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Research Article

The partnership, fertility, and employment trajectories of immigrants in the United Kingdom: An intersectional life course approach using three-channel sequence analysis

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Abstract

BACKGROUND
Although immigrants' employment, partnership, and childbearing are intertwined, most previous longitudinal studies have focused on only one of these life domains.

OBJECTIVE
We investigate gendered patterns of the co-evolution of the partnership, fertility, and employment trajectories of immigrants from different origin countries.

METHODS
We use the UK Household Longitudinal Study and multi-channel sequence analysis to establish types of joint trajectories of partnership, fertility, and employment among immigrants. Applying multinomial logistic regression, we determine the characteristics of immigrants who experience each trajectory type. We conduct the analyses both together and separately for women and men.

RESULTS
We find three types of trajectories. Immigrants in the 'single, childless, students' cluster arrive as and remain single and childless and are either in education or part-time employment. The second group of immigrants ('partnered, childless, full-time employed') arrive as single and childless but later become partnered and parents. They are in full-time employment. The third group is family migrants: they arrive as married, some have children at the time of arrival while others become parents soon after, and they are either employed or inactive. We found large differences between migrant men and women: While most men are in education or full-time employment, women stay inactive, especially family migrants.

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CONTRIBUTION

Taking an intersectional life course approach, we have shown that family and employment are mutually supportive life domains among immigrant men, whereas among immigrant women they are competing and often incompatible.

1. Introduction

While the interrelationship between employment, partnership transitions, and fertility is well known for majority populations in Europe (e.g., Aassve et al. 2006; Angelov, Johansson, and Lindahl 2016; Kreyenfeld 2015; Matysiak and Vignoli 2008; van der Lippe and van Dijk 2002), their interlinkages among immigrants are not well understood. Although there is extensive literature on immigrants' partnership and fertility patterns, as well as labour market participation and employment across Europe, most existing studies do not consider immigrants' partnership transitions, childbearing, and labour market experiences jointly. Instead, studies tend to focus on immigrants' experiences in only one life domain, at most adjusting for their experiences in the other two domains. However, individuals' life domains are interrelated: events in one domain are likely to influence events in another domain (Bernardi, Huinink, and Settersten 2019; Fasang and Aisenbrey 2021). For example, employment status can influence partnership formation and fertility decisions. Similarly, partnership stability can influence family planning or employment opportunities. These interdependencies in immigrants' work and family life courses can reinforce or reduce disadvantages and are indicative of social inequalities across life courses (Fasang and Aisenbrey 2021). This may be particularly so in the context of international migration, which is also interrelated with individuals' life courses. Some recent studies have confirmed the importance of studying these interlinkages by investigating two-way links between either immigrants' partnership and fertility (Delaporte and Kulu 2022; Liu and Kulu 2023; Mikolai and Kulu 2022) or their fertility and employment (Kil et al. 2018; Vidal-Coso 2019).

The aim of this paper is to study the life course trajectories of immigrants following migration to the United Kingdom. We focus on the joint evolution of immigrants' partnership, fertility, and employment trajectories following migration to improve our understanding of the role of the migration process in the life courses of immigrants who arrived from different origin countries. We focus on the United Kingdom, one of the largest European immigration countries, with a long immigration history from different parts of the world including South Asia, the Caribbean, Africa, and Europe.

Our study offers several contributions to the literature. First, we examine the interplay between immigrants' partnership, fertility, and employment. Although there is

an increasing body of research on family and employment patterns among immigrants in Europe, previous studies have not examined these three life domains together. Existing studies show that immigrants to old migration countries who come from culturally dissimilar, traditional sending countries have higher fertility (Kulu et al. 2017) and more conservative partnership patterns (Hannemann et al. 2020), and display a stronger link between partnership and parenthood (Mikolai and Kulu 2022) than natives across Europe. At the same time, they are in a worse position in the labour market than natives: they have lower labour market participation rates, are less likely to be employed, and have lower earnings than natives in the host countries. This is largely due to their lack of human capital, location-specific skills, language fluency, and recognised qualifications (e.g., Dustmann et al. 2003; Heath and Cheung 2007; Rendall et al. 2010). However, it remains unclear whether and how heterogeneity in family patterns is coupled with economic disadvantage among immigrants.

Second, we study the co-evolution of immigrants' life course trajectories in these three life domains. There is a paucity of longitudinal evidence on the interrelated life trajectories of immigrants, as most existing studies tend to focus on one life domain and one transition. We use multi-channel sequence analysis to establish a typology of life courses by grouping together immigrants with similar joint trajectories in the three domains. Although multi-channel sequence analysis is increasingly popular in the social sciences for studying the joint evolution of individual trajectories in several interrelated life domains, its application in migration studies remains limited. This study shows how the use of multi-channel sequence analysis can significantly improve our understanding of the interplay between migrants' families and employment.

Third, we adopt an intersectional life course approach (Fasang and Aisenbrey 2021) and focus on the intersection of gender and migrant origin. Previous studies on immigrants have typically analysed either women or men, controlling for race or ethnicity. However, this approach masks the potentially important role of gendered patterns among immigrants from different origin countries. Overlapping categories of gender and migrant origin are likely to be associated with particular combinations of partnership, fertility, and employment trajectories (Fasang and Aisenbrey 2021). Therefore, we study gender differences in the link between partnership, fertility, and employment trajectories among immigrants from different countries. We compare the experiences of male and female immigrants from different origin countries to those of EU migrants, who have the most rights in the United Kingdom regarding access to employment, maternity leave, and other benefits. We investigate (a) what types of work and family life trajectories tend to co-occur in immigrants' lives in the first five years following their arrival in the United Kingdom; and (b) how these typologies vary between women and men from different origin countries.

The paper is structured as follows. First, we introduce an intersectional perspective to studying the interrelated life domains of immigrants following the framework set out by Fasang and Aisenbrey (2021), and derive our hypotheses based on this framework. We then summarise the existing empirical evidence on immigrants' partnership, fertility, and employment, as well as the few studies that have explicitly focused on the interrelationships between the family and employment domains. After introducing the British context, we describe the data, sample, methods, and variables used in the analyses. Next, we present the results, first for the entire sample and then stratified by sex. We end the paper with a discussion of the results and their implications.

2. An intersectional perspective on the interrelated life domains of immigrants

Building on one of the core principles of the life course theory – that individuals have several life domains (e.g., partnership formation and dissolution, childbearing, and employment) and events in these life domains are interrelated (Bernardi, Huinink, and Settersten 2019; Elder 1977) – we argue that immigrants' partnership, fertility, and employment trajectories following migration are longitudinally and dynamically interdependent. Although these interlinkages are widely studied among majority populations across Europe, there is a paucity of evidence on the joint evolution of these interrelated life course trajectories among immigrants and how these joint trajectories may vary between women and men from different origin countries.

First, individuals' partnership transitions and childbearing decisions are interrelated (Brien, Lillard, and Waite 1999; Mikolai 2017; Mikolai, Berrington, and Perelli-Harris 2018; Perelli-Harris et al. 2012). Most children are born to married or cohabiting parents and many cohabiting couples marry when they are expecting a child. Similarly, a couple who do not reside together may move in together and/or marry once the woman becomes pregnant. At the same time, couples with young children are less likely to separate than those without children (Kalmijn and Leopold 2021). Additionally, when individuals' partnership status changes, their incentive to be employed may also change (Khoudja and Platt 2018). Forming a coresidential relationship increases household income and the amount of housework, which is still mainly carried out by women. Both changes may reduce women's incentive to work, especially if there are expectations to do well as a homemaker. Conversely, being single or separated implies a reduced housework load but also a reduction in financial resources, leading to a higher likelihood of being employed (Khoudja and Platt 2018). Finally, having (young) children decreases women's labour force participation. In the United Kingdom, access to low-cost childcare for children between the ages of 1 and 3 is limited. As a result, mothers tend to adjust their working

patterns and fathers become the main earners, at least until the child becomes eligible for free childcare (Khoudja and Platt 2018).

The life domains of partnership, fertility, and employment may compete with or complement each other (Bernardi, Huinink, and Settersten 2019; Fasang and Aisenbrey 2021). Activities in one life domain may compete for the same limited resources with activities in another domain. For example, employment activities and taking care of young children both demand individuals' time and energy; this is typically the case for women, who take a more prevalent role in raising young children than men. At the same time, activities in different life domains may support each other; for example, income from employment may support partnership and family formation via the outsourcing of care or household activities, leading to more time and energy to invest in the employment domain. This could especially be the case for men, who can outsource childcare to their female partners and free up their time and energy for career development and employment opportunities (Fasang and Aisenbrey 2021). Finally, individuals may derive pleasure and life satisfaction from raising children in the absence of employment opportunities. This may be relevant for some groups of immigrant women, especially those from non-European and non-Western countries who do not have access to the labour market.

Individuals' partnership, fertility, and employment decisions vary by their norms and values as well as their socioeconomic background. Among immigrants, these decisions may also vary according to the norms and values of their origin country. For example, among immigrants from countries with conservative partnership and family formation patterns, childbearing may only take place within marriage. Similarly, being married and being a mother may be seen as incompatible with paid employment. However, immigrants who are from countries that are culturally similar to the United Kingdom may experience linkages between partnership, childbearing, and employment trajectories that are similar to those of UK natives. Additionally, immigrants from different countries will be exposed to different policies regarding access to employment, maternity leave, and other benefits, which will also influence their decisions regarding fertility, partnership formation, and employment.

Apart from immigrants' country of origin, their gender is also likely to influence their experiences in the three interrelated life domains. Typically, women take on the lion's share of childbearing and childrearing, and the arrival of children impacts their employment trajectories more than it affects men's employment trajectories. Most studies have either focused on gender differences in work and family lives among majority populations or have analysed women's experiences controlling for race or ethnicity. However, following Fasang and Aisenbrey (2021), we take an intersectional approach to studying the interrelated domains of partnership, fertility, and employment and argue that

individuals in different combinations of gender and migrant origin categories will experience particular combinations of work and family experiences.

Taken together, among immigrant men we expect a mutually supportive relationship between partnership, fertility, and employment. We expect this to be the case among immigrant men regardless of their country of origin (mutually supportive life domains hypothesis). However, among immigrant women we expect a competing relationship between the three life domains (competing life domains hypothesis). This is expected to especially be the case among immigrant women who are either structurally disadvantaged in the labour market after arrival (e.g., family migrants) or who come from countries with conservative gender roles and family regimes (female heterogeneity hypothesis).

3. Empirical evidence on immigrants' partnership, fertility, and employment

3.1 Partnership and fertility

Many previous studies have investigated the partnership or family formation of immigrants from different origin countries across Europe. Regarding partnership patterns, studies have shown that immigrants from different origin countries have different partnership experiences. Overall, patterns of union formation and dissolution among immigrants from culturally and geographically distant countries differ from those of natives (Hannemann et al. 2020). Immigrants from countries with conservative partnership formation patterns typically have high marriage rates, low cohabitation rates, and low separation rates. This has been shown for South Asian immigrants in the United Kingdom (Hannemann and Kulu 2015), Turkish immigrants in Germany (Kuhnt and Krapf 2020) and Sweden (Andersson, Obućina, and Scott 2015), and Southeast Asian and Turkish immigrants in France (Pailhé 2015). At the same time, immigrants from countries which are culturally similar to the host countries, such as European countries, tend to have similar partnership behaviours to the natives (Hannemann et al. 2020). Although there is considerable heterogeneity among different groups of European immigrants across host countries, overall their partnership patterns tend to be more similar to those of the natives in the host countries than the partnership patterns of immigrants from culturally distant countries (Andersson, Obućina, and Scott 2015; González-Ferrer, Hannemann, and Castro-Martín 2016; Hannemann and Kulu 2015; Pailhé 2015). There is more diversity in partnership formation and dissolution patterns among migrants from the Caribbean, sub-Saharan Africa, and Latin America. For example, Caribbean immigrants in the United Kingdom marry later and exhibit higher rates of cohabitation and separation and lower rates of marriage than UK natives

(Berrington 1994, 1996; Hannemann and Kulu 2015). In Sweden, immigrants from Africa, the Middle East, and Iran have elevated levels of first marriage, although they also have high rates of divorce and remarriage (Andersson, Obućina, and Scott 2015). Latin American immigrants in Spain are more likely than Spanish natives to choose cohabitation as a first union and also have higher union dissolution rates (González-Ferrer, Hannemann, and Castro-Martín 2016).

Regarding fertility, a large body of literature has studied the timing and levels of fertility among immigrants from different origin countries across Europe (for a comprehensive review, see, e.g., Adsera and Ferrer 2015; Kulu and González-Ferrer 2014; Kulu et al. 2019). Generally, immigrants from non-Western countries have children at younger ages and have larger families than the natives in European host countries (Kulu et al. 2017). For example, immigrants from the Caribbean, Pakistan, and Bangladesh in the United Kingdom (Kulu and Hannemann 2016), from Turkey and Morocco in the Netherlands (Garssen and Nicolaas 2008), from Albania, Morocco, and Romania in Italy (Mussino and Strozza 2012a, 2012b), and from Turkey in Germany (Krapf and Wolf 2015; Milewski 2007, 2010) have higher first-birth risks than the natives in these countries. In Switzerland (Rojas, Bernardi, and Schmid 2018) and Spain (González-Ferrer et al. 2017), immigrants also have higher first-birth risks than natives, but their second-birth risks are lower. The risk of a second and third birth is the highest among immigrant women from Pakistan and Bangladesh in the United Kingdom, from the Maghreb region and Turkey in France, and from Morocco and Turkey in Belgium (Kulu et al. 2017). Some non-European migrant groups show specific patterns. For example, Caribbean immigrants in the United Kingdom have low second-birth risks but higher third-birth risks than British natives (Kulu and Hannemann 2016). Southeast Asian women in France have lower first-birth transitions than the natives, but the timing and the level of their second births is similar (Pailhé 2017). There are fewer differences between the fertility levels of natives and immigrants from Western countries. For example, in Germany the fertility levels of immigrants from Southern Europe is similar to that of native Germans (Milewski 2007, 2010). In the United Kingdom, European and other immigrants have lower first-birth risks than the natives (Kulu and Hannemann 2016).

Although partnership changes and fertility are intertwined, especially in the context of increasing family complexity (Thomson 2014), most previous studies have either focused on partnership transitions or fertility among immigrants. Some recent studies have analysed immigrants' partnership and fertility jointly to improve our understanding of the partnership context of childbearing and the prevalence of different family configurations among immigrants. For example, in the United Kingdom, immigrants from Europe and Western countries first cohabit, followed by marriage or childbearing. By contrast, those from countries with conservative family behaviours (e.g., India,

Pakistan, and Bangladesh) are more likely to have children within marriage. Caribbean immigrants show the weakest interrelationship between partnership and fertility: some have children outside unions, whereas others form a union first and then have children (Mikolai and Kulu 2022). In France, older immigrants from North Africa, Turkey, South-East Asia, and sub-Saharan Africa are more likely to marry early and have higher marital fertility than the French natives. Southern European immigrants are also more likely to marry at a young age, but they have lower marital fertility (Delaporte and Kulu 2024). In Germany, the cohabitation and childbearing risks of immigrants from Europe are similar to those of West German natives, whereas Russian/Kazakh and Turkish immigrants have higher marriage and lower cohabitation rates (Liu and Kulu 2023). Childbearing while unpartnered is uncommon among all immigrant groups.

3.2 Employment

A large body of European literature has studied the employment and labour market position of immigrants. Overall, studies that examine old migration inflows to old receiving countries show that immigrants have a worse labour market position than natives: they have lower labour market participation rates (Dustmann et al. 2003), are less likely to be employed (Blackaby et al. 1997; Dustmann and Fabbri 2003; Kesler 2006; Kogan 2011; Reyneri and Fullin 2011; Wheatley Price 2001), and have lower earnings (Chiswick 1980; Dustmann et al. 2003) than natives in the host countries. These findings are usually explained by differences in natives' and immigrants' human capital, level of education, socioeconomic status, and demographic composition at the time of arrival (Borjas 2013; Dustmann et al. 2003). More recent studies have focused on the labour market experiences of immigrants in new migration countries (e.g., Italy and Spain), showing that in these countries, immigrants are often more likely to be employed than natives and less likely to be unemployed (Bernardi, Garrido, and Miyar 2011; Reyneri and Fullin 2011). However, immigrants in these countries are less likely to be employed in highly qualified jobs (Bernardi, Garrido, and Miyar 2011; Fullin and Reyneri 2011; Reyneri and Fullin 2011).

There are considerable differences in immigrants' experiences by country of origin, even after adjusting for socioeconomic differences between natives and immigrants. For example, in the United Kingdom, non-white immigrants have much lower employment rates than UK-born white individuals, whereas white immigrants have similar rates to the UK-born after controlling for age, educational level, and region of residence (Blackaby et al. 1997; Dustmann and Fabbri 2003; Dustmann et al. 2003). Non-white immigrants (especially from Bangladesh) also tend to earn less than UK natives and white immigrants, even after accounting for individual characteristics and region of origin

(Dustmann et al. 2003). Some white migrant groups (e.g., those from the old Commonwealth countries) have higher wages than UK natives (Dustmann et al. 2003).

Over the time since arrival in the host countries, some improvements are expected in immigrants' labour market position. Immigrants may accumulate additional skills, knowledge about the labour market, or change their skill sets so that they better match the needs of the host countries' labour market (Dustmann et al. 2003). Such improvements are mainly observed among white immigrants. For example, in the United Kingdom immigrants' initial disadvantage regarding lower employment rates only disappears over time for white immigrants (Wheatley Price 2001). Similarly, the initial wage gap between natives and immigrants slowly decreases over time, but it does not close, and remains especially large for non-white immigrants (Bell 1997; Chiswick 1980; Dustmann and Fabbri 2003).

3.3 Interrelationships between the family and employment domains

It is well known that the transition to parenthood influences individuals' – especially women's – employment trajectories (for a review, see e.g., Matysiak and Vignoli 2008). In many European countries, women are more likely than men to work part-time or stay at home following childbirth (Gutiérrez-Domènech 2005; Shapiro and Mott 1994). These changes lead to lower incomes, lower pensions, and reduced economic independence among women. Although many studies have investigated the parenthood–employment link in majority populations, only a handful of studies have explicitly examined this intersection among migrant populations. This is problematic because individuals' life domains are interrelated, implying that events in one domain are likely to influence events in another domain (Bernardi, Huinink, and Settersten 2019; Fasang and Aisenbrey 2021). Such interdependencies in immigrants' work and family life courses can reinforce or reduce disadvantages and are indicative of social inequalities across life courses (Fasang and Aisenbrey 2021).

The first group of studies focuses on the role of childbearing in employment changes. Using Belgian register data, Kil et al. (2018) study the motherhood–employment link among women from Southern Europe, Eastern Europe, Turkey, and Morocco. They find that following the transition to parenthood, immigrant women's activity and employment levels decrease, unemployment levels increase more than those of native women, and these differences can be explained by sociodemographic or pre-birth job characteristics. Vidal-Coso (2019) analyses a change in the employment patterns of native and migrant partnered women following childbirth in Switzerland. She compares EU and non-EU immigrants' working hours and employment levels with those of Swiss natives. Childless women have high levels of employment and working hours, although

immigrants from non-EU countries have lower initial levels of employment and working hours. Childbirth leads to a substantial reduction in employment levels and working hours among all groups. Swiss women tend to reduce their weekly working hours the most after a first childbirth and this decline is smaller for immigrant women. The birth of a second or third child leads to substantial reductions in working hours only among non-EU migrants.

The second group of studies analyse whether and how employment status influences the transition to first and subsequent births among immigrants. In Belgium, the propensity to have a first and second birth is the highest among those who are employed full-time, but the likelihood of a third birth is greatest among those who are unemployed or inactive (Wood and Neels 2017). The negative effects of unemployment and inactivity on the propensity to have a first birth are weaker for non-European immigrant women, whereas the patterns of Belgian natives and European immigrants are similar. Similarly, in Sweden, childbearing rates are highest among native and immigrant women who are established in the labour market (Andersson and Scott 2005; Lundström and Andersson 2012). The lack of differences in first birth probabilities between natives and immigrants is explained by the equalising impact of Sweden's universal welfare regime.

4. The British context

The link between immigrants' employment and family lives is likely to be influenced by the host country's immigration policy, immigrants' country of origin, and immigrants' access to services and benefits. The post-WWII economic recovery in the 1950s and 1960s attracted immigrants to the United Kingdom from the Caribbean, India, Pakistan, and Bangladesh (Dale and Ahmed 2011; Dubuc 2012). Immigrants from these countries, which were part of the new Commonwealth of Nations, had the right to enter and settle in the United Kingdom with the same rights and access to services as British nationals (Zotti 2021). Starting in the 1960s, these rights were gradually removed and individuals from these countries were subject to immigration control (Zotti 2021). After the introduction of restrictions on entry to Britain from the Asian subcontinent in 1962, family reunification became important (Coleman and Dubuc 2010; Dale and Ahmed 2011; Dubuc 2012). In the 1970s, immigration from Caribbean countries became less prominent, whereas immigration from sub-Saharan Africa increased (Coleman and Dubuc 2010; Dubuc 2012). By the 1980s, immigrants had to be able to support themselves and their families without accessing public funds. To be eligible for financial support, immigrants had to acquire permanent residence, which took 4 to 10 years depending on their entry category (Sainsbury 2012). Since 1981, British citizenship is not automatically awarded to those who are born in the United Kingdom and access to

social assistance is restricted based on citizenship (Sainsbury 2012). After joining the European Economic Community in 1972, immigrants from the EU had the same rights to access the labour market and higher education as British citizens. This has changed recently with the United Kingdom's exit from the EU. In 1997, a points-based system was introduced to allow highly skilled foreign workers access to the UK labour market for the first time and to allow international students to study in the United Kingdom (Zotti 2021). As a result of these changes, in the first two decades of this century, many migrants arrived from China and from the newly joined countries of the European Union, especially Poland (Dubuc 2012; Robards and Berrington 2016; Waller, Berrington, and Raymer 2014).

Women's labour market participation and outcomes are closely linked to family–work policies. The United Kingdom's 'market-oriented' regime views both women and men as invested in employment but provides limited support for childcare (Kowalewska 2023; Misra, Budig, and Moller 2007). Employed women are eligible for one year of (partially paid) maternity leave and employed men who have at least 12 months of service are eligible for two weeks of paid paternity leave (Duvander and Koslowski 2023). Access to these leave policies depends on individuals' migration and visa status. For UK citizens and EU citizens who were resident in the United Kingdom before 31 December 2020 and have leave to remain, eligibility is based on employment status, length of service, and an earnings threshold (Atkinson, O'Brien, and Koslowski 2022). All other individuals require a visa to work or study in the United Kingdom and different eligibility rules apply for different visa types (Atkinson, O'Brien, and Koslowski 2022). Women who are not eligible for maternity leave and pay may be eligible for a Maternity Allowance (paid at a flat rate) if they have worked for 26 weeks and earned over a certain threshold during the 66 weeks preceding the expected due date (Atkinson, O'Brien, and Koslowski 2022). Women who are not eligible for Maternity Allowance may be eligible for social assistance (Atkinson, O'Brien, and Koslowski 2022). Childcare is primarily provided by the market and is expensive. There is a lack of affordable childcare for children aged 1 to 3. From age 3, parents who earn at least the minimum wage are entitled to 30 hours of free childcare (for 38 weeks per year). For disadvantaged children, free childcare hours are available from age 2. This results in low levels of employment among women with young children, especially the lower-skilled, and many women work part-time (Kowalewska 2023).

5. Data and sample

We use data from 9 waves (2009–2019) of the UK Household Longitudinal Study (UKHLS), also called Understanding Society (University of Essex 2020b), an ongoing,

nationally representative, household panel survey. It collects information on about 30,000 households, corresponding to around 51,000 individuals. The UKHLS provides a unique opportunity to study in detail the lives of immigrants from different origin countries in the United Kingdom. Two boost samples ensure a sufficiently large sample size among immigrants and ethnic minorities. First, an ethnic minority boost sample (EMB) of 4,000 households was added in wave 1 with the aim of interviewing at least 1,000 respondents from each of the main ethnic groups (Indian, Pakistani, Bangladeshi, Caribbean, and African). Second, an immigrant and ethnic minority boost sample (IEMB) of 2,900 households was added in wave 6 (McFall, Nandi, and Platt 2019).

The UKHLS contains rich and reliable retrospective histories of individuals' partnership, fertility, and employment transitions. Retrospective information is collected on the start and end dates (year and month) of up to 11 cohabitations and marriages, the month and year of childbirths, and the dates (month and year) of employment changes. Additionally, as all adult household members are interviewed annually, the panel waves provide prospective information on changes in partnership and employment status, and the birth of (additional) children (Nandi, Menon, and Smith 2020). We use the Marital and Cohabitation Histories file (University of Essex 2020a), which combines retrospective and prospective information on partnerships.

We study all immigrants who arrived in the United Kingdom aged 18 to 49 (7,886 individuals), which are the critical ages for partnership and family formation. We follow them for five years after immigration to the United Kingdom. Immigrants in the sample arrived in the United Kingdom between 1958 and 2014. As we are interested in the joint evolution of the partnership, fertility, and employment trajectories of immigrants after arrival in the United Kingdom, we restrict the analytical sample to immigrants who have information on all three life domains: partnership, fertility, and employment. This leads to a substantial reduction in the size of the analytical sample (from 7,886 to 3,301) because employment histories are only available for a subset of individuals. Employment histories were collected in wave 1 for respondents who were interviewed in the first 6 months of the 24-month data collection period and in wave 5 for the remaining respondents. This means that employment histories are missing for the wave 6 IEMB sample and for those who were not asked to provide employment histories in wave 1 and were not present in wave 5. We assume that the employment history of individuals who have not left full-time education consists of being in full-time education since age 16. After excluding an additional 816 individuals who do not have complete partnership, fertility, and employment histories for the 5-year follow-up period (a requirement for sequence analysis, see 'Methods'), the analytical sample consists of 2,485 individuals. We assess the potential implications of the reduction in sample size in the Supplementary Analysis and conclude that our results are unlikely to be biased because of the reduction in sample size.

6. Methods

We use multi-channel sequence analysis (MCSA) to analyse the joint evolution of the partnership, fertility, and employment trajectories of immigrants during the first five years (60 months) after their arrival in the United Kingdom. MCSA is an extension of sequence analysis (SA), a data mining technique increasingly used in the social sciences to describe individuals' life course trajectories in a single life domain. In SA, each individual's life course trajectory is represented as a sequence of states (Mikolai and Lyons-Amos 2017). Individual sequences summarise information not only on the states occupied over time but also on the order and duration of these states. As there are many possible combinations of states, few individuals experience the exact same sequence. Thus, to analyse individual sequences, the number of sequences in the data first needs to be reduced. The most common method for this is Optimal Matching Analysis (OMA), which calculates how dissimilar pairs of sequences are. Similarity is defined in terms of the number, order, and duration of states within individual sequences. During OMA, dissimilarity between each pair of sequences is calculated as the minimum cost of operations (insertion, deletion, or substitution) needed to turn one sequence into another (Abbott 1995; Abbott and Tsay 2000; Barban and Billari 2012; Billari 2001; Mikolai and Lyons-Amos 2017). The results of these calculations are stored in a dissimilarity matrix. Then, to find patterns in the data, hierarchical cluster analysis is performed on the dissimilarity matrix. During cluster analysis, individual sequences are classified into a pre-defined number of groups, such that the within-cluster distances are minimised and the between-cluster distances are maximised. Finally, to understand how individual characteristics influence the probability of belonging to different clusters, the clusters are used as the categorical dependent variable in a multinomial logistic regression.

MCSA is an extension of SA for studying trajectories in multiple life domains. The steps of the analysis during MCSA are the same as in SA, but the OMA is extended to deal with multiple dimensions (for details, see Gauthier et al. 2010). In our analysis, each individual has a sequence for each of the analysed domains: partnership, fertility, and employment. The state spaces for the three dimensions are represented by partnership, fertility, and employment statuses. In each month following migration to the United Kingdom, individuals' partnership status can be single (i.e., never partnered), cohabiting, married, and separated or widowed (denoted as 'separated' in the Figures). Individuals who re-partner following separation or widowhood are included in the cohabiting or married category depending on the type of their partnership. States in the fertility domain are defined as childless, 1 child, 2 children, and 3 or more children. Employment status can be full-time employee, part-time employee, self-employed, in full-time education (including those who are on a government training scheme), inactive (retired,

maternity/paternity leave, looking after family, long-term sick/disabled, or something else[3]), or unemployed.[4]

First, we use MCSA to describe and visualise how the partnership, fertility, and employment trajectories of immigrants evolve jointly over time since their arrival in the United Kingdom. We use OMA to calculate the distances between pairs of sequences using substitution costs based on transition rates between different states observed in the data, and a cost of 1 for insertions and deletions. Second, we apply agglomerative nested cluster analysis to these individual trajectories to establish the main types of joint trajectories. Finally, we estimate a multinomial logistic regression model to predict immigrants' probability of belonging to each joint trajectory type by key sociodemographic variables. As we are particularly interested in gender differences in the evolution of immigrants' joint trajectories of partnership, fertility, and employment, in the second step of the analysis we conduct the MCSA and the multinomial logistic regression separately for women and men.

We chose to follow individuals for five years after migration to maximise the number of individuals in the sample and at the same time follow them for a sufficient length of time to understand how their partnership, fertility, and employment trajectories have evolved following migration to the United Kingdom. We conducted a series of robustness checks (see Supplementary Analyses) to test the sensitivity of our results to sample size limitations, the length of the observation window, the choice of cost regimes, distance measures, clustering methods, the number of selected clusters, and using weighted analyses. Overall, these analyses confirm that our results are robust to different specifications. The MCSA is conducted in R using the TraMineR (Gabadinho et al. 2011), TraMineRextras (Ritschard et al. 2021), WeightedCluster (Studer 2013), and seqhandbook (Robette 2020) packages. The multinomial logistic regression is conducted in Stata.

[3] We conducted additional analysis (not shown) to assess how to best classify individuals whose employment status is 'something else'. Dropping these individuals from the analysis leads to the same groupings, although some full-time employed individuals are grouped in the first rather than second group.

[4] MCSA is a descriptive method, hence it does not allow for drawing conclusions about whether different life domains are causally linked or the direction of causality between events in different life domains. The method allows us to follow the co-evolution of life course trajectories in the three life domains and to draw conclusions about the co-occurrence of different types of experiences and trajectories.

7. Variables

Table 1 describes the analytical sample by the covariates used in the multinomial logistic regression. The first key variable of interest is migrant origin. Given the history of migration to the United Kingdom and the main immigrant groups, we distinguish between immigrants from EU countries, the rest of Europe and other Western countries, India, Pakistan, Bangladesh, the Caribbean region, African countries, and other countries (Latin American, other Asian, and other countries).[5] The largest share of immigrants in our sample come from South Asia (29%), followed by African countries (24%), the EU (18%), other countries (17%), the rest of Europe and the West (7%), and Caribbean countries (5%). Another key variable is migration cohort, i.e., the year of arrival in the United Kingdom, grouped broadly in line with the main migration flows to the United Kingdom as well as changing immigration policies and the rights of immigrants: those who arrived before 1990 (1958–1989), between 1990 and the mid-2000s (1990–2004), and recent migrants following EU accession (2005–2014). Most immigrants in the analytical sample (52%) arrived in the United Kingdom between 1990 and 2004, whereas around a quarter of them arrived in each of the two other periods. We adjust the analysis for individuals' socioeconomic status using parental occupational status at age 14. This is based on the father's occupational status, but if the father did not work, was deceased, or was absent, we used the mother's occupational status. The variable has four categories: professional and managerial occupations (large employers and higher management, higher professional, and lower management and professional), intermediate occupations (intermediate, small employers, and own account), routine occupations (lower supervisory and technical, semi-routine, and routine), and not working/absent/deceased/missing. Additionally, we control for age at arrival (18–24, 25–29, and 30+) and sex (male or female).

[5] Whilst the data allow us to distinguish some immigrants from single-origin countries (i.e., India, Pakistan, and Bangladesh), we are unable to separate out other individual countries or specific European regions (e.g., Eastern Europe) due to small numbers, which is why the other categories are defined as broader origin groups. Appendix Table A-1 shows the list of countries included in each broader migrant origin category.

Table 1: Analytical sample by covariate

	Total sample		Men		Women	
	N	%	N	%	N	%
Migrant origin						
EU	453	18.2	174	16.7	279	19.4
Rest of Europe & West	183	7.4	57	5.5	126	8.8
India	345	13.9	162	15.5	183	12.7
Pakistan	210	8.5	104	10.0	106	7.4
Bangladesh	159	6.4	95	9.1	64	4.4
Caribbean	115	4.6	38	3.6	77	5.4
Africa	597	24.0	247	23.6	350	24.3
Other	423	17.0	168	16.1	255	17.7
Migration cohort						
1958–1989	657	26.4	288	27.6	369	25.6
1990–2004	1,295	52.1	530	50.7	765	53.1
2005–2014	533	21.5	227	21.7	306	21.3
Age at arrival						
18–24	1,096	44.1	432	41.3	664	46.1
25–29	693	27.9	295	28.2	398	27.6
30+	696	28.0	318	30.4	378	26.3
Parental SES						
Professional & Managerial	843	33.9	348	33.3	495	34.4
Intermediate	825	33.2	350	33.5	475	33.0
Routine	576	23.2	231	22.1	345	24.0
Not working/deceased/absent	241	9.7	116	11.1	125	8.7
Sex						
Male	1,045	42.1				
Female	1,440	57.9				
Total	2,485	100	1,045	100	1,440	100

Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

8. Results

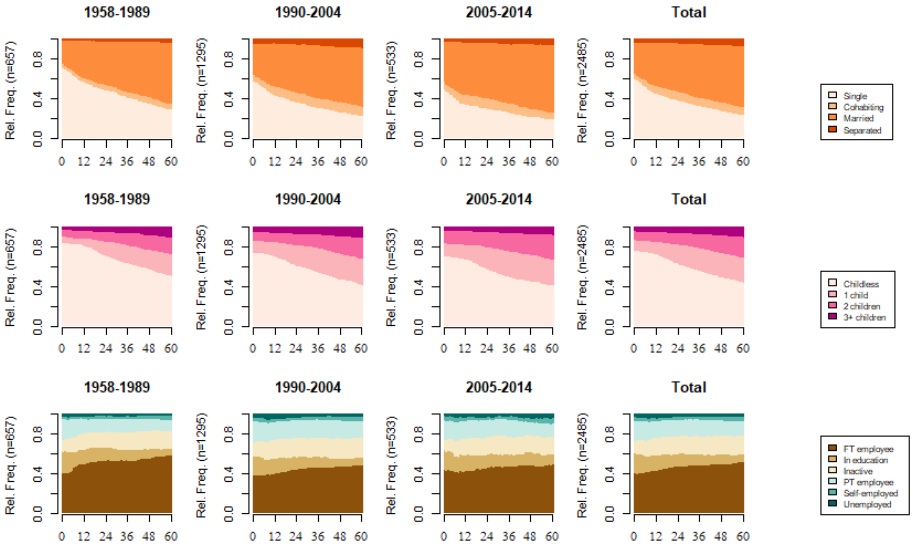
8.1 Evolution of partnership, fertility, and employment trajectories after arrival

Figure 1 displays the chronograms for the partnership, fertility, and employment domains of immigrants in the United Kingdom, by migration cohort.[6] These chronograms show the proportion of individuals in each state over time (in months) since arrival in the United Kingdom. First, we describe immigrants' partnership trajectories (top row, Figure 1).

[6] Table A-2 shows descriptive statistics (mean duration (with standard deviation) in each state in each domain and mean number of episodes (with standard deviation) in each state in each domain) of the sequence data. To calculate these statistics, we used the code written by Raab and Struffolino (2022).

Overall, around 60% of immigrants arrived in the United Kingdom as single and around 35% were married (see 'Total' column in Figure 1). As time since migration increases, individuals tend to form partnerships (mainly marriages). Five years after migration, most individuals are married but around 20% remain never partnered.

Figure 1: Chronograms of partnership, fertility, and employment trajectories of immigrants over time since arrival (in months) in the United Kingdom, by migration cohort



Note: The 'Separated' category includes separated as well as widowed individuals. The 'Single' category refers to never partnered individuals. Those who become single following union dissolution are included in the 'Separated' category. Those who re-partner following separation or widowhood are included in the cohabiting or married category depending on type of their partnership. PT denotes part-time and FT denotes full-time.
Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

We observe some changes across migration cohorts. The share of those who arrived as never partnered declined, whereas the proportion of those who arrived as married increased. Additionally, the proportion of those who remained never partnered after 5 years following migration declined across migration cohorts, and accordingly the share of married individuals increased. These results likely reflect changes in entry rules; notably the increased prominence of EU migration, which allowed much greater flexibility for family migration, as well as the importance of the points-based system for attracting skilled workers, which allowed entrants to bring dependants. Although most people arrived as single or married, around 5% of individuals were cohabiting, separated,

or widowed upon arrival. Additionally, the share of individuals forming a cohabitation or separating during the first 5 years after arriving in the United Kingdom increased across migration cohorts. This is in line with changing trends in partnership formation among the native British population, suggesting that immigrants' experiences in the United Kingdom reflect wider changes in partnership patterns that have taken place in the origin and destination societies, such as an increase in non-marital unions, separation, and re-partnering.

Next, we examine individuals' fertility trajectories (middle row, Figure 1). Overall, most individuals (around 80%) were childless when they moved to the United Kingdom. Five years after migration, 60% of immigrants had at least one child (see 'Total' column). The share of migrants who arrived as childless declined slightly across migration cohorts and the proportion of those who had at least one child within five years following their arrival increased slightly. This implies that a somewhat larger share of immigrants had children within five years of arrival in the United Kingdom among later migration cohorts compared to earlier cohorts. These changes in childbearing trajectories correspond to the observed partnership changes as well as the above-mentioned trends in migration flows and policies.

Last, we describe immigrants' employment trajectories (bottom row, Figure 1). More than half (around 60%) of the immigrants arriving in the United Kingdom were employed (full- or part-time, or self-employed) upon arrival. Around 20% arrived in the United Kingdom as students; the remaining share were either economically inactive (10%) or unemployed (5%). Over time since migration, the share of employed individuals increased while the proportion of full-time students declined, suggesting that some migrants came to the United Kingdom initially to study and later entered the UK labour market.

We observe some changes across migration cohorts: The share of full-time employed individuals declined slightly across migration cohorts, indicating the importance of labour migration in the oldest migration cohort. In line with this, the share of part-time employed individuals increased. Furthermore, five years after migration the share of students in full-time education remained larger in the youngest migration cohort compared to earlier cohorts, in line with the introduction of the points-based system in the 1990s that enabled international students to study in the United Kingdom. The share of those unemployed, inactive, and self-employed remained very similar across migration cohorts.

8.2 Grouping the sequences

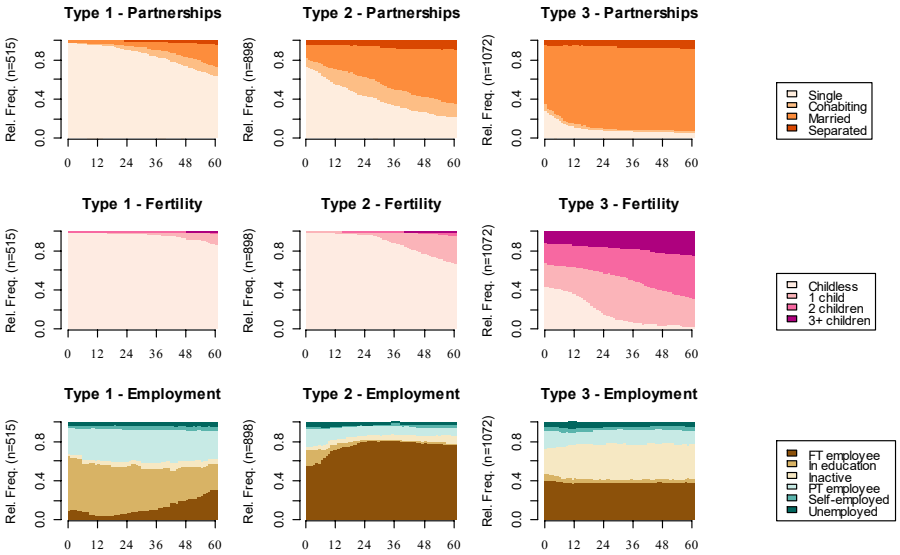
Classifying immigrants' partnership, fertility, and employment trajectories allows us to investigate the heterogeneity within the migrant population and to determine the factors that have shaped migrant life course trajectories in the United Kingdom. Based on their partnership, fertility, and employment trajectories, we classify immigrants in three groups (Figure 2).

The first group (Type 1, first column in Figure 2) consists of individuals who arrived in the United Kingdom single and childless and largely remained so in the first five years after migration. The majority of these individuals (around 60%) were in full-time education at the time of migration and about half of them became full-time employed later. Most remaining individuals in this cluster were part-time employed upon arrival and remained with the same employment status during the observation period. Around 21% of individuals (n = 515) in the sample belong to this group, who we refer to as 'Single, childless, students'.

The second group (Type 2, second column in Figure 2) includes immigrants who were either single or partnered when they arrived in the United Kingdom, but experienced significant partnership changes during the first five years following migration. Most unpartnered individuals in this group formed a union during the observation period, although around 20% remained single. Many formed cohabiting unions, some of which later became marriages and some of which dissolved. Immigrants in this group arrived childless and most of them remained childless for the first two to three years after migration. Five years after migration, around 40% of individuals in this group were parents to one child. Regarding their employment trajectories, 60% of migrants in this group were employed full-time at the time of arrival in the United Kingdom; two years after migration this proportion had increased to 80%. We label this group 'Partnered, childless, full-time employed'; 36% of individuals (n = 898) in the analytical sample belong to this group.

Finally, the third group (Type 3, third column in Figure 2) consists of migrants who were already married when they arrived in the United Kingdom and around 60% of them also had at least one child. Most of them had a/another child within 2 to 5 years after migration. Regarding their employment domain, individuals in this group were either employed (full- or part-time) or inactive, and we do not see many changes in their employment status during the 5-year observation period after arrival in the United Kingdom. We refer to this group as 'Family migrants'. This is the largest group; 43% of the analytical sample (n = 1,072) belongs to this group.

Figure 2: Results of cluster analysis: three types of joint trajectories of partnership, fertility, and employment among immigrants in the United Kingdom



Note: The 'Separated' category includes separated as well as widowed individuals. The 'Single' category refers to never partnered individuals. Those who become single following union dissolution are included in the 'Separated' category. Those who re-partner following separation or widowhood are included in the cohabiting or married category depending on the type of their partnership. PT denotes part-time and FT denotes full-time. Cluster names and sizes are: Cluster 1 (Type 1): Single, childless, students (n=515; 21%); Cluster 2 (Type 2): Partnered, childless, full-time employed (n = 898; 36%); Cluster 3 (Type 3): Family migrants (n = 1,072; 43%).
Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

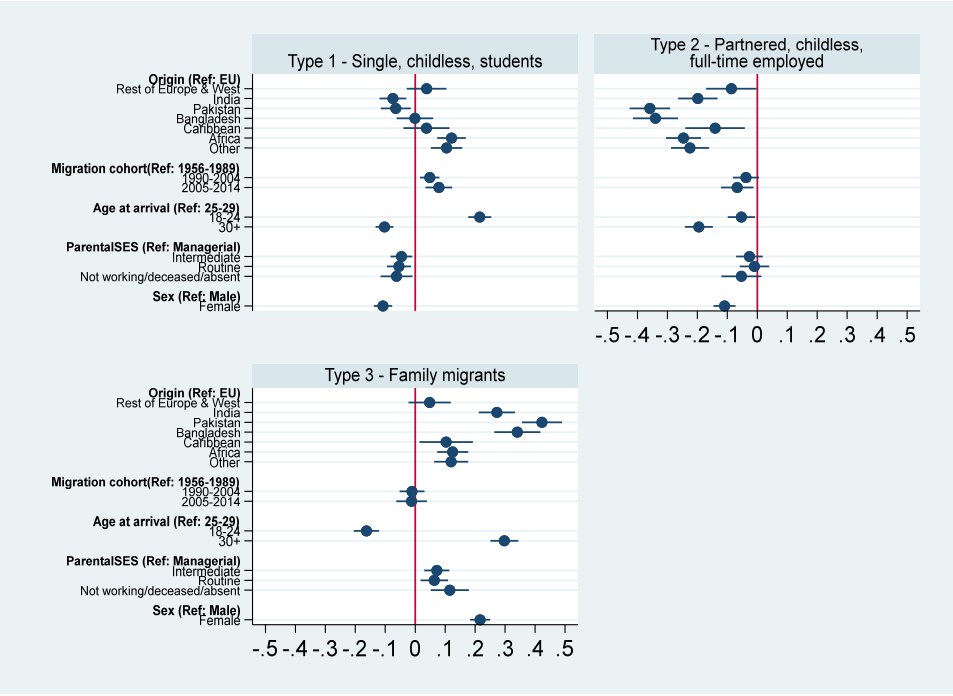
8.3 Determinants of group membership

Next, we study whether and how individual characteristics predict cluster membership. We estimate a multinomial logistic regression model with the type of cluster as the dependent variable. We report average marginal effects (Figure 3 and Table A-3), which show the average difference in the probability of a group belonging to a certain cluster compared to the probability of the reference group.

First, we focus on the probability of belonging to the 'single, childless, students' cluster (Type 1). Immigrants from India and Pakistan are less likely to belong to this cluster than EU migrants, whereas those from African and other countries are more likely. Immigrants from the remaining countries are as likely as EU migrants to belong to this group. More recent migrants are more likely to belong to this group. This is not

surprising, given an increase in both postponed partnership formation and childbearing, as well as opportunities to study abroad. There is also a clear socioeconomic gradient: Immigrants from higher SES families (i.e., whose parents have managerial occupations) are more likely to belong to this cluster than those whose parents have lower SES levels. There is a clear negative age gradient: the older immigrants are, the less likely they are to be in this group. Finally, we also find large gender differences: women are less likely than men to belong to this group.

Figure 3: Average marginal effects of belonging to the three different clusters, by covariates



Note: Regression results are shown in Appendix Table A-3.
Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

Next, we describe the characteristics of immigrants who belong to the 'partnered, childless, full-time employed' cluster (Type 2). Immigrants from South Asian countries (India, Pakistan, and Bangladesh), African countries, and other countries are less likely than EU migrants to be classified in this group. Immigrants who arrived after 2005 and

who were older at the time of arrival are less likely to belong to this group than those who arrived in earlier years and who were younger when they arrived. We do not find differences between immigrants with different levels of parental SES during childhood. Men are more likely to belong to this cluster than women.

Finally, we focus on the predictors of belonging to the 'family migrants' cluster (Type 3). Immigrants from South Asian, African, Caribbean, and other countries are more likely to be family migrants than those who come from EU countries. Individuals arriving in the United Kingdom in different years are equally likely to be in this group. Additionally, this cluster is characterised by individuals who are older and have lower SES, and women have a higher propensity to belong to this group than men.

8.4 Gender differences

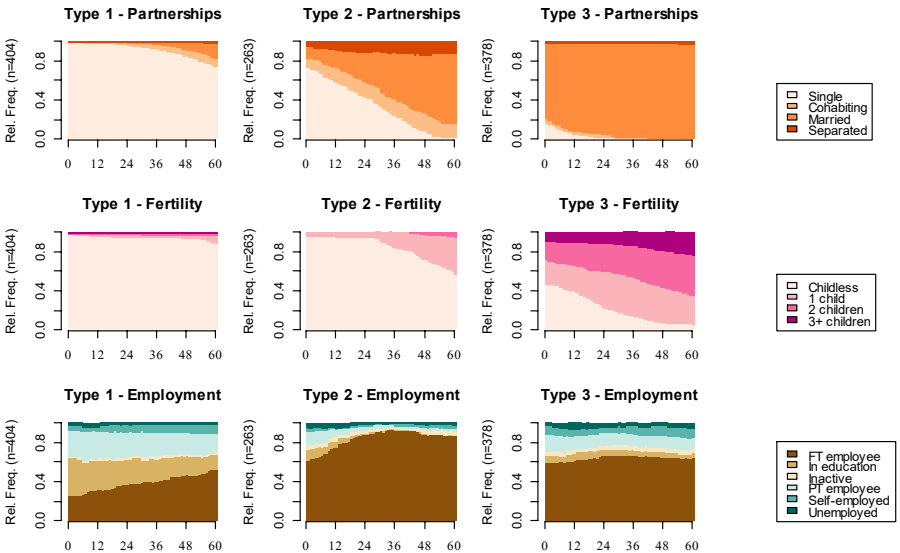
Previous studies have shown marked differences in the labour market attachment of women and men, particularly following childbearing. Therefore, we are interested in exploring gender differences in immigrants' partnership, fertility, and employment trajectories. We found large gender differences in the probability of belonging to each of the three clusters. To further explore these gender differences, we conduct the MCSA and cluster analysis separately for men and women. Although we find three very similar clusters among both women and men, we also observe some interesting differences between the trajectories of immigrant men and women.

First, when comparing men's trajectories (Figure 4) to the overall patterns shown in Figure 2, the most striking differences are in men's employment trajectories, while their partnership and fertility trajectories are almost exactly the same as in the full analytical sample. In the first group (single, childless, students; n = 404; 39%), full-time employment and full-time education are equally prevalent at the time of arrival in the United Kingdom and many students later become full-time employed. Men in this group were younger when they arrived in the United Kingdom, arrived mainly in the 1990s and early 2000s, and were least likely to be from India or Pakistan (Figure 5; Table A-4).[7] The second group (partnered, childless, full-time employed; n = 263; 25%) is almost exclusively categorised by full-time employment: two years after migration around 90% of men in this group are full-time employed. Immigrant men from Pakistan, African countries, and other countries, those arriving at older ages, and those arriving in more recent periods are least likely to experience this combined work and family trajectory. An even more striking difference is seen when we compare the employment trajectories of men in the family migration group (n = 378; 36%) with the overall patterns: 60% of

[7] Note the larger confidence intervals due to the smaller number of cases in each category than in the unstratified analysis.

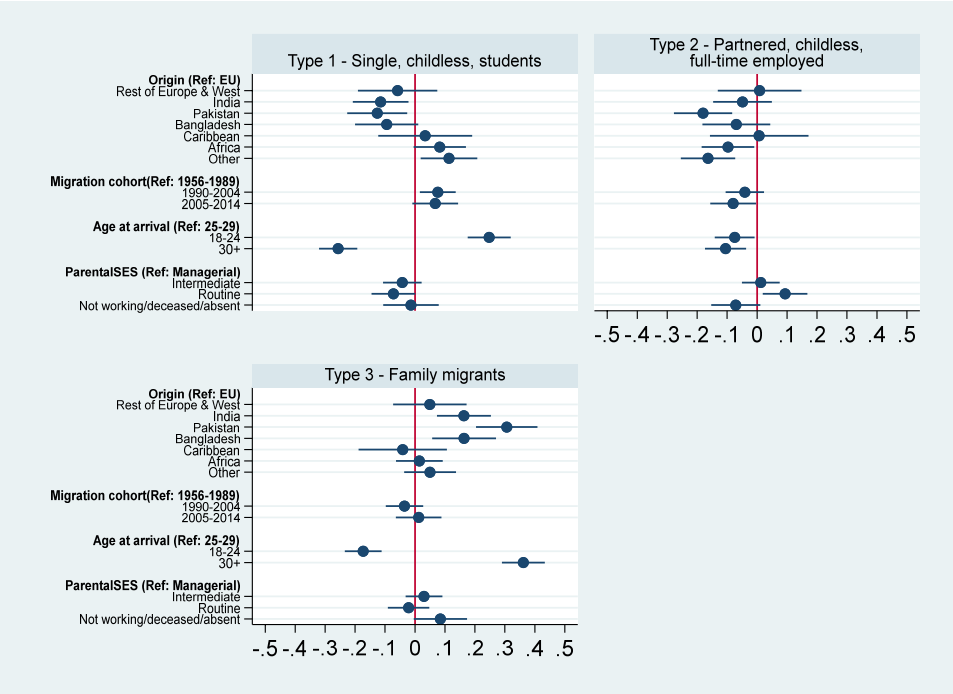
men in this group are full-time employed and the share of those who are in education or inactive is less than 10%. Men migrating from India, Pakistan, and Bangladesh and those who were older when they arrived in the United Kingdom are most likely to belong to this cluster.

Figure 4: Results of cluster analysis for men (n = 1,045)



Note: The 'Separated' category includes separated as well as widowed individuals. The 'Single' category refers to never partnered individuals. Those who become single following union dissolution are included in the 'Separated' category. Those who re-partner following separation or widowhood are included in the cohabiting or married category depending on their type of partnership. PT denotes part-time and FT denotes full-time. Cluster names and sizes are: Cluster 1 (Type 1): Single, childless, students (n = 404; 39%); Cluster 2 (Type 2): Partnered, childless, full-time employed (n = 263; 25%); Cluster 3 (Type 3): Family migrants (n = 378; 36%).
Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

Figure 5: Average marginal effects of belonging to the three different clusters by covariate, men (n = 1,045)



Note: Regression results are shown in Appendix Table A-4.
Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

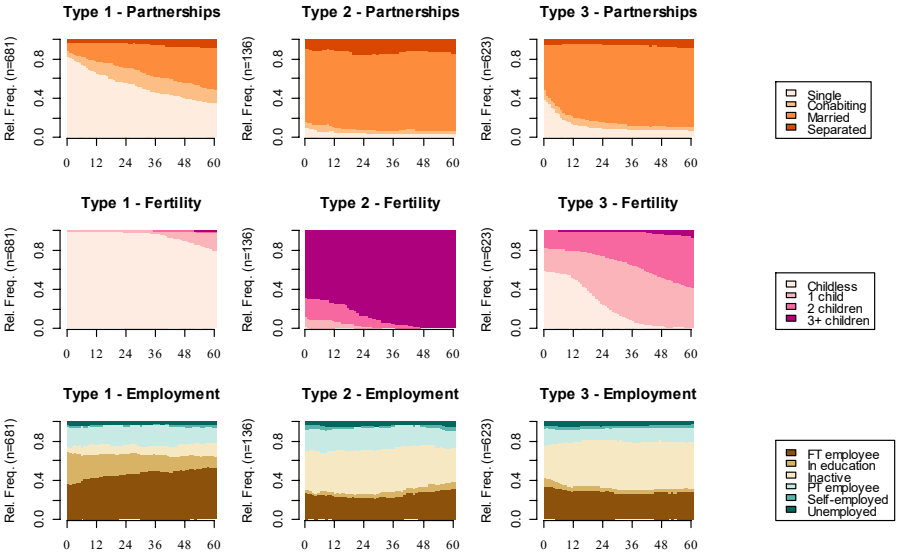
Second, the classification of women's trajectories differs somewhat more from the overall patterns in terms of not only their employment trajectories but also their partnership and fertility sequences (Figure 6). Among women, there is no 'single, childless, students' cluster; instead, their first cluster is comparable to the second cluster in the full sample (i.e., partnered, childless, full-time employed; n = 681; 47%). These women tend to arrive unpartnered and childless. Although many (around 60%) form a relationship during the first five years following migration, only around 20% becomes mothers during this time. They are either employed (full- or part-time) or students. This group of women tend to migrate from European and Western countries, come from higher SES families, and are younger when they arrive (Figure 7; Table A-5).[8] Women in the

[8] Again, note the larger confidence intervals due to the smaller number of cases in each category than in the unstratified analysis.

second cluster (family migrants, larger families; n = 136; 9%) arrive married and remain married, and many already have large families (3+ children) when they arrive. Five years after arrival, all women in this group have at least three children. Around half of women in this group are inactive (with some returning to full-time employment towards the end of the five-year observation period), whereas the other half are employed. These women are most likely to be from Pakistan, Bangladesh, or African countries, and tend to arrive at older ages, in earlier periods, and have lower parental SES. Finally, women's trajectories in the third cluster (family migrants, smaller families; n = 623; 43%) are similar to those in the second cluster. The most striking differences are that many women in this group arrived as single and childless and most experienced a partnership transition soon after arrival. Similarly, almost all women in this group had at least one child during the five-year observation period. Their employment trajectories are very similar to those of women in the second group, i.e., around half of the women are inactive. Women in this group are the least likely to arrive from European or Western countries and most likely to be from India, Pakistan, and Bangladesh. Additionally, these women arrived more recently and were older upon arrival.

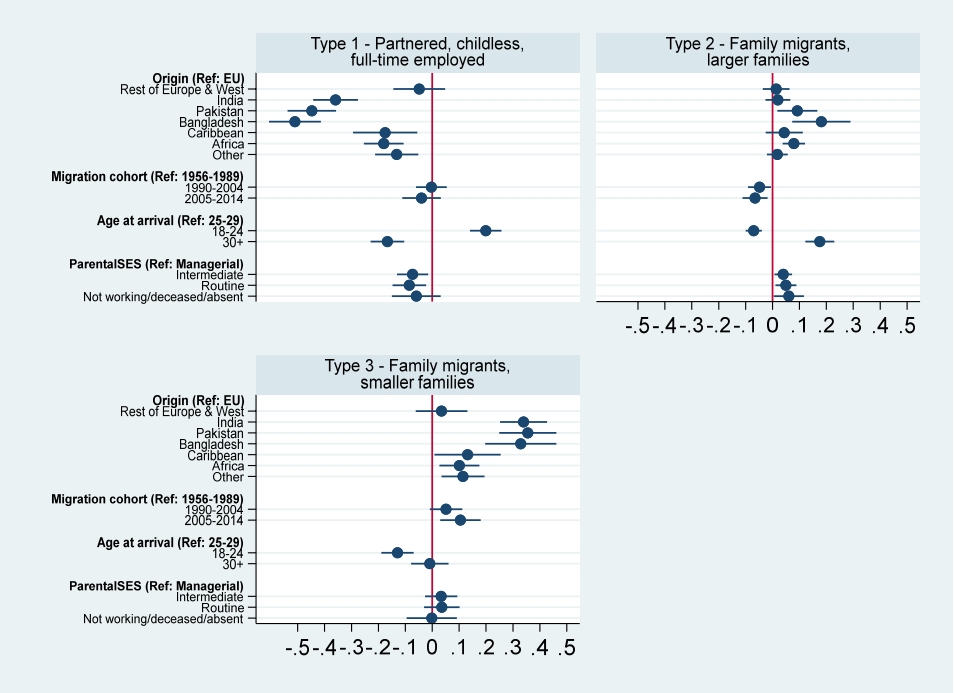
When comparing women's and men's trajectories, the question arises whether these are statistically different from each other. Liao and Fasang (2021) propose using an adaptation of the Bayesian information criterion (BIC) and the likelihood ratio test (LRT) to compare the trajectories of different groups. Although this measure is not yet available for MCSA, we have calculated it separately for partnership, fertility, and employment trajectories (Table A-6). The difference in BIC values is low and the p-values of the LRT are large when comparing men's and women's partnership or fertility trajectories, indicating that immigrant women's and men's partnership and fertility trajectories during the first five years following their arrival in the United Kingdom are very similar. However, BIC differences are large, and the p-value of the LRT is small when comparing immigrant women's and men's employment trajectories. This suggests that immigrant women's and men's employment trajectories are different from each other, justifying our decision to explore immigrants' joint trajectories of partnership, fertility, and employment by gender.

Figure 6: Results of cluster analysis for women (n = 1,440)



Note: The 'Separated' category includes separated as well as widowed individuals. The 'Single' category refers to never partnered individuals. Those who become single following union dissolution are included in the 'Separated' category. Those who re-partner following separation or widowhood are included in the cohabiting or married category depending on the type of their partnership. PT denotes part-time and FT denotes full-time. Cluster names and sizes are: Cluster 1 (Type 1): Partnered, childless, full-time employed (n = 681; 47%); Cluster 2 (Type 2): Family migrants, larger families (n = 136; 9%); Cluster 3 (Type 3): Family migrants, smaller families (n = 623; 43%).
Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

Figure 7: Average marginal effects of belonging to the three different clusters, by covariate, women (n = 1,440)



Note: Regression results are shown in Appendix Table A-5.
Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

9. Summary and discussion

Although there is extensive literature on immigrants' family formation, labour market participation, and employment across Europe, most existing studies do not consider immigrants' partnership transitions, childbearing, and labour market experiences jointly. Instead, studies tend to focus on immigrants' experiences in only one life domain at most, controlling for their experiences in the other two life domains. However, previous studies on majority populations have shown that these life domains are interrelated, especially among women. We adopted an intersectional life course approach (Fasang and Aisenbrey 2021) to studying immigrants' family and employment trajectories and focused on the intersection of gender and migrant origin, as men and women from different origin

countries are likely to experience particular combinations of partnership, fertility, and employment trajectories. We mapped the joint evolution of immigrants' partnership, fertility, and employment trajectories and explored the role of combinations of gender and migrant origin to improve our understanding of the role of the migration process in immigrants' life courses in the United Kingdom. Using multi-channel sequence analysis and multinomial logistic regression, we established a typology of joint trajectories of partnership, fertility, and employment among immigrants in the United Kingdom during the first five years after their arrival and analysed the correlates of individuals' propensity to experience each joint trajectory type, with a particular focus on the role of gender and migrant origin.

We began by exploring patterns of partnership, fertility, and employment across migration cohorts to assess the magnitude of changes in these life domains over time. We observed two main changes. First, the proportion of those who were never partnered at the time of arrival declined and the share of those who were married increased. Similarly, the share of those who remained never partnered after 5 years following migration declined and the proportion of married individuals increased. These patterns likely reflect changes in immigration streams, e.g., an increased importance of arrivals through the points-based system as skilled migrants, which allows entrants to bring dependents. Second, the share of migrants who cohabit or separate during the first 5 years after arriving in the United Kingdom increased across migration cohorts. This suggests that the partnership experiences of immigrants in the United Kingdom reflect the broader changes in partnership patterns (i.e., an increase in non-marital unions and separation) that have taken place in the origin countries and in the United Kingdom.

Next, we established the main patterns of partnership, fertility, and employment trajectories. We found three types of joint trajectories. Immigrants in the first group ('Single, childless, students') arrive single and childless and largely remain so, and are either in education or part-time employment when they arrive. The second group ('Partnered, childless, full-time employed') consists of immigrants who arrived single and childless but later became partnered and parents. They are largely in full-time employment. Finally, the third group represents family migration; individuals in this group arrived married and half of them had at least one child at the time of arrival. Five years after migration, almost all of them are married and have become parents. Individuals in this group tend to be employed or inactive. These findings confirm that immigrants' partnership, fertility, and employment are longitudinally and dynamically interrelated. For example, single immigrants are unlikely to have children and tend to study full-time or have a part-time job. Immigrants who are in a relationship at the time of arrival, and those who form a relationship later, tend to work full-time. Having children is associated with being in a relationship and heterogeneous employment trajectories, including full-time employment, part-time employment, and inactivity.

We found considerable heterogeneity in immigrants' family and employment patterns by migrant origin and gender. Immigrants from South Asia (India, Pakistan, and Bangladesh) were most likely to belong to the 'family migrants' cluster. This is in line with previous studies (Hannemann and Kulu 2015; Kulu and Hannemann 2016) that show early and almost universal marriage and childbearing among South Asians in the United Kingdom. Similarly, immigrants from the Caribbean tended to belong to the group of 'family migrants'. Immigrants from African countries were either in the 'single, childless, students' or 'family migrants' groups, indicating that many of them arrived in the United Kingdom to study, although family migration was also common in this group. By contrast, European and Western immigrants were the least likely to be 'family migrants' and instead their trajectories were characterised as 'partnered, childless, full-time employed'. They formed relationships and had children later than immigrants from other countries and instead tended to focus on their employment careers during the first 3–5 years after arriving in the United Kingdom. Women were most likely to be family migrants, whereas men were more likely to be either in the 'single, childless, students' or the 'partnered, childless, full-time employed' clusters.

These gender differences became more striking when we stratified the analysis by gender. We found very similar clusters among men but slightly different clusters among women. Among women, there was no 'single, childless, students' group and we found two groups of 'family migrants', one with larger and one with smaller families. Additionally, while most men in the 'family migrants' cluster were in full-time employment, a large share of women were inactive in both family migrant clusters. Interestingly, among both women and men, being childless and partnered was coupled with full- or part-time employment after completing education ('partnered, childless, full-time employed' cluster).

These findings highlight that immigrant men tend to be in full-time employment, regardless of whether they already had a family at the time of arrival in the United Kingdom or whether they formed a family later. The only group of men where employment levels were lower was those who arrived primarily to study in the United Kingdom, but even among this group, levels of full-time employment increased steadily over time. These findings confirm the expectation that men's three life domains mutually support and enable each other (mutually supportive life domains hypothesis). Although we have observed some differences by country of origin in men's propensity to experience the three different combinations of partnership, fertility, and employment trajectories, these three life domains seem equally compatible with each other among men from all origin countries.

Among immigrant women, we found clear evidence for the competing life domains hypothesis. Women who are employed (full- or part-time) tend to be childless (and often unpartnered). However, the majority of women who have smaller or larger families tend

to be either inactive or part-time employed, indicating that among female immigrants, childbearing and (full-time) employment are incompatible. This role incompatibility is especially striking among women from geographically distant countries with more conservative partnership and childbearing norms than the United Kingdom (i.e., women from India, Pakistan, and Bangladesh). At the same time, women from European and Western countries, which are more similar to the United Kingdom than other immigration countries, were most likely to be partnered, childless, and full-time employed during their first five years in the United Kingdom. These findings provide evidence for the female heterogeneity hypothesis.

Overall, the results are in line with the few previous studies showing that immigrants' and especially women's employment is markedly affected by childbearing (Kil et al. 2018; Vidal-Coso 2019). Furthermore, these findings highlight that immigrants' labour market position in the United Kingdom is gendered. The lower labour market participation rates (Dustmann et al. 2003) and lower probability of employment (Blackaby et al. 1997; Dustmann and Fabbri 2003; Wheatley Price 2001) found in previous studies among immigrants from old migration countries to the United Kingdom mainly characterise immigrant women, and these employment patterns are coupled with their partnership and childbearing trajectories. Although many native women are likely to work part-time or stay at home after childbirth, the low employment rates among partnered migrant women with children are striking. This was especially the case for women from India, Pakistan, and Bangladesh, where having a family was coupled with inactivity or part-time employment.

There are several potential reasons for the observed patterns, including migrant selectivity, cultural factors, and motherhood penalties. First, we have no information on the legal status of immigrants' partners, and it is possible that some women have no (immediate) right to work in the United Kingdom. Women who follow their husbands may also be more family-oriented than those who do not, and thus less likely to participate in the labour market. Second, some migrant groups (e.g., South Asians) may have less favourable views on women's (formal) employment than other groups (e.g., Europeans), especially once they become mothers, which may be related to attitudes dominant in their country of origin. Third, research has shown that women with children are likely to experience motherhood penalties (Koelet et al. 2015), but these penalties are more pronounced for migrant and minority women. Finally, the emerging groups of immigrants and immigrants' experiences in the United Kingdom following migration are to some extent likely to be pre-determined by UK immigration policies, which determine who can migrate to the United Kingdom, for what reason, and under what conditions. This is likely to be the case for women from certain origin groups who arrive as dependents, who have no access to the labour market, and have limited information on opportunities. This shapes their experiences at the time of and soon after migration, but

the policies together with the conservative values and culture related to employment and family formation in certain groups, may reinforce these patterns in the long run. Our results are in line with the Office for National Statistics classification and support that the main mechanisms of migration to the United Kingdom among the examined groups are family migration, student migration, and labour migration (we were unable to address migration related to humanitarian reasons due to data limitations).

This study has some limitations. First, our sample only included individuals for whom employment histories were available. Although employment histories have only been collected for a subset of individuals, a previous study using the same dataset has shown that the employment sample does not seem to be selective when studying immigrants' partnership and fertility trajectories (Mikolai and Kulu 2021). Additionally, our sensitivity analyses have also indicated that it is unlikely that the results are biased by sample size limitations. Nonetheless, future studies should replicate the analysis on larger datasets if they become available. Second, men and women in the sample may be each other's partners and partners' employment and family trajectories are bound to be interconnected. As the UKHLS does not include information on the employment and partnership histories of previous partners, we were not able to conduct a couple-level analysis. Finally, the descriptive methodological approach used in this study did not allow us to study whether the three life domains are causally linked or the direction of such potential causality between events in the three life domains (e.g., whether employment influences childbearing decisions or vice versa). We leave these interesting questions for future research.

Taken together, this study showed how the partnership, fertility, and employment trajectories of immigrants evolve jointly during the first five years after arriving in the United Kingdom. We highlighted that partnership, childbearing, and employment trajectories are intertwined in different ways for women and men, and also for immigrants from different origin countries, particularly among women. The findings imply that immigration and integration policies need to consider a multitude of experiences among immigrants in the United Kingdom.

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Appendix

Table A-1: List of countries included in the broader migrant origin categories

Region of origin	Origin countries
EU	Austria, Belgium, Czech Republic, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland
Rest of Europe & West	Albania, Armenia, Australia, Belarus, Bosnia and Herzegovina, Bulgaria, Canada, Channel Islands, Georgia, Gibraltar, Jersey, Kosovo, Moldova, New Zealand, Russia, Serbia, Turkey, Ukraine, USA, Yugoslavia
Caribbean countries	Anguilla, Antigua, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Guadeloupe, Grenada, Guyana, Haiti, Jamaica, Montserrat, Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago
African countries	Kenya, Ghana, Nigeria, Uganda, Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Zaire, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Libya, Madagascar, Malawi, Mauritius, Morocco, Mozambique, Namibia, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Tunisia, Zambia, Zimbabwe
Other	Aden, Afghanistan, Argentina, Azerbaijan, Bahrain, Bermuda, Brazil, Brunei, Cambodia, Chile, China/Hong Kong, Colombia, Dubai, Ecuador, El Salvador, Falkland Islands, Fiji, Honduras, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kashmir, Kazakhstan, Korea, Kuwait, Laos, Lebanon, Malaysia, Martinique, Mexico, Middle East, Myanmar, Nepal, Palestine, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, St Helena, Syria, Taiwan, Thailand, Tuvalu, United Arab Emirates, Uruguay, Venezuela, Vietnam, West Indies, Yemen

Table A-2: Mean duration (with standard deviation (SD)) and mean number of episodes (with standard deviation (SD)) in each state per domain

	Mean duration (months)	SD	Mean number of episodes	SD
Partnerships				
Single	22.3	26	0.59	0.49
Cohabiting	4.9	13	0.24	0.46
Married	30.7	27	0.65	0.49
Separated/widowed	3.0	11	0.12	0.35
Fertility				
Childless	36.2	26	0.75	0.43
1 child	11.8	18	0.42	0.49
2 children	8.3	18	0.26	0.44
3+ children	4.6	15	0.11	0.31
Employment				
Full-time employee	28.2	26	0.80	0.66
In education	7.5	17	0.28	0.49
Inactive	11.0	21	0.36	0.56
Part-time employee	10.0	18	0.39	0.55
Self-employed	2.0	9	0.09	0.31
Unemployed	2.2	8	0.15	0.41

Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).
Note: To calculate these statistics we used the code written by Raab and Struffolino (2022).

Table A-3: Average marginal effects (AME) and standard errors (SE) from multinomial logistic regression, N = 2,485

	Type 1		Type 2		Type 3	
	Single, childless, students		Partnered, childless, full-time employed		Family migrants	
	AME	SE	AME	SE	AME	SE
Migrant origin						
EU	Ref		Ref		Ref	
Rest of Europe and West	0.038	0.034	–0.087	0.043	0.048	0.036
India	–0.074	0.023	–0.199	0.034	0.273	0.031
Pakistan	–0.065	0.025	–0.359	0.034	0.423	0.034
Bangladesh	–0.001	0.031	–0.340	0.038	0.341	0.039
Caribbean	0.037	0.039	–0.141	0.051	0.103	0.045
Africa	0.121	0.024	–0.246	0.030	0.125	0.026
Other	0.105	0.027	–0.225	0.033	0.120	0.029
Migration cohort						
1958–1989	Ref		Ref		Ref	
1990–2004	0.049	0.016	–0.038	0.022	–0.011	0.021
2005–2014	0.079	0.023	–0.067	0.028	–0.012	0.026
Age at arrival						
18–24	0.216	0.020	–0.053	0.023	–0.163	0.021
25–29	Ref		Ref		Ref	
30+	–0.102	0.015	–0.195	0.024	0.298	0.024
Parental SES						
Professional & Managerial	Ref		Ref		Ref	
Intermediate	–0.046	0.019	–0.026	0.023	0.072	0.021
Routine	–0.054	0.020	–0.009	0.025	0.064	0.023
Not working/deceased/absent	–0.062	0.027	–0.053	0.034	0.115	0.032
Sex						
Male	Ref		Ref		Ref	
Female	–0.108	0.016	–0.109	0.019	0.217	0.017
N	2,485		2,485		2,485	

Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

Table A-4: Average marginal effects (AME) and standard errors (SE) from multinomial logistic regression, men, N = 1,045

	Type 1		Type 2		Type 3	
	Single, childless, students		Partnered, childless, full-time employed		Family migrants	
	AME	SE	AME	SE	AME	SE
Migrant origin						
EU	Ref		Ref		Ref	
Rest of Europe & West	–0.058	0.068	0.008	0.071	0.050	0.063
India	–0.115	0.047	–0.049	0.050	0.163	0.046
Pakistan	–0.126	0.051	–0.180	0.050	0.306	0.052
Bangladesh	–0.095	0.054	–0.069	0.058	0.164	0.054
Caribbean	0.034	0.080	0.007	0.084	–0.041	0.075
Africa	0.083	0.045	–0.097	0.045	0.014	0.040
Other	0.114	0.048	–0.164	0.046	0.050	0.044
Migration cohort						
1958–1989	Ref		Ref		Ref	
1990–2004	0.076	0.031	–0.041	0.033	–0.035	0.032
2005–2014	0.068	0.039	–0.080	0.039	0.012	0.039
Age at arrival						
18–24	0.248	0.037	–0.075	0.034	–0.173	0.031
25–29	Ref		Ref		Ref	
30+	–0.257	0.033	–0.105	0.035	0.362	0.037
Parental SES						
Professional & Managerial	Ref		Ref		Ref	
Intermediate	–0.042	0.033	0.012	0.032	0.030	0.031
Routine	–0.072	0.037	0.093	0.038	–0.021	0.035
Not working/deceased/absent	–0.014	0.047	–0.071	0.042	0.085	0.045
N	1,045		1,045		1,045	

Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

Table A-5: Average marginal effects (AME) and standard errors (SE) from multinomial logistic regression, women, N = 1,440

	Type 1		Type 2		Type 3	
	Partnered, childless, full-time employed		Family migrants, larger families		Family migrants, smaller families	
	AME	SE	AME	SE	AME	SE
Migrant origin						
EU	Ref		Ref		Ref	
Rest of Europe & West	–0.048	0.049	0.014	0.025	0.035	0.049
India	–0.359	0.043	0.020	0.024	0.339	0.045
Pakistan	–0.447	0.046	0.092	0.038	0.355	0.054
Bangladesh	–0.510	0.049	0.182	0.055	0.329	0.067
Caribbean	–0.175	0.061	0.043	0.035	0.131	0.063
Africa	–0.180	0.038	0.079	0.021	0.101	0.038
Other	–0.132	0.041	0.018	0.020	0.114	0.041
Migration cohort						
1958–1989	Ref		Ref		Ref	
1990–2004	–0.003	0.029	–0.048	0.022	0.051	0.031
2005–2014	–0.040	0.037	–0.065	0.024	0.105	0.038
Age at arrival						
18–24	0.199	0.030	–0.070	0.015	–0.129	0.031
25–29	Ref		Ref		Ref	
30+	–0.167	0.032	0.176	0.027	–0.009	0.036
Parental SES						
Professional & Managerial	Ref		Ref		Ref	
Intermediate	–0.073	0.030	0.040	0.017	0.033	0.031
Routine	–0.085	0.032	0.050	0.020	0.035	0.034
Not working/deceased/absent	–0.059	0.046	0.061	0.028	–0.002	0.048
N	1,440		1,440		1,440	

Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).

Table A-6: Results of Bayes information criterion (BIC) and Likelihood ratio test (LRT) when comparing men's and women's partnership, fertility, and employment trajectories

	LRT	p-value	BIC difference	Bayes Factor
Partnership trajectories	1.014	0.485	–4.284	0.117
Fertility trajectories	2.284	0.259	–3.014	0.351
Employment trajectories	13.114	0.001	7.815	202.539

Source: Authors' calculations using UKHLS data, waves 1–9 (2009–2019).