Educational Disadvantages in Single Fatherhood and Single Motherhood Family Pathways

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Abstract: Previous research on single parenthood is predominantly concerned about socio-economic disadvantages associated with single motherhood. Much less is known about single fatherhood and how it is linked with socioeconomic disadvantage. Using register data on Finnish cohorts born in 1969-70, and employing sequence and cluster methods, we take a longitudinal life-course approach to family trajectories that involve single parenthood. We identify the most typical family life courses of single fathers and mothers, and study whether single fatherhood and motherhood are similarly linked to educational disadvantage. The results show that compared to single mothers, single fathers' family life courses are more turbulent and more often involve spells of non-resident parenthood. For both single fathers and mothers, the largest disadvantage is associated with long spells of non-resident parenthood, and pathways with early family formation. Whereas educationally advantageous pathways of single fathers are characterized by postponed family formation, for single mothers the advantage is linked to single parenthood placed at higher ages in the family trajectory, regardless of the timing of first birth. We situate single parenthood within the family dynamics of contemporary Finland, a social and gender egalitarian welfare state, and show that even though fathers and mothers are in principle enabled to take the main responsibility for childcare, in practice, notable gender differences prevail.

Keywords: single fathers, single mothers, educational disadvantage, family trajectories, sequence analysis

1. Introduction

Chances of spending some time as a single parent have increased in many advanced societies for both men and women (Garasky, Meyer 1996; Coles 2015). Although the great majority of single parents are mothers (Bernardi, Mortelmans, Larenza 2017), the proportion of single fathers has slowly but steadily increased over the past decades, with notable variation between countries (Bianchi 1995; Livingston 2013; Coles 2015; Chzen, Bradshaw 2012). Existing research on single parenthood mainly focuses on single motherhood and its links to socioeconomic disadvantages, while less is known about single fatherhood, and on how single fatherhood is placed in the life courses of fathers. It is also unclear whether the experience of single fatherhood is associated with socio-economic advantages or disadvantages. Previous research assessing advantages of highly educated fathers in gaining custody over their children after divorce brought mixed results (Fox, Kelly 1995; Juby et al. 2005), other studies suggest that single fatherhood is associated with educational and other socioeconomic disadvantages (Brown 2000; Eggebeen, Snyder, Manning 1996), although the magnitude of the disadvantage seems to be much smaller compared to that observed in single motherhood (Kramer et al. 2016; Livingston, 2013).

In this study, we take a longitudinal, sequential life-course approach to family trajectories that involve single (residential) fatherhood or motherhood. Using cluster analysis, we identify the most typical family life courses of single fathers and mothers. We further examine whether single fatherhood and motherhood are similarly linked to educational disadvantage. This is done by examining the different representation of educational segments among single and all fathers and mothers, and the various types of single fatherhood and motherhood. The analysis uses longitudinal register data on Finnish birth cohorts 1969 and 1970 observed between ages 18 and 39. The data allow for precise identification of coresidence with children, and comprise detailed data on all (also childless) coresidential partnerships regardless of marital status. Our sequential approach allows to situate single parenthood in the longitudinal dynamics of family formation and dissolution. In addition to informing on the prevalence of single fatherhood (and motherhood), it allows to observe how single parenthood is placed in the life courses, including the (re)occurrence, timing, and duration of life spent in different family statuses. The approach is particularly telling when focusing on life courses that involve much turbulence, referring to a large number of transitions or distinct states and much variation in the timing and duration of events (Elzinga &

Liefbroer 2007), which is the case, as we will show, with single fatherhood.

Finland provides an excellent case to study the life course trajectories of single parents, and their links to gender and socioeconomic (dis)advantage. Finland is a Nordic welfare society and a forerunner in developments in family dynamics and in social and gender equality. Rates of nonmarital cohabitation, nonmarital childbearing, separation, and divorce are high (Eurostat 2019; Finnäs 1995; Prioux 2006). Finnish women are more highly educated than men, and their employment rates are even slightly higher than men's (Statistics Finland 2019a). Family policies such as strongly subsidized daycare facilitate the combination of paid work and childcare for parents. Women however take much longer family leaves when they have young children (Haataja 2009). Women also spend more time on childcare in general, although nearly equal division of childcare responsibilities between parents is common in cohabiting and married couples, and particularly the time spent with children is divided equally between parents in more than 70 percent of couple families with children (Gender equality barometer 2018). Equal division of childcare is not the case when separation occurs. In the context where joined physical custody has only very recently become more common (Pantilla 2005; Statistics Finland 2019b), only one parent takes up most of the daily childcare responsibilities and assumes the role of the resident single parent. Even though the cross-sectional statistics suggest that the numbers of single fathers are increasing, mothers still attain the role of the single parent more often than fathers (Statistics Finland 2017a). Situating our research in Finland allows us to study single fatherhood and motherhood in the context of a gender-egalitarian welfare state where both fathers and mothers are in principle enabled to take the main responsibility for childcare, although in practice, many gender differences prevail.

2. Theoretical perspectives: Incorporating single fatherhood and motherhood into the gender revolution framework

In their seminal paper, Goldscheider et al. (2015) outlined the two phases of the ongoing gender revolution. In the first phase, women gain in the public sphere. In the second phase, men take on equal share of the responsibility in the family sphere. Predominantly in response to the downturns in the post-war economy, by the 1970s women in advanced societies entered the labor force on a mass scale, remained economically active throughout their childbearing years, and became the financial (co)providers for their families. However, the changes towards increasing gender equality

in labor market participation were not complemented by changes in men's and women's roles in the family. Transition from the male breadwinner model to dual-earner model with double burden for women is a typical feature of the first half of the gender revolution (Oláh et al. 2018). With destandardization in the life courses (Elzinga, Liefbroer 2007) and growing family instability (Kennedy, Ruggles 2014), women gradually adapted to the emerging new equilibrium, (Esping-Andersen, Billari 2015). Increasing economic independence allowed them to leave unsatisfactory marriages (Poortman, Kalmijn 2002) and parent alone. Rising non-partnered births and divorce rates (including families with children) became the main drivers of the rise of single motherhood (Heuveline, Timberlake, Furstenberg 2003). Mothers and single mothers in particular, took on the traditional male role of a provider as they had to stay attached to the labor market while simultaneously keeping full childcare obligations. The "female revolution" reduced the key role of men in the family, and gave rise to family forms where father's permanent presence was no longer necessary.

Coinciding with women's uptake of economic responsibilities towards their families, an ideational shift emerged in the 1970s, stipulating the new ideal of nurturing and involved fatherhood (Lamb 2000) that substantially shaped the notions of men's and fathers' roles, rights, and obligations in the family. Following upon growing recognition of a father as an important figure in the upbringing and care for children (Lamb 2004) came acceptance of fathers as equal and competent caregivers (Oláh et al. 2018). In the Nordic countries, these ideational and normative changes got broadly accepted and subsequently rooted into the legal framework and family policies (Friðriksdóttir 2015). Fathers got not only enabled to parent in more engaged way, they became expected to do so (Bergman, Hobson 2002; Nordenmark 2015).

Despite men's and women's equal capacity for parenting (Doucet 2006), women still get unequally burdened with childcare and particularly with residential custody over children after separation (Cancian et al. 2014) or after birth outside of coresidential union (Kiernan 2006). The gender revolution remains incomplete until men join women in the domestic sphere and childcare to the extent women joined men in the sphere of paid labor (Esping-Andersen 2009). Whereas the first part of the gender revolution brought economic independence to women and manifested itself in the rise of single motherhood, the second phase shall bring independence in parenting to men, and should manifest itself in gender symmetry in child care regardless of the partnership status of parents and potentially in single parenthood.

3. Previous empirical research

3.1. Duration and placement of single parenthood in family trajectories

Multiple factors guide the duration and placement of single parenthood within the lives of men and women. The timing and occurrence of the spells of single parenthood reflects the route into single parenthood – direct without coresidence with the other parent of the child, separation or divorce, or widowhood. The research on Sweden and Norway suggests that only some 12% of single parents were not partnered one year prior to becoming single parents (Bernardi et al 2017). Within this group of direct single parents, mothers still constitute a great majority of custodians of children, even though some early studies on single fatherhood did already show the rising numbers of single fathers who never formed a joint household with the child's mother (Garasky, Meyer 1996). Given the low levels of young adult mortality (Statistics Finland 2017.b), widowed persons particularly in the younger cohorts constitute a very small group among single parents that has become dominated by divorced and separated fathers and mothers.

Previous research shows that single parenthood is often a long-lasting status and many single parents, particularly mothers, spend years alone with their children before they repartner (Heuveline, Timberlake, Furstenberg 2003). Other studies found that children live in single parent households for shorter periods of time when they live with fathers than when they live with single mothers (Marcil-Gratton 1993). However, the data on the Nordic countries suggest that the differences in the duration of single parenthood between fathers and mothers is relatively small (0.7 years in Sweden, 0.4 years in Norway) (Bernardi, etal. 2017). And at least in Europe, there seems to be a general trend over cohorts towards shorter duration of (first spell of) single parenthood for both men and women (ibid 2017). At the turn of the 1980s and 1990s in the Nordic countries (including Finland), men spent only a marginal proportion of their time as single parents between ages 15 and 40 (Andersson, Philipov 2002). Despite the documented increase in the percentage of fathers experiencing single fatherhood in the other Nordic countries since then (Chzhen, Bradshaw 2012), it is not clear if and how much has the percent of men experiencing single fatherhood increased in Finland, and how much heterogeneity in duration of single parenthood there is compared to single mothers.

The duration of single parenthood in the family trajectory also reflects the route out of single parenthood and the number and ages of dependent children. There are three routes out of

single parenthood. First, and least likely, is the death of the parent or the residential child. These cases are extremely rare though given the very low levels of mortality among children and young adults, particularly in the Nordic countries (Statistics Finland 2017.b). Second, the spell of single parenthood ends when the (last) resident child moves out. More than 20% of single parents in Sweden and Norway will live alone without children or a partner after they no longer are single parents (Bernardi et al 2017). Typically, children become independent and move out of parental home and the research on home leaving suggests that children whose parents divorced and children growing up with single parents tend to leave earlier than children from intact families (Blaauboer, Mulder 2010; Bernhardt et al. 2005). Some children will move to the other parent or with other relatives, and a small proportion of children will be taken into a child protection custody (Heino 2007). These children however tend to remain registered as living with the parent(s). Third, single parent re-partners. Whereas previous research consistently documents that children from previous relationships lower their mothers' probability of (re)partnering (Beaujouan, 2012; Bumpass, Sweet, Martin 1990), the results for the effect of parenthood on men's repartnering prospects are less consistent and may depend on the context. Bernhardt and Goldscheider (1998) found that having children from previous partnerships lowers men's likelihood of repartnering. In the US, Steward, Manning, and Smock (2003) found no effect of neither resident nor non-resident children on men's entry into marriage, but positive effect of non-resident children on entry into cohabitation. Parental obligation to both resident and non-resident children likely plays a role in parental union re-formation. Whereas resident children can be an obstacle on the re-partnering market for both women and men as they may lower the attractiveness of parents on the partner market (Goldscheider, Sassler 2006), non-resident fathers who keep parenting actively after separation of the original family are the "good fathers", attractive to potential partners (Steward, Manning, Smock 2003). For women however also non-resident children establish an obstacle to re-partnering as the "lack of maternal engagement" seems to disadvantage mothers on the partner market (Ivanova, Kalmijn, Uunk 2013). Among divorced persons, new union formation of single parents occurs rather quickly after the separation of the previous marriage (Vanasche, et al. 2015). A comparison of single parents' repartnering process shows that single fathers re-partner and remarry earlier than single mothers (Di Nallo 2019). Data for Sweden and Norway confirm the high levels of re-partnering of single parents with more than a third repartnering within 2 years, and 83% and 72% respectively repartnering within 10 years from the onset of the first spell of

single parenthood (Bernardi et al. 2017).

In light of the previous research, we expect that compared to single motherhood single fatherhood will more often follow after separation or divorce, and that single fathers will spend shorter time living as single parents than single mothers.

3.2. **Single parenthood pathways and educational disadvantages**

Previous research consistently documents the existence of a negative educational gradient in single motherhood (Härkönen 2017; McLanahan 2004). Single motherhood in most cases follows after non-partnered birth or a breakup (separation or divorce) of a coresidential partnership where children were born. Non-partnered childbearing is more common among lower educated women (Perelli-Harris et al. 2010), and lower educated women from more recent cohorts have higher risks of separation and divorce (Dronkers, Härkönen 2006; Jalovaara 2013; Jalovaara, Kulu 2018). Life-course research shows that women's family trajectories that include separation and divorce are more common among the lower educated (Perelli-Harris, Lyons-Amos 2016). Research on children's experience of family dynamics further shows that children born to low educated mothers are four times more likely to be born outside of coresidential partnership, spend less years in families with both parents, and are more likely to undergo family transitions such as parental union dissolution or repartnering than children born to highly educated mothers (Jalovaara, Andersson 2018).

Studies focusing on the association between educational attainment and single fatherhood are less common and less conclusive. Alike single motherhood, single fatherhood may occur directly after non-union birth. Although this route is less common for single fathers, it may be linked with similar educational disadvantage. Althaus (1996) found that direct single fatherhood is more prevalent among socio-economically disadvantaged groups, which may in turn suggest a negative educational gradient in direct single fatherhood. For the majority of fathers, however, single fatherhood is part of a trajectory that includes the formation of a coresidential union and childbearing, which is later followed by separation. Previous research consistently shows that there is a positive educational gradient in both union formation and childbearing for men (Jalovaara et al. 2018; Trimarchi, Van Bavel 2017), with the higher educated men being more likely to form coresidential unions and have children. In case of divorce and separation, the association is negative (Kalmijn, DeGraaf, Poortman 2004), but since only a minority of fathers become resident

custodians of their children after separation, it is the educational gradient in custody that is more important for single fatherhood. The research inquiring possible advantages in gaining custody for highly educated divorced fathers brought inconclusive results (Fox, Kelly 1995; Juby et al. 2005), and since the recent development in post-separation family settings brought increasing success in gaining custody to all fathers regardless of educational attainment (Cancian et al. 2014), the association between educational attainment and single fatherhood remains puzzling.

We expect to find educational disadvantage linked to single motherhood but not in single fatherhood. However, we expect that early and direct single parenthood brings about the largest educational disadvantage for both men and women.

4. Data and methods

4.1. Data

We use data compiled at Statistics Finland (permission TK53-663-11) by linking data from a longitudinal population register and registers on educational qualifications, employment, earnings, vital events, and coresidential partnerships, for instance. This study employs data from a random 11% sample of persons born between 1940 and 1995 who had been registered in the population of Finland between 1970 and 2009. Starting in 1987, the union histories cover co-residential partnerships regardless of marital status. A special feature of Finnish register data is that they contain information on residence at the precision of a particular dwelling, allowing the inference of men and women into coresidential couples also when they are childless and unmarried. They also allow us to distinguish between coresident children (registered in the same dwelling as the parent) and non-resident children. In our data, a cohabiting couple is defined as a man and a woman registered as living in the same dwelling for more than 3 months; who are not close relatives such as a parent and a child or married to each other, and whose age difference is no more than 20 years. The rule on age difference does not apply if they have a common child. For details on the inference of cohabitations, see Jalovaara and Kulu (2018).

We focus on birth cohorts 1969–1970, for whom we have the longest follow up of coresidential unions and childbearing histories from the year they turned 18. We observe partnership and family formation and dissolution trajectories between ages 18 and 39. Data on persons born abroad and those who died or emigrated between ages 18–39 were excluded. Single parenthood in this research is defined as having no coresidential partner and at least one registered

(biological) child younger than 18 registered as living with the parent. Information on shared residential custody is not available; however, shared residential custody is not common in Finland (Panttila 2005). The coresidence of single parents with their children and an unrelated person who is not a partner of the parent is rare.

Our analysis uses a sequential representation of family states between ages 18 to 39 measured in one-year spells. The sequences distinguish between six family states that combine information on parental and partnership status and with coresidence with partners and children: (1) never partnered childless, (2) partnered childless, (3) partnered parents (both cohabiting and married), (4) single parents (including the never partnered, separated and widowed), (5) non-resident parents, and (6) separated childless. We merge the categories of direct and separated single parents because we focus on the position and possible reoccurrence of single parenthood within the life course trajectories rather than in particular types of single parenthood.

Educational attainment is measured in the year of the birth of the first child. For the purpose of comparing the educational composition for all men and women, parents, and single parents, educational attainment at the age of 28 is used for non-parents, which is the mean age at birth of the first child for men and women combined in the 1969–70 cohort observed until 2009. In the same year on the population level the age at the birth of the first child was 28 for women and 30 for men (Statistics Finland 2016). We distinguish between four educational levels, primary education (ISCED 0–2), secondary education comprising both vocational and academic track (ISCED 3–4), lower tertiary education comprising lowest-level tertiary education, and polytechnic and bachelor degrees (ISCED 5-6), and higher tertiary education that is an equivalent of master level and higher levels of university education (ISCED 7-8).

3.2.   Methods

Our methodological approach relies on sequence and cluster analysis, and comparison of educational composition of groups defined by parenthood and coresidence with children. We employ sequence analysis to capture the family trajectories of single fathers and single mothers in the study cohorts, and use cluster analysis to identify the typical trajectories that include some forms of single parenthood. All steps in the analysis are conducted on samples of single fathers and single mothers separately. The sequence analysis identifies similarity between each possible pair of family sequences in the sample. We use dynamic Hamming distance to identify similarity

with regard to the timing and order of family states. The dynamic Hamming distance emphasizes timing and tempo of family states transitions in the similarity of sequences. It relies only on substitution operations, with no insertion-deletion operations, specifying the point-specific substitution cost: the more frequent the transition between two family states at a given time, the closer are these states and the lower is the cost of the substitution (Lesnard 2008). The results are robust to other cost specifications, i.e. Optimal Matching. Similarity in two trajectories is high if they follow the same sequence of family states at the same time (tempo), it is low if the same family states sequence occurs at a different tempo (Fasang 2014). The output is a distance matrix that includes a distance value for each possible pair of sequences and serves as a basis for cluster analysis. In the cluster analysis we use hierarchical clustering (Ward) that provides the most efficient groupings after determining the preferred number of clusters. The preferred number of clusters is based on several cluster cut-off criteria. We report the ASWw criterion (see Appendix Figure A1) as it has proved substantively meaningful, satisfying the criterion of construct validity (Aisenbrey, Fasang 2010).

The family trajectories of fathers and mothers who experienced single parenthood were divided into four and five clusters, respectively. These typical trajectories are visualized as Relative frequency (RF) sequence plots (Fasang, Liao 2014). We visualize the typical family trajectories using RF sequence plots, first separately for the total samples of mothers and fathers who had at least one spell of single parenthood at ages 18–39, and then for each cluster of single fathers and single mothers. RF sequence plots display a selection of the most representative sequences that are sorted by complexity of the sequences, and the dissimilarity to medoid. Medoid is an observed sequence with minimal distance to all the other sequences in the cluster (Han et al. 2017). In the smallest cluster, all sequences are displayed - therefore with no dissimilarities to medeoid. Each line represents one individual representative sequence assigning different colors to family states. The x-axis time line represents age, and spans from 18 to 39 years of age. Our analysis focuses on six crucial family states combining coresidence, parenthood and partnership status and captures the part of adult life when the majority of adults enter coresidential unions and become parents. The typology of life course trajectories is based on the order, timing and duration of single parenthood spells given by clustering results. Typical life trajectories and the percentage of single parents falling into these groups are compared across clusters of single fathers and single mothers. We report the sizes and educational composition of clusters to assess the link between

educational attainment and single parenthood in a life-course perspective.

5. Results

5.1. Experience and prevalence of single parenthood

In the study cohorts (born 1969 and 1970), 64 percent of men, and 74 percent of women became parents by the age of 39. At age 39, 15 percent of fathers have experienced at least one spell of single fatherhood, but only 8 percent are currently single fathers. The percentages are 36 and 20 for mothers, respectively. Figure 1 shows a comparison of two measures: the percentage of parents who experienced single parenthood by age, over ages 18-39, and the percentage who currently are single parents (prevalence of single parenthood) by age, over ages 18-39. The number of ever-single parents, respectively currently single parents is divided by number of parents in the given age.

Figure 1. Experience and prevalence of single parenthood by age,

Finnish fathers and mothers, ages 18–39.
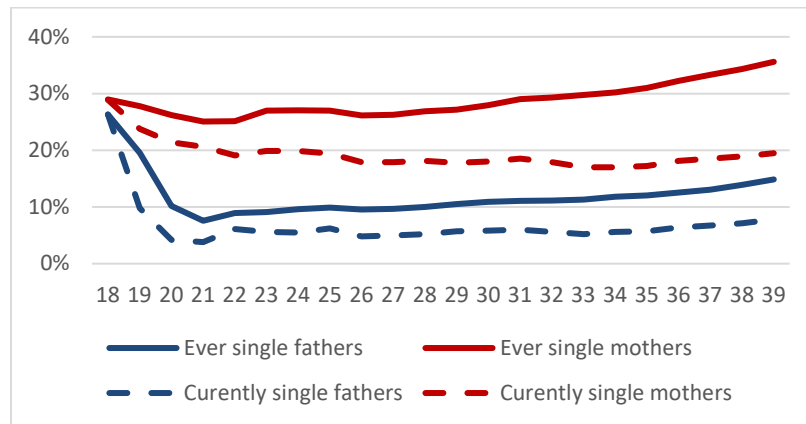
We see that for both genders the differences between the two measures are the smallest at very young ages and grow afterwards. The share of parents who experienced single parenthood is high at young ages, drops in the early twenties when the pool of parents grows faster than the group of single parents, and increases after the mid-twenties. The high shares of single fathers in the youngest ages is based on very low cell numbers. The prevalence of single parenthood (currently single parents) is largest at young ages when few people become parents while many of them become single parents directly. Further the prevalence decreases and remains relatively stable over most of the twenties and thirties for both fathers and mothers capturing transitions in and out
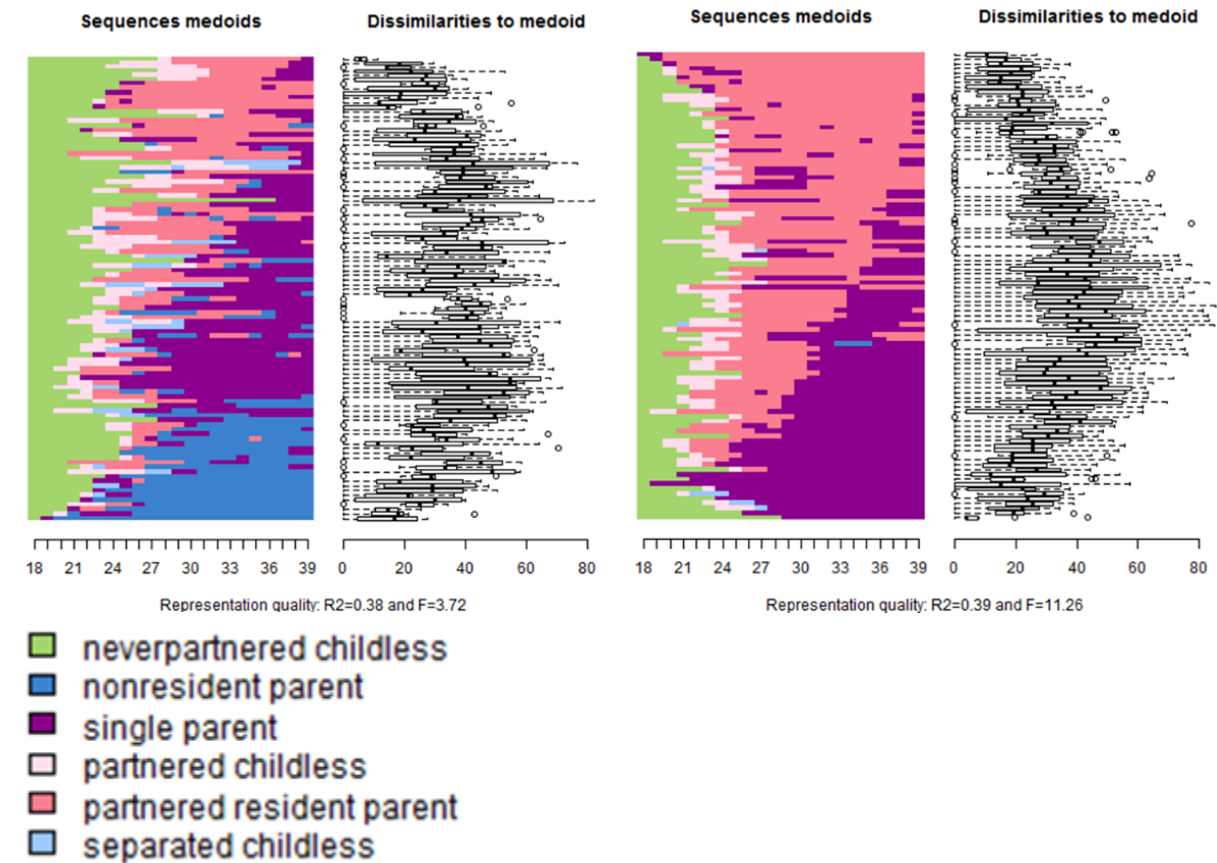
of single parenthood. In the late thirties it increases again as fewer and fewer people become parents at these ages, but many experience the transition into single parenthood. For further details on both measures over age see Appendix table A2a+A2b. The differences in the two measures capture the timing of childbearing, differences in residential setting of children, and the dynamic nature of single parenthood. Sequence analysis applied in the next step provides further details on the family dynamics captured as it unfolds in the life-courses of young adult men and women.

5.2. Total population of single fathers and single mothers

We continue with a descriptive graphical comparison of the family trajectories of single mothers versus single fathers to get an overall view their similarities and differences. The Figure 2B shows the RF sequence plot for all women who experienced single motherhood between ages 18–39. Some women become single mothers early and directly without being previously partnered. Most single motherhood occurs after dissolution of childbearing unions, and is later followed by repartnering. Still, for a substantial proportion of women single parenthood becomes a long-lasting and stable family form.

The Figure 2A shows the RF sequence plot for a total population of men who experienced single fatherhood between ages 18–39. Compared to single motherhood, single fatherhood typically occurs later in the family trajectory (they also become fathers 2 years later on average) and for a substantial proportion of men single fatherhood is short and combined with spells of non-resident fatherhood. The vast majority of men who experience single fatherhood form coresidential unions and have children in these unions before becoming single fathers. Direct (never partnered) single fatherhood is rare.

Figure 2. Family trajectories at age 18-39 of the total population of single fathers (A) and single mothers (B); Relative frequency sequence plots, representative sequences

A) Total, single fathers

B) Total, single mothers

- neverpartnered childless
- nonresident parent
- single parent
- partnered childless
- partnered resident parent
- separated childless

Comparison of single fatherhood and single motherhood family pathways

The difference between the age at the birth of the first child and the age at the onset of the first spell of single parenthood shows that, correspondingly to the previous research (Bernardi et al. 2017), the majority of single parents live with a coresidential partner and children before they become single parents. The overall duration of single parenthood is shorter for single fathers (the average difference 2.2 years, see Table A1a+A1b), which supports our general expectations about shorter duration of single fatherhood, but does not resemble the findings for other Nordic countries (0.7 years for Sweden, Bernardi et al. 2017). The difference is likely due to our observation window that ends at the age of 39 and thus captures longer parts of spells of single parenthood of mothers who become single parents at lower ages compared to single fathers. Seventeen percent of single mothers in the sample were non-resident parents at some point in their family trajectories, whereas for single fathers the share reached 61 percent. Single fathers spend shorter time parenting

13

alone, but they also spend shorter time in unions with children that precede the dissolution and transition into single parenthood. The shorter overall duration of single fatherhood and shorter time spent in coresidential unions (see the Mean time in each state section of the Table A1a+A1b) is often accompanied by turbulence in single fathers' family trajectories that include more transitions in and out of states defined by union status and coresidence with children despite their later union formation.

Educational composition of total population of single fathers and single mothers

Next we examine whether single fatherhood and single motherhood are associated to educational (dis)advantage. We measure relative educational (dis)advantage as the percentage of tertiary educated (higher and lower tertiary education combined) among all parents and single parents divided by the percentage of tertiary educated in the respective reference group (total population and, in the case of single parents also all parents), separately for men and women. Results are shown in Table 2. Ratios above 1 suggest educational advantage, ratios below 1 suggest educational disadvantage. Compared to the sample of the total population there is stronger educational disadvantage linked to single parenthood (0.63 for single mothers, 0.71 for single fathers). The magnitude of relative educational disadvantage evens out for single fathers and single mothers when they are compared to all parents. The ratios therefore show that the initial educational advantage linked to fatherhood reverses for single fathers. Both single motherhood and single fatherhood are thus associated with an overall educational disadvantage.
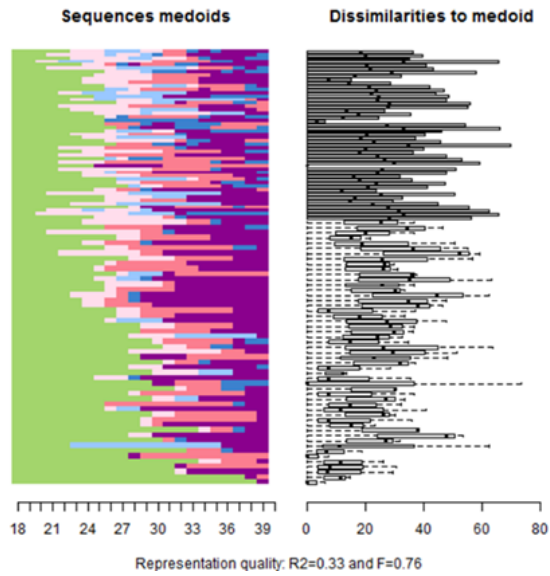
Table 1. Relative educational disadvantages and percent tertiary educated, single parents compared to full sample of the population and to all parents. Men and women born 1969-1970 in Finland.

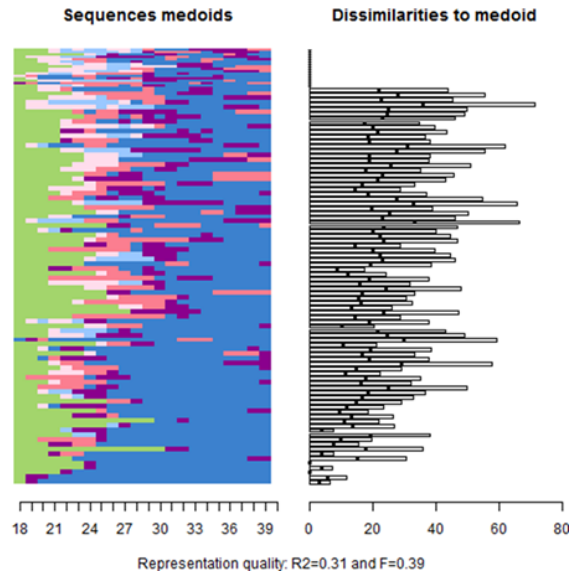|	Ratios of tertiary educated			Percent of tertiary educated		
	Parents vs Full sample	Single parents vs Full sample	Single parents vs Parents	Total population	Parents	Single parents
Men	1.15	0.71	0.62	28%	32%	20%
Women	1.00	0.63	0.63	43%	43%	27%

5.2. SINGLE FATHERHOOD CLUSTERS:

Figure 3. Four clusters of family trajectories of men who experienced single fatherhood; relative frequency sequence plots, representative sequences

1) Postponed fatherhood, 36%

2) Mostly non-resident fatherhood, 27%

Sequences medoids   Dissimilarities to medoid

Representation quality: R2=0.33 and F=0.76

Representation quality: R2=0.31 and F=0.39

- ☐ neverpartnered childless
- ☐ nonresident parent
- ☐ single parent
- ☐ partnered childless
- ☐ partnered resident parent
- ☐ separated childless

3) Mostly partnered, 26 %

Sequences medoids   Dissimilarities to medoid

18 21 24 27 30 33 36 39   0   20   40   60   80

Representation quality: R2=0.34 and F=0.41

4) Long-lasting single fatherhood, 11%

Sequences medoids   Dissimilarities to medoid

18 21 24 27 30 33 36 39   0   10 20 30 40 50 60

Representation quality: R2=1.00 and F=NaN
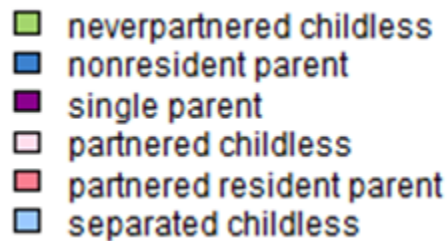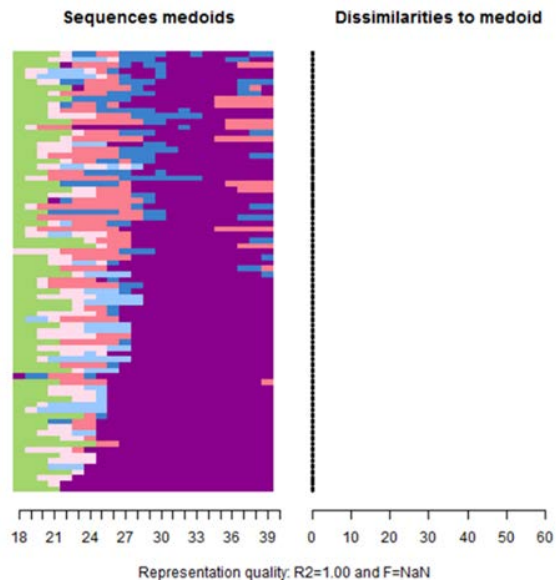
- 🟩 neverpartnered childless
- 🟦 nonresident parent
- 🟪 single parent
- ⬜ partnered childless
- 🟥 partnered resident parent
- 🟦 separated childless
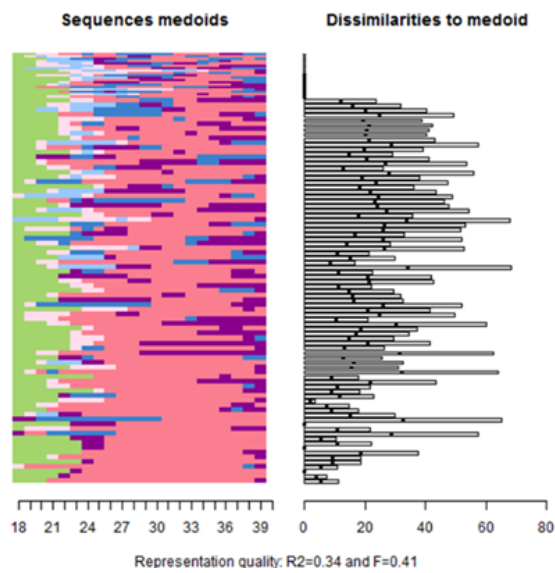
Family pathways of fathers who have experienced residential single fatherhood

We now focus on the heterogeneity within the subgroup of men who experienced single fatherhood and identify typical profiles of their family trajectories. (Subsequently, a similar analysis is performed for mothers.)

The largest cluster (1) ***Postponed fatherhood*** covers 36% of the sample of fathers who ever became single parents. The average age at the birth of the first child is 31 years in this group, and the postponement of childbearing comes with first entry into single fatherhood at a later age (average 34 years) than in the other clusters, with a mean duration of 4.5 years. Short spells of single fatherhood that occur earlier in the trajectory are typically followed by living with their children and a coresidential partner. Our largest cluster is in line with the expectations on later occurrence of and relatively short duration of single fatherhood. The true duration of single fatherhood is likely to be underestimated in this case since it occurs late, and the family trajectories are censored at the age of 39.

16

The second largest cluster (2) ***Mostly non-resident fatherhood*** covers 27% of the single-father sample. Compared to other groups, *Mostly non-resident* fathers experience more turbulent family trajectories with the shortest average time as single parents (2.8 years), but spend a substantial proportion of their family trajectory as non-resident fathers (10 years on average). Non-resident fatherhood occurs in the family trajectories as a result of either childbearing in short-lived (shorter than 1 year) coresidential unions or childbearing that occurs entirely outside of coresidential unions. Some fathers become non-resident fathers of children from multiple (non)residential partnerships.

The (3) ***Mostly partnered*** cluster covers 26% of the sample. It is characterized by early childbearing and union formation, and short duration of single parenthood that is preceded and often also followed by living with their children and a coresidential partner. Fathers in this cluster show the longest duration of living in (often several) coresidential unions with children (11.1 years on average).

The (4) ***Long-lasting single fatherhood*** cluster is the smallest, covering 11% of the sample of single fathers. Single fatherhood in this group is often preceded by a multitude of repeated union formations and dissolutions. Still many in this group become single fathers directly, or after a short spell of non-resident fatherhood. The age at the birth of the first child is low (24) and so is the age at the first spell of single fatherhood (27). The mean time spent as a single father is 11.4 years, and for a substantive share of fathers in this cluster, single parenthood becomes an enduring family setting, at least as observed until the censoring at age 39.

All in all, the four clusters in Figure 3 show that there is notable heterogeneity in (the experience of) single fatherhood with regard to the placement of single fatherhood (spells) in the family pathways. The distribution into clusters shows that contrary to the previous research, the experience of later and relatively short duration of single fatherhood is far from universal, and that quick repartnering is not among prominent characteristics of single fatherhood either. Single fatherhood seems to be tied to non-resident parenthood even though the extent of that tie varies across the groups of typical single fatherhood family pathways.

Education and single fatherhood pathways

The large heterogeneity within single fatherhood documented in the four groups of typical family pathways is paralleled by the differential educational composition of these groups. As shown earlier, compared to all fathers, the tertiary educated are underrepresented in all single fathers groups, but particularly in the (4) *Long-lasting single fatherhood cluster* and (3) *Mostly partnered* cluster and somewhat less so in the (2) *Mostly non-resident fatherhood* cluster. Together with 42% of primary educated in the (2) *Mostly non-resident* cluster, and 37% in (3) *Mostly partnered* cluster the distribution suggests a clear educational disadvantage associated with early union formation and childbearing, young age at the first spell of single fatherhood, and particularly with the combined experience of resident single and non-resident parenthood. On the other hand, fathers following the family pathways characterized by postponement of childbearing and late and shorter duration of single fatherhood in the first and largest cluster (1) *Postponed fatherhood* are the highest educated group. With 18% of higher tertiary and 21 % lower tertiary educated, these single fathers not only outshine other groups of single fathers, but also have higher average levels of education than all fathers in general. To sum up, the largest group of single fathers fulfills the expectations about the positive link between educational attainment and single fatherhood. However, among all single fathers, this group constitutes a minority (around one third).

5.3. SINGLE MOTHERHOOD CLUSTERS

Figure 4. shows the RF sequence plots for all five single motherhood clusters. The clusters are labeled (1) *Mostly re-partnered motherhood*, (2) *Long-lasting single motherhood,* (3) *Post-separation later single motherhood*, (4) *Mostly direct later single motherhood,* and *(5) Mostly non-resident motherhood.*

Figure 4. Five clusters of family trajectories of women who experienced single motherhood; relative frequency sequence plots, representative sequences
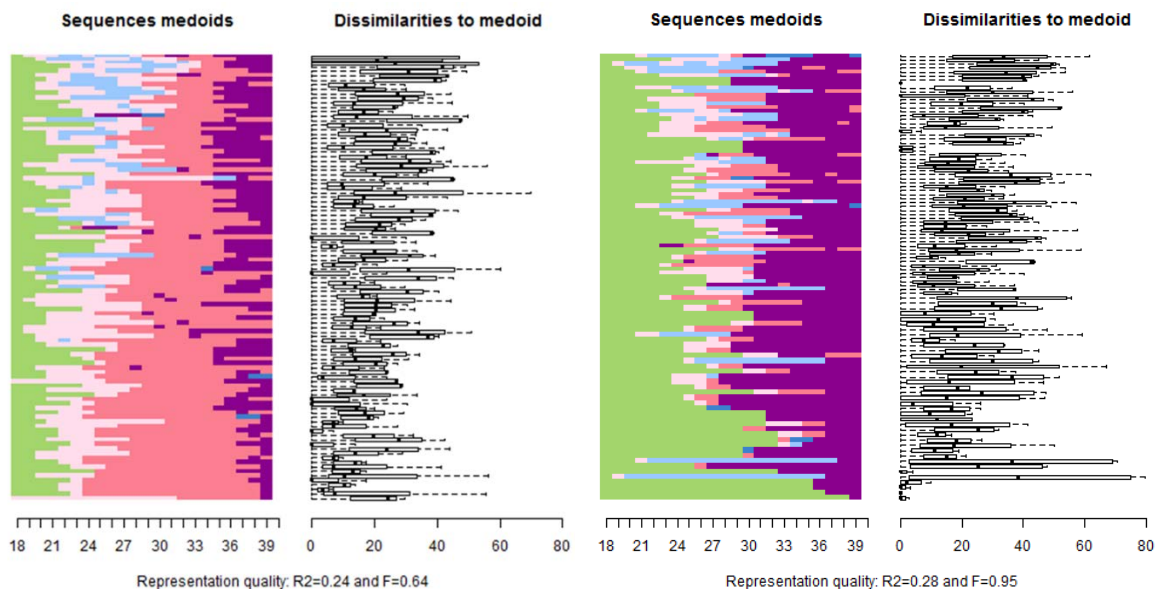
1) Mostly re-partnered motherhood, 34%   **2) Long-lasting single motherhood, 26%**
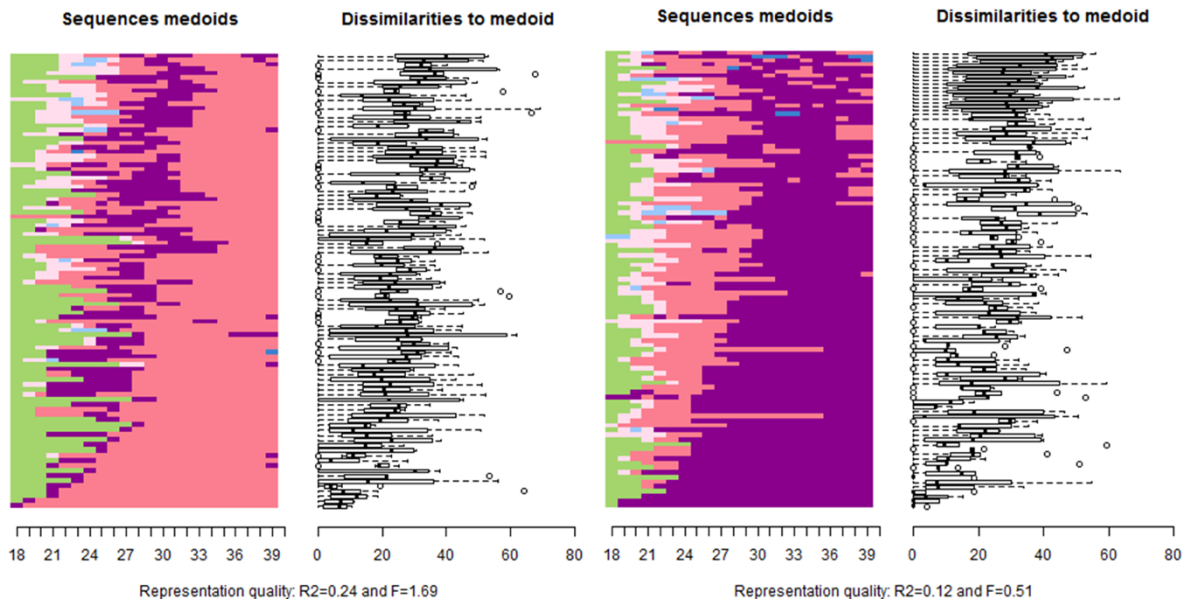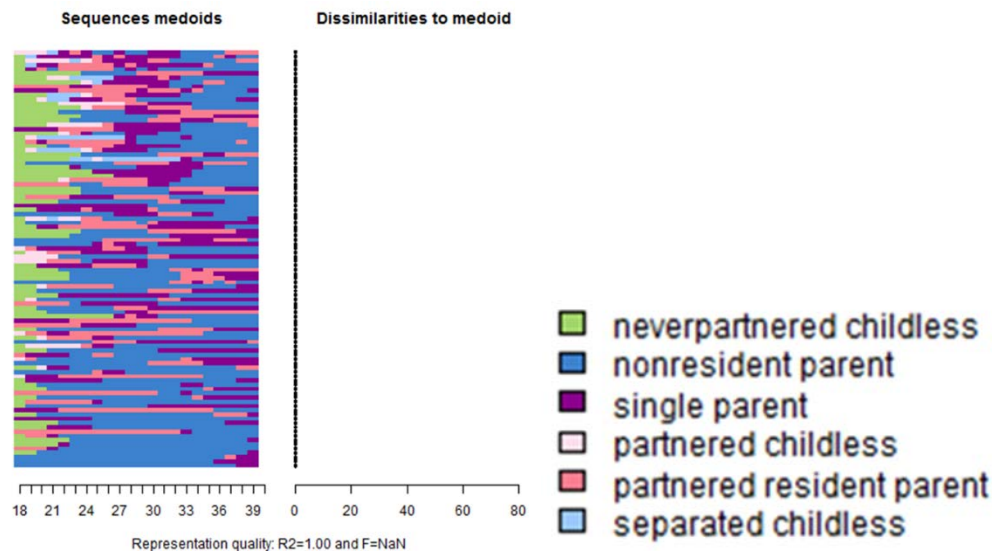

- ◻ neverpartnered childless
- ◻ nonresident parent
- ◻ single parent
- ◻ partnered childless
- ◻ partnered resident parent
- ◻ separated childless

3) Post-separation single motherhood, 16%   **4) Mostly direct single motherhood, 18%**

5) Mostly non-resident motherhood, 5%

Family pathways of mothers who have experienced single motherhood

The largest single motherhood cluster (1) *Mostly re-partnered motherhood* covers 34% of the sample of mothers who ever became single mothers. It shows a pattern of early union formation and first birth (average age 23.2 years), short or no spells of living with a partner and children before the onset of single motherhood (average age 26), (re-)partnering after a short spell of single motherhood, and long higher order unions. Single motherhood in this cluster occurs early in the family trajectory. The quick repartnering and overall long periods of time lived in higher order unions however, is a new finding attributable to the sequencing method that adds to the research employing life-course approach to the study of single parenthood.

The second motherhood cluster covering 26% of the sample, (2) *Long-lasting single motherhood* is characterized by long and mostly uninterrupted periods of single motherhood (almost 12 years on average). With an exception of a small share of very young direct single mothers, single motherhood in this group is typically preceded by living in first coresidential union where child(ren) were born. Repartnering is not very common, and when it occurs, it is typically followed by another spell of single motherhood soon afterwards.

The third cluster (3) *Post-separation later single motherhood* covers 16% of the sample and it is characterized by later occurrence of single motherhood in the family pathways (average age 35 years). The first coresidential unions are formed at young ages, often dissolve relatively

20

quickly and are later followed by repartnering and new unions with children. Single motherhood typically occurs after a dissolution of unions with children that in some cases are followed by repartnering and stepfamily formation.

The (4) ***Mostly direct later single motherhood*** cluster covers 18% of the sample. Compared to the other clusters single mothers in this group postpone not only childbearing, but also union formation to later ages. The average age at the birth of the first child is 31, and the birth of the first child occurs almost 10 years later compared to the cluster of (5) *Mostly non-resident mothers*. Birth of the first child typically precedes first coresidential union formation, and single motherhood is a relatively stable condition in this group. Some will not form any coresidential union by the end of the observation window. This group is similar to fathers' cluster of *Postponed fatherhood*, with the difference that whereas fathers postpone only childbearing, women seem to postpone both union formation and childbearing, and proceed almost directly into single motherhood that for many becomes as stable family form.

The smallest group, (5) ***Mostly non-resident motherhood*** covers only 5% of the sample. The average age at the birth of the first child is 21 and it is the lowest among all single motherhood clusters. A substantial proportion of this group have never resided with the father of the child. The spells of non-resident motherhood are long, often combined with other long spells of single motherhood in the family trajectory. Repartnering is relatively common in this group, but does not lead to longer coresidential unions with children. The non-resident mothers' disadvantage at the partner market (Ivanova, Kalmijn, Uunk 2013) thus seems to be present in this group, although it takes a form of short unions following spells of single motherhood rather than low repartnering chances. A small share of mothers re-partner after a long period of time spent as non-resident mothers, have more children, and become single mothers after the dissolution of the new childbearing union.

Education and single motherhood pathways

The large heterogeneity in single motherhood experience with regard to placement and duration of single motherhood in the family trajectory is mirrored by the educational composition of the clusters. Table 1 documents the clear divide between clusters with late occurrence of single motherhood in (4) *Mostly direct later single motherhood* and (3) *Post-separation later single motherhood* and the other groups. The share of higher and lower tertiary educated in both clusters

largely surpasses the average for all single mothers. Particularly the 19% of the higher tertiary educated in the fourth cluster (4) *Mostly direct later single motherhood* suggests that direct entry into single motherhood is not necessarily linked to educational disadvantage, as long as it is placed later in the trajectory. A group that demonstrates clear educational disadvantage is the (5) *Mostly non-resident motherhood.* It has the lowest age at the birth of the first child (21 years on average), and 76 % of mothers attained only primary education. It is likely that the early birth of the first child (including births to teenage mothers) might have interfered with the continuation of education. The (3) *Long-lasting single motherhood* is the second largest and second least educated cluster. In line with the previous research (Heuveline et al. 2003), for a substantial share of single mothers, long exposure to lone parenting is associated with educational disadvantage, although the magnitude of the disadvantage is not as large as in the group of (5) *Mostly non-resident mothers*. The educational composition of the largest cluster (1) shows that the *Mostly repartnered mothers* are only slightly less educated than single mothers on average, but the shares of tertiary educated in this group only reaches a half of the shares found for all mothers. Even though these mothers spend most of their family trajectories in stable unions with children, the episodes of early (event though short) exposure to single motherhood are associated with educational disadvantage.

6. Conclusion

In this paper, we situate single fatherhood and single motherhood within the framework of the ongoing gender revolution within a Nordic welfare state country, and show that despite the achievements of women in the sphere of paid labor, the increasing involvement of men in active parenting, and equal opportunities for parents of both genders, to take on the role of the main custodian after family separation, we have not yet observed signs of gender symmetry in single parenthood. Our study combines life-course approach to family dynamics with research on educational disadvantages linked to various family forms. We place the single parenthood (its duration and timing) within the life-course trajectories of fathers and mothers, show the heterogeneity in single fatherhood and single motherhood family trajectories using sequence and cluster analysis, and identify pathways that are associated with educational advantages or disadvantages.

Contrary to the picture portrayed in previous literature on single parenthood, single parents in our study cohorts are much more heterogeneous group with regard to gender, education and

exposure to parenting alone. Single mothers may be on average exposed to long durations of single parenthood as suggested by Heuveline et al. (2003), yet the largest typical group of single motherhood pathways is characterized by one of the shortest duration of single parenthood, almost universal repartnering, and family trajectory mostly spent in stable higher order unions with children. Similarly, even though we found in line with previous research (Vanasche et al. 2015) that single fathers re-partner more quickly than single mothers, many of them spend a substantial proportion of their family trajectories as single fathers. We also found a noticeable gender difference in timing and number of family transitions – particularly fathers in the (5) *Mostly non-resident fatherhood* cluster experience trajectories that include high numbers of family transitions despite later onset of childbearing and union formation. Across clusters of single parenthood, there tends to be much more stability in single mothers' clusters regarding both duration of family states and number of transitions in the trajectories.

The most striking difference between the family pathways of single fathers and single mothers is in the close connection of single parenthood and non-resident parenthood for men. Almost two thirds of all family trajectories that include single fatherhood also include non-resident parenthood, whether among single mothers, only 17% experience both within the same trajectory. The close link between single and non-resident fatherhood is a new discovery we made thanks to the sequential approach, and the finding contributes to the research on fatherhood dynamics in the life-course perspective.

Single parenthood is linked to an overall educational disadvantage. In line with previous research (Härkönen 2017; Manning, Brown 2014; McLanahan 2004) we show that single motherhood is associated with educational disadvantage. Moreover, our findings show that when educational disadvantage is measured as a relative share of tertiary educated among single parents and all parents, single parenthood is linked to the same magnitude of disadvantage to both single fathers and mothers. Therefore we add to the literature showing there's no educational advantage in residential single fatherhood (Juby at al. 2005), and show that the link between coresidence with children and single parenthood is in fact negative and operates similarly for both genders. Our results also show that the educational advantage linked with fatherhood as discussed in (Jalovaara et al. 2018) and (Trimarchi, Van Bavel 2017) does not apply to single fathers. The typical features of trajectories that are educationally disadvantageous for both fathers and mothers are young age at childbearing and onset of single parenthood, and especially exposure to non-resident

parenthood. On the other hand, postponement of family formation, later onset of single parenthood, and high shares of tertiary educated coincide in the advantageous and stable family trajectories of single parents. Even though we do find an overall educational disadvantage linked to both single fatherhood and motherhood, we also demonstrate that the association is not universally negative as it largely differs across the typical single parenthood pathways (clusters) and between the clusters of single fathers and single mothers.

Our study documents that even in the gender egalitarian and socially egalitarian setting of contemporary Finland there are no signs of gender symmetry in the uptake of single parenthood, and that despite the overall gender symmetrical educational disadvantage linked to single parenthood, differential family dynamics is experienced within the life-course trajectories of men and women and across educational groups of single fathers and single mothers.

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Appendix.

Table A1a. Single fatherhood clusters, educational distribution, age at birth of the first child, mean complexity, average sequence distance, mean time in sequence states. Finnish fathers born 1969-1970, observed between ages 18-39.

	All fathers	Fathers, no single parenthood	Single fathers	Typical family pathways of single fathers			
				1)	2)	3)	4)
				Postponed fatherhood	Mostly non-resident fatherhood	Mostly partnered	Long-lasting single fatherhood
Education							
Primary	24	19	31	20	42	37	29
Secondary	48	47	49	41	50	52	63
Lower tertiary	20	22	13	21	6	10	8
Higher tertiary	8	12	7	18	2	1	0
Age at birth of 1st child	29.0	29.4	26.7	31.0	24.6	23.9	23.9
Age at the start of the 1st spell of single parenthood			31.3	33.9	29.3	31.3	27.2
Mean complexity			7.14	6.99	7.51	7.15	6.76
Mean time in each sequence state							
Never partnered childless			5.5	8.3	4.6	3.7	3.1
Non-resident parent			3.7	1.0	10.0	1.9	1.8
Single parent			4.5	4.5	2.8	3.1	11.4
Partnered childless			2.0	2.9	1.3	1.5	1.7
Partnered resident parent			5.1	3.5	2.5	11.1	2.8
Separated childless			1.1	1.8	0.7	0.7	1.1
%	100	85%	15%	36	27	26	11
N	4,675	3,981	694	251	184	181	78

Table A1b. Single motherhood clusters, educational distribution, age at birth of the first child, mean complexity, average sequence distance, mean time in sequence states. Finnish mothers born 1969-70, observed between ages 18-39.

	All mothers	Mothers, no single parenthood	Single mothers	Typical family pathways of single mothers				
				1) Mostly re-partnered motherhood	2) Long-lasting single motherhood	3) Post-separation later single motherhood	4) Mostly direct later single motherhood	5) Mostly non-resident motherhood
Education								
Primary	19	12	32	34	42	14	14	76
Secondary	38	36	41	46	46	39	35	19
Lower tertiary	33	36	20	17	10	36	32	4
Higher tertiary	10	16	7	3	1	10	19	1
Age at birth of 1st child	27.0	28.2	25.0	23.2	22.4	27.7	30.7	21.0
Age at the start of the 1st spell of single parenthood			29.1	26.4	26.4	35.2	32.8	28.0
Mean complexity			6.62	6.53	6.25	7.38	6.55	6.95
Mean time in each sequence state								
Never partnered childless			3.9	3.4	2.1	3.7	8.4	2.2
Non-resident parent			0.8	0.2	0.5	0.1	0.3	10.1
Single parent			6.7	4.6	11.8	3.0	6.8	4.7
Partnered childless			2.2	1.3	1.9	4.9	2.2	0.6
Partnered resident parent			7.5	11.9	5.3	9.1	2.2	4.1
Separated childless			0.9	0.5	0.5	1.1	2.1	0.4
%	100	64%	36%	34	26	16	18	5
N	5,183	3,338	1,845	627	484	297	339	98

Figure A1. Cut-off criteria ASWw, single fathers' and single mothers' clusters.

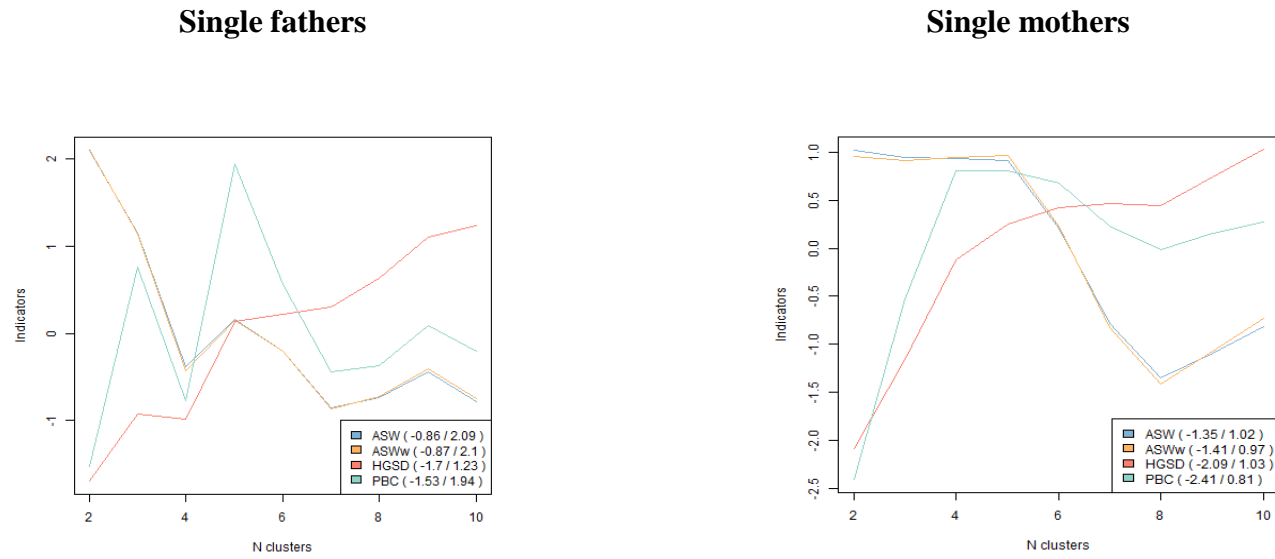**Single fathers**

Single mothers

Table A2a Source data, total counts and cumulative incidence of single parenthood in a sample of persons who ever became parents between ages 18-39. Finnish fathers and mothers, ages 19-39.

| Age | Absolute numbers, ever parents, by coresidence with children | | | | | | Cumulative incidence of single parenthood | | |
| | Single parents | | | All parents | | | | | |
	Single fathers	Single mothers	Single parents	All fathers	All mothers	All parents	Single fathers	Single mothers	Single parents
18	5	33	38	19	114	133	26.3%	28.9%	28.6%
19	8	70	78	41	252	293	19.5%	27.8%	26.6%
20	12	120	132	118	458	576	10.2%	26.2%	22.9%
21	18	187	205	238	746	984	7.6%	25.1%	20.8%
22	38	260	298	426	1,034	1,460	8.9%	25.1%	20.4%
23	59	355	414	647	1,314	1,961	9.1%	27.0%	21.1%
24	84	465	549	874	1,721	2,595	9.6%	27.0%	21.2%
25	116	571	687	1,174	2,114	3,288	9.9%	27.0%	20.9%
26	144	664	808	1,504	2,541	4,045	9.6%	26.1%	20.0%
27	179	763	942	1,852	2,904	4,756	9.7%	26.3%	19.8%
28	220	885	1,105	2,197	3,292	5,489	10.0%	26.9%	20.1%
29	269	988	1,257	2,566	3,636	6,202	10.5%	27.2%	20.3%
30	315	1,096	1,411	2,896	3,924	6,820	10.9%	27.9%	20.7%
31	357	1,211	1,568	3,230	4,169	7,399	11.1%	29.0%	21.2%
32	391	1,283	1,674	3,514	4,379	7,893	11.1%	29.3%	21.2%
33	426	1,360	1,786	3,777	4,571	8,348	11.3%	29.8%	21.4%
34	468	1,426	1,894	3,972	4,722	8,694	11.8%	30.2%	21.8%
35	502	1,504	2,006	4,173	4,850	9,023	12.0%	31.0%	22.2%
36	546	1,605	2,151	4,346	4,977	9,323	12.6%	32.2%	23.1%
37	583	1,684	2,267	4,466	5,058	9,524	13.1%	33.3%	23.8%
38	636	1,762	2,398	4,579	5,133	9,712	13.9%	34.3%	24.7%
39	694	1,845	2,539	4,675	5,183	9,858	14.8%	35.6%	25.8%

Table A2b Source data, total counts and prevalence of single parenthood among parents by age. Finnish fathers and mothers, ages 19-39.

	Absolute numbers, currently single parents, by coresidence with children						Prevalence of single parenthood		
	Single parents			All parents					
Age	Single fathers	Single mothers	Single parents	All fathers	All mothers	All parents	Single fathers	Single mothers	Single parents
18	5	33	38	19	114	133	26.3%	28.9%	28.6%
19	4	60	64	41	252	293	9.8%	23.8%	21.8%
20	5	98	103	118	458	576	4.2%	21.4%	17.9%
21	9	154	163	238	746	984	3.8%	20.6%	16.6%
22	26	197	223	426	1,034	1,460	6.1%	19.1%	15.3%
23	36	262	298	647	1,314	1,961	5.6%	19.9%	15.2%
24	48	343	391	874	1,721	2,595	5.5%	19.9%	15.1%
25	73	410	483	1,174	2,114	3,288	6.2%	19.4%	14.7%
26	72	456	528	1,504	2,541	4,045	4.8%	17.9%	13.1%
27	93	519	612	1,852	2,904	4,756	5.0%	17.9%	12.9%
28	114	596	710	2,197	3,292	5,489	5.2%	18.1%	12.9%
29	146	646	792	2,566	3,636	6,202	5.7%	17.8%	12.8%
30	167	708	875	2,896	3,924	6,820	5.8%	18.0%	12.8%
31	193	772	965	3,230	4,169	7,399	6.0%	18.5%	13.0%
32	198	786	984	3,514	4,379	7,893	5.6%	17.9%	12.5%
33	197	776	973	3,777	4,571	8,348	5.2%	17.0%	11.7%
34	224	801	1,025	3,972	4,722	8,694	5.6%	17.0%	11.8%
35	236	834	1,070	4,173	4,850	9,023	5.7%	17.2%	11.9%
36	276	900	1,176	4,346	4,977	9,323	6.4%	18.1%	12.6%
37	298	938	1,236	4,466	5,058	9,524	6.7%	18.5%	13.0%
38	323	968	1,291	4,579	5,133	9,712	7.1%	18.9%	13.3%
39	363	1,010	1,373	4,675	5,183	9,858	7.8%	19.5%	13.9%