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How Migration Affects the Timing of Childbearing: The Transition to a First Birth Among Polish Women in Britain

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Abstract Views differ on how migration affects the timing of childbearing. Whereas migration has long been considered a break in the life course, hindering family formation, this disruption hypothesis has recently been challenged. New findings indicating that there is often an acceleration of childbearing shortly after migration have led to the formulation of the interrelation hypothesis. Examining the childbearing behaviour of Polish women, this study extends previous research by combining information from the countries of origin and of destination. Using retrospective data from Poland (derived from the European Social Survey) and Britain (derived from the Labour Force Survey), discrete-time event history methods are applied to study the transition to a first birth in relation to the timing of migration. The results show that there is a disruption of childbearing prior to migration, as well as an acceleration of fertility in the years immediately following the move.

Keywords Polish migration · Migrant fertility · Great Britain · Disruption · Interrelation · Own-child method

1 Introduction

As migration decisions are mostly embedded in a broader family context (Kley 2011; Ryan et al. 2009), the process of migration is closely linked to family dynamics in the life course. This link is also demonstrated by the various consequences of migration for individuals and their families. The far-reaching changes associated with migration leave their mark on migrant families, as increased divorce rates after migration indicate (Boyle et al. 2008; Landale and Ogena 1995). While a close interrelation between the family life course and

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migration is undeniable, views differ on how migration and family processes are related. One controversial issue is the impact of migration on the timing of childbearing, which will be addressed in this study.

Migration has long been regarded as a disruptive life-course event that hinders family formation. Accordingly, numerous studies have found that migration reduces the probability of childbearing in the country of destination (e.g. Carlson 1985; Ford 1990; Goldstein and Goldstein 1981; Stephen and Bean 1992). In recent years, however, this view has been challenged by a growing number of studies which have found a tendency towards an increased probability of having a first child shortly after arrival in the destination country (e.g. Andersson 2004; Andersson and Scott 2005; Milewski 2007, 2010; Singley and Landale 1998; Wolf 2014).

Despite these insights from several existing studies, the question of *how* migration affects the timing of childbearing still cannot be answered conclusively. This gap in our knowledge may be explained by the perspectives taken by existing research. Focusing on the long-term adaptation to a new environment, most studies compare the fertility of immigrants with that of natives or other immigrant groups in the destination country. Thus, these studies cannot separate the effect of originating from another country from the effect of the migration process itself. By adopting a life-course perspective, I aim to determine the impact of this process. To do this, I extend previous research in this study in two ways: first, by examining the timing of childbearing in relation to the timing of migration; and, second, by including non-migrants who remain in the country of origin. To compare migrants and non-migrants from the country of origin, I combine data sources from two different national surveys: one conducted in the country of origin, and one conducted in the country of destination. Specifically, I use retrospective data from the British Labour Force Survey (representing the country of destination) and from the Polish sample of the European Social Survey (representing the country of origin). This unique dataset is used to examine the transition to a first birth among Polish women in relation to the event of migration to Britain.

The paper proceeds as follows. In the first section, I provide some background information on Polish migration and fertility. This is followed by a brief review of previous research on the relationship between these two life course processes. I then develop the chosen analytic approach, and present the life-table analyses and transition rate models used. In the final section, I discuss the findings and limitations of this study.

2 Background

Polish migration to Britain constitutes one of the largest and most intensive migration flows in contemporary Europe (Trevena 2009). Although migration between these two countries is by no means a new phenomenon, the number and the characteristics of this flow have changed due to the enlargement of the European Union. Since the EU granted Polish nationals freedom of movement in 2004, the United Kingdom has become one of their main migration destinations. The exact

scale is unknown, but statistics suggest that a minimum of 670,020 Polish nationals have taken up employment in Britain since 2004 (Home Office 2007, 2009).

While a large number of studies on this development have already been published, most have concentrated on the underlying motivations and strategies for migration (e.g. Ryan et al. 2009), or on the effect of this migration wave on the British labour market and welfare system (e.g. Clark and Drinkwater 2008). In contrast, little attention has been paid to the consequences of migration for the migrants themselves, and for their family life course. This lack of interest may be due to the prevailing view that Polish migrants are typically young men who move to Great Britain on a temporary basis to make money before returning to Poland (Cook et al. 2011, p. 55). It turns out, however, that women make up a large proportion of the Polish population in Britain, and that many of these migrants stay longer than expected (Trevena 2009). While most migrants to Britain move to the UK to work, it has also become clear that the decision to migrate is often tied to a range of complex family strategies (Ryan et al. 2009). In response to the increase in the numbers of Polish women and families living in Britain for longer periods, the question of *how* migration influences their childbearing behaviour has arisen (see also Waller et al. 2014).

There is another reason why studying the childbearing behaviour of Polish migrants promises new insights into family dynamics in general. The fertility differences between migrants and the women who were born in the country of destination are typically ascribed to the high-fertility background of migrants. However, this explanation does not apply to Polish women, as Poland is among the countries of Europe with lowest-low fertility. For example, in 2009 the total fertility rate in Poland was 1.40 births per woman; far below the replacement level of 2.1 (Eurostat 2014; see Kotowska et al. 2008 for a detailed description of fertility trends in Poland). At the same time, British birth statistics indicate that as the number of Polish workers in Britain has risen, the number of births to Polish women has also increased. Once invisible in the British birth statistics, births to Polish-born women recently climbed to second place among births to foreign-born mothers in Britain, with a total of 18,159 births in 2009 (Office for National Statistics 2010). Thus, Polish women have contributed to the recent increase in the number of births in Britain, even though their birth rates are still below those of other immigrant women (Waller et al. 2014). This raises many questions, including the following: Do Polish migrants differ from Polish non-migrants in terms of their childbearing behaviour? How does the move itself affect the timing of childbearing? To address these questions, it is necessary to study the timing of childbearing among Polish migrants in Britain, and to place this issue in relationship to the childbearing of Polish non-migrants who remain in the country of origin.

3 Previous Research on the Impact of Migration on Childbearing

The childbearing behaviour of migrants is influenced by various factors which are associated with the origin of the migrants, the new environment in the destination country and the migration process itself. Depending on which factors are

emphasised, different views on the impact of migration emerge. As a result, both competing and complementary hypotheses have been formulated in the international literature (see Kulu 2005 for an overview).

The origin of migrants is reflected in the specific characteristics of the migrant population relative to those of the natives at destination. Taking these differences between migrants and non-migrants into account, the *socialisation hypothesis* postulates that migrants display childbearing behaviour that is more like the behaviour of their counterparts who stay in the origin country than that of the natives in the country of destination (Kahn 1994; White et al. 1995). The country of destination influences the childbearing behaviour of migrants, as it represents the context in which the decision to have a child after migration is embedded. The *adaptation hypothesis* (e.g. Goldstein and Goldstein 1981; Kulu 2005; Milewski 2007; Stephen and Bean 1992) emphasises the role of this new environment in the destination country, and concentrates on the process of adaptation to it. Therefore, any change in childbearing behaviour after migration is attributed to the conditions in the destination country, including fertility norms and labour market settings (Andersson and Scott 2005).

While the hypotheses described above address the long-term childbearing behaviour of migrants, the following two have a different focus. The *disruption hypothesis* (e.g. Carlson 1985; Ford 1990; Goldstein and Goldstein 1981; Ng and Nault 1997; Stephen and Bean 1992) highlights the impact of the migration process itself on childbearing. The migration process is considered a break in the life course that hinders family formation. This impact of migration is attributed, among other factors, to spousal separation (Lindstrom and Saucedo 2002) or acculturation to the new environment (Goldstein and Goldstein 1981). Accordingly, while migration leads to a lower level of fertility during migration, there is a return to the base level shortly after migration.

The disruption hypothesis has been challenged in recent studies, leading to the formulation of the *interrelation hypothesis* (e.g. Andersson 2004; Andersson and Scott 2005; Milewski 2007, 2010; Mulder and Wagner 1993; Singley and Landale 1998). For example, the recent investigation of the childbearing behaviour of various immigrant groups in Sweden conducted by Andersson (2004), and continued by Andersson and Scott (2005), provided no support for the disruption hypothesis. Rather, the researchers found that levels of childbearing were high among newly arrived immigrants: for various immigrant groups in Sweden, the birth rates during the first two years after migration were markedly higher than those of the native Swedes (Andersson 2004, p. 767). After five years, however, there was no longer any significant difference between immigrants and natives. Based on the assumption that migration and family formation are interrelated events which are mutually dependent, Andersson and Scott (2005, p. 33) called this phenomenon the 'migration effect'. Additionally, in his analysis of birth rates of different migrant groups in Sweden, Andersson (2004) was able to show that the increased birth rate after migration could be demonstrated independent of the country of origin and the period of arrival.

As the main aim of this study is to investigate the relationship between migration and childbearing, the disruption and the interrelation hypotheses are of particular

relevance. I will investigate whether the migration to Britain is associated with an increased or a decreased transition to a first birth for Polish women. As both hypotheses ascribe the fertility after migration to factors associated with the migration process, it is necessary to use information on the origin population as a reference. Otherwise, it will not be possible to distinguish the effect of originating from another country from the effect of the migration process itself (Singley and Landale 1998, p. 1438). Most of the previous studies were not able to make this distinction because they were comparing the fertility of migrants with the fertility of natives in the country of destination. Exceptions are the studies done by Singley and Landale (1998) and Abbasi-Shavazi and McDonald (2002). Singley and Landale (1998) analysed the relationship between migration and fertility among Puerto Rican women using retrospective data, which included respondents in both the origin and the destination areas: Puerto Rico and the United States, respectively. They found that women who migrated to the United States were much more likely than their non-migrant counterparts in Puerto Rico to have formed a union and experienced a first birth. The authors concluded that for Puerto Rican women, migration is an essential part of the family formation process (Singley and Landale 1998, p. 1460).

What triggers the interrelation between migration and family? The complexity of interdependencies between migration and childbearing arises from the fact that the anticipation of an event may motivate individuals to take—or to refrain from taking—certain actions (Huinink and Feldhaus 2009, p. 317). On the one hand, women who plan to migrate in the near future could decide to remain childless until then. The increased probability of having a child after migration could be the result of 'catch-up behaviour', whereby women who had been postponing childbearing in the period prior to migration give birth after migration (Milewski 2007). On the other hand, wishing or planning to have a child can trigger a move (Kley 2011): women may perceive that the conditions in the country of destination are better for family formation than those in the country of origin. For example, couples may wait to start a family until they have established a satisfying economic situation, which they may expect to achieve through labour migration. These and other considerations can lead to a postponement of childbearing until the migration process (including the process of settling down) is finished.

Although my focus in this study is on the disruption and the interrelation hypotheses, I will also consider the socialisation and adaptation hypotheses. The socialisation hypothesis seeks to explain differences in the fertility norms of migrants and non-migrants, with the non-migrants being women from the country of destination. However, as I am comparing Polish-born women with and without migration experience, it can be assumed that they have a similar cultural background. Since migration is a highly selective process, this does not exclude the possibility that there are other differences between Polish women who migrate, and Polish women who do not. Therefore, the issue of selectivity is addressed in this study by controlling for several individual characteristics, such as education and age at migration.

The adaptation hypothesis assumes that the childbearing behaviour of migrants is mainly influenced by the circumstances in the country of destination, and that

migrants will adapt to the fertility behaviour of the natives in the country of destination. This adaptation process can affect behaviour not just over the longer term, but even after just a few years in the new country (Andersson 2004). After entering the country of destination, migrants are exposed to its specific circumstances, including the labour market, the housing situation and social policy. This new set of constraints and resources can affect the childbearing decision of migrants and natives in the country of destination in similar ways. This study cannot address the adaptation hypothesis directly, because the sample is limited to one country of destination. The results in other countries could differ, as the impact of migration depends on the conditions in the country of destination.

4 Analytic Approach

When studying the impact of migration on the timing of childbearing, there are two main requirements for the analytic approach. First, event history data which record the timing of first birth and the timing of migration are needed. Second, in order to include non-migrants as a reference, data from both the country of origin and the country of destination are necessary. These requirements are met using a unique dataset that combines retrospective data from the British Labour Force Survey (LFS, here as the country of destination) and the Polish sample of the European Social Survey (ESS, here as the country of origin). The British LFS provided by the UK Data Archive is a quarterly household survey conducted in Great Britain (Office for National Statistics 2011). For my purposes, I have reduced the sample to Polish-born women who were interviewed, and were therefore resident in Britain. To gain a sufficient number of Polish-born respondents, all of the quarters from 2008 to 2010 and the first quarter of 2011 have been pooled.

To meet the goal of including a reference group of non-migrants of the same country origin in the analysis, adding the Polish sample of the LFS would appear to be an obvious choice. Unfortunately, due to the criteria for the anonymisation of the LFS microdata (Eurostat 2010), the Polish sample of the LFS as provided by Eurostat does not include the required details of year and country of birth. To make a comparison of migrants and non-migrants possible, an alternative data source was sought. For this analysis, I rely on the ESS, a representative household survey conducted in various European countries every two years (European Social Survey 2011). The following analysis is based only on the pooled Polish sample of Rounds 4 and 5 carried out in 2008 and 2010. Again, the dataset has been reduced to women who were born in Poland.

It is possible to combine these two datasets because both data sources are household surveys incorporating the same detailed information about household composition, including sex, year of birth and relationship to the head of household of all household members. Although both data sources are cross-sectional surveys, retrospective information can be used to create event history data that record time-varying information on childbearing and migration.

The women's transition to a first birth is constructed using the own-child method, which was described in detail by Retherford and Cho (1978), and was tested for the

LFS by Dubuc (2009). Based on information about household members and their relationship to each other, mothers and their own children are linked. While this method is based on the assumption that children live with their biological mother, it is clear that this is not always the case (Coleman and Dubuc 2010, p. 23; Retherford and Cho 1978, p. 568). Therefore, the sample is restricted to women who were between 16 and 40 years of age at the time of the interview. In this age range, women are of childbearing age, and the probability that their children are still living at home is high. In the case of Polish migrants, it must be taken into account that a few women might have left their children behind in the country of origin (White 2011). This may lead to an overestimation of childless migrants in the study population.

A central goal of this study is to introduce non-migrants from the country of origin as a reference. As illustrated in Fig. 1, this is achieved in two ways. First, the respondents of the ESS serve as non-migrants because they had no migration experience up to the time of the interview. Moreover, since the LFS includes retrospective information on the timing of the arrival of the Polish women who were interviewed in Britain, the migration of these women can be reconstructed as a time-varying process. Before the time of arrival, these women belonged to the group of non-migrants (referred to as future migrants). This approach has other advantages. First, by making use of the information on the timing of migration, and not just on the single event, the duration of stay can be introduced into the analysis. Second, it is also possible to consider events that occurred before migration.

I apply event history techniques for discrete time data to examine the impact of migration on the transition to a first birth among Polish women (Allison 1982; Blossfeld et al. 2007; Yamaguchi 1991). By splitting the data into person-years (episodes), each year in which a woman is observed contributes a separate observation ($n = 13{,}947$ episodes). The transition to a first birth begins when the women turn 16 years old; from then on, the women are assumed to be at risk of childbearing. For each created person-year, the dependent variable is coded zero until the event (childbearing in this case) occurs. In the year of childbearing, the dependent variable is coded one. Afterwards, the woman (now a mother) exits the dataset because she is no longer at risk of having a first birth. Women who had no child of their own until the time of the survey are treated as right-censored; the dependent variable stays at zero up to the date of the interviews.

The final sample consists of 1,580 Polish-born women between 16 and 40 years of age at the time of the survey. Table 1 presents the composition of the sample, which requires some further explanations. The dataset includes 702 non-migrants from the ESS and 878 migrants from the LFS (migration status at the time of the survey). As the migration status is recorded as time-varying, a migrant (from the LFS) belongs to the group of non-migrants up to the year of entry into Britain. Women who arrived in Britain before the age of 16 are also recorded as non-migrants, because their childbearing behaviour is not directly affected by the move ($n = 15$). As was already mentioned, the dataset is reorganised for the analysis into person-years; also called episodes. Accordingly, the dataset consists of 13,947 episodes, with 5,277 accounting for non-migrants (including future migrants) and 8,670 episodes accounting for migrants (after entering Britain) in the dataset.

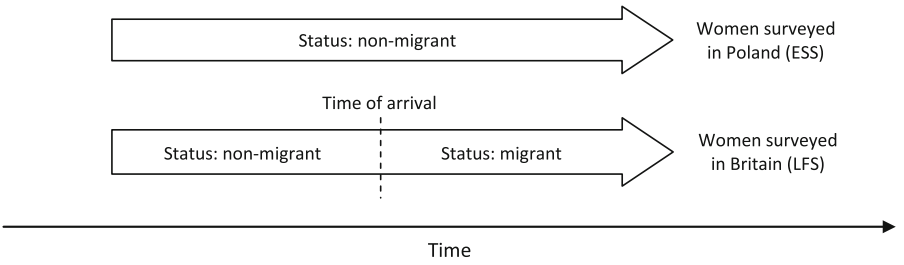

Fig. 1 Construction of the migration process in this study

Table 1 Composition of the sample

	n (Respondents)	*n* (Episodes)	*n* (Events)
Total number of women in the sample	1,580	13,947	
Total events			733
Non-migrants (derived from ESS)	702	5,277	
Events occurring in Poland			317
Migrants (derived from LFS)	878	8,670	
Events occurring in Poland			207
Events occurring in Britain			209

Source: ESS 2008, 2010; LFS 2008 to 2011; own calculations

According to time-varying modelling, a distinction has to be made between births occurring before (in Poland) and after migration (in Britain). A total of 317 women of the 702 non-migrants experienced a birth in Poland, which means that about 45 per cent of non-migrants were mothers at the time of the survey. Among the 878 migrants, about 24 per cent had a first child prior to migration, and the same proportion had a first child after migration. This yields the following distribution of events: a total of 733 birth events are available for the analysis, with 524 events occurring prior to migration (317 to non-migrants plus 207 to future migrants), and 209 events occurring after migration.

The data organisation makes it easy to introduce to the analysis several time-varying and time-constant independent variables in the same way as the dependent variable is included. The migration process as the main independent variable is considered in different ways, as described below.

(1) *Migration as time-constant indicator*: I consider a binary variable indicating whether a woman was surveyed in the Britain (1 = LFS) or in Poland (0 = ESS).
(2) *Migration as an event*: The time-varying indicator is a single binary variable that is coded one for each episode if the woman stayed in Britain (1 = migrant), and zero otherwise (0 = non-migrant). The year in which the migration took place is also coded as zero.

(3) *Duration of stay*: Because the impact of migration on childbearing may develop over time, I include information on the duration of stay in the analysis. Therefore, a series of binary variables are created to represent the duration of stay, representing the first to fifth year after migration, and more than five years after migration.
(4) *Period prior to migration*: As this data is retrospective, information on the time prior to the migration is available for the analysis. For the construction of the time intervals after migration, two further variables, indicating the year prior to migration and the year of migration, are added.

The introduction of control variables is restricted because the two surveys used serve different purposes, and the amount of overlapping information is therefore small. Nevertheless, the following variables are available for the analysis: age, education and age at time of migration. To control for the relationship between age and childbearing, the age of the women and age squared are included as time-varying, continuous variables which change their value in every episode. Additionally, it is possible to include education as a time-varying variable which controls for education attendance and education attainment. Therefore, the educational level is harmonised over the two surveys based on years of education, distinguishing between being in education and having completed full-time education. Based on the highest degree achieved, these women are further divided into having completed a) elementary education (up to approximately 10 years), b) secondary education (up to approximately 13 years) and c) higher education (equivalent to university level). For more differentiated analysis, the age at time of migration to Britain (time-varying) is considered based on the following age groups: 16–25, 26–30 and 31–40.

5 Results

5.1 Descriptive Results

The descriptive statistics by migration status at the time of the survey, shown in Table 2, illustrate the specific characteristics of the migrant group captured by the sample of the LFS compared to the characteristics of the non-migrants in Poland in the ESS. First, it can be seen that the migrants were on average slightly older than the non-migrants. Most of the migrant women had arrived in Britain before they turned 26, whereas very few migrants had arrived after the age of 31. This age distribution is consistent with the results of analyses which relied on other data sources (see, for example, Home Office 2007; Trevena 2009).

The Polish women who migrated to Britain were not only young; they were also highly educated. More than one-third of the Polish women surveyed had a university-level degree. This is attributable to a recent increase in educational levels among Polish young people in general (Trevena 2009). Furthermore, the proportion of women with a higher level of education was higher among migrants (43.1 per cent) than among non-migrants (30.9 per cent). This is in line with previous findings

Table 2 Descriptive statistics by migration status at the time of the survey

Variables	Total $n = 1{,}580$	Non-migrants $n = 702$	Migrants $n = 878$
Age (mean)	28.0	27.3	28.6
Education (in %)			
Currently in education	23.3	37.1	11.5
Elementary education	5.1	4.4	5.5
Secondary education	34.2	27.6	39.9
Higher education	37.4	30.9	43.1
Living with a partner[a] (in %)	68.3	80.8	52.5
Employed or self-employed[b] (in %)	84.1	73.1	93.4
Duration of stay[c] (in %)			
First year following migration			9.1
Second year following migration			18.4
Third year following migration			19.8
Fourth year following migration			19.3
Fifth year following migration			13.3
Staying longer than five years			20.1
Age at the time of migration[c] (in %)			
16–25 years			66.5
26–30 years			20.7
31–40 years			12.7

Source: ESS 2008, 2010; LFS 2008 to 2011; own calculations

[a] Living with a partner is coded time-constant as 1 if a person lives with a partner or husband and 0 otherwise

[b] Employed or self-employed is coded time-constant as 1 if a person reports to be employed or self-employed at the time of survey and 0 otherwise

[c] Duration of stay and age at the time of migration accounts only for respondents surveyed in the LFS

showing that Polish migrants are a well-educated population (Trevena 2009). Furthermore, about 10 per cent of the Polish migrants were attending further education in Britain, which indicates that some members of the migrant population were students (Pollard et al. 2008).

Table 2 contains information on marital and employment status; however, these data can hardly be used for the multivariate analysis, as retrospective information which would make them properly time-varying variables is lacking. A large share of the Polish women surveyed were employed, which is again in line with the findings of other studies on Polish migration to Britain (Trevena 2009). Polish migration, and especially female migration, is predominantly labour migration. On the other hand, the marital status of the Polish women in the sample suggests that family relationships also played an important role in the migration process. The motives for migration are often tied to family migration strategies: for example, couples (or whole families) may migrate together, or the male partner may migrate first, and his wife may follow for the purposes of family reunification (Ryan et al. 2009).

The complex nature of migration motives is also indicated in the duration of stay. Whereas Polish migration was initially expected to be a temporary phenomenon, most Polish nationals ended up extending their stay or even planning to stay in Britain long-term (Burrell 2009). My sample consists of newly arrived and medium-term stayers. The distribution of the duration of stay does not, however, tell us anything about whether the migrants intend to stay temporarily or permanently.

5.2 Life-table Analysis

Figure 2 plots the proportion of childless women by age for non-migrants and future migrants, grouped by age at the time of migration. To concentrate the analysis on births occurring independent of any migration, migrants are right-censored at the time of migration. In other words, in the first instance, only birth events occurring in Poland are considered.

The plot clearly illustrates that non-migrants and future migrants differ in their childbearing behaviour. Approximately half of the non-migrants had their first child by the age of 26, which is in line with the general pattern of childbearing in Poland (Matysiak 2009). With the exception of women who would be migrating after the age of 31, the future migrants were more likely to have been childless than non-migrants of the same age. More than 90 per cent of the women who would migrate prior the age of 25 and more than 60 per cent of the women who would migrate between the ages of 26 and 30 years were childless. This means that most of the migrants were childless prior to moving to Britain. Interestingly, the group of women who would migrate after the age of 31 exhibited a higher rate of childbearing; but these women no longer differed from non-migrants at the time of migration, when only 25 per cent of them were childless. It should be noted, however, that these women account for only a small proportion of the whole sample.

The high share of childless future migrants may suggest that these women postponed childbearing in anticipation of migration. Another possibility is that this is due to a selection process. Having children could hinder migration, as it is easier to migrate without them. In both cases, how childbearing develops after migration remains an open question. A postponement of childbearing prior to migration could be associated with a catch-up process after migration. Irrespective of any past plans to have a family, migration could also trigger childbearing in general, leading to the same result of an acceleration of birth after migration.

Focusing on the migrant population only, I now examine the changes in the proportion of childless women over the course of their stay in Britain. Concentrating on the initially childless migrants (76 per cent of all migrants in the sample), Fig. 3 plots the proportion of childless women by years after migration, and separated by age at the time of migration. The time scale only goes up to six years spent in Britain, as the Polish migration flow is a very recent phenomenon, and the great majority of the migrants surveyed had been in Britain only up to five years. Furthermore, not all of the age groups were observed over the entire period.

Across all age groups, nearly five per cent of the initially childless migrants had experienced a childbearing event in the year following migration. After three years, 80 per cent were still childless. Meanwhile, after five years, more than 25 per cent of

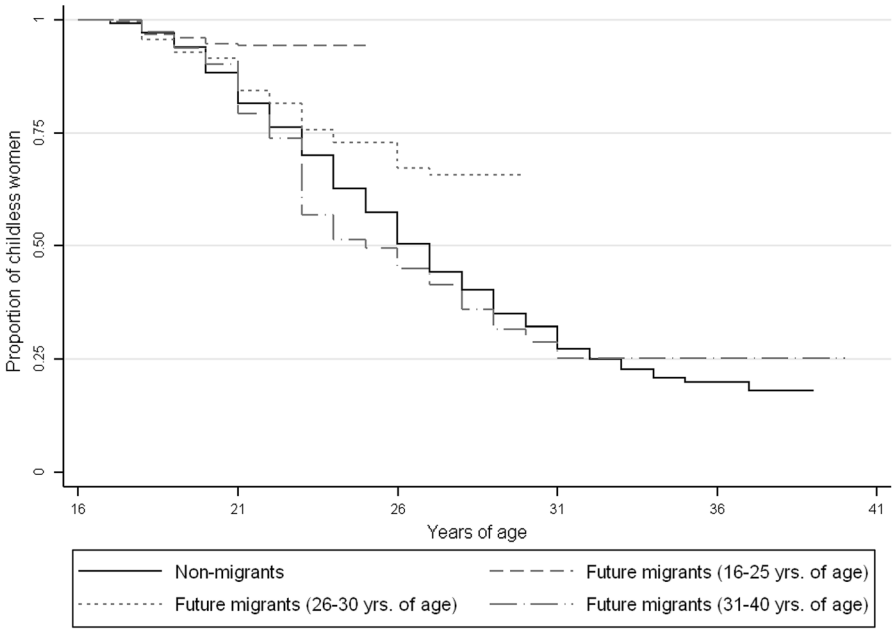

Fig. 2 The transition to a first child in Poland: proportion of childless women by age and migration status, separated for age at time of migration. Analysis is restricted to birth events occurring in Poland. Migration status addresses the future migration experience, whereas the age at the time of migration is indicated in brackets. *Source*: ESS 2008, 2010; LFS 2008 to 2011; own calculations

the initially childless migrants had experienced a first birth. This pattern was slightly different across age groups. The largest decrease in childlessness could be observed among women aged 31–40 at the time of migration, although the likelihood of having a child appears to have stabilised for this group after the first year (based on the available data). Women aged 26–30 at the time of migration had the highest proportion of births in the long run: after three years of living in Britain, nearly one-third of migrants in this age group had become mothers. In the following years, the proportion of childless women decreased relatively slowly. While the proportion of births was smaller in the other age group, a large share of the births that were observed took place in the three years following migration. Thus, contrary to the disruption hypothesis, there appears to have been no delay of childbearing in the years following migration. This finding is a first sign that the interrelation hypothesis may be correct.

The question that arises when considering these results is whether the differences in the levels of childlessness among non-migrants and future migrants are substantially reduced through increased childbearing after migration. In order to shed some light on this issue, I present in Fig. 4 the transition to a first birth before and after migration for the whole sample. It can be clearly seen that, in line with the previous figures, (future) migrants differ from non-migrants. While the women who would migrate between the ages of 31 and 40 had a first child slightly earlier than

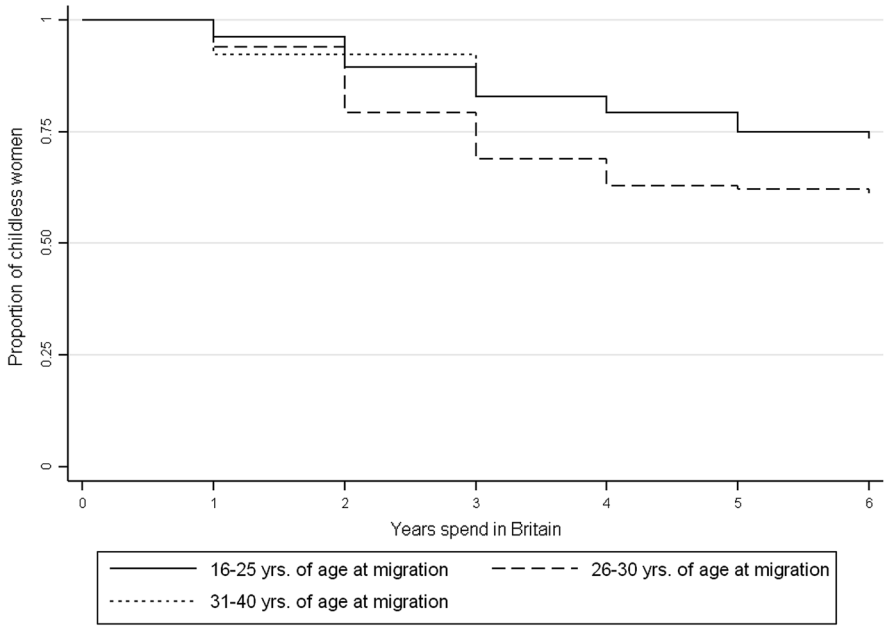

Fig. 3 The transition to a first birth after migration: proportion of childless women by duration in Britain, separated for age at time of migration. Analysis is restricted to events occurring after migration among women coming to Britain childless. The migrants are grouped according to their age at the time of migration. *Source*: ESS 2008, 2010; LFS 2008 to 2011; own calculations

the non-migrants, the women who migrated between the ages of 16 and 30 were usually older than the non-migrants when they had their first child. Even if it is assumed that the curves will become closer with increasing age, the differences in the proportions of childless women will persist until the women reach their mid-thirties. Thus, it is likely that migrants will not completely catch up: a substantial proportion (around 28 per cent) of the group of women who migrated to Britain at ages 16–25 were still childless at the time of the survey. However, this result should be interpreted with caution, as there is a high incidence of right-censored birth histories in the sample. It is too early to provide any reliable answers to this question, as most Polish migrants in Britain are still at risk of having a first birth.

5.3 Multivariate Results

To obtain further insights into the impact of migration on the timing of childbearing, discrete-time transition rate models using logistic regression are estimated. The first two models in Table 3 include a time-constant migration variable which is coded one when a woman was interviewed in Britain with reference to the women staying in Poland. Both models control for age and age squared. Model 2 also includes information on educational attendance and level.

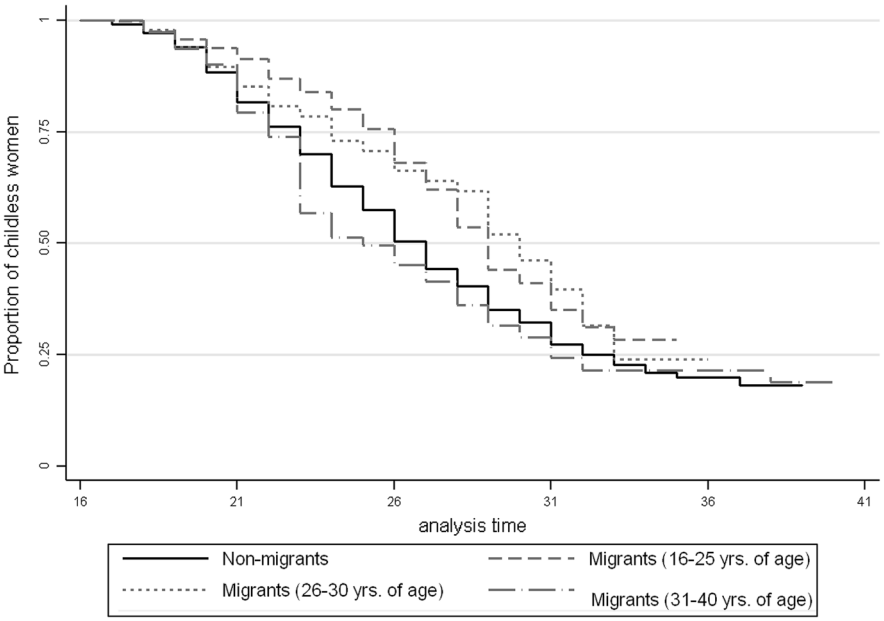

Fig. 4 The transition to a first child before and after migration: proportion of childless women by age, separated for age at time of migration. Migration status addresses the future migration experience, whereas the age at the time of migration is indicated in brackets. *Source*: ESS 2008, 2010; LFS 2008 to 2011; own calculations

The odds ratio of this time-constant migration variable is significant, and is below one in Model 1. This means that when births prior to and after migration are taken into account, the migrants exhibit a lower transition rate to a first birth than non-migrants. This finding persists when controlling for education (Model 2). As expected, being currently in education is significantly and negatively associated with the transition to a first birth. Furthermore, the higher the level of education, the lower the transition rate to a first birth becomes. The finding that, on average, Polish migrants are having their first child later than their counterparts who remain in Poland is in line with previous research (Waller et al. 2014) and with the preceding description (see Fig. 3). However, this says little about the relationship between the migration process and the timing of childbearing.

In order to study the relationship between the timing of migration and childbearing, the time-constant indicator of migration is replaced by a time-varying indicator which is coded one when a woman stays in Britain. Here, women who stay in Poland (including women who would migrate in the future) constitute the reference group. The migration variable is positive but insignificant in Model 3. Therefore, including this single indicator does not reveal any effect of migration on the timing of childbearing. Model 4 contains three time-varying variables which indicate the age at migration after a woman entered Britain. Again, non-migrants (including future migrants) constitute the reference category. For women who entered Britain while aged 26–30, there is a significant odds ratio above one,

Table 3 Results of discrete-time logistic regression: transition to a first birth, controlling for migration status and background variables

Variable	Model 1		Model 2		Model 3		Model 4	
	e^B	*SE B*	e^B	*SE B*	e^B	*SE B*	e^B	*SE B*
Age	2.38***	0.91	2.44***	0.09	2.34***	0.93	2.33***	0.09
Age squared	0.99***	0.00	0.98***	0.00	0.99***	0.00	0.86***	0.02
Education[a]								
In education			0.41***	0.15	0.44***	0.15	0.43***	0.15
Elementary education			1.58**	0.17	1.56**	0.17	1.58**	0.16
Higher education			0.78*	0.98	0.78*	0.97	0.79*	0.09
Migration (time-constant)[b]	0.69***	0.07	0.66***	0.78				
Migration (time-varying)[c]					1.13	0.09		
Age at migration[c]								
16–25 years of age							1.09	0.09
26–30 years of age							1.44*	0.18
31–40 years of age							0.74	0.63
Constant	−14.55***		−14.79***		−14.48		−14.44	
Log likelihood	−2,723.40		−2,696.21		2,709.17		−2,707.73	
df	3		6		6		9	

e^B = exponentiated B = odds ratio

Source: ESS 2008. 2010; LFS 2008 to 2011; own calculations

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. SE B: 0.00 = <0.005

[a] Secondary education is the reference

[b] Non-migrants (captured by the ESS) constitute the reference

[c] Women who (still) stay in Poland constitute the reference (captured by ESS)

indicating an increased rate of transition to a first birth. This can be interpreted as evidence of an acceleration of childbearing among these women after migration, which supports the interrelation hypothesis.

The previously used single indicator neglects a possible development of the migration effect over time. As migrants could rapidly adapt to the fertility behaviour of the natives at the country of destination (Andersson 2004, p. 772), it is necessary to consider the time since entering the country. In order to illustrate the effect of migration event, Table 4 presents the odds ratios of childbearing by years spent in Britain. Women who are (still) living in Poland constitute the reference group. Both models again control for age, age squared and education.

In accordance with the descriptive findings, the analysis of the time shape reveals that there is an acceleration of the transition to a first birth which starts shortly after migration. Relative to the probability of having a first birth among non-migrants, Polish women show an increase of 81 per cent in the first year and of 111 per cent in the second year after migration (in Model 5). As I study the actual birth (and not the

Table 4 Results of discrete-time logistic regression: transition to a first child, time shape of the impact of migration on childbearing

Variable	Model 5		Model 6	
	e^B	*SE B*	e^B	*SE B*
Year before migration			0.52*	0.25
Year when migration takes place			0.81	0.20
Years after migration[a]				
1st year following migration	1.81***	0.16	1.62**	0.16
2nd year following migration	2.11***	0.17	1.88***	0.17
3rd year following migration	1.60*	0.22	1.43	0.22
4th year following migration	2.56***	0.23	2.29**	0.24
5th year following migration	1.32	0.38	1.18	0.38
More than 5 years after migration	1.86***	0.08	1.69***	0.09
Constant	−14.73***		−14.95***	
Log likelihood	−2,678.55		−2,674.51	
df	11		13	

e^B = exponentiated B = odds ratio. Both models control for age, age squared and education

Source: ESS 2008, 2010; LFS 2008 to 2011; own calculations

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

[a] Women who (still) stay in Poland constitute the reference (captured by ESS and LFS)

conception), this means that some women start planning to have a family immediately after entering Britain.

With the exception of the fifth year, the transition rate to a first birth remains positive and significant for several years. For example, in the fourth year following migration, Polish women show a 156 per cent increase in the probability of having a first birth compared with non-migrants (in Model 5). This result contrasts with the expectation of the interrelation hypothesis, which suggests that the rate would go down again after a certain period of time.

To gain some additional insight into the relationship between migration and childbearing, the episode prior to migration is taken into account. Model 6, presented in Table 4, includes indicators related to the time prior to migration, as well as to the time after migration. The results show that, compared to non-migrants, Polish women who were planning to migrate exhibited a significantly lower probability of having a first birth in the year preceding the move. This suggests that there is a postponement effect among future migrants: i.e. that the increased probability of childbearing after migration is caused by a postponement of birth in anticipation of migration, and a tendency to catch up after migration.

6 Summary and Discussion

In this study, I examined the relationship between migration and childbearing among Polish women. The findings show that a move to Britain was associated with

an increased probability of a having a first child among Polish-born women, relative to non-migrants who stayed in Poland. This acceleration of childbearing started immediately after the Polish migrants entered Britain, and remained significant for several years. Furthermore, the Polish women who intended to move to Britain exhibited a decreased probability of having a first birth in the year preceding migration.

The theoretical starting point of the analysis was the comparison of the two opposite effects of migration on the timing of childbearing posited in the literature, namely, the disruption effect and the interrelation effect. The results of the current analysis mainly support the interrelation hypothesis, which predicts an increased transition rate to a first child after migration. There is no sign of a postponement of childbearing after migration, as the disruption hypothesis assumes. These results are similar to the findings of other recent studies (e.g. Andersson 2004; Milewski 2010, Wolf 2014). However, as a disruption of childbearing takes place before migration, a desire to catch up is a plausible explanation for the acceleration of childbearing after migration. However, addressing the question of whether this apparent catch-up process has a real effect on completed fertility is beyond the scope of this study, and needs to be addressed in future research.

These results complement those of existing studies in several ways. First, the childbearing behaviour of Polish women may be of particular interest to researchers, as Polish migrants differ from traditional migrant groups in that they originate from a low-fertility country. Second, the goal of this study was to detect the impact of the migration process itself. As previous investigations often relied on comparing the fertility of immigrants with that of the natives in the country of destination, they have been unable to trace the identified effect back to the process of migration. In this study, the timing of childbearing was examined in relation to the timing of migration using event history techniques. Furthermore, the fertility of migrants and non-migrants staying in the country of origin was compared. This ensured that differences observed between the migrants and the non-migrants were not due the fact that the two groups came from different countries. Nonetheless, migration is a highly selective process, and future research should try to consider more characteristics of migrant women than was possible here. Whether the impact of migration is mediated due to the selectivity of the migration process, or whether it is triggered by the special circumstances of the move, remains an open question.

This study has several limitations which should be noted. One concerns the data on which the analysis is based. As the analysis relies on retrospective survey data, the statements are limited to the population captured by this information, which may be particularly problematic given the circumstances and characteristics of the migrant subpopulation. The British LFS contains (only) migrants who were living in a household in Britain at the time of the survey. It is reasonable to assume that the migrants who were staying in Britain only briefly would have been particularly underrepresented in the LFS (Clark and Drinkwater 2008, p. 504). Furthermore, migrants who had returned to Poland up to the time of the survey would have been excluded, which may have distorted the findings. On the one hand, the number of births to Polish migrants may have been overestimated. This can happen when the time horizon of migration is associated with childbearing: i.e. the overrepresented

long-term migrants may have been more likely than short-term migrants to have had a child. On the other hand, it is also possible that the number of Polish births was underestimated. Based on the assumption that family reasons can trigger return migration, significant numbers of pregnant women or young mothers may have gone back to Poland. In that case, these births would not have been recorded in the sample.

Another limitation arises from the fact that my analyses combine two different data sources. This was necessary because the main aim of this study was to compare migrants with their counterparts staying in the country of origin. In this context, the key challenge was to find comparable data from the country of origin and from the country of destination. The Labour Force Survey may be seen as suitable for such research, as it is carried out in many European countries, and ensures a high degree of data comparability. Unfortunately, in the data provided by EUROSTAT, the year and the country of birth (for migrants) are classified into broad categories, which makes demographic research difficult. While the European Social Survey represented an alternative, the systematic differences between the LFS and the ESS made the results of these surveys difficult to compare. Furthermore, the use of two data sources reduced the availability of explanatory variables. To improve our understanding of the impact of migration on childbearing behaviour, future research should consider information about labour market integration and the migrants' partners. It may well be shown that the motivation for migration is the decisive factor.

Another limitation has to do with the specific population in this study. For example, it is too early to draw conclusions about the medium- and long-term development of childbearing behaviour of Polish women in Britain, because the majority of the migrants studied had been in Britain for less than five years. To draw a more complete picture of the relationship between migration and childbearing among Polish women, it would be useful to look at the migrants' fertility intentions, and the consequences of these intentions for return migration. It is also conceivable that the labour market integration and family policies which the migrants are exposed to in Britain support the transition to a first birth. The specific circumstances of the country of destination have been largely neglected here. To gain further insight into the role of the conditions in the country of destination, we will have to gather more information about the migrants' lives in Britain (e.g. whether they live with a partner). At the same time, future research should consider different countries of destination. As Sweden has become another main country of destination of Polish migrants since 2004, a study of the childbearing behaviour of Polish-born women living in Sweden could, for example, help to complete the picture.

Data

Office for National Statistics. Social and Vital Statistics Division and Northern Ireland Statistics and Research Agency. Central Survey Unit, Labour Force Survey 2008–2011 [SN 5851, SN 6013, SN 6074, SN 6119, SN 6199, SN 6276, SN 6334,

SN 6404, SN 6457, SN 6548, SN 6632, SN 6715, SN 6782]. Colchester, Essex: UK Data Archive [distributor].

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