Mapping Complex Family Trajectories in the Childhood Life-Course

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Introduction

INTRODUKTIONSTEXT HÄR

SISTA STYCKET:

The objective of this thesis is describe children's family trajectories and to classify these trajectories according to the most common types of family experiences. I will also investigate the relationship between the different family trajectory groups and mother's educational level and country of residence. This will be accomplished by generating a set of family history sequences for European children, based on the Harmonized History dataset. Analysis will be performed by an exploratory sequence cluster analysis, followed by an analytical definition of sequence clusters derived from the results of the cluster analysis. I will also perform a decomposition of all family sequences and see how much of the variance that is explained by the mother's level of education and country of residence.

Background

We currently see that partnership unions frequently end, with 46% of unions in Sweden, 38% in Germany and 19% in Italy all having been disbanded within 10 years. In the same countries, we also see that the percentage of children experiencing parental separation by age 15 is 28% in Sweden, 18% in Germany and 12% in Italy. Of these children, the percentage having entered a stepfamily within six years is 40% for Sweden, 24% for Germany and 14% for Italy (Andersson, Thomson, and Duntava 2017). These illustrative numbers provide us with two important pieces of information: Firstly, that processes leading to family complexity are common in Europe and secondly, that the degree to which these processes occur differ greatly between European countries.

Apart from these national differences, we have also seen dramatic changes over time. In particular during the latter half of the 20th century. Looking at the Crude Divorce Rate (CDR), Sweden experienced a shift from almost 0 (per 1000 persons) in the

period 1920-1924 to a peak of around 3 in the late 1970's before lowering to around 2 in 2010 (Härkönen 2014). In Southern Europe this divorce trend started later. In Spain the CDR was just over 0 up until the early 1980's before reaching similar levels as Sweden in 2010 (Härkönen 2014). Although the timing differs the patterns are similar. Studying the phenomenon from an explicit child-centered perspective, Thomson (2014) found that the four driving processes of family complexity, births to lone mothers, separation, remarriage and multipartner fertility, were all on the rise or just recently leveled off at high levels. The rise in divorce, among other process, have led to the proposal of competing theories which try to account for these processes.

Theory and previous research

Life course theory

This thesis will draw on life course theory and the discourse on family complexity as the theoretical underpinnings and research context in which the findings will be situated. According to Elder et al. (2003), life course theory came about from a "desire to understand social pathways, their developmental effect, and their relation to personal and social-historical conditions". Since its incipience in the 1970's, the *life course* has grown from a scientific idea to a theoretical framework and even a research field in its own right. With the launch of *Advances in Life Course Research* as a quarterly journal, it was declared that the life course is coming of age (Billari 2009).

The main theoretical concepts from the mature life course research which will be used in this thesis is those of *transitions*, *trajectories*, *pathways* and *linked lives*. *Transitions* are state changes that are discrete and time-bound (George 1993). These can occur in multiple domains – such as the social, biological, or economic – and examples include divorce, menopause or getting a driver's license. In turn, multiple transitions make up life *trajectories*. These consists of longer periods of change and stability, and although marked by a series of transitions they have a continuity of direction (Hutchison 2005). A family formation trajectory by Hollywood blueprint would consist of dating followed by cohabitation and finally a wedding, marking a transition into married life.

Just as trajectories are made up of a set of transitions, *pathways* are constituted by interlocking transitions and trajectories across time and domains (Macmillan and Copher 2005). In particular, pathways are often in relation to entering and exiting

social institutions such as a career or family. Although the combinatorial possibilities of transitions and trajectories are vast, the number of actualized pathways are usually limited and in relation to normative systems (White and Wu 2014). A way of thinking about pathways is that they are lived in relation to schema; that is, blueprints of culturally appropriate behavior, which are enacted more or less consciously (Sewell 1992). Schema inform individual heuristics for the temporal organization of the life course be providing a set of rules and models for how to link pathways over time (Macmillan and Copher 2005). A modern Scandinavian pathway in relation to family formation would be forming a cohabiting union followed by having children, skipping the previously normative transition of marriage (Hofäcker and Chaloupková 2014).

Although often emphasized in the literature, the power of normative schema in shaping the individual life course has been contested (Macmillan 2005). Apart from norms, institutional and structural processes also shape lives and are able to produce homogeneity in life patterns (Marini 1984). A further way of thinking about pathways, uncommited to theoretical assumptions about their generation, is simply as a set of probabilities of transitioning between different states. But rather than a set of independent probabilities, they are path dependent with a certain degree of historicity, which can give rise to common patterns in a population (Rutter 1989).

Finally, a central idea in the life course framework is that of *linked lives*. This concept highlights the interdependence of our lives and that transitions that occur in one persons life often entail transitions for other people (Glen H. Elder, Johnson, and Crosnoe 2003). This principle has particularly been applied in studies on the family and intergenerational relations (Carvalho, Nico, and Carvalho 2021). Already in one of the first studies using a life course perspective, Elder (1974) found that children's development could be impeded by the economic hardships experienced by their parents. This interdependence between parents and children, and how their social lived are intertwined, has since been explored in much depth and breadth.

Causes and consequences of family complexity

The second main scholarly context of this thesis is in the field of family complexity. Complexity in this domain has been defined as the combination of family structure and sibling composition during childhood (Manning, Brown, and Stykes 2014). Where a "simple" family may be defined as a household with both parents present and a few number of full-siblings, a complex family may consists of step-parents as

well as half- and step-siblings. The four main demographic drivers of complexity are birth to lone mothers, separation and divorce, repartnering, and multi-partner fertility (Thomson 2014). These events are primarily driven by the adults involved but clearly have consequences for the family life of children. Thus, we see how the concepts of family complexity and linked lives are tied together.

Using data from the Survey of Income and Programme Participation (SIPP) Manning et al. (2014) describe changes in family complexity for US children over the period 1996-2009. The share of children who at the time of interview were living in a complex household — defined as living with either a step-parent, single parent, or full- or half-sibling — increased from 30.8 to 33.6 percent. The authors found that family complexity was especially prevalent in families where neither parent had a college degree as well as for Black children. However, the steepest increase in complexity during the observation period was found among Hispanic children. Further analysis of the SIPP showed that in 2008, the income-to-needs ratio for children in complex families was 2.0, contrasted to 3.0 in simple families (Brown, Manning, and Stykes 2015). Further, 28.3 percent of complex families received public assistance (compared to 17.4 percent of simple families), on average. This indicates that family complexity is more common in marginalized groups.

A note on joint physical custody

Data and Methods

Data

In this section I will outline the data used as well as the analytical strategy used to provide descriptive statistics on children's experiences of family transitions. The data comes from birth and union histories in the Harmonized Histories data set. This data set is compiled from a set of national surveys, primarily the Generations and Gender Survey, but also with other nationally representative surveys on partnerships and childbearing.

I start of by excluding several countries from the dataset. Germany is excluded due to its poor family history data, the UK and USA are excluded due to oversampling respondents with low socioeconomic status. Uruguay and Kazakhstan are removed as they are neither a European or Anglo-Saxon country. The Spanish SFS in 2018 is removed due to missing survey interview month.

I then have xx total observations from xx different countries. I clean the data in several steps. I remove all men from the sample. **MOTIVATION**. Next, I remove childless women and respondents with missing birth information. I remove those where there is missing information on time of union or dissolution, overlapping relationships and those where a union dissolution is reported to have occurred before the union start.

In order to be able to analyze the trajectories from the children's lived experience I reshape the data so that each child becomes a unit of observation. At the start I have xx children. I remove children with missing birth month or where the birth is reported to have occurred before the mother is born. As I want to track childrens' experiences until the end of age 14, I remove those in the sample who have not turned 15 at the time of interview as well as those who left home or died before their 15^{th} birthday. In total xx children remained in the sample. For a visual overview of the data funnel at each step see Figure x in the Appendix.

Sequence generation

For each child a family history was constructed on the maternal side, which is composed of the mother's partner history during the child's first 15 years of life. In order to construct this history, a STate-Sequence format (STS, Gabadinho et al. 2011) is used. This means that for each month of the child's life a column is generated which is filled with values describing the mother's union status and the child's number of siblings. The process time for analysis is from birth until turning 15, with monthly precision. In STS format this is represented by 180 consecutive states, one for each month.

Firstly, union spells were constructed. As there is no information on who is the father of the child if a mother was partnered at time of birth, that partner was assumed to be the other main parent. Then for each month, the representative state was coded as either *Single*, *Parents* or *Step* depending on the mother's partner status. The state is coded as *Single* if the mother is not in a union during the month. It is coded as *Parents* if the mother is still in a relationship with the same partner as at the time of birth. Finally, state state is coded as *Step* if the mother is with a different partner than at time of birth. All consecutive partners are assumed to be new, i.e. no re-partnering with an ex is assumed to occur. Formally, the maternal union sequence can be described as the vector **S** where

$$\mathbf{S} = (s_1, s_2, s_3, \cdots, s_{180}) | s_n \in \{\text{Original parent, Single, Step}\}$$

An example sequence of a child's first year where the mother is first partnered for 2 months, then single for 7 and finally repartnered for 3 months is visible in Table 1.

Table 1: First year union state sequence example

1	2	3	4	5	6	7	8	9	10	11	12
OP	OP	Si	Si	Si	Si	Si	Si	Si	St	St	St

Analysis

As a first exploratory analysis, I draw a random sample of 10,000 individuals from the final data set and calculate a dissimilarity matrix using an optimal matching (OM) algorithm. This algorithm works by...*explain OM*...

This dissimilarity matrix is the used to cluster the sequences, which is done using Ward's method...*explaining Ward's method*...

This allows me to visualize clusters identified in the data as a first step to understand and classify children's family trajectories. I provide a visual summary of the sequence clusters by a set of three plots for each cluster. First, a state distribution plot which shows the relative frequency of each state in the population by month. Second, a modal plot which shows the relative frequency of the most common state for each time point. Third, a medoid plot which shows the sequence which lies closest to all other sequences within the cluster. It can be seen as a "median" sequence, or as the most typical trajectory within the cluster group.

The problem with cluster analysis is... *(impossible to generalize, opaque)*...

Therefore, I use the results of the clustering algorithm to define analytical categories of family trajectories.

As a proof of concept, I also include an analysis of the association between family taxonomy and age at nest leaving. This is done by using the defined family trajectories as the main independent variable in a Cox proportional hazards regression, also controlling for country, parity, mother's level of education, and year of birth.

Table 2: Descriptive statistics of the study population.

Country	Survey	Survey years	Mother cohorts	Child cohorts	N. children
Belgium	GGS wave1	2008 - 2010	1933 - 1976	1980 - 1995	1424
Bulgaria	GGS wave1	2004 - 2004	1938 - 1975	1980 - 1989	2434
Belarus	GGS wave 1	2017 - 2017	1927 - 1989	1980 - 2002	3455
Czech Republic	GGS wave 1	2005 - 2005	1940 - 1972	1980 - 1990	1503
Estonia	GGS wave1	2004 - 2005	1938 - 1974	1980 - 1990	2077
France	GGS wave1	2005 - 2005	1940 - 1976	1980 - 1990	1712
Georgia	GGS wave1	2006 - 2006	1936 - 1975	1980 - 1991	2675
Hungary	GGS wave1	2004 - 2005	1940 - 1978	1980 - 1990	2133
Lithuania	GGS wave1	2006 - 2006	1932 - 1973	1980 - 1991	1824
Netherlands	FFS	2003 - 2003	1941 - 1972	1980 - 1988	1489
Netherlands	OG 2013	2013 - 2013	1935 - 1987	1980 - 1998	2838
Norway	GGS wave1	2007 - 2008	1939 - 1979	1980 - 1993	3169
Poland	GGS wave1	2010 - 2011	1937 - 1978	1980 - 1996	6269
Romania	GGS wave1	2005 - 2005	1930 - 1974	1980 - 1990	2263
Spain	SFS 2006	2006 - 2006	1917 - 1975	1980 - 1991	2863
Sweden	GGS wave 1	2012 - 2013	1938 - 1981	1980 - 1998	2806
Total		2003 - 2017	1917 - 1989	1980 - 2002	40934

Results

Here is a descriptive table 1:

Here are the visualized clusters using sequence state distribution, modal and medoid plot:

And now I explain what we see in these graphs.

Then the question is, how much is attributable to these other covariates?

Not much!

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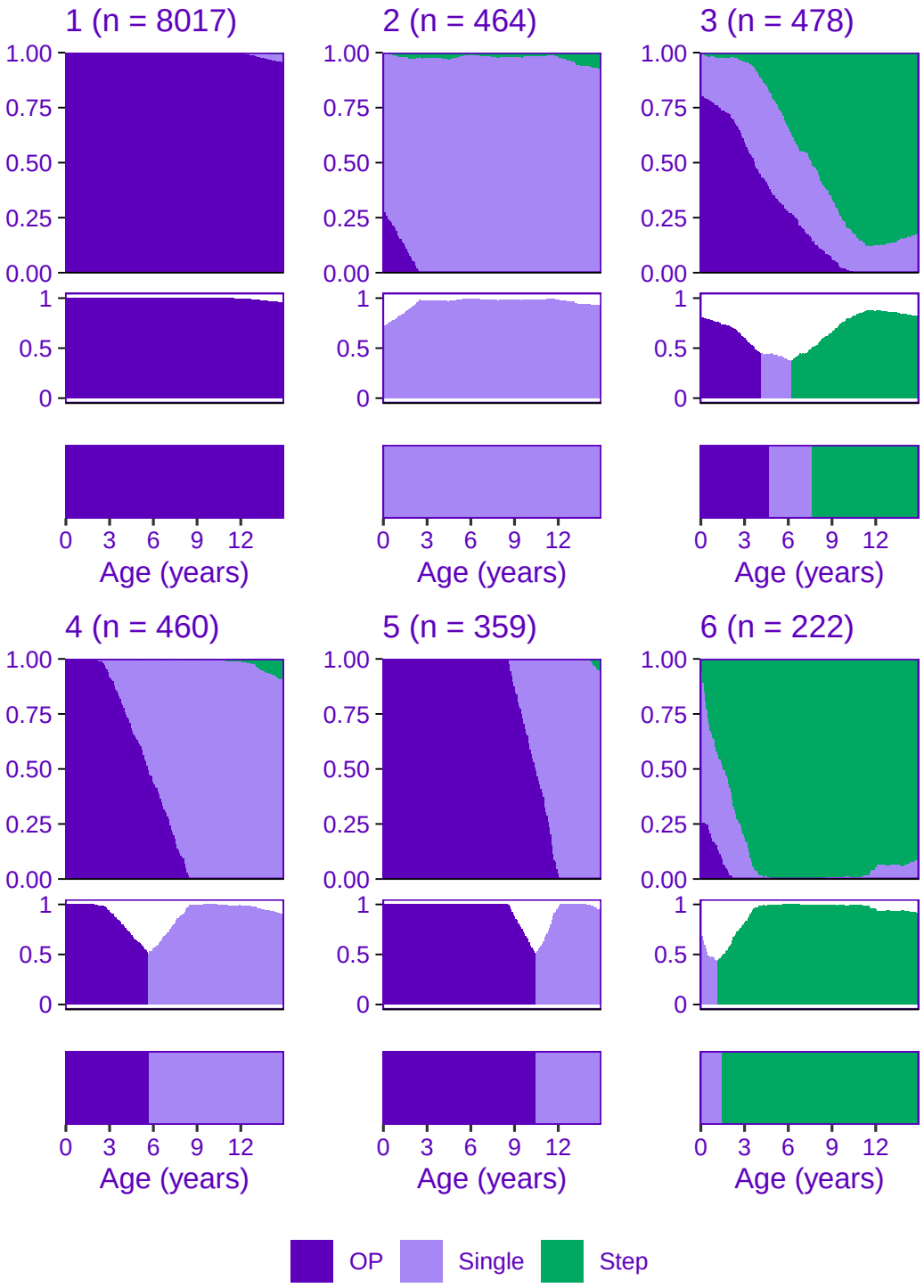

Figure 1: Here are the complex clusters

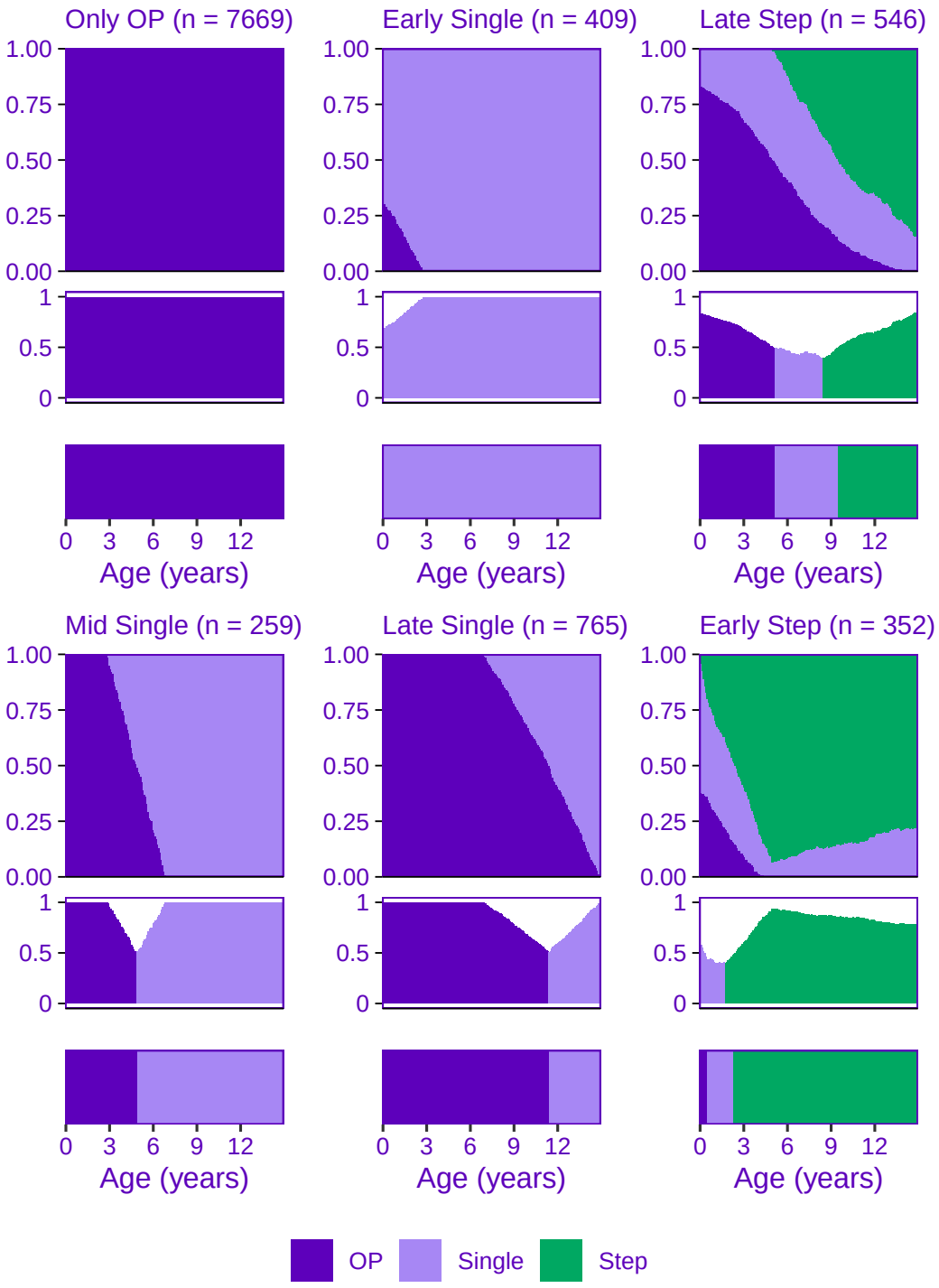

Figure 2: Here are the analytical clusters

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