Forced migration and fertility: the Karelian displaced population in Finland

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Abstract. Forced population movement and its consequences on recipient countries is a major concern in nations around the world. Finland provides a unique opportunity to understand the long term effects on family formation patterns of involuntary migration in low fertility contexts. Using register data that cover the years 1988-2011, we study people who were forced to migrate from Karelia as children in the 1940s, and compare their reproductive and partnering patterns with socioeconomically similar people who were not forced to migrate. These underpinnings come close to a quasi-natural experiment in that all individuals had to leave the ceded area, none were selected on characteristics that affect fertility, and none had the opportunity to eventually return migrate. We find that displaced persons were notably more likely than their non-displaced counterparts to have a partner who also was born in Ceded Karelia. Even though the overall association between forced migration and reproductive patterns are modest, this assortative mating behaviour tends to affect fertility in a positive manner. Being born in Ceded Karelia does not only make people more likely to have a partner born in Ceded Karelia, but this combination appears to increase the likelihood of having children. The interrelation between migration and fertility is consequently dependent on partner characteristics.

Keywords: Fertility, Refugees, Family formation, Finland, Karelia

1. Introduction

The influence of migration on family formation patterns has interested social scientists at least since the 1950s (Goldberg, 1959). While migration may affect various individual life domains, there are different views and conflicting evidence on how family behaviours are affected by migration (Kulu, 2005; Sobotka, 2008). Migration is often conceptualised as a process of fundamental life changes, in which anxieties and hardships as well as benefits and opportunities created by settling into new environments may affect mental health and psychological distress both in the short and in the long-term (Hertz, 1993; Ritsner & Ponizovsky, 1999). The effect of migration on family outcomes work through several mechanisms, such as changes in marriage and childbearing ideals, reproductive health and fecundity, and social and economic factors. As in many other aspects related to the demography of migration, analyses of fertility have been greatly constrained by the availability of adequate data. There are also methodological challenges involved, which makes it difficult to identify causal relations. Migrants often differ in various characteristics relative to non-migrants, including health and socioeconomic factors, and these characteristics could, independently of migration, relate to demographic outcomes (Blair & Schneeberg, 2014). Many studies on forced migrants use a restricted number of cohorts and short observational windows, and there has been a lack of unbiased data on migrants' socioeconomic traits and reproductive careers. Studies of forced migrants may also suffer from low and potentially non-random response rates, which makes studying them more difficult.

This paper studies partnering and reproductive patterns following forced migration. We use data from Finland, as the country offers a unique opportunity to understand the effect of involuntary migration movements on childbearing patterns, and relate them to the country's recent demographic development. The study case is concerned with the mass displacement that took place during World War II, following the Soviet accession of Karelia, when approximately ten per cent of the land area was lost. More than 400,000 Finns living in Karelia were forced to move to other regions in Finland. There was no migrant selection, since all people had to move from the ceded area and no one could eventually return.

Using population register data that cover the period 1988-2011, we observe the fertility of displaced persons across their entire reproductive lives -- and compare them with non-displaced individuals who have otherwise similar characteristics. Thus, our aim is to analyse partnering and childbearing patterns of the people who were forced to migrate from Ceded Karelia, and to compare them with a control group of Finns born on the adjacent side of the new border, and with the rest of the population of Finland.

This specific setup overcomes many of the common problems in this research area. Although a number of studies have analysed fertility effects of forced migration (Avogo & Agadjanian, 2008; Hynes, Sheik, Wilson, & Spiegel, 2002; Randall, 2005), few are based on longitudinal multi-cohort population registers. There is also insufficient understanding of gender differences in family formation behavioural responses to forced migration, and particularly with regard to people who were forced to migrate as children, that is, before most individuals marry or have children. In this paper, we study male and female partnering and reproductive responses separately, and we focus on people who were at most 17 years old at the time of the move. Since partnership status is an important determinant of reproduction patterns, we devote specific interest to the issue of partnership formation and the partner characteristics– including whether he or she was born in Ceded Karelia, and how this in turn could influence fertility.

2. The association between migration and fertility

2.1. Disruption, selection, socialisation and adaption

The interrelation between migration and fertility is often summarized along four partly overlapping and complementary, and partly contradictory, hypotheses, namely *socialisation*, *adaptation*, *selection* and *disruption* (Hervitz, 1985; Singley & Landale, 1998). The socialisation hypothesis argues that fertility behaviour of migrants is a reflection of fertility preferences they were exposed to in their childhood environment. The adaption hypothesis, in contrast, argues that migrant fertility over time

will resemble the dominant behaviour at the destination environment. The selection hypothesis suggests that migrants are a specific group of people with fertility preferences that are more similar to those of people at destination than at origin, implying that changing behaviour of the migrants is not the prime issue. The disruption hypotheses put focus on short-term reductions in fertility associated with the migration process. Each of these hypotheses has found empirical support, although the evidence is often population-specific and contextual (Kulu, 2005). The standard framework for understanding the interrelation between migration and childbearing patterns is useful in analyses of the effects of involuntary migration and fertility, although it must be tailored to the specific characteristics and circumstances of forced migration (Agadjanian & Prata, 2002).

Evidence from developed countries suggest that unexpected deterioration of economic opportunities will decrease fertility, at least in the short term (Sobotka, Skirbekk, & Philipov, 2011). Higher rents, but also increased opportunity costs of having children (for instance following greater female economic opportunities) in the host country tend to depress fertility (Kulu, 2013; Lesthaeghe, 2010). Dire social conditions and poor economic prospects have, however, been found to relate to high fertility among forced migrants in Angola (Agadjanian & Prata, 2002) or among Palestinians living in refugee camps (Fargues, 2000). High levels of social and economic uncertainty could also relate to changes in social preferences, including a move towards more traditional family views and greater levels of traditional social views and attitudes (Vandoros, Hessel, Leone, & Avendano, 2013; Pekka Virtanen, Hammarström, & Janlert, 2016). Such social changes could affect demographic behaviour, including contributing to earlier marriage and higher fertility (Rodgers, John, & Coleman, 2005). Migration may also imply lower fertility if it involves a move from rural to more urban regions (Kulu, Vikat, & Andersson, 2007; United Nations, 2015), following less family-focused cultural exposures, increases in education and higher contraceptive use (Johansson, 2016; Lee & Pol, 1993). Migration to developed nations may potentially lead to a change in lifestyle and mind-set, including a more individual focused culture, a greater focus on individual self-realization, less concern for statements from moral authorities, factors that may result in later and lower fertility (Kulu, 2013; Shakya & Gubhaju, 2016).

Central to trends in fertility and marriage is the cultural background of the migrants and demographic trends in their region of origin. Whether forced migration relates to marriage and fertility patterns depend on circumstances in the origin and destination regions in addition to characteristics of the migrant group. The distinct family behaviour of many migrant groups can be mediated by dimensions of culture, traditions, contraceptive use, education, and income potential. More traditional attitudes and values may increase migrants' fertility, since they generally mean that individuals are more likely to enter relationships earlier, to marry, and to have more children (Adsera, 2013; Berghammer, 2012). Several studies suggest that asylum seekers to Europe have more conservative social orientations as compared to natives (Buber-Ennser et al., 2016; Hatton & Leigh, 2011; Röder & Lubbers, 2015). Many migrants who have come from Asia and Africa to Europe during the recent decades have higher fertility as compared to the native populations (Coleman & Dubuc, 2010; Sobotka, 2008). Part of these differences relate to fertility patterns observed in the immigrants' regions of origin (Milewski, 2010; Pew research center, 2015). Somali immigrants in Finland, for instance, have a relatively high marriage propensity and greater fertility than native Finns, which may be due to the high fertility Somalian context they originate from (Fingerroos, 2016; UNPD, 2017). Yet, other groups coming to Nordic countries, such as Iranians, exhibit relatively low fertility, which reflects both social selection of the migrants and the rapid fertility declines that have taken place in their countries of origin (Milewski, 2010; Sobotka, 2008; Statistics Norway, 2017).

Fertility levels of migrants tend to gradually converge to that of the population majority, following a longer duration of stay with acculturation and adaption, something which has also been found in the Nordic region (Andersson, 2004; Milewski, 2010). Yet, certain cultural characteristics among migrants, such as religious affiliation, could be less likely to change and may continue to influence family formation patterns even in the longer term (Stonawski, Potančoková, & Skirbekk, 2015; Westoff & Frejka, 2007). Migrants have been found to report higher levels of religiosity in the period surrounding the move (Connor, 2012), and this could in turn affect fertility patterns.

2.2. Partnering, cohabitation and marriage

Migration adjustment may affect risk factors for health, which in turn may affect partnering and fertility behaviour independently of the migration (Anwar, Khyatti, & Hemminki, 2014; Nielsen & Krasnik, 2010). Such mechanisms make it difficult to identify the effects of migration on fertility and marriage patterns, since prevalence of disease and disability could have independent effects on marriage and childbearing outcomes (Andersson & Drefahl, 2017; Kibele, Scholz, & Shkolnikov, 2008).

Migration often imply a separation from spouses (or potential spouses), which can lead to less marriage and childbearing immediately after the move. There are more male than female asylum seekers to Europe, which may, at least in the shorter term, depress and postpone family establishment patterns (Carling, 2005; Donato & Gabaccia, 2015). Migration can therefore disrupt migrants' reproductive career through partner separation or postponement of childbearing and marriage. In the longer term, marriage migration and family reunification could imply that skewed sex-ratios are balanced out and migrant fertility levels rise thereafter. High birth intensities are often common after migration, such as among female immigrants from Turkey who married a partner with Turkish ancestry living in Germany (Wolf, 2016).

Marriage patterns are fundamental determinants of fertility outcomes, and higher marriage rates at younger ages tend to imply greater fertility outcomes (Büchel & Frick, 2005; Kalmijn & Tubergen, 2010; Massey, 1981; Voas, 2003). Those who marry relatively young are less likely to be childless and tend to initiate childbearing earlier (Jones, 2007; Marini, 1984). Migrants coming from a conservative culture may be socialized with a norm of universal and early marriage. The reason for the higher marriage levels can consequently be culture and not the migration experience. Previous research has found that both immigrants and non-migrants frequently prefer to establish a partnerships with those with a similar cultural background (Kalmijn, 1998; McPherson, Smith-Lovin, & Cook, 2001). Social mechanisms may therefore operate to support marriages within specific cultural and social communities (Alba, 1990; Furnham & McClelland, 2015; Kalmijn & Tubergen, 2010). Childbearing

preferences can be influenced from the migrants' families and communities (Carol, 2016; van Zantvliet, Kalmijn, & Verbakel, 2015). Reasons include a wish to uphold one's own culture, to promote intergenerational transmission of wealth and traditions within one's community, to preserve economic goods within family lines, and to engage in family collaborations within narrow groups.

Choosing a spouse among the members of one's own community can have major consequences for the personal integration process and for social mobility opportunities, as well as for the socialization process of any children. If both partners have the same community background this may potentially increase understanding and align marital and fertility expectations as cultures, beliefs and customs are more similar (Kanat-Maymon, Sarid, Mor, Mirsky, & Slonim-Nevo, 2016; Watson et al., 2004). Also, younger ages at immigration appear to be important for intermarriage rates and socioeconomic integration and success (Åslund, Böhlmark, & Skans, 2015). Other factors, including education, have become increasingly important for success of the households. Finding a spouse with the right schooling may therefore have become more important for those who seek a partner (Autor, Katz, & Kearney, 2006; Cawley, Conneely, Heckman, & Vytlacil, 1996; Grogger & Hansen, 2011). Fertility levels and whether one realizes reproductive ideals can depend strongly on the spouses' characteristics (Dey & Wasoff, 2010; Thomson, Lappegård, Carlson, Evans, & Gray, 2014).

Gender differences in partner and fertility preferences and opportunities could imply that fertility outcomes after migration will differ between men and women. Women, who tend to bear the greater social and economic costs of childbearing, tend to be more selective than men when it comes to partner search (Thornton & Young-DeMarco, 2001; Vrangalova, Bukberg, & Rieger, 2014). In addition, men tend to give less time and resource investments to partnerships and childbearing, and may be able to adjust in a shorter time to a new context, while women may have greater difficulties in finding and marrying a partner with the desired characteristics such as sufficient income potential or a similar culture (Hopcroft, 2015). Thus, women invest more time and resources in reproduction and may need more time after being uprooted, having to put more energy into re-establishing relations and adapting to a new context as compared to men. It is consequently plausible that men would experience limited

declines in partnering or fertility following migration and forced movement in particular, while women would experience larger declines in both the likelihood of finding a partner and the likelihood of becoming a parent.

The impact of forced migration on those who migrated as children may be partly different from that on adults, particularly when considering that early life experiences and environmental exposures vary. Acculturation to the habits of new surroundings can be assumed stronger for child migrants, especially if they have grown up under similar environmental and socioeconomic circumstances as non-displaced children. In that case, fertility profiles of displaced and non-displaced persons may be similar. However, a forced migration is likely to be a critical life event for many, and may have long-term impact on family behaviours in terms of both childbearing and partnering. The overall purpose with this paper is to study whether this may be the case.

3. The displaced Karelian population in Finland

In combination with high-quality data, which will be presented in the next section, the displaced Karelian population in Finland provides an excellent study case for assessing the influence of migration on fertility. As will be discussed below, this is because selection effects are close to non-existent, and displaced and non-displaced persons are highly similar in socioeconomic status and cultural practices.

Three months after the German invasion of Poland in September 1939, the Soviet Red Army attacked Finland, which is known as the outbreak of the Winter War. In the peace treaty ending the battles in March 1940, Finland ceded roughly a tenth of its territory to the Soviet Union. The entire population of these areas was evacuated during this war. The Emergency Settlement Act was enacted in July 1940 in order to settle the displaced population in the rest of the country. This settlement policy was suspended when Finland joined Germany's attack on the Soviet Union in June 1941, known as the outbreak of the Continuation War. The ceded areas were re-occupied by Finland, and from the end of 1941 those who had been displaced were allowed to return to their pre-war homes. Two thirds of

them did so (Sarvimäki et al., 2010). In the summer of 1944, the Soviet Red Army pushed the Finnish troops back to roughly the same line of defence that they held at the end of the Winter War, and the entire population of the ceded areas was again forced to relocate. Since then, the area has remained under Soviet/Russian control. Thus, migration was exogenously determined, which avoids the common problem that migrants may be inherently different from non-migrants (Saarela & Elo, 2016). Furthermore, there was no eventual return-migration selection, since none of the displaced Karelians had the opportunity to return to the ceded area after 1944.

In May 1945, the Finnish parliament approved the Land Acquisition Act that guided the subsequent settlement policy (Pihkala, 1952; Virtanen, 2006). The forced migrants from Karelia were relocated with the assistance of the Finnish government and were distributed around the country in a manner that was, if not random, at least minimally based on the migrants' own decisions. People from each Karelian village were settled into a designated target municipality. The non-agrarian population was not explicitly allocated, but their destination was mainly determined by the availability of housing and the distance from the ceded areas. Displaced persons who had owned or rented land in the ceded areas, and had received their principal income from agriculture, were entitled to receive land from remaining parts of the country. Others received compensation for their lost property in the form of government bonds. All evacuated families consequently had the right to receive a new homestead and they were allocated land in proportion to their former property. Thus, these circumstances resulted in a situation where migrants had similar socioeconomic profiles immediately before and after relocation, and in particular they were similar to people living on the Finnish side of the new border.

Many displaced persons moved within Finland after they had been relocated. Five years after evacuation, roughly half of the displaced population lived in their designated placement areas (Waris, Jyrkilä, Raitasuo, & Siipi, 1952). Previous research has documented modest differences between the forced migrants and non-migrants in Finland with respect to a range of observable characteristics, including education, employment, sector of work, homeownership and marital status, regardless of whether observed only a few years after the evacuation or several decades later (Jan Saarela & Finnäs,

2009; Sarvimäki, Uusitalo, & Jantti, 2009). However, a quarter of a century after displacement, the evacuees earned more than the comparison groups of non-migrants (Sarvimäki et al., 2009). It has been hypothesized that these income gains were related to a faster transition from traditional to modern occupations and from rural to urban areas than the case was among other Finns. Thus, factors known to mediate the migrant-fertility relationship, such as education, culture, traditions, contraceptive use and income potential, are not likely to differ much for people born in Ceded Karelia as compared to the rest of the Finnish population.

In terms of diseases and chronic health burdens, the population in eastern Finland that did not move is similar to the forced migrants (Norio, 2003; J. Saarela & Finnäs, 2006). Cultural differences, which may affect health behaviours and diet, are also much less pronounced across Finnish regions than is typically the case when individuals move across international borders (Jan Saarela & Finnäs, 2010). Because it was not possible to move back to the ceded areas after 1944, the forced migrants were encouraged to accustom themselves for permanent residence in their new surroundings, with the expectation that they would participate in all facets of economic, social and political life (Ahonen, 2005). Thus, displaced and non-displaced persons were highly similar in socioeconomic status and cultural practices, and there is consequently no reason to expect that the migrants would have suffered from limited access to services, experienced discrimination or poor working conditions, or to have been sorted into more dangerous or strenuous occupations as compared to non-migrants.

4. Data and methods

The data we use come from a five per cent random sample of all persons living in Finland in 1988-2011. The sample unit is the individual, but the data have links to each sample person's biological children and to the sample person's partner. The partner identification comes from a standard procedure performed by Statistics Finland, and refers to a person who live in the same dwelling as the index person, is of the opposite sex, is not a close relative, and whose age does not differ more than 20 years

from that of the index person. We have no information about whether the partner of the index person is the other biological parent of the child. However, based on divorce and remarriage propensities we approximate that, of all partners to the index persons, step-parents amount to only at most 6 per cent. Since the data are drawn from the Finnish population register, and all variables are based on data obtained from linkage to various register-based data sources, there are no concerns regarding sample response rates or loss to follow-up, nor any need for imputation of characteristics. The data sources were merged by Statistics Finland using personal identification numbers.

The individuals can be observed longitudinally on an annual basis between January 1, 1988 and December 31, 2011. Each person's socioeconomic and demographic characteristics, together with the region of birth, come from administrative registers, which makes it possible to distinguish forced migrants. We study people born in Ceded Karelia in 1927-1944, and compare them with non-displaced people of the same birth cohorts, born on the adjacent side of the new border in eastern Finland. In addition, we compare them to people born elsewhere in Finland. The regional categorisation is the same as that used by Saarela and Finnäs (2009) and Saarela and Elo (2016), who studied mortality and health of the forced migrants.

In 1938, which was before the war, the crude birth rate in the area of origin of the Karelians (Viipuri) was 39.2 births per 1,000 women (Table 1). This was lower than in other provinces of Eastern Finland (44.8 in Mikkeli and 49.4 in Kuopio), and notably lower than that in Northern Finland (54.1 in Oulu and 59.7 in Lappi). In Southern Finland, the crude birth rate was the lowest, or at less than 30, while in Western Finland it was approximately at the same level as in the ceded area.

(Table 1 here)

The last male cohort mobilised for army service during the war period consists of people born in 1926 (Jan Saarela & Finnäs, 2012). Thus none of our study subjects had participated in combat during the war. People with a mother tongue other than Finnish were excluded from analyses. They account for only two per cent of all individuals born in Ceded Karelia. Most of them were Swedish speakers, who

had a predominantly non-agrarian background and lived in the city of Viipuri. Few displaced persons were relocated into Swedish-speaking municipalities.

We examine reproduction patterns of women and men, respectively, by estimating odds ratios for having at least one child with logistic regression models, incidence rate ratios for the number of children with Poisson models, and hazard ratios for time to the first child with Cox regression models. In the results section, we focus on the odds ratios.

Since all people studied are at least 45 years old when entering the observation window in 1988, there are few additional births during the observation period 1988-2011, and the greater reproductive age range of men than of women does not affect the results to any noteworthy degree.

Our analytic sample consists of 4,146 individuals who were forced to migrate as children, 12,390 individuals born in Eastern Finland, and 30,452 individuals born elsewhere in Finland. The control variables, which all are measured at entry into the observation window (which is beginning of 1988 for almost all persons) are age, period, educational attainment, homeownership, income quintile, region of residence, and family type. Family type combines information about marital status and whether or not a person lives alone. The categorisation and distributions of these variables are presented in the next section.

5. Results

Women born in Ceded Karelia had a slightly lower mean number of children than women born in Eastern Finland and elsewhere in Finland (2.07 vs. 2.10 and 2.08 in Table 2). The proportion of childless women was also slightly higher among women born in Ceded Karelia (17.3 per cent vs. 15.7 and 16.4), and they had a somewhat higher mean age at first birth than the other women. The situation for men was different. There were fewer childless men among people born in Ceded Karelia than among men born in Eastern Finland and elsewhere in Finland (21.6 per cent vs 19.1 and 22.5), while the mean number of children was higher, and their age at the birth of the first child was somewhat lower.

(Table 2 here)

In terms of socioeconomic characteristics (education, homeownership and income), the displaced persons were highly similar to others. Since there were relatively few births in Ceded Karelia during the war period 1939-1944 (Saarela and Elo, 2016), the displaced population studied here was older than people in the comparison groups. Women born in Ceded Karelia differed from the other women also in the sense that fewer of them lived with a partner, and this difference remained even when other characteristics were controlled for (Table 3). Among men, there were no marked differences in the probability of having a partner, although the displaced men, like the displaced women, were more likely to be divorced and widowed as compared to non-displaced persons.

(Table 3 here)

Perhaps most noteworthy is that both displaced women and displaced men were more likely than their non-displaced counterparts to have a partner who also was born in Ceded Karelia (10.2 per cent vs. 6.6 and 6.0 in women, and 8.6 per cent vs. 5.8 and 4.3 in men, in Table 2). This difference remains sizeable even when we controlled for characteristics differences (Table 4). Women born in Ceded Karelia have 49 per cent higher odds to have a partner born in Ceded Karelia than women born in Eastern Finland (1/0.67-1) and 61 per cent higher odds as compared with women born elsewhere in Finland (1/0.62-1). In men, the differences were also notable in size. Men born in Ceded Karelia were 23 per cent more likely to have a partner born in Ceded Karelia than men born in Eastern Finland (1/0.80-1), and 59 per cent more likely as compared with men born elsewhere in Finland (1/0.63-1). Thus, assortative mating seems to have been very strong, and remarkable from the perspective that the displaced persons initially were geographically distributed based on governmental, and not the individuals' own, decisions.

(Table 4 here)

When control variables were adjusted for (Table 5), we see that the odds of having children was four per cent higher in displaced women, and ten per cent higher in displaced men, as compared to people

born in Eastern Finland, but none of these estimates were statistically significant at the five per cent level. Incidence rates for having children, and hazard rates for time to the first child, were similar for displaced and non-displaced women, while for men, these rates were slightly higher for displaced men as compared to non-displaced men (results not shown). Most remarkable still is that the odds of parenthood was particularly high if both partners were born in Ceded Karelia (Table 6). In models for women, couples in which both partners were displaced as children had 14 per cent odds of being parents than those in which the index person was born in Eastern Finland and the partner outside the ceded area. For men, the difference was even higher, or as much as 59 per cent. Similar conclusions apply to fertility in terms of the number of children and time to the first child (results not shown). However, due to the relatively small sample size, none of these estimates were statistically significant.

(Table 5 here)

(Table 6 here)

To study how partner characteristics affect fertility in somewhat more detail, we utilised information from the partner files, which have a similar setup as the other files described earlier. We restricted all analyses to people with partners only, and to those whose partner also was born in 1927-1944. The latter procedure means that we achieved symmetry in the sense that both partners could be used in analyses of men and women, respectively. Excluded from the partner files were people who, based on age restrictions, could not reasonably be parents to the children of the index persons. This approach produced a slightly larger analytic sample, consisting of 4,652 individuals born in Ceded Karelia, 13,951 persons born in Eastern Finland, and 34,351 individuals born elsewhere in Finland. Since the restriction criteria differ from the other analytic sample, the study group also differs on socioeconomic and demographic characteristics (not shown). However, results with regard to fertility were similar in the sense that, displaced persons were more likely than others to be parents if also the partner had been displaced (Table 7). The confidence intervals of the estimates were nevertheless too wide to facilitate any rigorous conclusions.

(Table 7 here)

6. Discussion and conclusion

Forced population movement and its consequences on recipient countries is a major concern in nations around the world. In several countries, voters fear that the growth of migrant groups will affect electoral outcomes and voting patterns (Golder, 2016; Halla, Wagner, & Zweimüller, 2017; Hozić & True, 2017; Pew, 2007). The fertility behaviour of the forced migrants may affect attitudes and thereby influence policies towards migrants. One central question is whether forced migrant groups will grow in size in their new countries of settlement or will their demographic behaviours eventually converge to that of the host populations. Several studies have focused on whether migrants' fertility gradually converge towards that of the host countries (Coleman & Dubuc, 2010; Toulemon, 2004). However, there has also been interest in whether the impact of circumstances surrounding the forced migration itself affect fertility outcomes, including experiences of conflict, social disruption, violence, humiliation, economic deprivations and worsened health (Abbasi-Shavazi, Hugo, Sadeghi, & Mahmoudian, 2015; Cetorelli, 2014; Gursch-Adam & Benková, 2016; Lindskog, 2016; Urdal & Che, 2013). Most studies of forced migration have been concerned with population movements that occur between different cultural, economic and geographic settings, where the migration may relate to large changes in social, educational and economic opportunities.

In this paper, we studied reproductive and partnering behaviours of people who were forced to migrate from Ceded Karelia in childhood or early adolescence, before starting their reproductive careers. Doing so, we had a rare opportunity to assess demographic effects of forced migration in a setting where no self-selection or sorting had taken place, since the entire population without exceptions had to move. Register data allowed us to follow these displaced individuals across the life course, to assess the long-term consequences of forced migration on female and male childbearing and partnering behaviours, without bias due to sample selection, right-censoring or attrition.

Based on this quasi-experimental setting, we found only modest positive associations between forced migration and fertility. Displaced men were slightly more likely than non-displaced men to be fathers, while fertility differences between displaced and non-displaced women were even smaller. These slight gender differences may lend support to the hypothesis that men and women may have different reproductive strategies. Accordingly, it has been argued that men adapt easier to unforeseen involuntary migration than women, resulting in different demographic outcomes (Huber, Bookstein, & Fieder, 2010; Rijken & Thomson, 2011; Thornton et al., 2012).

Our findings may consequently be interpreted as providing support for acculturation theories of migration, rather than disruption theories. However, even if the displaced persons differed only marginally from their non-displaced counterparts when it comes to fertility in general, some noteworthy patterns emerge with regard to the partner characteristics. People who were forced to migrate are much more likely than others to partner with a person who also was forced to migrate, and this behaviour seems to have affected fertility in a positive manner. Hence, being born in Ceded Karelia did not only make people more likely to have a partner born in Ceded Karelia, but this combination tends also to have increased the likelihood of having children. Since historical fertility rates did not differ markedly between origin and destination areas, this finding may be considered as evidence for that the mutual experience of a critical life event can shape fertility. It may also be supportive of studies on demographic consequences of large-scale macro shock, although most of that research has been concerned with less developed countries (Nobles, Frankenberg, & Thomas, 2015). It should nevertheless be emphasised that the sample size limited more in-depth analyses of ours, and that the estimates on this account came with large standard errors. Additional limitations are that we could not observe individuals before they entered the observation window in 1988, and that some of the partners of the index persons analysed were not biological parents of the children. However, we regard the latter problem as minor in nature, since these must be few and may be expected to lead to a downwards bias of any positive association between forced migration and fertility.

Even though this study utilised a historical population movement that occurred within a remote Nordic country, we think that the results are of relevance to modern day societies and to contemporary migration induced by epidemic risks, environmental degradation, resource scarcities, social tensions and conflicts. One leading motivation is that drivers of migration may potentially invoke involuntary population movements also between low fertility regions.

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Table 1. Crude birth rate (CBR) in 1938 and total fertility rate per woman (TFR) in 1990 by province in 1938

Province in 1938	CBR in 1938	TFR in 1990	Region used in analyses
Viipuri	39.2	n.a.	Ceded area/Eastern Finland
Mikkeli	44.8	1.7	Eastern Finland
Kuopio	49.4	1.8	Eastern Finland
Uusimaa	27.1	1.7	Southern Finland
Turku-Pori	36.3	1.7	Southern/Western Finland
Ahvenanmaa	27.5	2.0	Southern Finland
Häme	35.5	1.7	Western Finland
Vaasa	39.5	2.0	Western Finland
Oulu	54.1	2.0	Northern Finland
Lappi	59.7	1.9	Northern Finland

Notes: CBR in 1938 refers to the number of births in 1938 per 1,000 women at the end of the year.
TFR in 1990 for Kuopio is the average of Kuopio and Pohjois-Karjala according to the provincial classification of 1990.
Kymi, which had a TFR of 16.9 in 1990, was part of Viipuri in 1938.
Since the provincial borders have changed over time, there is not an exact correspondence between provinces in 1938 and 1990, except for Oulu, Lappi and Ahvenanmaa.

Sources: (Statistics Finland, 1939, 1942, 1993)

Table 2. Variable distributions by birth area and sex, people born 1927-1944

	Women			Men		
	Born in Ceded Karelia	Born in Eastern Finland	Born in rest of Finland	Born in Ceded Karelia	Born in Eastern Finland	Born in rest of Finland
Percentage with children	82.7	84.3	83.6	80.9	77.5	79.4
Mean number of children	2.1	2.1	2.1	2.0	1.9	1.9
Mean age at birth of first child	24.7	24.6	24.4	26.8	27.2	26.7
Age in years (%)						
43-45	8.4	17.7	17.6	11.0	17.2	19.3
46-48	7.1	18.5	19.9	7.8	19.0	19.8
49-51	19.9	16.2	16.3	20.5	16.6	16.5
52-54	19.3	15.1	14.9	19.9	15.4	14.4
55-57	20.5	16.4	15.4	19.8	16.3	15.2
58+	24.8	16.1	15.8	20.9	15.4	14.8
Region of residence (%)						
Helsinki area	19.0	17.5	15.9	20.0	14.5	15.0
Southern Finland	19.1	7.9	17.0	19.2	7.0	17.4
Western Finland	35.4	12.4	45.3	35.1	10.7	44.5
Eastern Finland	21.4	59.5	4.3	20.5	65.5	3.8
Northern Finland	5.0	2.7	17.6	5.2	2.2	19.2
Educational level (%)						
Primary	64.0	63.1	63.1	61.3	64.1	61.2
Secondary	21.2	23.7	21.6	18.8	20.5	20.1
Lowest tertiary	6.7	7.0	7.9	10.0	8.1	8.7
Lower-degree tertiary	5.5	3.8	4.7	4.8	3.6	4.6
Higher-degree tertiary	2.6	2.4	2.8	5.1	3.6	5.4
Homeowner (%)						
No	19.9	18.4	17.4	20.9	20.0	18.2
Yes	80.1	81.6	82.6	79.1	80.0	81.8
Income quintile (%)						
First	27.4	28.0	25.7	14.8	17.0	15.0
Second	13.8	11.8	12.3	10.3	10.8	10.2
Third	21.3	22.5	23.2	13.5	13.7	12.3
Fourth	24.5	25.7	25.1	25.1	25.4	25.4
Fifth	13.0	12.0	13.6	36.4	33.0	37.0
Family situation (%)						
With partner	67.1	72.3	72.1	77.3	76.6	77.8
Alone, never married	8.8	7.4	7.7	7.9	10.7	8.9
Alone, divorced	7.8	6.3	5.8	9.4	7.2	7.8
Alone, widowed	5.6	3.7	3.8	1.0	0.8	0.7
Other	10.7	10.2	10.6	4.4	4.7	4.7
Partner's birth area (%)						
No partner	32.9	27.7	27.9	22.7	23.4	22.2
Not born in Ceded Karelia	56.9	65.7	66.2	68.8	70.8	73.5
Born in Ceded Karelia	10.2	6.6	6.0	8.6	5.8	4.3
Total number of persons	2,102	6,305	15,250	2,044	6,085	15,202

Note: Except for the number of children in men, variables refer to the situation at entry into the observation window (end of 1987 for almost all persons).

Table 3. Odds ratios for having a partner by birth area (at end-1987)

	Women						Men					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Birth area												
Ceded Karelia	1		1		1		1		1		1	
Eastern Finland	1.28	(1.15-1.43)	1.14	(1.02-1.28)	1.12	(1.00-1.26)	0.96	(0.85-1.08)	0.99	(0.87-1.12)	1.04	(0.90-1.20)
Rest of Finland	1.27	(1.15-1.40)	1.14	(1.03-1.26)	1.11	(1.00-1.23)	1.03	(0.92-1.15)	1.01	(0.90-1.13)	1.01	(0.89-1.14)

Notes: Model 1 includes no control variables. Model 2 controls for age, birth cohort, and region of residence. Model 3 additionally controls for educational level, homeownership, and income quintile.
Numbers within parentheses are 95% confidence intervals.
The results come from logistic regressions.

Table 4. Odds ratios for having a partner born in Ceded Karelia by own birth area (for people with partners only)

	Women						Men					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Birth area												
Ceded Karelia	1		1		1		1		1		1	
Eastern Finland	0.56	(0.47-0.67)	0.67	(0.55-0.80)	0.67	(0.55-0.81)	0.66	(0.55-0.80)	0.80	(0.65-0.99)	0.81	(0.65-0.99)
Rest of Finland	0.50	(0.43-0.59)	0.62	(0.52-0.73)	0.62	(0.52-0.73)	0.48	(0.40-0.57)	0.62	(0.52-0.75)	0.63	(0.52-0.75)

Notes: Model 1 includes no control variables. Model 2 controls for age, birth cohort, and region of residence. Model 3 additionally controls for educational level, homeownership, income quintile, and family situation.
Numbers within parentheses are 95% confidence intervals.
The results come from logistic regressions.

Table 5. Odds ratios for parenthood by birth area

	Women						Men					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Birth area												
Ceded Karelia	1		1		1		1		1		1	
Eastern Finland	1.13	(0.99-1.29)	1.02	(0.89-1.17)	0.96	(0.81-1.15)	0.81	(0.72-0.92)	0.84	(0.73-0.96)	0.91	(0.76-1.09)
Rest of Finland	1.07	(0.95-1.21)	1.01	(0.89-1.14)	0.96	(0.82-1.12)	0.91	(0.81-1.02)	0.91	(0.80-1.02)	0.94	(0.80-1.09)

Notes: Model 1 includes no control variables. Model 2 controls for age, birth cohort, and region of residence. Model 3 additionally controls for educational level, homeownership, income quintile, and family situation.
Numbers within parentheses are 95% confidence intervals.
The results come from logistic regressions.

Table 6. Odds ratios for parenthood by birth area and whether the partner was born in Ceded Karelia

	Women						Men					
	Partner not born in Ceded Karelia		Partner born in Ceded Karelia		No partner		Partner not born in Ceded Karelia		Partner born in Ceded Karelia		No partner	
Birth area												
Ceded Karelia	0.98	(0.78-1.23)	1.14	(0.69-1.87)	0.21	(0.17-0.26)	1.10	(0.90-1.36)	1.59	(0.88-2.90)	0.10	(0.08-0.13)
Eastern Finland	1		1.05	(0.73-1.50)	0.20	(0.17-0.23)	1		0.87	(0.63-1.22)	0.08	(0.06-0.09)
Rest of Finland	1.07	(0.93-1.24)	0.94	(0.73-1.21)	0.19	(0.16-0.22)	1.08	(0.94-1.24)	0.79	(0.61-1.02)	0.09	(0.07-0.10)

Notes: The estimates refer to a variable that captures the joint effect of birth area and whether the partner was born in Ceded Karelia.
The model for each sex controls for age, birth cohort, and region of residence.
Numbers within parentheses are 95% confidence intervals.
The results come from logistic regressions.

Table 7. Odds ratios for parenthood by birth area and whether the partner was born in Ceded Karelia; people with a partner only, and utilising the partner-file information

	Women				Men			
	Partner not born in Ceded Karelia		Partner born in Ceded Karelia		Partner not born in Ceded Karelia		Partner born in Ceded Karelia	
Birth area								
Ceded Karelia	1.04	(0.87-1.24)	1.30	(0.86-1.95)	1.08	(0.90-1.29)	1.13	(0.75-1.70)
Eastern Finland	1		1.25	(0.94-1.65)	1		0.84	(0.64-1.10)
Rest of Finland	1.14	(1.00-1.29)	1.15	(0.93-1.42)	1.05	(0.92-1.20)	0.96	(0.77-1.19)

Notes: The estimates refer to a variable that captures the joint effect of birth area and whether the partner was born in Ceded Karelia.
The model for each sex controls for age, birth cohort, and region of residence.
Numbers within parentheses are 95% confidence intervals.
The results come from logistic regressions.