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From lone wolves to serial cohabitors:

Union trajectories to childlessness

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From Lone Wolves to Serial Cohabitors: Union Trajectories to Childlessness

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Abstract

Background

Childlessness has increased in many European countries. Partnerships and parenthood are obviously closely related, but there is relatively little knowledge on how childlessness is linked to contemporary union dynamics involving high rates of separation and unmarried cohabitation.

Objective

To situate childlessness in longitudinal dynamics of union formation and stability, we take a holistic life-course approach to union trajectories that consist of states entered via the formation and dissolution of cohabitations and marriages. Concretely, we identify the typical union pathways (from age 18–39) of individuals that are childless at age 42.

Methods

We analyse register data on Finnish men and women born 1969 and 1970 (childless N=3,241) with sequence, cluster and multinomial logistic regression methods.

Results

Four typical union pathways were identified among the childless: *Lone wolves* (45%), characterised by never having entered a co-residential partnership, or just having entered a cohabitation near age 40; *Briefly cohabited* (25%), characterised by mostly living singly after a brief cohabitation spell, *Cohabitors, often serial* (19%), marked by typically discontinuous cohabitation; and *Married* (11%). Men, persons with a rural background, and the lowest and highest educated, are overrepresented among the *Lone wolves* childless.

Conclusion

For the great majority of childless in our study cohorts, union trajectories are marked by either (almost) complete absence of co-residential unions, or fragmentary cohabitation histories.

Contribution

The study contributes to the literature by showing that union histories, including never partnering as well as cohabitation instability, are key for understanding contemporary childlessness.

1. Introduction

Childlessness, defined as reaching the end of one's reproductive life without entering parenthood, has increased in most European societies, although the trends vary substantially (Beaujouan, Brzozowska, and Zeman 2016; Miettinen et al. 2015). These developments have fuelled interest in the reasons for childlessness (Kreyenfeld & Konietzka, in press). Most empirical research on antecedents of childbearing has concentrated on women, and on the complex and changing influences of education and employment (e.g. Andersson et al., forthcoming; Beaujouan, Brzozowska, and Zeman 2016; Mynarska et al. 2015).

Besides education and employment, partnership status and history are a key for understanding childlessness. Some women have children outside of co-residential partnerships, but a stable partnership is usually viewed as a precursor for childbearing. Not being married, never having married, and having divorced are important predictors of childlessness (see Keizer at al 2008; Portanti & Withworth 2009; Tanturri et al. 2015). Yet little is known about how childlessness is linked to contemporary union dynamics involving high rates of separation and unmarried cohabitation. Across rich democracies, young adults increasingly postpone or forgo marriage. Some of this is compensated by an increase in unwed cohabitation but, although cohabitation is increasingly also an arena for childbearing, married couples enter parenthood at a much higher rate (Jalovaara & Miettinen 2013). Similarly, while divorce rates are high, separation rates for cohabitations are manifold (Liefbroer & Dourleijn 2006; Jalovaara 2013).

Childlessness seldom results from a single decision at a young age, but more often follows from successive decisions or constraints that lead to perpetual postponement of parenthood (Berrington 2004). Several scholars stress that childlessness is ideally studied from a life-course perspective (see Berrington, *in press*; Mynarska et al. 2015). To date, life course studies on union pathways of the childless have relied on isolated summary measures such as the number of unions: A Dutch study (Keizer et al. 2008) showed that not having had a partnership and having had more than one partnership both strongly predict childlessness, especially among men.

This study aims to identify the typical longitudinal union trajectories of the childless going beyond isolated summary indicators. We take a holistic life-course approach to union trajectories that combine states entered via the formation and dissolution of cohabitations and marriages. This enables us to situate childlessness in the dynamics of union formation and dissolution. In addition to research on specific events and summary measures, our sequential approach can inform how the joint occurrence, timing and duration of multiple states in a union trajectory are associated with childlessness.

In Finland childlessness has increased continuously and now is highest among Nordic countries (Andersson et al. 2016). We focus on Finnish men and women born 1969 and 1970 who are childless at age 42 and their union trajectories from age 18–39. We use sequence, cluster and multinomial logistic regression methods to briefly compare the union trajectories of the childless to those of parents; then to identify clusters of typical union trajectories of the childless; and finally, to show how the clusters vary in terms of gender, education, and rural-urban residence.

2. Data and methods

2.1 Data

We use data that were compiled at Statistics Finland (permission TK53-663-11) by linking data from different register sources. The extract used in this study is taken from a random 11% sample of persons born between 1940 and 1995 who had been recorded in the population of Finland between 1970 and 2010. There are full histories of co-residential partnerships for the sample persons until 2009 and histories of childbearing, education, and additional information until 2012. Finnish registers contain information on place of residence down to the specific dwelling, thereby enabling the linkage of partners to co-residential couples even if they are unmarried and childless. Since 1987, the union histories cover not only marriage but also cohabitation. For details on how cohabitations are inferred, see Jalovaara and Fasang (2015).

This study focuses on the birth cohorts 1969 and 1970 because they have the longest complete union histories: the 1969 cohort is the oldest to have histories of all co-residential unions from their 18th birthday. Currently, our data enable us to study their full union trajectories up to the age of 39, and childbearing until age 42.

We focus on childless persons, but include parents in the first descriptive step. Childlessness indicates whether or not the person had at least one registered (biological) child at age 42. Unlike is usually the case in surveys data, en's childbearing is almost as completely covered as women's: for only 1.3% of the children in our data there is no father registered. While measuring childlessness at age 45 or 50 would be ideal, 42 is what these otherwise rich and detailed data allow.

We begin with a sequential representation of family trajectories of childless and parents from ages 18 to 39 that comprise 259 months for both cohorts (N=12,951). Individuals who died or emigrated between ages 18 and 39 were excluded. The sequences of union histories distinguish between "never partnered" (NP), "cohabiting" (C), "married" (M), and "previously partnered" (PP). The two single states "never partnered" and "previously partnered" are distinguished because for childlessness it is theoretically meaningful whether individuals never found an adequate partner or separated from a partner with whom parenthood might have been possible.

In our study cohorts, 29% of men and 20% of women (N=3,241, 25% of all) were childless at age 42. We focus on typical union pathways of the childless. First, we present a descriptive graphical comparison of the union trajectories of the childless to those of parents to highlight how the childless differ from the rest of the population. Then, we zoom into the heterogeneity within the subgroup of childless and identify typical profiles of union trajectories for them. Subsequently, we present a brief description of how the likelihood of following each type of union pathway varies by gender, education, and urban-rural residence. Education is measured as the highest attained level at age 39. Place of residence is measured in childhood (age 10–11). Results were robust when using place of residence at age 39–40 instead. For variable categories, see Table 2.

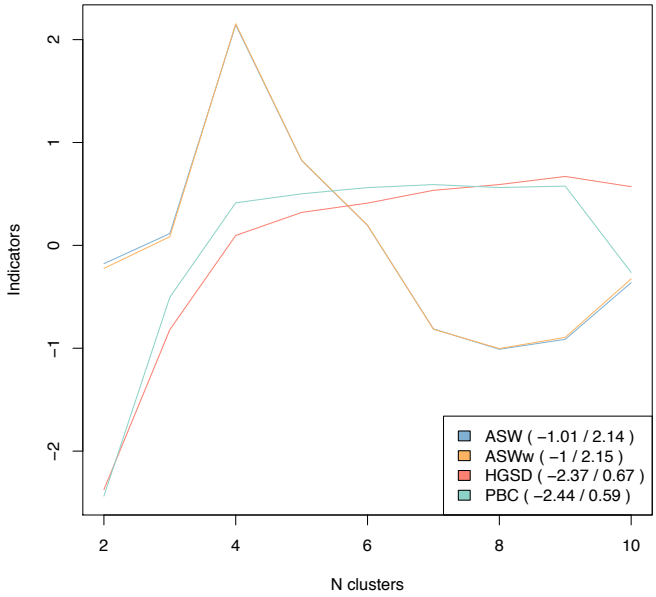
2.2 Methods

We first used sequence analysis (Abbott 1995) to graphically compare the union trajectories of the childless and parents. Subsequently, sequence and cluster analysis are used to identify clusters of union pathways that represent collective patterns among the childless.

For the sequence analysis, Optimal Matching (OM) with constant substitution costs of 2 and indel costs of 1 (half the maximum substitution cost) is employed to assess the similarity each possible pair of union sequences (MacIndoe and Abbott 2004, Aisenbrey and Fasang, 2010). This cost setting is well suited for identifying sequence similarity both in terms of the order and timing of relationship states (MacIndoe and Abbott 2004). Results were substantively robust to other cost specifications including the Dynamic Hamming Distance (Lesnard, 2010). OM yields a pairwise distance matrix that contains a distance value for each possible pair of union trajectories.

Ward cluster analysis considering several cluster cut-off criteria is applied to the sequence distance matrix to identify the most discriminant groups of typical union trajectories among the childless (see Studer 2013). Several cut-off criteria in Figure 1 support a grouping into four clusters. The weighted Average Silhouette Width for four clusters is 0.56 and indicates a clear structure in the trajectories (ibid.). Four clusters also proved substantively meaningful, thus meeting the criterion of construct validity (Aisenbrey and Fasang 2010).

Figure 1. Cluster cut-off criteria for different numbers of clusters.



We visualize the typical union trajectories using relative frequency (RF) sequence plots (Fasang and Liao 2014, see also Raab et al. 2014), first separately for the total groups of

childless and parents, and then for each union cluster of the childless). RF sequence plots visualize a selection of representative sequences as sequence index plots, because plotting each individual sequence is impossible given the large sample size. Each line in the figure represents one individual sequence. The timeline is age, displayed on the x-axis. First, the sequences are sorted according to the first factor derived from Multidimensional Scaling (MDS) using the distance matrix derived with OM. Sorting on the first factors derived with MDS provides a substantively meaningful sorting criterion that is derived from the data and not determined by the researcher (Piccarreta and Lior, 2010). Then, the sorted set of sequences is partitioned into k equal sized frequency groups. For each frequency group the medoid (i.e. the sequence with the lowest sum of distances to all other sequences in the frequency group) is selected as a representative. The corresponding distance-to-medoid box plots visualize the distances of all sequences in a frequency group to their medoid and thereby indicate cluster homogeneity at different regions of the sorted sequences. High average distance to the medoid indicates high sequence heterogeneity.

3. Results

Figure 2 shows the RF sequence plots for the total populations of childless and parents at age 42. The main observation is that the majority of parents are married by age 39. A notable proportion of parents also have continuously cohabited, and some have experienced union dissolution – presumably in most cases only after parenthood. In contrast, the union pathways of the childless are characterised by never partnering, cohabitation instability, and little marriage.

[Figure 2]

[Figure 3]

Figure 3 shows the RF sequence plots for each of the four clusters of union trajectories only among the childless. Table 1 summarizes information on the size of the cluster, average sequence complexity (Elzinga 2010), and average sequence distance (as an indicator of cluster homogeneity) for each cluster.

The four clusters are labeled 1) *Lone wolves,* 2) *Briefly cohabited,* 3) *Cohabitors, often serial,* and *4) Married.* The *Lone wolves* cluster is largest, covering 45% of the childless sample. It is characterized by never having lived in cohabitation or marriage or, for some, just entering cohabitation nearing age 40. This cluster, with the lowest sequence complexity and largest homogeneity, represents the continual absence of union formation (Table 1).

Table 1. The union trajectory clusters; distributions, mean complexities and average sequence distances.

	Union trajectory cluster				
	1) Lone wolves	2) Briefly cohabited	3) Cohabitors, often serial	4) Married	All
N	1463	805	601	372	3241
%	45	25	19	11	100
Mean complexity	1.4	6.8	7.0	6.1	4.3
Average sequence distance	8	57	56	59	81

The second and third clusters cover 25% and 19% of the childless, respectively and 44% of the childless in total. Cluster 2, *Briefly cohabited,* is characterised by a short cohabitation spell followed by living alone. Very few have repartnered by age 39 and equally few were married for a short time at a rather young age. Cluster 3) *Cohabitors, often serial* is marked by cohabitation throughout most of the trajectories. Most of the cohabitation histories are discontinuous with unpartnered periods in between.

The last cluster 4) *Married* is smallest (14%), characterised by marriage predominantly entered by age 35. A large proportion of these marriages are stable in that they have not ended by age 39, but the cluster also covers previously married individuals. The most complex trajectories in the married cluster represent those who have repartnered after first marriage. Of all four clusters, the *Married childless* is the most heterogeneous one, as measured by the average sequence distance.

In sum, for the great majority of the union trajectories of the childless are marked by (almost) complete absence of co-residential unions, or fragmentary cohabitation

histories. The clearest exception to this is the *married* cluster, which likely covers voluntarily and involuntary childlessness.

Table 2 shows, average marginal effects from a multinomial regression model for the association between background variables and the union trajectory clusters of the childless. Male gender, low or high education, and rural background increase the likelihood of being in the 'lone wolves' pathway. Higher tertiary education predicts being in the 'married' pathway. Contrary to the 'lone wolves' urban and semi-urban residents are more likely to remain childless with fragmentary cohabitation trajectories.

Table 2. Associations between the three background variables and union pathway among the childless. A multinomial regression model of union pathways among the childless; average marginal effects at means, and their standard errors (in parentheses).

	Union pathway (among childless)			
	1) Lone wolves	2) Briefly cohabited	3) Cohabitors, often serial	4) Married
Gender (ref: Male)				
Female	-0.15	0.07	0.04	0.03
	(0.018)	(0.016)	(0.015)	(0.012)
Education (ref: Basic)				
Secondary	-0.04	-0.05	0.03	0.05
	(0.026)	(0.023)	(0.019)	(0.013)
Lower tertiary	-0.09	-0.04	0.05	0.08
	(0.029)	(0.025)	(0.022)	(0.016)
Higher tertiary	-0.03	-0.06	-0.01	0.10
	(0.034)	(0.029)	(0.024)	(0.021)
Place of residence (Ref: Urban)				
Semi-urban	0.01	-0.01	0.02	-0.02
	(0.023)	(0.020)	(0.019)	(0.014)
Rural	0.10	-0.08	-0.03	0.00
	(0.023)	(0.018)	(0.017)	(0.014)

4. Conclusions

Childlessness has increased across Europe yet we have a limited understanding of its antecedents. This study complements previous research that usually compares childless persons and parents, thereby neglecting within-group heterogeneity of the childless. Our

results strongly suggest that partnership histories are key for understanding contemporary childlessness. Specifically, we find a polarization into either never partnering or unstable cohabitation histories among the childless, with only a small group of married childless. The never and previously partnered are possibly dating and involved in Living Apart Together relationships, but they do not reach a stage where the partners would move in together or marry.

There are remarkable differences in the union pathways of the childless and parents as well as within the group of childless. Our findings resonate with subjective accounts: in a recent Finnish survey, the lack of a suitable partner was the most important reason for postponing or giving up childbearing plans (Miettinen 2015). These findings suggest that policy measures to decrease childlessness that are directed at couples who hesitate with childbearing may be inefficient. Childlessness likely has deeper roots in individual biographies and local partner markets that lead to never partnering and union instability.

Much of recent research attention has been directed at the link between education, employment and childlessness, mostly among women. Our findings suggest that union dynamics are a part of the story. Likely education, employment and partnership trajectories jointly create opportunities, obstacles and motivations to entry into parenthood. Future research should consider this interplay.

5. Acknowledgements

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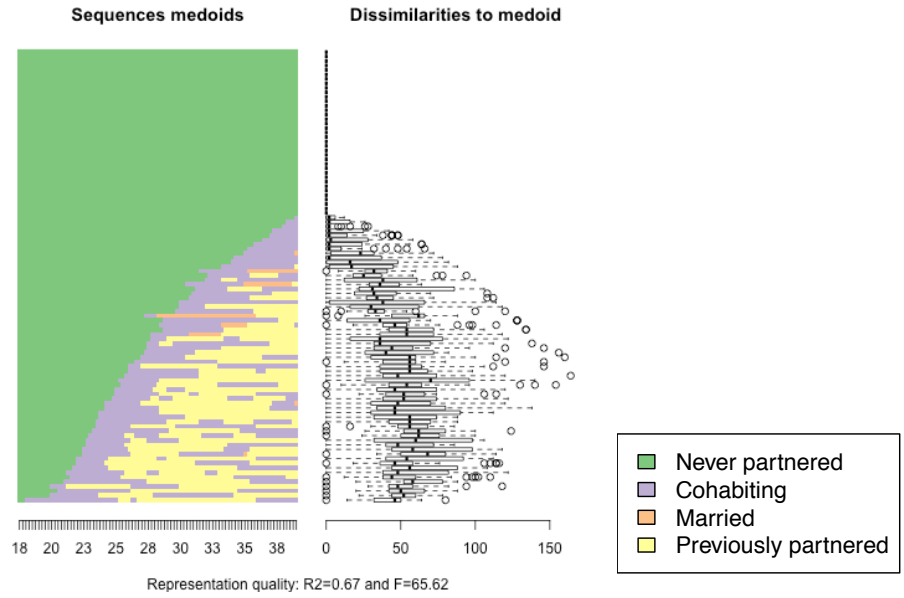
Figure 2. Union pathways of the childless (A) and parents (B) at age 39; relative frequency sequence plots, representative sequences.

A. Total, childless



B. Total, parents

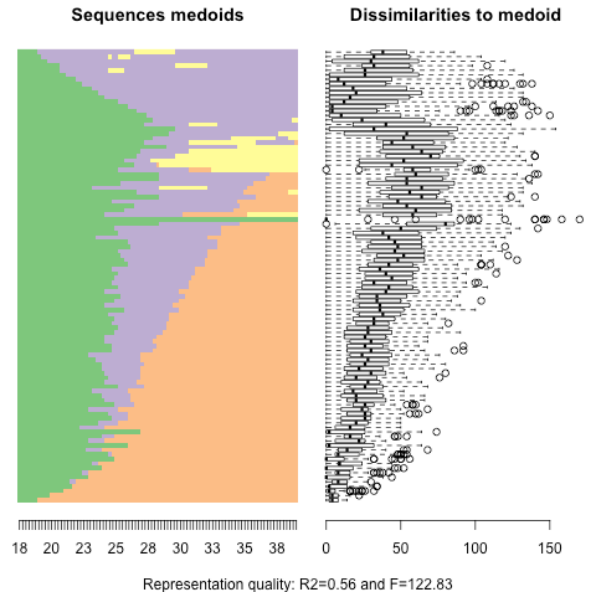
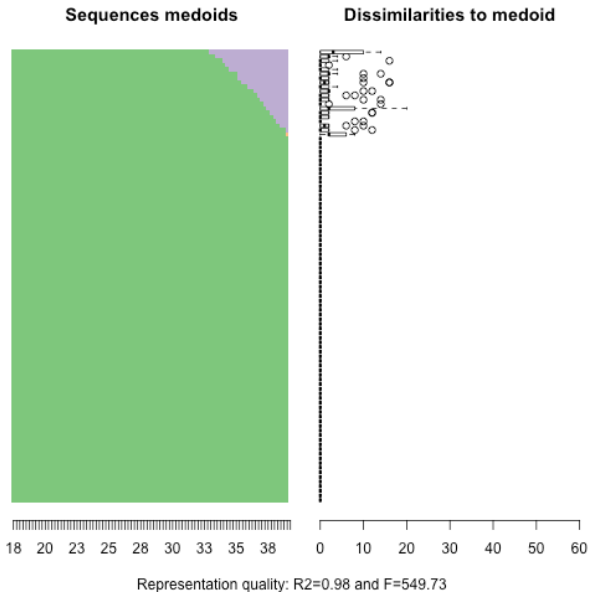
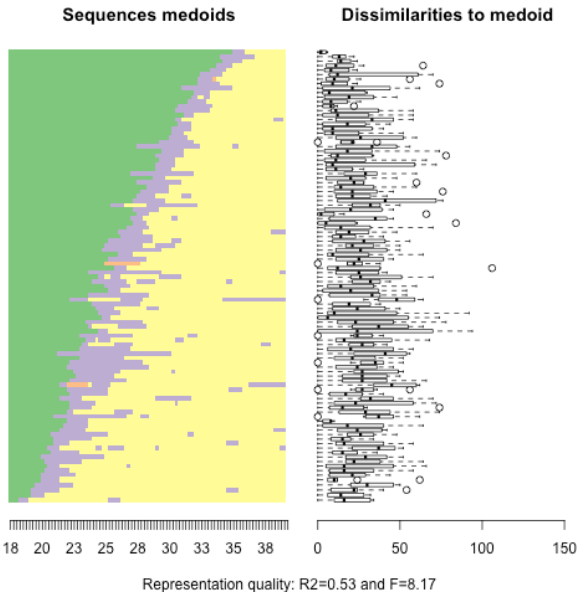


Figure 3. The four union pathways of the childless; relative frequency sequence plots, representative sequences

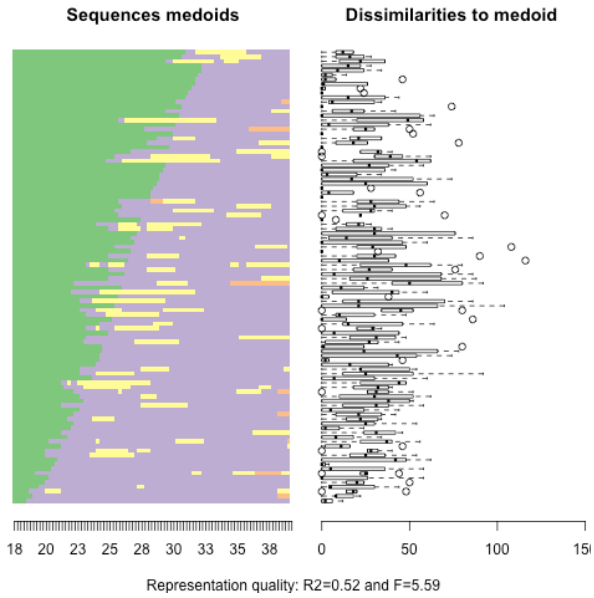
1) Lone wolves, 45%



Briefly cohabited, 25%



3) Cohabitors, often serial, 19%



4) Married, 11%