenced their probability of being selected in each given cluster. A separate regression model was estimated for each cluster. The dependent variable is, for each different model, a dichotomic variable taking value 1 if the respondent is selected in the cluster under scrutiny, 0 otherwise. As independent variables we used the respondent's sex (operationalized as dichotomic variable as well, 0 = "Male" and 1 = "Female") and cohort of birth (Categorical variable with three categories).

4. RESULTS

Of the totality of our sample, the 24.3% belongs to the oldest cohort (respondents born from 1946 to 1950 included), for an absolute frequency of 1197 respondents. The remaining are almost evenly split over the two remaining cohorts, with a relative frequency of 37.9% (1865

respondents) for the 1956-1960 cohort and 37.7% (1856 respondents) for the 1966-1970 cohort.

Considering how the two genders are distributed over the cohorts, we have a 3.1 percentage points difference between men and women in the first cohort (52.1% males against 47.9% females), a small prevalence of women over men in the second cohort (47.2% males against 52.8% females) and an almost evenly divided third cohort (49.7% males against 50.3% females). All in all, the sample considered is acceptably balanced with respect to the respondents' sex and cohort of birth.

Table 1: Respondent's sex per birth cohort, percentage and abs. frequency. (Own calculations made on NEPS SC6 D 8.0.0 data)

Birth cohort	Men	Women	Total
Cohort 1: 1946 to 1950	623	574	1,197
	52.05	47.95	100.00
Cohort 2: 1956 to 1960	880	985	1,865
	47.18	52.82	100.00
Cohort 3: 1966 to 1970	922	934	1,856
	49.68	50.32	100.00
Total	2,425	2,493	4,918
	49.31	50.69	100.00

4.1 SEQUENCE ANALYSIS

As part of the multichannel sequence analysis process, we conducted a ward-algorithm clustering of the matrix of distances produced with multichannel analysis of the sequences. The most meaningful and parsimonious cutoff of the clusters levels, according to cluster quality indicators such as Point Biserial Correlation (PBC) and Average Silhouette Widths (ASW), resulted in five distinct main clusters of family formation-work life sequences

followed by our subjects of analysis. The sequence index plot (Scherer, 2001) [Fig.1] shows matched trajectories for each respondent across the three domains considered.

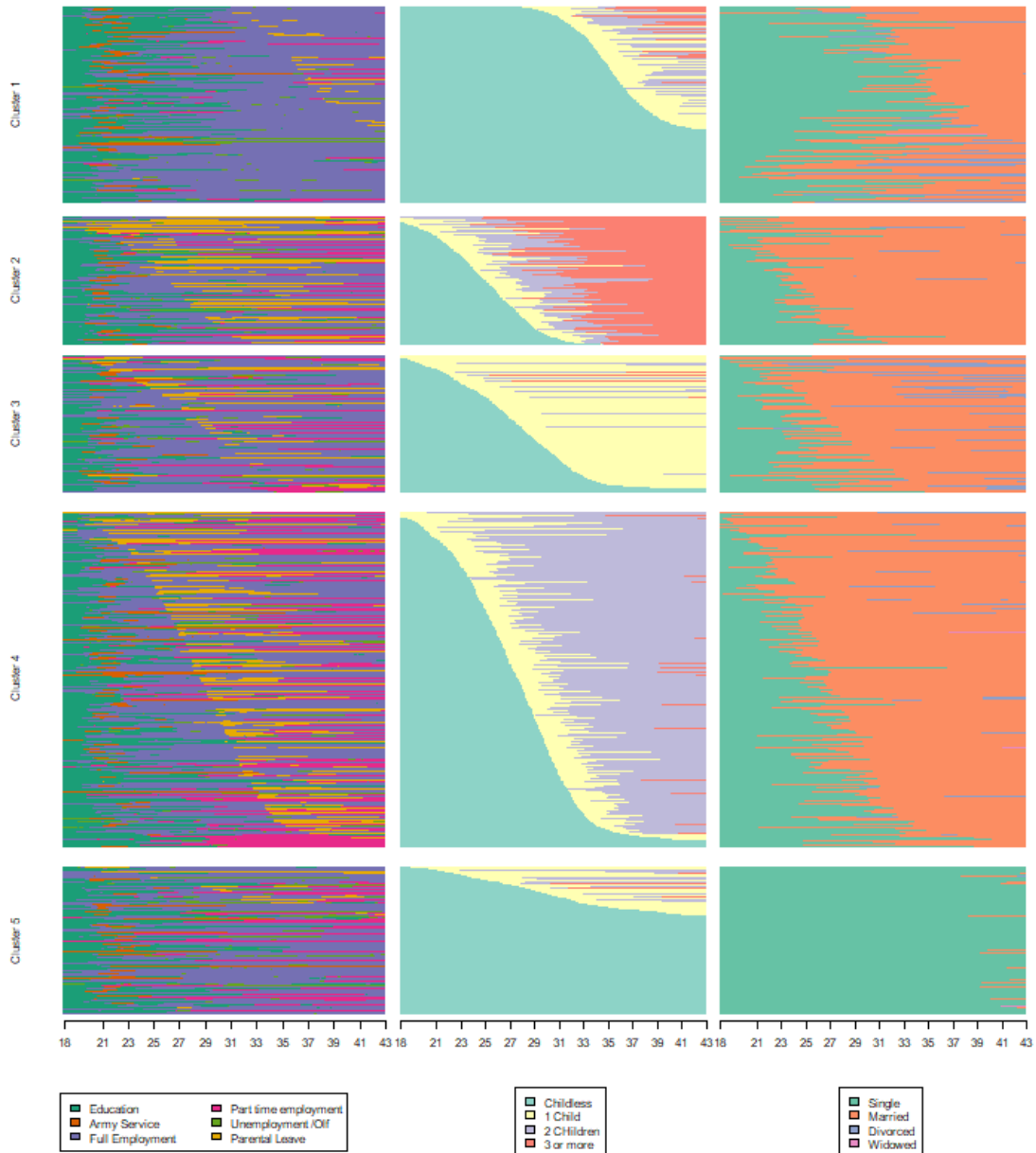


Figure 1: Full sample Sequence index plots. X-axis: Respondent's age. Each line represents a respondent's sequence. Sequences belonging to the same respondent are presented side-by-side. Within each cluster, sequences are ordered according to the timing of the first birth.

Clusters are ordered top-down from one to five in both graphs, and the vertical size of each group in fig. 1 is proportional to their relative frequency. In each cluster, the sequences are

matched by respondent and ordered according to the length of the first parental spell. State-distribution plots or chronograms also help in the interpretation of this outcome [Fig. 2].

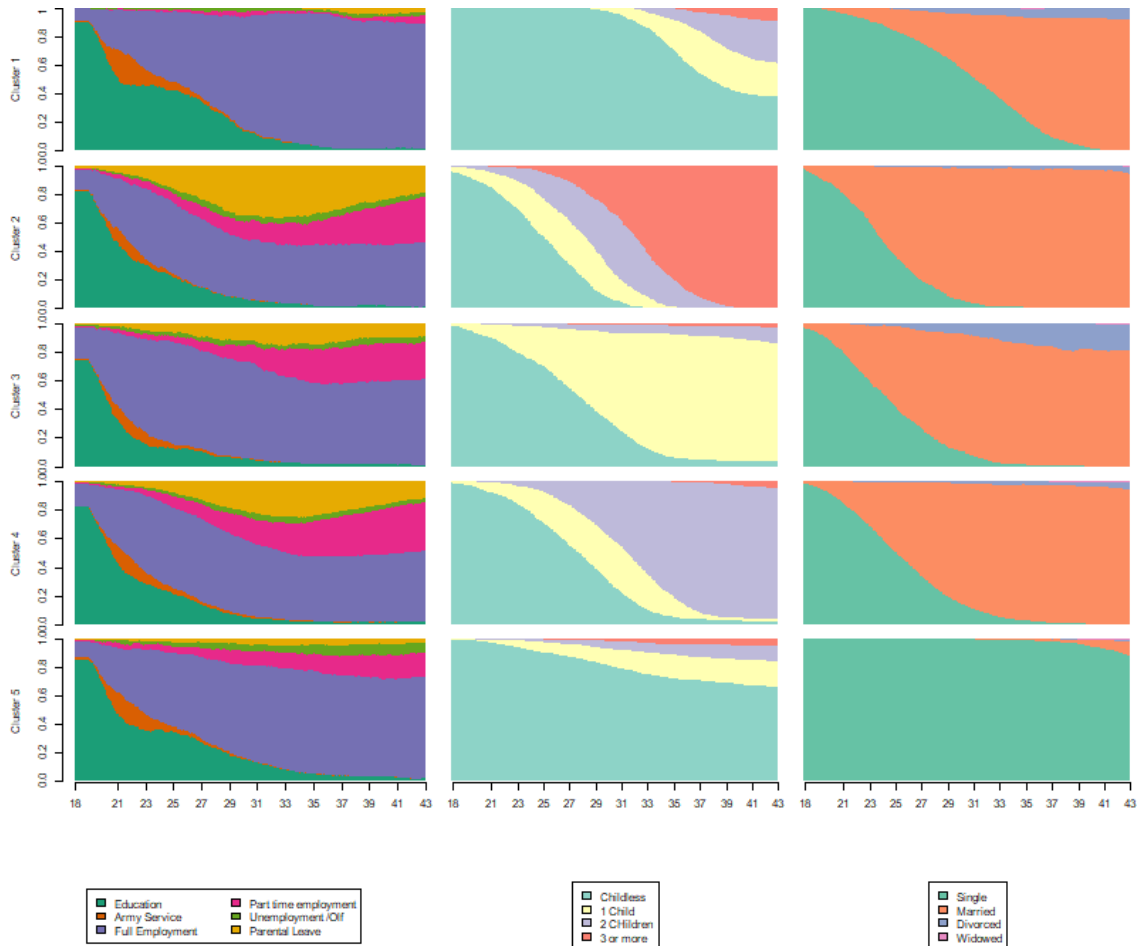


Figure 2: Full sample chronograms. Y-axis: Proportion of respondents that belongs to each state at the given age, X axis: Respondent's age. These chronograms, akin to side-by-side stacked bar plots, show how the distribution of respondents across the different states changes with the increasing of the respondents' age.

- **Cluster 1:** The first cluster or category of trajectories follows a distinct pattern of *full-time employment, late family formation*. This cluster is characterized by long full-time employment spells, which are often preceded by a long education spell, seldom interrupted by part-time employment or family related leaves.

For people belonging to this cluster, marital unions happen slowly, the average age at first marriage is 31 years old, 4 years more than the total average. At the same time, the mean

age at the first childbirth is very high (35 years old) and the average number of children per respondent is 1.66, which is way below the sample average (2.09), and around 40% of the respondents belonging to this cluster are childless at the end of the observational period. Looking at the distribution of states among frequencies over time (fig.2) we can see how, as time passes, the prevalent state shifts from education to full time employment. Not surprisingly this cluster (together with cluster 5) has one of the highest values for average time spent in education (77 months) and scores the lowest values both for average total time spent in parental leave (around 29 months, with an average spell length of 17 months) and part-time employment. This cluster accounts for 19.9% of the respondents.

- **Cluster 2:** The second cluster gathers respondents whose trajectories are characterized by *early, large families and disrupted employment patterns*. This is the smallest of the five clusters, accounting for only 13% of the respondents.

The occupational trajectories of this group see short employment spells interrupted by long streaks of family-related leave, especially in the central part of the observational period. The average duration of an employment spell for people belonging to this group is around 40 months (40.99 for full-time employment and 37.60 months for part-time). People belonging to this cluster score the highest average for time spent in parental leave, with an average total time of 118 months. Marital unions happen quite fast, the average age at first marriage being 25 years old, below the sample average, and by the end of the observational period the totality of the sample has three or more children, born with a generally short interval between them. The average age at first childbirth is low as well (25 years old) and the average number of children per person in this cluster is 3.45, which is way higher than the sample average. People belonging to this cluster also show short time spent in education, with an average total number of months spent in education of 57 (beyond the 18th birthday).

- **Cluster 3:** The third pattern we identified is characterized by the presence of a *single child, early marriage, and long employment spells*, usually full time, interrupted by a single parental leave spell, and part time afterwards. Interestingly, this group has the highest percentage of divorces within the observational period, and the lowest average when it comes to months spent in education (about 46 months). This is also the second smallest cluster, accounting for 14.5 % of the cases.

A quick entrance in the labor market is followed by decently long and continuous employment spells (the average length being of almost 50 months for full time employment spells and 49 months for part time spells). Family-wise, the average age at first marriage is of 26 years old, and the average age at first childbirth is 27 years old, the first childbirth being often the only one experienced, with an average of 1.26 children per person.

- **Cluster 4:** The fourth and larger group is similar to the third in terms of career trajectories, with *interrupted employment careers*, but with *small nuclear families* with one or mostly two children born within short distance one from the other. Typically, the respondent belonging to this group starts working full time, withdraws from the labor force for family reasons and then comes back working full- or part-time. This is the largest group of the five, with 33.75% of the respondents falling in this category.

Similar to the previous group, first marriage and first childbirth happen in the early part of the life course (on average when the respondents are respectively 26 and 27 years old), and the average number of children per respondent is 2.05, which is just below the sample average. For what concerns participation to the labor market, in a similar fashion as with cluster number 3, from the Index plot (fig.1), we see full-times careers becoming part-time after a family leave. This cluster scores the highest value for average overall time spent in part time employment (almost 110 months on average), and employment spells are on

average fairly long both for full- and part-time employment (about 45 months for both categories).

- **Cluster 5:** Finally, the fifth group is characterized by a prevalence of *continuous employment, singlehood and childlessness*. Looking at the state frequency plots, this group is dominated by single, childless respondents, although the index plot shows that there are also some “single parents”. In fact, the mean age at marriage (40 years old) is significantly higher than the mean age at first childbirth (29 years old). Childlessness prevails however, with an average number of children per person of 1.07.

The great majority of the occupational trajectories is composed by a long educational period (average time spent on education after the 18th birthday is almost 75 months), followed by long spells of full-time employment, with an average total time spent in full time employment of 183 months. Respondents in this group that are not childless have long, continuous part time employment trajectories. Parental leave lengths are relatively shorter than the other clusters (exception made for Cluster n. 1). This final group accounts for the remaining 18.7 % of the sample.

Table 3: Cluster-specific mean values for permanence in different states, values in months

	Education (incl.vocational)		Full time employment		Part time employment		Parental (family) leave	
	Total permanence	Spell length	Total permanence	Spell length	Total permanence	Spell length	Total permanence	Spell length
Cluster 1	77.82	26.61	201.7	46.46	31.49	18.68	29.41	17.77
Cluster 2	59.36	24.99	137.6	40.99	86.38	37.6	118.2	36.2
Cluster 3	46.88	24.07	181.7	49.94	104.5	49.14	59.87	33.63
Cluster 4	56.62	25.24	156.1	44.63	109.6	45.03	85.52	33.08
Cluster 5	74.77	27.68	183.5	46.17	81.32	36.67	55.42	29.48
Total	63.65	25.95	172.4	45.74	92.08	40.93	80.72	32.98

4.2 REGRESSIONS

For the second stage of the analysis process, we built one dichotomic variable for each category, and we used these variables as dependent variables for separated logistic regression models, one for each cluster. Consequently, for any regression model the positive outcome ($Y = 1$) is “respondent belongs to the considered cluster”, contrasted with “belongs to any other cluster”. For an easier interpretation of the regressions’ outcomes, we present them as marginal effects and differences in marginal probabilities, instead of logit coefficients or odds-ratios (Williams, 2012).

The tables that follow show differences in marginal effects for selection in our five clusters for our interacted coefficients (respondents’ sex and cohort of birth) [Table 4], while [Table 5] shows the original marginal effects for both men and women, across cohorts.

Contrary to the original hypothesis, as it is clearly visible in Table 4, there is an increase of the additional likelihood for women to be selected in clusters 2 and 4, the more “family oriented” clusters, over cohort of birth, and an increase in gender differences in the likelihood of being selected in a “career oriented” cluster (clusters 1 and 5). For example, women born in the oldest cohort are 12,5 percentage points *less* likely than men to be selected in Cluster 1 (as opposed to any other cluster), and this difference increase to 16 percentage points less for women in the youngest birth cohort. At the same time, women born in the oldest birth cohort are 2,5 percentage points *more* likely than men to be selected in cluster 2 rather than in any other cluster, and this difference increases to almost 9 percentage points for the youngest cohort. At a first glance therefore, it seems that there is not only no evidence for a weakening of traditional gender roles and no convergence of life courses, but on the contrary the data seem to support a strengthening of the “genderization” of the life course.

Table 4: Difference in probabilities of being selected in given cluster (Womens' probability – men's probability, percentage points), over birth cohorts (s.e. in parenthesis)

	Cluster 1 (Full time employment, late family formation)	Cluster 2 (Disrupted employment, early, large family)	Cluster 3 (Long employment, single child)	Cluster 4 (Interrupted careers, small family)	Cluster 5 (Continuous employment, childlessness and singlehood)
<hr/>					
Women - Men					
1946 to 1950	-0.125*** (0.02)	0.025 (0.02)	0.074** (0.02)	0.093*** (0.03)	-0.067** (0.02)
1956 to 1960	-0.168*** (0.02)	0.054** (0.02)	0.065*** (0.02)	0.086*** (0.02)	-0.037* (0.02)
1966 to 1970	-0.160*** (0.02)	0.089*** (0.01)	0.024 (0.01)	0.107*** (0.02)	-0.060** (0.02)
Observations	4918	4918	4918	4918	4918

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Those differences in probabilities are however to be interpreted jointly with the differences across cohorts within the same gender category. In fact, while the differences in probabilities between men and women increase, at the same time women born in younger cohorts are more likely to be selected in cluster 1 and 5 than women born in the oldest cohort, respectively by 4,2 and 6 percentage points. The difference between men and women is therefore in the size of the increase in probability of being selected in those two clusters.

The increases in the difference between probabilities of being selected in cluster 2 and cluster 4 derive from two different mechanism: on one hand, the increase across cohorts in the probability for women to be selected in cluster 2 (+2.3 p.p. against a 4.2 p.p. decrease in the same probability for man), on the other hand in a decrease across cohorts of the probability of being selected in cluster 4 smaller than the decrease experienced by men. At the same time, for cluster 3 we observe a reduction in difference that derives from a decrease of the probability of being selected in that cluster rather than in any other cluster that is faster for women than it is for men.

Table 5: Marginal effects (i.e. probabilities of being selected in each cluster) for respondents' sex over cohort of birth (s.e. in parenthesis).

	Cluster 1 (Full time employment – Late family formation)	Cluster 2 (Disrupted employment – early, large family)	Cluster 3 (Long employment, Single child)	Cluster 4 (Interrupted careers, small family)	Cluster 5 (Continuous employment, childlessness and singlehood)
Men #	0.230***	0.108***	0.154***	0.311***	0.197***
1946 to 1950	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
Men #	0.280***	0.128***	0.114***	0.290***	0.189***
1956 to 1960	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
Men #	0.307***	0.066***	0.102***	0.274***	0.251***
1966 to 1970	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Women #	0.105***	0.132***	0.228***	0.404***	0.131***
1946 to 1950	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
Women #	0.112***	0.183***	0.179***	0.376***	0.151***
1956 to 1960	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Women #	0.147***	0.155***	0.126***	0.381***	0.191***
1966 to 1970	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Observations	4918	4918	4918	4918	4918

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Looking at how probabilities of being selected in one cluster instead of the others change across cohorts, we can see evidence for a polarization of women's trajectories, with an increase in the probability of being selected either in the two career-oriented, small and/or late family clusters (1 and 5), or in the cluster number two (large families, disrupted employment). At the same time, men's life trajectory shift in the career-oriented direction with an increase in the probability of being selected in clusters 1 or 5 accompanied by a decrease of the probability of being selected in the remaining family/balance-oriented clusters.

5. DISCUSSION AND CONCLUSION

This study aimed to investigate patterns of labor force participation and family formation among three different birth cohorts of West-Germans in the second half of the 20th century. The aim of this work was twofold: first, to identify patterns of combined labor market participation and family formation for the time period and geographic area considered and second, to investigate whether there was a reduction in differences – a convergence – between men's and women's life trajectories.

Using MSA, we identified five different major patterns of family formation and labor market participation followed by men and women in our sample through their (early) adulthood years. Each of these patterns is represented in the data by a different cluster of sequences, which present a different combination of workforce participation and marital and parental patterns. Each of these five clusters represents one main typology of multidimensional trajectory, some more “family oriented” in the traditional sense (i.e., Cluster 2 and 4), some others more “labor market oriented”, for choice or for need (i.e. Cluster 1, 3, and 5). It is difficult to identify clearly a “balance oriented” type of trajectories, but Clusters number 3 and 4 could fit this part, while Cluster 2 is more clearly family oriented, and Cluster 5 and 1 are clearly more oriented toward labor market participation.

Given the literature consensus on individualization of life courses through the 20th century, we expected to find evidence for a convergence between life courses of men and women over the period that we considered. Furthermore, we considered the weakening of traditional institutions' constraints on the individual's life course, and evidence across Europe of the fact that women's and men's life courses are getting more similar over time. In order to test this hypothesis, as second part of the analysis we conducted logistic regression analyzing the combined effect of the respondent's sex and birth cohort over the probability of being

selected in each of the clusters instead of the others. What we expected was a reduction in differences between men's and women's probabilities of being selected in career-centered lifestyles.

The results of the logistic regressions seem to contradict our original hypothesis of de-traditionalization of the life course, as they instead seem to confirm the persistence across cohorts of a strong gendered division of roles and labor (i.e. along the lines of the female homemaker – male breadwinner model). Although both men and women move in similar directions toward career-centered life courses, and the youngest cohort of women is more likely to be selected in career-centered clusters than the oldest cohort, women in the youngest birth cohort are still less likely than men to be selected in career-centered clusters.

All things considered, it looks like the differences in probabilities between men and women are, with the exception of cluster 2, determined by differences in “speed” of changes that go in the same direction. Our data offer on one hand evidence for a shift of women's life trajectories towards more employment-centered patterns, but with different speed than the comparable men's trajectory shift. On the other hand, the data bring evidence for an increase of the probability for women of having fragmented careers and family-centered life courses, with the “middle ground” represented by clusters 3 and 4 gradually disappearing.

This permanence of “traditional” divisions of patterns of life was not expected, at least in this extent, but mirrors Mills' (2007) warning about the real extent to which life courses are individualized.

Our analysis uncovered an increase the differences in probability of being selected in career-oriented clusters between men and women widen across cohorts, instead of disappearing or reducing as expected. At a more comprehensive analysis, it is important to note that the process seems more complex than a simple “divergence” between men's and women's

trajectories. When the dynamics of how the separate probabilities of being selected in each cluster are taken into account, we can see that men and women are moving in a similar direction, but with different speeds. Moreover, changes of the probabilities over time are often of difficult interpretation given the reduced number of observations (only three cohorts), and in some cases a clear direction of the trend is not easily identifiable.

All in all, the data still seem to point to a process of polarization of women's combined trajectories either in the direction of career-centered work trajectories and late family formation or singlehood and childlessness or towards a family-centered lifestyle with fragmented work trajectories and big families, while men seem to move homogeneously towards career-centered work trajectories combined with late family formation or singlehood and childlessness as well.

One possible explanation for the increase in likelihood of being selected in a family centered, interrupted employment clusters, is the introduction in the '70s of a strong parental leave legislation, that allowed women to exit the labor market to take care of their kids with a guaranteed return afterwards. For the sake of simplicity and because of its exploratory nature, our analysis ignores the various legislative frameworks regarding maternity leave, whose impact in female labor force participation has been explored for example by Drasch (2013), as well as other period effects of this kind.

We set the last birth cohort at 1965-1970 due to the nature and availability of the data used, and in order to have an observational window of 25 years. Smaller birth cohorts and a shorter observational window could help in improving the number of cohorts observed, and could show a clearer picture of the dynamics considered. A simplification of the overall number of states and combination would probably also bring forth increase in the clustering quality, at the present time quite low (ASW is 0.18 and PBC 0.42).

Still, our findings in this study are coherent with previous works on the subject, such as the 2011 paper by Simonson and colleagues, that highlights an increase in part-time labor market participation for women and a movement away from homemaking careers that still did not end up with egalitarian labor market participation (Simonson et al., 2011), and with the findings of other recent researches that point out how in the German context women are either still sticking to “traditional” gender roles or deterred by the institutional framework and lack of alternatives and participating less to the labor market than their counterparts in social democratic welfare regimes (Gustafsson, Wetzels, & Vlasblom, 1996) or in liberal welfare regimes (Drobnic, Blossfeld, & Rohwer, 1999; Grunow, Hofmeister, & Buchholz, 2006).

In a comparative perspective, differently from the English case (McMunn et al., 2015), we do not find strong evidence for a convergence of life course trajectories of women and men on full-time employment trajectories, but our results suggest a more complex polarization between employment and homemaking. Nonetheless, there are some similarities between the English and the German situations, such as an increase across cohorts of trajectories with postponement of family formation and long periods of childlessness, such as Clusters 1 and 5. Our research also relates to the findings of Widmer and Ritschard (2009) for the Swiss context, with younger cohorts having more likelihood than older cohorts for being selected in slow parenthood and marriage trajectories, but with women still more likely than men to be selected in mixed or home centered occupational trajectories, although their cohorts are older than the ones considered by us. It is also coherent with Elzinga and Liefbroer (2007) finding of increased late parenthood and family formation for women in conservative countries. This shift towards a pattern of later parenthood coupled with late marriages is also coherent with the findings of Lesthaeghe (2011) regarding the different second demographic transition patterns. We think additional research in this direction is necessary with the

extension of the sample to East Germany, and a cross-country comparison for the two German States using the same cohorts.

All things considered, we think this paper serves as a useful first step towards a more comprehensive and in-depth descriptive analysis of life trajectories of German men and women and their change across generations, as it brings more light on the subject from a different perspective and helps to highlight the importance of a sequence-based approach for life courses analysis.

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