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Research Article

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Abstract

BACKGROUND
Previous studies have investigated immigrant fertility in various European countries, but only a few have compared the fertility rates of women who migrated as children (1.5 Generation), women born in the host society to foreign-born parents (2 Generation), and women born in the host society with one foreign-born and one native-born parent (2.5 Generation).

OBJECTIVE
This study examines the first-, second-, and third-birth rates of three migrant generation groups in the United Kingdom – 1.5G, 2G, and 2.5G. The study investigates the role of sociocultural factors in shaping their fertility behaviour.

METHODS
Event history analysis is applied to longitudinal individual-level data (N = 24,228) from the UK Household Longitudinal Study (2009–2021).

RESULTS
Pakistani and Bangladeshi women who arrived in the United Kingdom as children exhibit elevated fertility at all birth orders, partly consistent with socialization theory. No clear convergence emerges among women born in the United Kingdom with one immigrant parent and one UK-born parent (2.5G) across all groups from different migrant-origin backgrounds. Instead, certain 2.5G groups show distinct fertility patterns. The influence of sociocultural factors on fertility varies by birth order and migrant generation,

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highlighting the need for a detailed approach that considers both cultural and socioeconomic dimensions.

CONTRIBUTION

This study is one of the first to differentiate the fertility behaviours of 1.5G, 2G, and 2.5G women in the United Kingdom. It reveals important variations in childbearing behaviour, which have implications for understanding intergenerational differences and the influence of sociocultural factors on migrant fertility.

1. Introduction

Migrants from different countries of origin exhibit varying fertility levels across Europe. Some demonstrate higher fertility rates, while others show fertility levels closer to or lower than those of the host population (Milewski 2011; Dubuc 2012; Pailhé 2017; González-Ferrer et al. 2017; Wilson 2020). These distinctive childbearing behaviours also exist within the same migrant groups across different generations. Previous research has examined the fertility patterns of immigrants and their descendants, typically focusing on two groups: the first generation, comprising individuals who migrated to the host society at any point in their lives, and the second generation, defined as those born in the host society with at least one foreign-born parent (Kulu and Hannemann 2016; Andersson, Persson, and Obucina 2017; Wilson 2019). These studies have demonstrated the variability in fertility behaviour across generations, with some descendant groups closely mirroring the fertility patterns of their parents, while others exhibit intergenerational shifts. Although existing studies provide valuable insights into fertility patterns among immigrants and their descendants, they overlook important distinctions, such as the differences between immigrants who arrived as children versus those who arrived as adults, and between second generation individuals with two foreign-born parents and those with one foreign-born and one native-born parent. This gap limits our understanding of the nuanced fertility behaviour within these groups.

This study investigates childbearing behaviour among immigrants and their descendants in the United Kingdom, using a more refined definition of these groups to capture detailed distinctions. Specifically, it examines three generational categories: women who migrated as children (1.5G), women born in the United Kingdom to foreign-born parents (2G), and women born in the United Kingdom to one foreign-born and one UK-born parent (2.5G). This research design allows for the examination of individuals who have spent their formative years mostly in the United Kingdom. The research addresses three questions:

1. How do fertility rates differ across 1.5G, 2G, and 2.5G women?
2. How do fertility rates differ across 1.5G, 2G, and 2.5G women from different migrant origin backgrounds?
3. To what extent are these differences explained by the cultural and socioeconomic factors of different generations and migrant groups?

Recent studies highlight the need to investigate fertility among more complex generational categories, such as 1.5G and 2.5G. Krapf and Wolf (2015) and González-Ferrer et al. (2017) explore 1.5G fertility patterns in Germany and Spain, showing that age at migration and cultural origins shape fertility outcomes. The study of 2.5G has attracted less attention. Höhn et al. (2024) is one of the few studies that investigates the fertility of several migrant generations, including 2.5G. They show that the first- and second-birth rates of 2.5G are somewhat depressed compared to Swedish natives. Nevertheless, these studies have yet to address the sociocultural mechanisms underlying fertility differences within these detailed generational categories.

This knowledge gap is particularly pronounced in the context of the United Kingdom. Recent evidence suggests that 6% of children in the United Kingdom can be classified as 1.5G, 14% as 2G, and 8% as 2.5G (Fernández-Reino 2022), highlighting the demographic significance of these categories. To the best of our knowledge, no previous research has systematically examined fertility behaviours across 1.5G, 2G and 2.5G groups in the United Kingdom. Understanding how their fertility patterns differ – both relative to each other and to British natives – is essential for more comprehensive demographic insights and for informing social and integration policies.

This study builds on empirical evidence showing that cultural characteristics and socioeconomic status influence the fertility behaviour of immigrants and their descendants (Kulu and Hannemann 2016; Maes, Wood, and Neels 2021). While prior research has highlighted how such factors shape the childbearing patterns of the conventional first and second generations, little is known about their impact on more specific generational groups, such as the 1.5G, 2G, and 2.5G. Moreover, evidence suggests that those who moved to the host society as children (1.5G) may achieve greater sociocultural integration than those who migrated as adults (1G) (Fokkema and de Haas 2011), and that the descendants of immigrants with one foreign-born and one native-born parent (2.5G) display distinct cultural and socioeconomic profiles compared to descendants with two foreign-born parents (Kalmijn 2015; Ramakrishnan 2004). This study advances our understanding of how different cultural and socioeconomic factors contribute to fertility differences within and across migrant generations in one of Europe's most ethnically diverse societies.

2. Literature review

2.1 Theorising fertility differences across various generations

Immigrants' fertility patterns in the host country have traditionally been understood and explained as the result of adaptation or socialization mechanisms. We build on these explanations to assess the extent to which fertility behaviours vary across different migrant generations and the mechanisms driving these differences. Adaptation theory posits that immigrants gradually adopt the fertility norms of the host society over time (Milewski 2010). This assimilation process suggests that immigrants adjust their behaviour as they integrate into the mainstream culture. The extended exposure and interaction with the host society of the 1.5G, who moved to the host country as children, may lead them to adopt fertility patterns similar to those of the native population. This adjustment may result in immigrant women having fewer children than they might have had in their home countries, particularly if those countries have higher fertility rates, ultimately aligning their fertility rates with those of the host society.

This process of adaptation also applies to their descendants. The values and preferences regarding childbearing norms passed down from foreign-born parents may gradually align with the norms of the host society, as descendants are socialized entirely within the mainstream culture. Therefore, if adaptation is the prevailing mechanism, we would expect minimal fertility differences between the 1.5G and their descendants, as well as between all migrant generations and the native population. Thus, 1.5G, 2G, and 2.5G would exhibit fertility behaviours aligned with those of British natives, with minimal differences across generations due to prolonged exposure to and integration into the norms of British society.

By contrast, socialization theory explains how individuals carry the traditions and cultural norms absorbed during childhood in their country of origin into their host societies (Goldberg 1959; Wilson and Kuha 2018). Preferences established in the home country, such as ideal family size or childbearing values, continue to influence family planning decisions post-migration. For example, Höhn et al. (2024) demonstrate that the fertility patterns of immigrants align with those of their respective countries of origin. The 1.5G, who spent part of their formative years in their country of origin, may have learned and internalised certain behaviours or values from that cultural environment, whereas their descendants have been exposed to mainstream culture from birth. In comparing the 1.5G with their descendants, socialization theory suggests that the 1.5G may exhibit fertility behaviour distinct from British natives due to their early life exposure to the cultural and social norms of their country of origin. Meanwhile, descendants are likely to display fertility behaviour more closely aligned with British natives. Hence, socialization theory suggests that the 1.5G, having spent part of their

formative years in their country of origin, will exhibit fertility behaviour more distinct from British natives compared to the 2G and 2.5G, who were mostly socialized within the mainstream culture.

Like the 1.5G, 2G and 2.5G individuals are also influenced by their dual cultural heritage, shaped by both their parents' migrant backgrounds and their experiences within the host society. This dual influence often results in the emergence of minority cultures, where traditions from their heritage intersect with mainstream norms. Mchitarjan and Reisenzein (2015) demonstrate that immigrant parents often react negatively when their children become culturally estranged from their heritage, indicating strong familial pressure to maintain cultural norms. This familial pressure may include norms surrounding religious beliefs, family size preferences, and childbearing values.

The extent of exposure to and integration with the mainstream culture may also influence the minority cultures of 2G and 2.5G individuals. The 2G, raised by two immigrant parents, are likely to experience stronger transmission of cultural norms from their parents' country of origin, potentially aligning their fertility behaviours more closely with the 1.5G, who spent part of their formative years in their home country. By contrast, 2.5G individuals, having one native-born parent, might be more integrated into the host society due to the influence of their native-born parent and increased exposure to mainstream culture. Kalmijn's (2015) study supports this, showing that 2.5G children often have broader social networks within the host society, leading to greater adoption of cultural practices aligned with the native population.

This interplay of socialization and minority culture mechanisms suggest a gradient of assimilation in fertility behaviours across generations. The 1.5G, influenced by early life exposure to their country of origin, will exhibit the most distinct fertility rates compared to British natives. The 2G, with stronger cultural transmission from their two immigrant parents, will exhibit intermediate fertility rates. The fertility behaviour of the 2.5G, who are more integrated into the mainstream culture through the influence of their native-born parent, will be most similar to British natives.

2.2 Fertility differences among migrant groups from different country backgrounds

The fertility of immigrants and their descendants is shaped not only by generational differences but also by their own or their parents' country of origin. Previous research shows that immigrants and their descendants in the host society exhibit distinct fertility levels depending on their or their parents' migrant origin.

Sobotka (2008) analyses the fertility rates of different immigrant groups in several European countries and finds that immigrants from specific countries – Bangladesh,

Pakistan, Morocco, and some sub-Saharan African countries – often exhibit higher total fertility rates than native populations in Europe. Nevertheless, this discrepancy typically decreases over time as the immigrants settle in the host country.

A recent study also suggests that fertility patterns vary across different migrant origins and the regions in which they settle. Kulu et al. (2017) find that women of Turkish descent in France, Belgium, and Sweden show slightly elevated first-birth rates, while their second- and third-birth rates are lower than the first-birth risks but still higher than those of native women. By contrast, North Africans in France have first- and second-birth rates comparable to natives, yet their third-birth rates are significantly higher. Lastly, Europeans and Latin Americans generally align with native fertility patterns, though Southern Europeans tend to have notably lower first- and third-birth rates.

Tønnessen and Mussino (2020) examine the Norway context. For immigrants from low fertility rate countries, total fertility rates tend to become higher in the initial years following migration. This is especially evident among women from Poland and Lithuania, who often migrate to start a family in the host country. In the Italian case, Mussino et al. (2015) show that individuals from Central and Eastern Europe who moved to Italy for work-related reasons display lower fertility rates than other migrant groups. In the United Kingdom, Wilson (2019) demonstrates intergenerational assimilation between the first and second generations by comparing the completed fertility rates of these groups. The study finds that descendants of Irish and Jamaican immigrants exhibit intergenerational assimilation in fertility, whereas those of Pakistani and Bangladeshi immigrants tend to maintain their higher fertility levels.

The differences across generations and migrant groups raise questions: Why are there differences? What factors can explain these differences? Kulu and Hannemann (2016) find that cultural factors, such as the number of siblings and religious beliefs, have a significant impact on the childbearing behaviour of certain immigrants and their descendants in the United Kingdom. They do not find compelling evidence that socioeconomic status considerably affects the fertility of these groups. However, in France, Pailhé (2017) finds that higher levels of education do play a crucial role in reducing fertility differences between the descendant groups, and cultural factors have a smaller impact on childbearing patterns than union formation. Similarly, for the German case, Stichnoth and Yeter (2016) find that the childbearing behaviour of first-generation women with low education is more significantly shaped by the fertility norms of their country of origin, whereas this effect weakens or even reverses for the highly educated second generation women.

Wood and Neels (2017) further explore the relationship between education and employment on the one hand and fertility on the other among second generation women in Belgium. They show that women with lower levels of education and descendants of immigrants are more likely to perceive childbearing and workforce participation as

competing priorities. By contrast, for native-born women or those with higher educational attainment, employment is more often associated with an increased likelihood of having children.

2.3 The UK case study

The United Kingdom is home to one of the most ethnically diverse populations in Europe, with migrants from a wide range of backgrounds, a phenomenon often referred to as "super-diversity" (Vertovec 2007). As of 2021, 14.5% of the population of England and Wales was born outside the United Kingdom, and nearly 30% of all babies born in these countries had immigrant mothers (Office for National Statistics 2021). This diversity reflects the United Kingdom's long history of migration, shaped by the legacy of the British Empire, post-World War II labour demands, and evolving modern migration policies. These historical dynamics have contributed to the emergence of multiple generations of immigrants, highlighting the importance of studying demographic behaviours across generations from both scientific and societal perspectives.

Examining the fertility rates of the 1.5G and 2.5G in the United Kingdom is especially crucial, for several reasons. The demographic presence of the 1.5G has been steadily increasing. Between 2001 and 2011, the number of children under 16 in England and Wales who were born abroad grew by nearly 60%. By 2011, 5.6% of all children under the age of 16 in England and Wales had been born outside the United Kingdom (Markaki 2015), and by 2019 this figure had risen to 6% across the United Kingdom (Fernández-Reino 2022). This upward trend highlights the growing significance of the 1.5G in the United Kingdom's population.

Some studies have explored the family trajectories of the 1.5G in the United Kingdom (Mikolai and Kulu 2022; Kulu et al. 2024). For instance, Mikolai and Kulu (2022) find that the partnership and fertility trajectories of the 1.5G closely resemble those of immigrants who moved to the United Kingdom as adults (1G). However, existing research does not systematically compare the 1.5G to both the 2G and 2.5G, leaving a critical gap in understanding generational differences in fertility behaviour.

The study of the 2.5G is also important for two key reasons. First, the increasing prevalence of intermarriage in the United Kingdom (Hannemann et al. 2018) has contributed to a growing population of 2.5G individuals. As of 2019, 8% of all children under 18 in the United Kingdom belong to this group (Fernández-Reino 2022). Second, despite their demographic significance, the broader sociocultural characteristics and fertility patterns of the 2.5G in the United Kingdom remain largely unexamined.

To fully understand fertility trends among immigrants and their descendants, it is essential to move beyond broad categorisations and adopt a more nuanced approach. This

includes subdividing generational groups such as the 1.5G and 2.5G, and examining how sociocultural factors shape their fertility behaviours. By addressing these gaps, this study contributes to a more comprehensive understanding of how migration and integration processes influence childbearing trends in the United Kingdom.

3. Data and methods

3.1 Sample and covariates

This research uses twelve waves (2009–2021) of individual-level data from the UK Household Longitudinal Study (UKHLS), which covers more than 40,000 individuals in the United Kingdom, including a large number of people from various ethnic and migrant groups. The UKHLS incorporates two booster samples, specifically oversampling ethnic minorities and immigrants. In the first wave a booster sample focusing on ethnic minorities collected data for over 4,000 households. This was to secure a sufficient number of interviews for each of the five primary ethnic groups: Indian, Pakistani, Bangladeshi, Caribbean, and African. In the sixth wave an additional booster sample encompassing 2,900 households from immigrant and ethnic minority backgrounds was added. These two booster samples, combined with ethnic minorities and immigrants in the main sample, enable a comprehensive analysis of immigrants and their descendants in the United Kingdom.

This study includes five migrant groups from different origin backgrounds: (1) European and Western Countries (hereafter Western), (2) India, (3) Pakistan and Bangladesh (hereafter PAK/BGD), (4) the Caribbean, and (5) Africa. The selected data includes 24,228 women who were born between 1940 and 2006 and participated in the UKHLS anytime between 2009 and 2021. The categorisation of the migrant group is based on either the country of origin of the woman or that of her parents. British natives are those who were born in the United Kingdom to two UK-born parents.[4] The 1.5G group encompasses people who were born outside the United Kingdom and moved to the United Kingdom before reaching the age of 16. The 2G and 2.5G groups are those who were born in the United Kingdom to at least one foreign-born parent. If both parents were

[4] This research uses the term 'British natives' to refer to individuals born in the United Kingdom to UK-born parents. The term is employed to compare fertility rates between women with a migrant family background (immigrants and their descendants) and women born in the United Kingdom to UK-born parents. Accordingly, the study also uses the terms 'native population' and 'host society'. "The 'native population' refers to 'British natives', while 'host society' refers to the country to which immigrants (the parents of the descendants) have migrated. Although descendants of immigrants could also be considered part of the native population and members of the host society, these terms are used here for practical purposes to delineate the focus of our research.

born outside of the United Kingdom they are classified as 2G, and if one of the parents was born in the United Kingdom they are classified as 2.5G. The migrant group of women in the 2G category who have two foreign-born parents, each from a different country, is determined by the mother's place of birth. The number of 2G women with mixed parents can be found in Appendix Table A-7.

Those who moved to the United Kingdom as adults are excluded from the analysis as this group may have already given birth before coming to the United Kingdom and the aim of this study is to examine the childbearing behaviour of migrant groups during their lifetime in the United Kingdom. Those who do not have any information about whether or not they were born in the United Kingdom and those who were born outside of the United Kingdom but do not have information about their age when they moved are categorised as 'missing'. 362 missing individuals have been excluded from the main analysis. All other migrant groups not included in the selected groups for the main analysis are categorised as 'Other'. 'Other' includes women from regions such as East and Southeast Asia (n = 201), Other South Asian countries (n = 61), and Middle Eastern Countries (n = 139).

We investigate the role of both cultural and socioeconomic factors in explaining differences in the childbearing behaviours of the different migrant groups and generations. Cultural factors involve religiosity, number of siblings, and previous child's sex. While religiosity addresses individuals' beliefs and views in general, number of siblings can represent their family backgrounds. Controlling for the previous child's sex is also important since a preference for son exists in some cultures (Guilmoto 2012; Asadullah et al. 2021; Le and Nguyen 2022) and therefore the desire to have a son may drive the decision to have an additional child. Religiosity reflects the importance of religion in individuals' lives and is categorised as follows: religion makes no difference, a little difference, some difference, a great difference. This question was asked in waves 1, 4, 8, and 12. Because only some waves collected this variable and there was little variation in responses between waves, religiosity is considered time-constant by using the average score of the answers. 'Siblings' in this study indicate biological siblings as well as non-biological siblings.

Socioeconomic factors encompass education level and employment status. Education level is categorised as high education, medium education, and low education. High education includes those with a university degree or higher (equivalent to ISCED 5 or higher), medium education is those with A-levels (ISCED 3), and low education those with a GCSE qualification (ISCED 3[5]) or lower, or no educational qualification.

We determine when respondents' educational attainment level changed based on reported age when they left school and completed full-time education. When this

[5] In the United Kingdom, A-levels are higher than GCSEs; however they are both ranked ISCED 3 (OECD 2024).

information is missing we estimate the ages of completion for low, medium, and high education levels as 16, 18, and 21 years old respectively, following the methodology of Kulu and Hannemann (2016) and Mikolai and Kulu (2022).

Employment status is categorised as follows: full-time employed, part-time employed, unemployed, in full-time education, and other. Information on employment status is only available for a sub-sample because retrospective employment histories before 2009 (when the UKHLS survey began) are only available for those who participated in waves 1 or 5. As a result, 67% of sample members have retrospective employment histories. Additional details regarding the employment interaction and sample can be found in Appendix Table A-8 and Figure A-6. The variables childbirth, employment status, and education level have retrospective histories and therefore are treated as time varying variables. Other covariates are considered time-constant. The distribution of time-constant variables can be found in the Appendix (Figures A-2, A-3, A-4, and A-5).

Table 1 below shows the composition of the unweighted sample by migrant group and generation. The British Native group constitutes the majority, comprising 75.6% of the sample.

Table 1: Distribution of the sample by migrant group and generation

Migrant Generation	Number of Women	%
British Native	18,037	75.6%
Western 1.5G	412	1.7%
Western 2G	201	0.8%
Western 2.5G	796	3.3%
African 1.5G	324	1.4%
African 2G	293	1.2%
African 2.5G	141	0.6%
Caribbean 1.5G	174	0.7%
Caribbean 2G	400	1.7%
Caribbean 2.5G	216	0.9%
Indian 1.5G	131	0.5%
Indian 2G	395	1.7%
Indian 2.5G	148	0.6%
PAK/BGD 1.5G	352	1.5%
PAK/BGD 2G	847	3.5%
PAK/BGD 2.5G	183	0.8%
Other 1.5G	352	1.5%
Other 2G	205	0.9%
Other 2.5G	259	1.1%
Missing	362	1.5%
Total	24,228	100

Source: Author's own calculations based on Understanding Society data (2022).

3.2 Methodology

The analysis uses Event History Analysis (EHA), by means of piecewise constant exponential models. EHA is often used in the field of demography to explain the timing and determinants of events such as births. Piecewise constant exponential models divide time into intervals with constant rates, capturing shifts in fertility rates over time (Blossfeld, Rohwer, and Schneider 2019). This methodology reveals the determinants influencing fertility by examining event rates – in this research, birth rates – in relation to potential factors such as cultural and socioeconomic influences within fixed time intervals. The formula for the models is:

$$\ln \mu_i (t) = \ln \mu_0 (t) + \sum_k \alpha_l x_{ik} (t) + \sum_l \beta_l w_{il} \quad (1)$$

where $\mu_i(t)$ denotes the hazard of the first, second, or third birth for individual *i*, and $\ln \mu_0 (t)$ represents the baseline log-hazard or the birth rate according to woman's age (for the first birth) or time since the previous birth (for the second and third births). The baseline time intervals used are as follows: 5-year intervals for the first birth, and 0–1 year, 1–3 years, 3–5 years, 5–10 years, and 10+ years for the second and third births.[6] The individual-level time-varying variable x_{ik}, such as education level or employment status, and the time-constant variable w_{il}, such as age at first birth,[7] cohort group, generation, migrant group, number of siblings, religiosity, and previous child's sex, are also included. Information on retrospective histories, including education level and employment status, enables this research to conduct event history analysis that spans events preceding entry into the survey.

The risk time for the first birth starts at age 15, and the risk time for the second and third births starts at the time of the previous birth. These risk times continue until conception or when the individual is censored. Censoring applies to individuals who reach 50 years of age, those who stop participating in the interview, and those who give birth to twins. In the case of twin births, the duplicated birth time is considered a non-birth. Table 2 below shows the person-months and number of events by migrant generation group. Person-months and number of events for other covariates can be found in the Appendix (Table A-2).

[6] Information on the interactions between the baseline category and migrant group, as well as between the baseline and generation, is presented in Appendix Figure A-1.

[7] Information on the comparison with and without controlling for age at first birth can be found in Appendix Table A-6.

Table 2: Person-months and number of events by migrant generation

First Births					
	Person-months	%	Events	%	Rate per year
British Native	2,491,651	75.9%	12,689	80.0%	6.11
Western 1.5G	50,574	1.5%	198	1.2%	4.70
Western 2G	34,698	1.1%	130	0.8%	4.50
Western 2.5G	121,806	3.7%	545	3.4%	5.37
African 1.5G	40,537	1.2%	164	1.0%	4.85
African 2G	38,423	1.2%	115	0.7%	3.59
African 2.5G	18,729	0.6%	56	0.4%	3.59
Caribbean 1.5G	22,885	0.7%	134	0.8%	7.03
Caribbean 2G	63,362	1.9%	279	1.8%	5.28
Caribbean 2.5G	24,436	0.7%	130	0.8%	6.38
Indian 1.5G	17,074	0.5%	85	0.5%	5.97
Indian 2G	52,676	1.6%	222	1.4%	5.06
Indian 2.5G	19,096	0.6%	67	0.4%	4.21
PAK/BGD 1.5G	37,223	1.1%	262	1.7%	8.45
PAK/BGD 2G	89,613	2.7%	325	2.0%	4.35
PAK/BGD 2.5G	14,151	0.4%	41	0.3%	3.48
Other 1.5G	45,569	1.4%	151	1.0%	3.98
Other 2G	27,336	0.8%	77	0.5%	3.38
Other 2.5G	34,059	1.0%	128	0.8%	4.51
Missing	36,849	1.1%	73	0.5%	2.38
Total	3,280,748		15,871		5.81
Second Births					
	Person-months	%	Events	%	Rate
British Native	765,259	80.0%	9,970	80.4%	15.6
Western 1.5G	10,958	1.1%	152	1.2%	16.8
Western 2G	8,762	0.9%	102	0.8%	14.4
Western 2.5G	37,636	3.9%	403	3.2%	13.2
African 1.5G	10,241	1.1%	117	0.9%	13.2
African 2G	6,342	0.7%	78	0.6%	14.4
African 2.5G	3,248	0.3%	43	0.3%	15.6
Caribbean 1.5G	9,841	1.0%	106	0.9%	13.2
Caribbean 2G	27,903	2.9%	192	1.5%	8.4
Caribbean 2.5G	11,276	1.2%	88	0.7%	9.6
Indian 1.5G	4,516	0.5%	69	0.6%	18
Indian 2G	10,817	1.1%	183	1.5%	20.4
Indian 2.5G	4,054	0.4%	51	0.4%	15.6
PAK/BGD 1.5G	9,614	1.0%	233	1.9%	28.8
PAK/BGD 2G	10,862	1.1%	271	2.2%	30
PAK/BGD 2.5G	1,455	0.2%	34	0.3%	27.6
Other 1.5G	7,379	0.8%	115	0.9%	19.2
Other 2G	4,281	0.4%	61	0.5%	16.8
Other 2.5G	7,740	0.8%	94	0.8%	14.4
Missing	4,678	0.5%	45	0.4%	12
Total	956,861		12,407		15.6

Table 3: (Continued)

Third Births					
	Person-months	%	Events	%	Rate
British Native	1,380,867	84.4%	3,914	76.9%	3.4
Western 1.5G	19,125	1.2%	51	1.0%	3.6
Western 2G	14,167	0.9%	41	0.8%	3.6
Western 2.5G	49,855	3.0%	188	3.7%	4.8
African 1.5G	12,206	0.7%	53	1.0%	4.8
African 2G	7,249	0.4%	32	0.6%	4.8
African 2.5G	4,520	0.3%	17	0.3%	4.8
Caribbean 1.5G	15,601	1.0%	41	0.8%	3.6
Caribbean 2G	21,600	1.3%	86	1.7%	4.8
Caribbean 2.5G	9,385	0.6%	39	0.8%	4.8
Indian 1.5G	8,538	0.5%	35	0.7%	4.8
Indian 2G	19,262	1.2%	91	1.8%	6
Indian 2.5G	6,044	0.4%	20	0.4%	3.6
PAK/BGD 1.5G	15,220	0.9%	166	3.3%	13.2
PAK/BGD 2G	15,769	1.0%	169	3.3%	13.2
PAK/BGD 2.5G	1,889	0.1%	19	0.4%	12
Other 1.5G	13,765	0.8%	49	1.0%	4.8
Other 2G	7,336	0.4%	22	0.4%	3.6
Other 2.5G	10,763	0.7%	40	0.8%	4.8
Missing	3,306	0.2%	18	0.4%	6
Total	1,636,465		5,091		3.6

Source: Author's own calculations based on Understanding Society data (2022).

The analytical strategy consists of three main steps, using the British native population as the reference group. First, the study examines the relative risks of first, second, and third births across different generational groups without distinguishing by migrant origin. This step provides a broad understanding of fertility differences across generations and is presented in Models 1a and 1b in Figure 1. Since this step does not reveal differences among women of different migrant-origin backgrounds, the analysis next explores fertility rates by birth order across different migrant generations, categorised by origin background and generation. This stage incorporates only demographic variables to establish a baseline comparison of fertility patterns and is shown in Model 2 in Figures 2, 3, and 4. Finally, the study assesses the impact of cultural and socioeconomic factors on fertility differences. This is presented in Models 3a and 3b in Figures 2, 3, and 4. Model 3a introduces additional controls for cultural factors, while Model 3b additionally accounts for socioeconomic influences. To provide further insight, all models estimating the effects of cultural and socioeconomic factors are available in the Appendix (A-3, A-4, and A-5). These models address the research questions as follows:

Research question	Model addressing the research question
How do fertility rates differ across 1.5G, 2G, and 2.5G women?	Model 1 (1a and 1b)
How do fertility rates differ across 1.5G, 2G, and 2.5G women from different migrant origin backgrounds?	Model 2
To what extent are these differences explained by the cultural and socioeconomic factors of different generations and migrant groups?	Model 3 (3a and 3b)

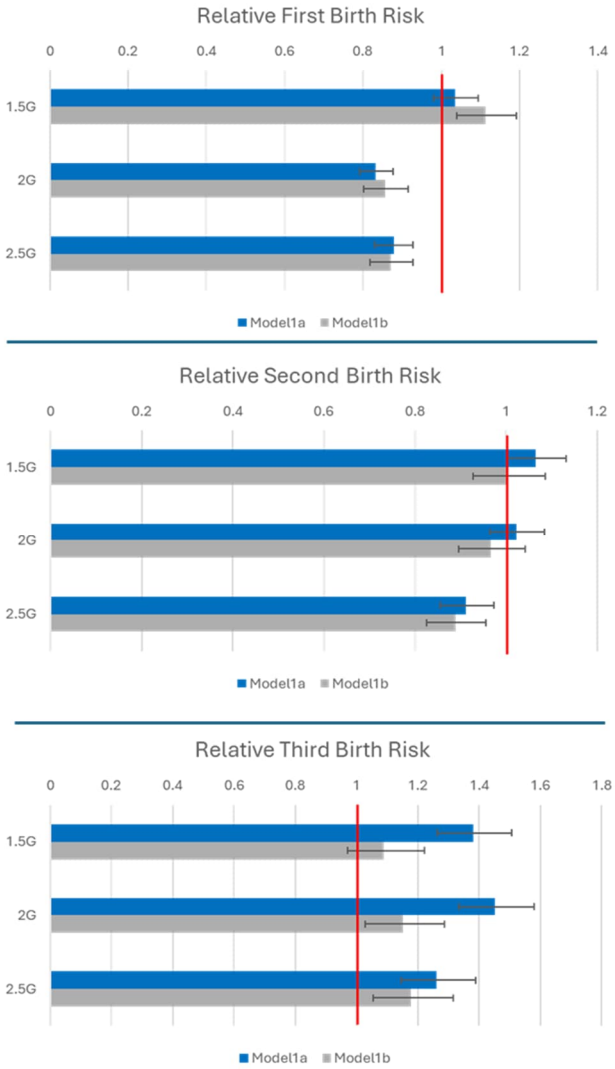
4. Results

Figure 1 shows the relative risks of first, second, and third births by generation, with British natives serving as the reference line. The 1.5G, 2G, and 2.5G groups in this figure encompass all migrant groups selected for the analysis, consisting of women with Western, Indian, Pakistani/Bangladeshi, Caribbean, and African backgrounds. This analysis includes two sub-models. Model 1a for all births is adjusted for basic demographic variables, and Model 1b for all births additionally controls for cultural and socioeconomic variables.

Model 1a indicates that 1.5G has a similar first-birth risk as British natives, while 2G and 2.5G have a lower first-birth risk than British natives. Additionally, the first-birth risk of the 1.5G group is markedly higher than that of the descendants. The relative second-birth risk of 1.5G is slightly higher than that of British natives. That of 2G becomes closer to British natives, while that of 2.5G remains lower than that of British natives. The third-birth risks of all generations demonstrate higher birth rates than those of British natives. Overall, the 1.5G group shows relatively higher risks for the second and third births compared to British natives, while the 2.5G group demonstrates lower rates for first and second births.

For first and second births, we find no significant differences between Model 1a and Model 1b. However, for third births we observe a considerably lower risk of a birth in Model 1b compared to Model 1a among the 1.5G and 2G groups after controlling for sociocultural characteristics. Although the third-birth risk of the 2.5G cohort was the lowest among all generations in Model 1a, it becomes similar to those of 1.5G and 2G in Model 1b. This may suggest that sociocultural characteristics partly explain the higher third-birth rates of the 1.5G and 2G groups, while they do not for the 2.5G group.

Figure 1: Relative first-, second-, and third-birth risk by generation

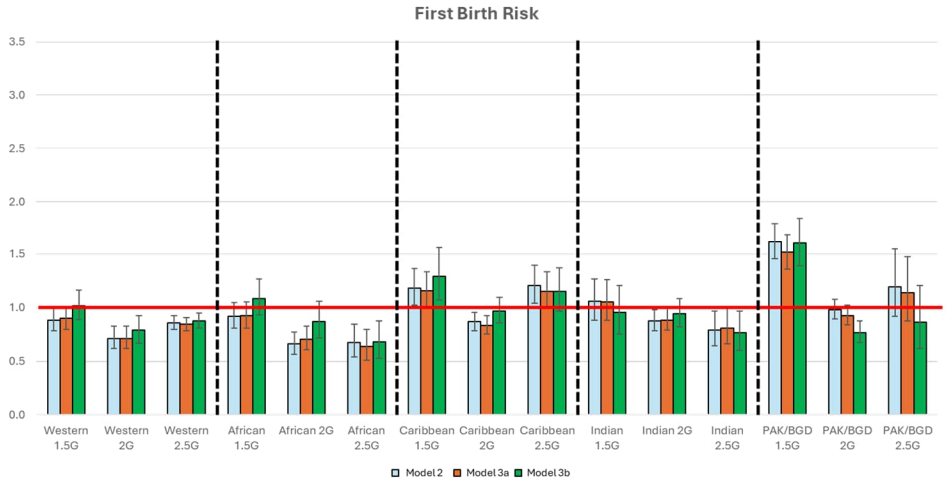


Note: All the results above and below utilise the 90% confidence interval. Model 1a controls for birth cohort, generation group, and woman's age (for the first birth)/time since previous birth & age at first birth (for the second and third births). Model 1b additionally controls for education level, employment status, religiosity, number of siblings, and previous child's sex (for the second and third births).
Source: Author's own calculations based on Understanding Society data (2022).

Figure 2 shows the relative first-birth risk of different migrant and generation groups across the models. The reference line indicates the first-birth risk of British natives. Model 2 measures the relative first-birth risk controlled for woman's age, birth cohort, and migrant generation group. Model 2 provides further insight into the generational differences observed in Model 1, as it also accounts for migrant group categories. The higher first-birth risks for 1.5G women seen in Model 1 are largely driven by elevated risks among the 1.5G PAK/BGD and Caribbean women in Model 2. By contrast, the lower first-birth risks for 2G and 2.5G women are primarily influenced by Western and African women.

Generational differences are observed between some 1.5G women and their descendants (2G and 2.5G). The 1.5G African and PAK/BGD groups exhibit higher first-birth risks than their descendant groups. In particular, the higher first-birth rate among 1.5G PAK/BGD supports the socialization theory and the assumption that the 1.5G will display distinct fertility rates to British natives compared to their 2G and 2.5G counterparts. However, this pattern is not consistent across other migrant groups: the Western and Indian groups do not show significant generational differences. Another notable finding is that although the 1.5G Caribbean group shows a higher first-birth risk than its 2G counterparts, its first-birth risk is similar to that of its 2.5G counterparts.

Figure 2: Relative first-birth risk by migrant generation group



Note: Model 2 controls for age, birth cohort, and migrant generation group. Model 3a additionally controls for religiosity and number of siblings. Model 3b additionally controls for education level and employment status.
Source: Author's own calculations based on Understanding Society data (2022).

There is a significant difference between the first-birth risks of the Caribbean 2G and 2.5G women. 2G Caribbean women display a lower first-birth risk than British natives, while the 2.5G Caribbeans exhibit a higher relative first-birth risk. A similar pattern can be observed among the PAK/BGD descendants, where the 2.5G PAK/BGD show a trend of having a higher first-birth risk than their 2G counterparts. This contradicts one of our expectations: that the convergence of 2.5G fertility behaviour with that of natives would be greater than that of their 2G counterparts.

Model 3a controls for cultural factors, including religiosity and number of siblings. These controls do not significantly affect the first-birth risk in most migrant generations.

Model 3b adds controls for educational level and employment status. The first-birth risk of the 2G PAK/BGD group decreases in Model 3b, resulting in a lower first-birth risk than for British natives. A similar pattern is observed for the 2.5G PAK/BGD group, though it is less pronounced. Contrasting results are found among various migrant generations: the 1.5G Western and African groups and the 2G Western, African, Caribbean, and Indian groups. For these groups the first-birth risks in Model 3a are all significantly lower than or similar to those of British natives, but increase after controlling for socioeconomic background. This trend is not observed among the 2.5G groups.

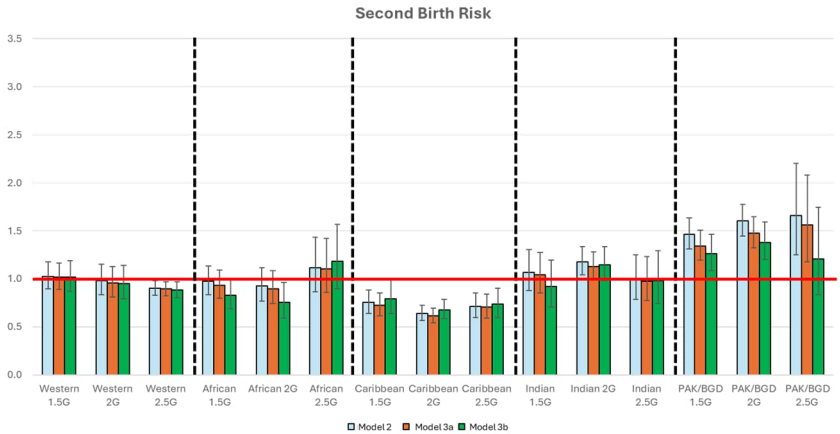
Figure 3 presents relative second-birth risks. Model 2 controls for time since previous birth, women's age at first birth, birth cohort, and migrant generation group. There does not appear to be any significant difference in the second-birth rates between generations within all migrant groups or between many migrant generations and British natives. A similar finding was also observed in Model 1, where migrant category was not considered. This finding partially supports adaptation theory. However, there are some groups which exhibit distinct fertility rates. The 1.5G Caribbean group has a remarkably lower second-birth risk than British natives, whereas the 1.5G PAK/BGD group is the only group that exhibits a considerably higher second-birth risk out of all the 1.5G groups.

Similarly, most descendant groups (2G and 2.5G) exhibit second-birth risks which closely resemble those of British natives, except for the second-birth risks of Caribbean and PAK/BGD. 2G and 2.5G Caribbean appear to have lower second-birth risks than British natives. Notably, the generational gap in second-birth risks between 2G and 2.5G Caribbean women nearly disappears, unlike the observed gap in first-birth risks. On the other hand, the 2G and 2.5G PAK/BGD women display higher second-birth rates than British natives.

Model 3a incorporates additional controls for religiosity, number of siblings, and sex of the previous child but shows no significant changes from the findings in Model 2. Similarly, Model 3b, which includes controls for socioeconomic background, follows a comparable pattern to Model 3a, with a few exceptions. The second-birth rates among all Western, Caribbean, and Indian generational groups remain largely unaffected by

socioeconomic status. However, the second-birth risk for the 2G African group decreases, while the risk for the 2.5G African group remains unchanged. Notably, although insignificant, all PAK/BGD groups exhibit a pattern of declining second-birth risks across all three models.

Figure 3: Relative second-birth risk by migrant generation group

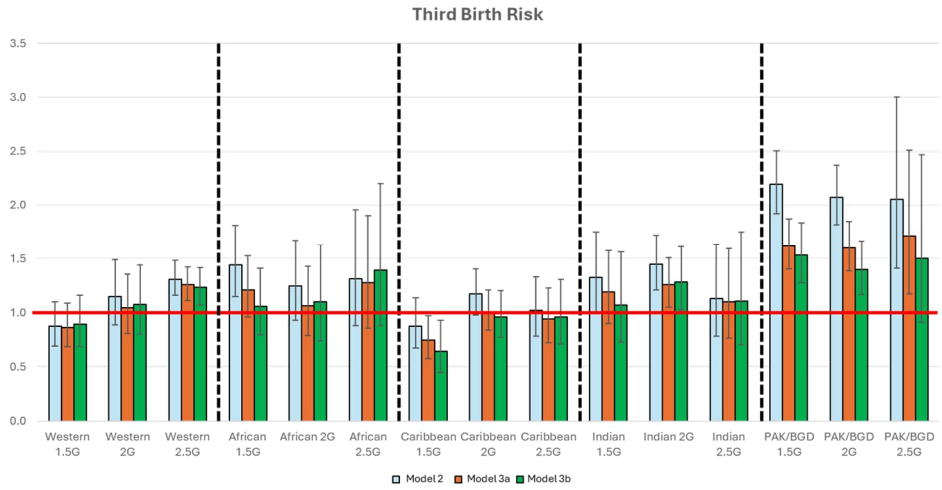


Note: Model 2 controls for time since previous birth, age at first birth, birth cohort, and migrant generation group. Model 3a additionally controls for religiosity, number of siblings, and previous child's sex. Model 3b additionally controls for education level and employment status.
Source: Author's own calculations based on Understanding Society data (2022).

Figure 4 presents third-birth risks. The variables included in the models align with those in the second-birth models. Model 1, where migrant category was not considered, shows that all generations exhibit distinctively higher third-birth rates than British natives. However, Model 2 in Figure 4 reveals some differences across women from different migrant backgrounds. The 1.5G African, Indian, and PAK/BGD have higher third-birth rates than British natives. The 1.5G PAK/BGD group shows more than double the likelihood of having a third child compared to British natives, with rates distinctively higher than any other group. Meanwhile, the 1.5G Western and Caribbean groups do not show higher third-birth rates than British natives.

Among the 2G groups, the Indian and PAK/BGD exhibit considerably higher third-birth risks than British natives. In the 2.5G cohort the Western and PAK/BGD groups show substantially higher third-birth rates than British natives.

Figure 4: Relative third-birth risk by migrant generation group



Note: Model 2 controls for time since previous birth, age at first birth, birth cohort, and migrant generation group. Model 3a additionally controls for religiosity, number of siblings, and previous child's sex. Model 3b:additionally controls for education level and employment status.
Source: Author's own calculations based on Understanding Society data (2022).

Overall, the third-birth risks do not demonstrate adaptation of fertility rates among the 1.5G, 2G, and 2.5G. They also do not indicate distinct fertility rates for the 1.5G compared to their descendants, nor do they show evidence of converging fertility rates over generations.

Models 3a and 3b provide insights into the influence of cultural and socioeconomic factors on third-birth risk. For some migrant generational groups, third-birth risks decrease considerably in Model 3a but remain stable or decline only slightly in Model 3b. These groups include the 1.5G African, Indian, and PAK/BGD cohorts, as well as the 2G Caribbean and PAK/BGD and 2.5G PAK/BGD groups. This pattern suggests that cultural factors, rather than socioeconomic influences, play a key role in shaping third-birth risks for these groups.

5. Conclusion

There remains a significant gap in our understanding of childbearing behaviour across diverse migrant generations. This paper provides novel insights into the fertility patterns of 1.5G, 2G, and 2.5G women in the United Kingdom, using event history analysis with

data from the UKHLS (2009–2021). We examine first-, second-, and third-birth rates using three models. The first model focuses on fertility differences across generations without considering migrant origin. The second model incorporates demographic variables, including generational and migrant group distinctions, providing a baseline for fertility differences. Finally, the third model introduces cultural and socioeconomic factors in order to explain the observed variations in fertility across various migrant groups and generations.

When investigating fertility levels across generations without considering migrants' countries of origin, notable differences emerge. For example, the 1.5G exhibit higher relative second- and third-birth rates compared to both British natives and the 2G and 2.5G, while the 2.5G show lower first- and second-birth risks compared to British natives. Furthermore, the impact of individual characteristics on third births varies among different generations. Sociocultural factors do not significantly affect the third-birth rates of the 2.5G, whereas they do for the 1.5G and 2G. Building on these findings, this paper sought to determine whether fertility levels and generational variations are distinct across different migrant groups.

The finding that the 1.5G first-birth rates are notably distinct from those of the 2G and 2.5G in certain migrant groups offers partial support for the socialization theory, in which migrants who arrive as children (1.5G) more strongly retain aspects of their origin-country fertility norms than those born in the host country (2G and 2.5G). This pattern appears most pronounced for Pakistani and Bangladeshi women, suggesting that their early formative years – spent partly in the origin context – may leave a stronger influence of cultural expectations regarding family formation.

However, the absence of similar distinctions for other migrant groups indicates that cultural socialization is neither uniform nor universal. Some groups may integrate more rapidly, or align their fertility patterns with host-country norms due to differing degrees of socioeconomic integration, exposure to mainstream values, or existing support networks.

Some differences in first-birth rates between the 2G and 2.5G are observed. The 2.5G Caribbean women have a higher propensity to enter motherhood than their 2G counterparts and British natives. This distinction was not apparent in prior research (Kulu and Hannemann 2016), which suggested that Caribbean descendants (combining the 2G and 2.5G) shared a similar risk of first childbirth as British natives. This finding therefore challenges the tendency to generalise 'descendants' by grouping both 2G and 2.5G together, particularly among those of Caribbean descent. Furthermore, the higher relative first-birth risk of 2.5G Caribbean women compared to their 2G counterparts does not support the expectation of fertility levels of the 2.5G women converging toward British natives compared to their 2G counterparts.

For second births, the general pattern of adaptation is more evident. Although the second-birth rates of Caribbean generations are consistently lower than those of British natives and the second-birth rates of Pakistani and Bangladeshi generations are consistently higher, disparities between most migrant groups and within each migrant group across generations are limited. This tendency supports the idea of childbearing behaviour adaptation across generations. This finding also points to a commonly shared idea – often known as the 'two-child norm' – that goes beyond differences between generations. In other words, while first births may be more influenced by cultural traditions or economic challenges, second births seem to follow a more widely adopted pattern of family size.

By contrast, findings from the third-birth models do not support most theories of fertility behaviour among migrant generations: no adaptation pattern emerges, no distinct generational differences are evident, and there is no convergence toward the fertility levels of British natives among 2.5G women. The consistently higher third-birth rates among all generations of the African, Indian, and Pakistani and Bangladeshi groups suggest that certain cultural or family-size ideals remain deeply rooted. These groups may uphold a tradition of larger families which is less influenced by the mainstream culture in the United Kingdom.

Some 2.5G subgroups – such as 2.5G Western women – show unique third-birth rates that differ from both the 1.5G and 2G in their group. This underscores the complexity of intergenerational shifts, suggesting that focusing solely on conventional distinctions of immigrants vs. their descendants may obscure important variations among the generational subgroups. It also implies the existence of a unique minority culture within the 2.5G population.

The interplay between cultural and socioeconomic factors becomes more evident when examining how these characteristics shape fertility decisions across migrant generations and birth orders. Socioeconomic status emerges as a key explanatory factor for first births among 2G and 2.5G Pakistani and Bangladeshi women. When these women achieve a similar socioeconomic standing to British natives, their fertility rates decrease. Conversely, some 1.5G and 2G groups – including Western, Caribbean, and African origins – display higher first-birth rates once their socioeconomic characteristics are accounted for. This implies that certain aspects of socioeconomic status – such as being unemployed or having a lower level of education – may initially deter these women from having a first child. However, once they achieve similar socioeconomic conditions as British natives, they are more likely to follow through with their plans to have children. This pattern hints at a complex decision-making process: socioeconomic constraints may delay family formation, but once overcome, these groups may 'catch up', underscoring the importance of structural factors in shaping fertility timing and levels. This finding

supports previous literature (e.g., Andersson, Persson, and Obucina, 2017) that highlights strategic fertility postponement until socioeconomic security is attained.

Cultural factors play a more pronounced role in third births among certain groups. The persistently higher third-birth rates among Pakistani and Bangladeshi women reduce substantially when cultural factors are accounted for, and remain stable after socioeconomic controls are introduced. This suggests that while structural factors influence the earlier stages of family formation, deeply embedded cultural preferences – such as norms around family size – continue to exert a strong influence on higher-order births for some migrant groups.

The determinants of fertility among immigrants and their descendants extend beyond cultural and socioeconomic factors, which this study could not explore in depth. For instance, the parental composition of descendants are critical influences that warrant further investigation. Kalmijn (2015) and Höhn et al. (2024) highlight the nuanced impact of parental composition in the 2.5G group. Kalmijn's (2015) findings suggest that having an immigrant mother fosters greater social integration, potentially aligning childbearing behaviours more closely with the host population. By contrast, Höhn et al. (2024) suggest that a native-born mother may also encourage similar fertility convergence, emphasising the complexity of fertility expectations for 2.5G individuals. These studies reveal the intricate relationship between parental composition and childbearing behaviours in 2.5G women. They also emphasise not only the variation among 2G and 2.5G groups but also the differences within the 2.5G cohort itself, where individuals with native-born mothers and those with native-born fathers may display distinctive childbearing behaviours.

Due to the small sample size for 2.5G women, we could not distinguish between those with British mothers and those with British fathers. For example, 90% of 2.5G Caribbean women in this sample have Caribbean fathers (see Appendix Tables A-1 and A-9). This limitation suggests a direction for future research: to explore UK-specific differences between 2.5G individuals with native mothers versus fathers. The small sample size for 2.5G women also presents other limitations: the relative risks of first, second, and third births for many 2.5G groups are associated with wide confidence intervals. This shortcoming highlights the need for larger datasets that allow for more precise analysis of 2.5G women. Another limitation is the potential confusion caused by some of the terminology. For analytical clarity, this study uses the term 'migrant generation' to refer to 2G and 2.5G women; however, they did not migrate to the United Kingdom themselves but were born and raised in the country. This terminology, while analytically useful, may not fully represent the descendants of immigrants.

Beyond the factors addressed in this analysis, other determinants including partner's sociocultural background (Van Landschoot, De Valk, and Van Bavel 2017; Gawron and Milewski 2024) also influence the fertility behaviour of immigrants and their descendants. These findings point to the need for future research to incorporate these

nuanced variables to achieve a more comprehensive understanding of fertility among the 1.5G, 2G, and 2.5G groups.

In conclusion, the elevated fertility levels observed among 1.5G Pakistani and Bangladeshi women across their first, second, and third births align partially with the expectations of socialization theory, which posits the influence of origin-country norms. However, no evidence of fertility convergence among 2.5G women is found across any migrant group or birth order. Instead, this research reveals the unique fertility behaviours of certain 2.5G groups – the Caribbean for their distinctly higher first-birth rate and the Western for their distinctly higher third-birth rate. Regarding the impact of cultural and socioeconomic background on the fertility of immigrants and their descendants, we find that their influence on childbearing behaviour varies across different birth orders and migrant backgrounds. These findings emphasise the importance of considering both cultural and socioeconomic factors in understanding the fertility behaviour of immigrants and their descendants. They also highlight the need for a nuanced approach that accounts for group-specific contexts and the possibility that different factors may be more or less influential depending on the migrant background and generational status of the individuals involved.

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Appendix

Table A-1: Number of 2.5G from 'Immigrant mum–native dad' parents

Migrant group	Number of 2.5G Women	Number of 2.5G from 'immigrant mum-native dad' parents	Proportion
Western 2.5G	796	394	49%
African 2.5G	141	52	37%
Caribbean 2.5G	216	26	12%
Indian 2.5G	148	46	31%
PAK/BGD 2.5G	183	52	28%
Total	**1,484**	**570**	**38%**

Source: Author's own calculations based on Understanding Society data (2022).

Table A-2: Person-months and number of events by covariate

			First birth		
	Person-months	%	Events	%	Rate per year
Woman's age					
15–19	1,325,688	40.4%	3,686	23.2%	3.6
20–24	872,151	26.6%	5,384	33.9%	7.2
25–29	480,270	14.6%	4,103	25.9%	10.8
30–34	246,266	7.5%	2,032	12.8%	9.6
35–39	149,112	4.5%	580	3.7%	4.8
40–44	207,261	6.3%	86	0.5%	0
Total	3,280,748		15,871		6
Cohort group					
1990s or younger	359,209	10.9%	466	2.9%	1.2
1980s	472,155	14.4%	2,255	14.2%	6
1970s	641,037	19.5%	3,405	21.5%	6
1960s	776,967	23.7%	3,910	24.6%	6
1950s	589,942	18.0%	3,071	19.3%	6
1940s	441,439	13.5%	2,764	17.4%	7.2
Total	3,280,748		15,871		6
Education level					
Low	1,724,231	52.6%	8,541	53.8%	6
Medium	852,684	26.0%	3,705	23.3%	4.8
High	703,833	21.5%	3,625	22.8%	6
Total	3,280,748		15,871		6
Employment status					
Full-time employed	1,335,369	48.6%	7,871	65.0%	7.2
Part-time employed	130,578	4.7%	894	7.4%	7.2
In full-time education	1,062,457	38.6%	1,358	11.2%	1.2
Unemployed	54,533	2.0%	294	2.4%	6
Other	166,928	6.1%	1,697	14.0%	12
Total	2,749,865		12,114		4.8
Number of siblings					
Only child	435,190	13.3%	1,986	12.5%	4.8
1 sibling	1,022,432	31.2%	4,401	27.7%	4.8
2–3 siblings	1,232,586	37.6%	5,946	37.5%	6
4+ siblings	590,540	18.0%	3,538	22.3%	7.2
Total	3,280,748		15,871		6
Religion makes a difference in life					
A great difference	577,277	17.6%	2,718	17.1%	6
Some difference	641,101	19.5%	3,110	19.6%	6
A little difference	804,649	24.5%	3,899	24.6%	6
No difference	1,145,446	34.9%	5,869	37.0%	6
Missing	112,275	3.4%	275	1.7%	2.4
Total	3,280,748		15,871		6

Table A-2: (Continued)

	Second birth				
	Person-months	%	Events	%	Rate per year
Time since first birth					
0–1 year	177,492	18.5%	2,506	20.2%	12
1–3 years	224,506	23.5%	6,312	50.9%	36
3–5 years	121,457	12.7%	2,049	16.5%	24
5–10 years	181,318	18.9%	1,243	10.0%	12
10+ years	252,089	26.3%	297	2.4%	0
Total	956,861		12,407		12
Age at first birth					
15–24	528,534	55.2%	7,623	61.4%	12
25–34	381,801	39.9%	4,536	36.6%	12
35–39	46,526	4.9%	248	2.0%	12
Total	956,861		12,407		12
Cohort group					
1990s or younger	14,684	1.5%	176	1.4%	12
1980s	97,281	10.2%	1,516	12.2%	24
1970s	194,359	20.3%	2,691	21.7%	12
1960s	278,453	29.1%	3,114	25.1%	12
1950s	206,010	21.5%	2,552	20.6%	12
1940s	166,073	17.4%	2,358	19.0%	12
Total	956,861		12,407		12
Education level					
Low	517,923	54.1%	6,650	53.6%	12
Medium	224,657	23.5%	2,818	22.7%	12
High	214,281	22.4%	2,939	23.7%	12
Total	956,861		12,407		12
Employment status					
Full-time employed	279,451	36.4%	2,364	24.5%	12
Part-time employed	159,675	20.8%	1,957	20.3%	12
In full-time education	44,032	5.7%	453	4.7%	12
Unemployed	25,695	3.3%	254	2.6%	12
Other	258,168	33.7%	4,624	47.9%	24
Total	767,020		9,652		12
Number of siblings					
Only child	129,083	13.5%	1,538	12.4%	12
1 sibling	267,360	27.9%	3,409	27.5%	12
2–3 siblings	353,651	37.0%	4,606	37.1%	12
4+ siblings	206,767	21.6%	2,854	23.0%	12
Total	956,861		12,407		12
Religion makes a difference in life					
A great difference	146,456	15.3%	2,264	18.2%	24
Some difference	187,236	19.6%	2,463	19.9%	12
A little difference	243,646	25.5%	3,062	24.7%	12
No difference	362,186	37.9%	4,441	35.8%	12
Missing	17,337	1.8%	177	1.4%	12
Total	956,861		12,407		12
Previous child's sex					
Boy	485,892	51%	6,292	51%	12
Girl	470,603	49%	6,115	49%	12
Missing	367	0%	0	0%	0
Total	956,861		12,407		12

Table A-2: (Continued)

			Third birth		
	Person-months	%	Events	%	Rate per year
Time since second birth					
0–1 year	145,782	8.9%	942	18.5%	7.2
1–3 years	245,531	15.0%	1,975	38.8%	9.6
3–5 years	199,874	12.2%	1,067	21.0%	6
5–10 years	399,067	24.4%	888	17.4%	2.4
10+ years	646,211	39.5%	219	4.3%	0
Total	1,636,465		5,091		3.6
Age at first birth					
15–24	1,002,141	61.2%	3,893	76.5%	4.8
25–34	608,641	37.2%	1,180	23.2%	2.4
35–39	25,683	1.6%	18	0.4%	1.2
Total	1,636,465		5,091		3.6
Cohort group					
1990s or younger	5,217	0.3%	31	0.6%	7.2
1980s	80,811	4.9%	564	11.1%	8.4
1970s	270,552	16.5%	1,094	21.5%	4.8
1960s	455,789	27.9%	1,298	25.5%	3.6
1950s	431,397	26.4%	1,066	20.9%	2.4
1940s	392,700	24.0%	1,038	20.4%	3.6
Total	1,636,465		5,091		3.6
Education level					
Low	903,425	55.2%	3,048	59.9%	3.6
Medium	353,737	21.6%	1,085	21.3%	3.6
High	379,303	23.2%	958	18.8%	3.6
Total	1,636,465		5,091		3.6
Employment status					
Full-time employed	447,191	32.8%	691	17.7%	2.4
Part-time employed	395,633	29.0%	789	20.2%	2.4
In full-time education	49,867	3.7%	183	4.7%	4.8
Unemployed	27,711	2.0%	128	3.3%	6
Other	444,288	32.6%	2,115	54.1%	6
Total	1,364,689		3,906		3.6
Number of siblings					
Only child	214,517	13.1%	606	11.9%	3.6
1 sibling	478,814	29.3%	1,142	22.4%	2.4
2–3 siblings	613,485	37.5%	1,873	36.8%	3.6
4+ siblings	329,650	20.1%	1,470	28.9%	4.8
Total	1,636,465		5,091		3.6
Religion makes a difference in life					
A great difference	263,085	16.1%	1,136	22.3%	4.8
Some difference	341,340	20.9%	973	19.1%	3.6
A little difference	423,260	25.9%	1,152	22.6%	3.6
No difference	592,593	36.2%	1,759	34.6%	3.6
Missing	16,187	1.0%	71	1.4%	4.8
Total	1,636,465		5,091		3.6
Previous child's sex					
Boy	820,030	50.1%	2,607	51.2%	3.6
Girl	816,435	49.9%	2,484	48.8%	3.6
Total	1,636,465		5,091		3.6

Source: Author's own calculations based on the Understanding Society data (2022).

Table A-3: Relative risk of conception leading to first birth

	Model 2				Model 3a				Model 3b			
	Hazard ratio	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*	
Woman's age												
15–19	0.354	0	0.341	0.368	0.345	0	0.33	0.36	0.486	0	0.46	0.51
20–24	0.750	0	0.725	0.776	0.742	0	0.72	0.77	0.805	0	0.77	0.84
25–29	**1.000**				**1.000**				**1.000**			
30–34	0.932	0.01	0.892	0.975	0.932	0.009	0.89	0.97	0.921	0.006	0.88	0.97
35–39	0.429	0	0.399	0.462	0.429	0	0.40	0.46	0.418	0	0.39	0.45
40–44	0.044	0	0.037	0.053	0.044	0	0.04	0.05	0.040	0	0.03	0.05
Cohort group												
1990s or younger	0.318	0	0.293	0.346	0.313	0	0.29	0.34	0.348	0	0.32	0.38
1980s	0.932	0.01	0.891	0.975	0.915	0.001	0.87	0.96	0.953	0.12	0.90	1.00
1970s	**1.000**				**1.000**				**1.000**			
1960s	1.016	0.496	0.977	1.056	0.995	0.844	0.96	1.03	0.971	0.285	0.93	1.02
1950s	1.091	0.001	1.046	1.137	1.067	0.011	1.02	1.11	1.030	0.318	0.98	1.08
1940s	1.358	0	1.301	1.417	1.384	0	1.32	1.45	1.199	0	1.14	1.26
Migrant generation												
British natives	**1.000**				**1.000**				**1.000**			
Western 1.5G	0.885	0.09	0.787	0.996	0.899	0.137	0.80	1.01	1.017	0.834	0.89	1.16
Western 2G	0.713	0	0.617	0.825	0.714	0	0.62	0.83	0.789	0.016	0.67	0.93
Western 2.5G	0.859	0.001	0.800	0.923	0.845	0	0.79	0.91	0.875	0.006	0.81	0.95
African 1.5G	0.920	0.293	0.809	1.048	0.922	0.308	0.81	1.05	1.087	0.378	0.93	1.27
African 2G	0.663	0	0.568	0.774	0.707	0	0.60	0.83	0.870	0.24	0.72	1.06
African 2.5G	0.677	0.004	0.543	0.844	0.637	0.001	0.51	0.79	0.679	0.012	0.53	0.88
Caribbean 1.5G	1.183	0.054	1.025	1.366	1.155	0.101	1.00	1.34	1.291	0.025	1.07	1.56
Caribbean 2G	0.867	0.02	0.785	0.959	0.836	0.004	0.76	0.93	0.970	0.686	0.86	1.10
Caribbean 2.5G	1.206	0.034	1.043	1.395	1.152	0.111	1.00	1.33	1.151	0.181	0.97	1.37
Indian 1.5G	1.058	0.605	0.884	1.265	1.056	0.616	0.88	1.26	0.956	0.75	0.76	1.21
Indian 2G	0.876	0.051	0.783	0.979	0.884	0.074	0.79	0.99	0.944	0.501	0.82	1.09
Indian 2.5G	0.790	0.054	0.645	0.966	0.810	0.085	0.66	0.99	0.764	0.063	0.60	0.97
PAK/BGD 1.5G	1.615	0	1.457	1.791	1.517	0	1.36	1.69	1.601	0	1.39	1.84
PAK/BGD 2G	0.980	0.73	0.892	1.078	0.925	0.197	0.84	1.02	0.767	0.001	0.67	0.87
PAK/BGD 2.5G	1.193	0.262	0.921	1.546	1.137	0.416	0.88	1.47	0.867	0.479	0.62	1.21
Other 1.5G	0.751	0	0.656	0.860	0.773	0.002	0.68	0.88	0.888	0.221	0.76	1.04
Other 2G	0.633	0	0.524	0.764	0.641	0	0.53	0.77	0.772	0.05	0.62	0.96
Other 2.5G	0.809	0.017	0.699	0.936	0.830	0.037	0.72	0.96	0.831	0.064	0.71	0.98
Missing	0.612	0	0.504	0.743	0.709	0.004	0.58	0.86	0.891	0.44	0.70	1.14
Number of siblings												
Only child					1.095	0.001	1.05	1.15	0.996	0.897	0.94	1.05
1 sibling					**1.000**				**1.000**			
2–3 siblings					1.180	0	1.14	1.22	1.140	0	1.10	1.18
4+ siblings					1.554	0	1.50	1.61	1.416	0	1.36	1.48

Table A-3: (Continued)

	Model 2			Model 3a				Model 3b			
	Hazard ratio	*P>|z|*	*90% conf. interval*	*Hazard ratio*	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*	
Religion makes a difference in life											
A great difference				0.981	0.474	0.94	1.03	1.000	0.988	0.95	1.05
Some difference				**1.000**				**1.000**			
A little difference				1.028	0.257	0.99	1.07	1.015	0.575	0.97	1.06
No difference				1.138	0	1.10	1.18	1.051	0.058	1.01	1.10
Missing				0.730	0	0.66	0.81	0.760	0.019	0.63	0.92
Employment status											
Full-time employed								**1.000**			
Part-time employed								1.449	0	1.37	1.54
In full-time education								0.303	0	0.29	0.32
Unemployed								1.163	0.012	1.05	1.28
Others								1.996	0	1.91	2.09
Education level											
Low								1.197	0	1.15	1.24
Medium								**1.000**			
High								0.915	0.001	0.88	0.96

Note: Model 2 controls for age, birth cohort, and migrant generation group. Model 3a:additionally controls for religiosity and number of siblings. Model 3b additionally controls for education level and employment status.
Source: Author's own calculations based on Understanding Society data (2022).

Table A-4: Relative risk of conception leading to second birth

	Model 2				Model 3a				Model 3b			
	Hazard ratio	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*	
Time since previous birth												
0–1 year	**1.000**				**1.000**				**1.000**			
1–3 years	2.022	0	1.945	2.102	2.025	0	1.948	2.106	2.149	0	2.055	2.248
3–5 years	1.243	0	1.183	1.305	1.247	0	1.187	1.309	1.339	0	1.265	1.418
5–10 years	0.509	0	0.480	0.538	0.511	0	0.482	0.541	0.546	0	0.511	0.584
10+ years	0.080	0	0.072	0.088	0.080	0	0.073	0.089	0.087	0	0.078	0.098
Age at first birth												
15–24	1.207	0	1.169	1.245	1.207	0	1.169	1.246	1.293	0	1.244	1.343
25–34	**1.000**				**1.000**				**1.000**			
35–49	0.406	0	0.364	0.452	0.406	0	0.365	0.452	0.381	0	0.340	0.428
Cohort group												
1990s or younger	0.580	0	0.509	0.660	0.585	0	0.514	0.666	0.557	0	0.485	0.639
1980s	0.881	0	0.835	0.929	0.882	0	0.836	0.930	0.869	0	0.819	0.922
1970s	**1.000**				**1.000**				**1.000**			
1960s	1.046	0.091	1.001	1.093	1.039	0.15	0.995	1.086	1.025	0.408	0.975	1.078
1950s	1.159	0	1.107	1.214	1.142	0	1.089	1.197	1.120	0.001	1.061	1.182
1940s	1.294	0	1.234	1.357	1.273	0	1.213	1.337	1.278	0	1.207	1.353
Migrant generation												
British natives	**1.000**				**1.000**				**1.000**			
Western 1.5G	1.026	0.758	0.896	1.173	1.016	0.849	0.888	1.162	1.017	0.859	0.870	1.188
Western 2G	0.980	0.838	0.832	1.154	0.958	0.669	0.813	1.129	0.951	0.653	0.792	1.142
Western 2.5G	0.901	0.04	0.829	0.980	0.893	0.026	0.821	0.971	0.883	0.03	0.803	0.970
African 1.5G	0.974	0.78	0.836	1.136	0.935	0.474	0.800	1.091	0.831	0.104	0.689	1.002
African 2G	0.925	0.493	0.767	1.115	0.898	0.349	0.743	1.085	0.753	0.055	0.591	0.961
African 2.5G	1.115	0.477	0.867	1.434	1.103	0.521	0.858	1.419	1.184	0.321	0.895	1.565
Caribbean 1.5G	0.753	0.004	0.641	0.885	0.725	0.001	0.616	0.854	0.794	0.084	0.637	0.989
Caribbean 2G	0.641	0	0.568	0.723	0.613	0	0.542	0.693	0.677	0	0.585	0.784
Caribbean 2.5G	0.714	0.002	0.598	0.851	0.705	0.001	0.591	0.842	0.734	0.015	0.597	0.904
Indian 1.5G	1.067	0.591	0.875	1.302	1.044	0.725	0.854	1.275	0.921	0.603	0.709	1.196
Indian 2G	1.179	0.029	1.042	1.334	1.131	0.109	0.997	1.282	1.145	0.148	0.982	1.334
Indian 2.5G	0.990	0.944	0.786	1.247	0.978	0.873	0.776	1.232	0.979	0.9	0.744	1.290
PAK/BGD 1.5G	1.465	0	1.312	1.635	1.341	0	1.194	1.506	1.259	0.012	1.083	1.463
PAK/BGD 2G	1.601	0	1.444	1.775	1.478	0	1.325	1.649	1.380	0	1.199	1.589
PAK/BGD 2.5G	1.661	0.003	1.251	2.205	1.564	0.01	1.177	2.077	1.205	0.406	0.833	1.745
Other 1.5G	1.052	0.589	0.902	1.228	1.032	0.735	0.884	1.206	1.037	0.741	0.866	1.241
Other 2G	1.181	0.195	0.956	1.460	1.157	0.259	0.935	1.430	1.205	0.197	0.950	1.527
Other 2.5G	0.955	0.66	0.805	1.133	0.961	0.7	0.810	1.140	0.928	0.518	0.766	1.123
Missing	0.827	0.206	0.646	1.059	0.832	0.227	0.648	1.068	0.845	0.409	0.604	1.182

Table A-4: (Continued)

	Model 2			Model 3a				Model 3b			
	Hazard ratio	*P>|z|*	*90% conf. interval*	*Hazard ratio*	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*	
Number of siblings											
Only child				0.951	0.116	0.902	1.002	0.936	0.093	0.878	0.999
1 sibling				**1.000**				**1.000**			
2–3 siblings				1.032	0.164	0.994	1.072	1.036	0.158	0.994	1.080
4+ siblings				1.030	0.267	0.986	1.076	1.044	0.155	0.993	1.098
Religion makes a difference in life											
A great difference				1.104	0.001	1.051	1.161	1.131	0	1.068	1.197
Some difference				**1.000**				**1.000**			
A little difference				0.978	0.416	0.935	1.023	0.986	0.649	0.938	1.037
No difference				0.943	0.022	0.904	0.983	0.962	0.192	0.917	1.010
Missing				0.886	0.14	0.775	1.014	0.968	0.84	0.745	1.258
Previous child's sex											
Boy				**1.000**				**1.000**			
Girl				0.994	0.719	0.965	1.023	0.999	0.978	0.966	1.034
Employment status											
Full-time employed								**1.000**			
Part-time employed								1.284	0	1.220	1.351
In full-time education								0.892	0.031	0.817	0.973
Unemployed								1.088	0.211	0.974	1.215
Others								1.453	0	1.391	1.517
Education level											
Low								0.969	0.223	0.928	1.011
Medium								**1.000**			
High								1.294	0	1.230	1.360

Note: Model 2 controls for time since previous birth, age at first birth, birth cohort, and migrant generation group. Model 3a additionally controls for religiosity, number of siblings, and previous child's sex. Model 3b additionally controls for education level and employment status.
Source: Author's own calculations based on Understanding Society data (2022).

Table A-5: Relative risk of conception leading to third birth

	Model 2				Model 3a				Model 3b			
	Hazard ratio	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*	
Time since previous birth												
0–1 year	**1.000**				**1.000**				**1.000**			
1–3 years	1.269	0.000	1.189	1.355	1.275	0	1.194	1.361	1.356	0	1.257	1.463
3–5 years	0.867	0.001	0.805	0.933	0.875	0.003	0.813	0.942	0.955	0.374	0.876	1.040
5–10 years	0.373	0.000	0.345	0.403	0.378	0	0.350	0.408	0.430	0	0.393	0.471
10+ years	0.052	0.000	0.046	0.059	0.053	0	0.047	0.060	0.065	0	0.057	0.075
Age at first birth												
15–24	2.228	0.000	2.108	2.355	2.171	0	2.052	2.296	2.207	0	2.062	2.361
25–34	**1.000**				**1.000**				**1.000**			
35–49	0.263	0.000	0.178	0.389	0.263	0	0.178	0.389	0.238	0	0.153	0.371
Cohort group												
1990s or younger	0.645	0.017	0.476	0.873	0.630	0.012	0.466	0.853	0.643	0.019	0.472	0.876
1980s	1.046	0.391	0.959	1.140	1.031	0.564	0.945	1.124	1.019	0.748	0.926	1.121
1970s	**1.000**				**1.000**				**1.000**			
1960s	0.995	0.897	0.929	1.065	0.973	0.509	0.908	1.042	0.992	0.867	0.917	1.073
1950s	0.934	0.127	0.868	1.005	0.896	0.015	0.832	0.965	0.891	0.025	0.818	0.970
1940s	0.981	0.670	0.911	1.057	0.965	0.444	0.894	1.042	0.906	0.069	0.829	0.991
Migrant generation												
British natives	**1.000**				**1.000**				**1.000**			
Western 1.5G	0.872	0.331	0.691	1.100	0.863	0.296	0.684	1.088	0.891	0.475	0.683	1.162
Western 2G	1.148	0.381	0.886	1.486	1.044	0.784	0.806	1.353	1.074	0.689	0.801	1.440
Western 2.5G	1.307	0.000	1.156	1.479	1.257	0.002	1.111	1.422	1.229	0.016	1.068	1.415
African 1.5G	1.440	0.009	1.146	1.809	1.207	0.182	0.957	1.522	1.056	0.757	0.791	1.408
African 2G	1.247	0.216	0.930	1.671	1.061	0.744	0.788	1.428	1.097	0.701	0.739	1.628
African 2.5G	1.313	0.264	0.880	1.958	1.275	0.318	0.854	1.903	1.391	0.237	0.879	2.201
Caribbean 1.5G	0.875	0.398	0.675	1.134	0.745	0.064	0.573	0.968	0.643	0.046	0.447	0.925
Caribbean 2G	1.171	0.150	0.978	1.403	1.003	0.978	0.834	1.206	0.961	0.771	0.768	1.203
Caribbean 2.5G	1.019	0.908	0.781	1.329	0.938	0.694	0.718	1.225	0.961	0.831	0.709	1.303
Indian 1.5G	1.322	0.100	1.000	1.748	1.188	0.315	0.896	1.573	1.068	0.776	0.730	1.562
Indian 2G	1.443	0.001	1.210	1.721	1.257	0.037	1.049	1.506	1.284	0.067	1.026	1.607
Indian 2.5G	1.131	0.583	0.782	1.635	1.101	0.667	0.761	1.593	1.106	0.716	0.700	1.749
PAK/BGD 1.5G	2.193	0.000	1.919	2.506	1.618	0	1.400	1.871	1.529	0	1.276	1.834
PAK/BGD 2G	2.074	0.000	1.815	2.370	1.599	0	1.384	1.848	1.394	0.002	1.166	1.666
PAK/BGD 2.5G	2.056	0.002	1.407	3.003	1.715	0.02	1.172	2.510	1.498	0.183	0.909	2.468
Other 1.5G	1.215	0.176	0.959	1.540	1.111	0.466	0.876	1.410	1.126	0.475	0.857	1.481
Other 2G	1.083	0.708	0.762	1.540	0.950	0.812	0.668	1.353	0.932	0.772	0.624	1.392
Other 2.5G	1.194	0.266	0.919	1.551	1.186	0.283	0.913	1.542	1.117	0.542	0.829	1.504
Missing	1.575	0.056	1.065	2.330	1.432	0.14	0.960	2.138	1.999	0.038	1.155	3.460
Number of siblings												
Only child					1.050	0.356	0.963	1.146	0.942	0.369	0.845	1.050
1 sibling					**1.000**				**1.000**			
2–3 siblings					1.189	0	1.117	1.265	1.215	0	1.134	1.302
4+ siblings					1.410	0	1.317	1.510	1.394	0	1.290	1.506

Table A-5: (Continued)

	Model 2			Model 3a				Model 3b			
	Hazard ratio	*P>|z|*	*90% conf. interval*	*Hazard ratio*	*P>|z|*	*90% conf. interval*		*Hazard ratio*	*P>|z|*	*90% conf. interval*	
Religion makes a difference in life											
A great difference				1.231	0	1.141	1.328	1.183	0.001	1.085	1.290
Some difference				**1.000**				**1.000**			
A little difference				0.949	0.233	0.883	1.020	0.928	0.131	0.856	1.007
No difference				0.970	0.465	0.907	1.038	0.920	0.078	0.852	0.994
Missing				1.165	0.243	0.939	1.446	0.821	0.504	0.506	1.334
Previous child's sex											
Boy				**1.000**				**1.000**			
Girl				0.964	0.188	0.920	1.009	0.959	0.193	0.910	1.011
Employment status											
Full-time employed								**1.000**			
Part-time employed								1.060	0.272	0.972	1.155
In full-time education								1.158	0.085	1.007	1.333
Unemployed								1.591	0	1.354	1.870
Others								1.556	0	1.443	1.678
Education level											
Low								1.078	0.065	1.008	1.153
Medium								**1.000**			
High								1.112	0.039	1.022	1.211

Note: Model 2 controls for time since previous birth, age at first birth, birth cohort, and migrant generation group. Model 3a additionally controls for religiosity, number of siblings, and previous child's sex. Model 3b additionally controls for education level and employment status.
Source: Author's own calculations based on Understanding Society data (2022).

Table A-6: Relative second and third births: Comparison with and without controlling for age at first birth

Relative	*with age at first birth*				*without age at first birth*			
Second Birth	*Hazard Ratio*		*P>|z|*	*90% conf. interval*	*Hazard Ratio*		*P>|z|*	*90% conf. interval*
British natives	**1**				**1**			
Western 1.5G	1.017	0.859	0.870	1.188	1.006	0.950	0.861	1.175
Western 2G	0.951	0.653	0.792	1.142	0.955	0.676	0.795	1.147
Western 2.5G	0.883	0.030	0.803	0.970	0.851	0.005	0.774	0.935
African 1.5G	0.831	0.104	0.689	1.002	0.793	0.041	0.658	0.956
African 2G	0.753	0.055	0.591	0.961	0.728	0.032	0.571	0.929
African 2.5G	1.184	0.321	0.895	1.565	1.130	0.472	0.855	1.494
Caribbean 1.5G	0.794	0.084	0.637	0.989	0.813	0.120	0.653	1.012
Caribbean 2G	0.677	0.000	0.585	0.784	0.681	0.000	0.588	0.788
Caribbean 2.5G	0.734	0.015	0.597	0.904	0.776	0.045	0.631	0.956
Indian 1.5G	0.921	0.603	0.709	1.196	0.894	0.482	0.688	1.162
Indian 2G	1.145	0.148	0.982	1.334	1.149	0.137	0.985	1.339
Indian 2.5G	0.979	0.900	0.744	1.290	0.942	0.721	0.715	1.240
PAK/BGD 1.5G	1.259	0.012	1.083	1.463	1.313	0.003	1.130	1.526
PAK/BGD 2G	1.380	0.000	1.199	1.589	1.393	0.000	1.210	1.603
PAK/BGD 2.5G	1.205	0.406	0.833	1.745	1.152	0.528	0.796	1.668
Other 1.5G	1.037	0.741	0.866	1.241	1.034	0.762	0.863	1.238
Other 2G	1.205	0.197	0.950	1.527	1.167	0.285	0.920	1.479
Other 2.5G	0.928	0.518	0.766	1.123	0.926	0.511	0.765	1.122
Missing	0.845	0.409	0.604	1.182	0.795	0.263	0.568	1.114
Third birth								
British natives	**1**				**1**			
Western 1.5G	0.891	0.475	0.683	1.162	0.910	0.559	0.698	1.187
Western 2G	1.074	0.689	0.801	1.440	1.025	0.889	0.765	1.375
Western 2.5G	1.229	0.016	1.068	1.415	1.182	0.051	1.026	1.360
African 1.5G	1.056	0.757	0.791	1.408	1.026	0.882	0.770	1.369
African 2G	1.097	0.701	0.739	1.628	1.101	0.690	0.741	1.634
African 2.5G	1.391	0.237	0.879	2.201	1.121	0.682	0.709	1.773
Caribbean 1.5G	0.643	0.046	0.447	0.925	0.695	0.099	0.483	0.999
Caribbean 2G	0.961	0.771	0.768	1.203	0.962	0.777	0.769	1.204
Caribbean 2.5G	0.961	0.831	0.709	1.303	1.114	0.558	0.822	1.510
Indian 1.5G	1.068	0.776	0.730	1.562	1.096	0.693	0.749	1.603
Indian 2G	1.284	0.067	1.026	1.607	1.285	0.065	1.027	1.607
Indian 2.5G	1.106	0.716	0.700	1.749	1.042	0.883	0.659	1.646
PAK/BGD 1.5G	1.529	0.000	1.276	1.834	1.655	0.000	1.380	1.984
PAK/BGD 2G	1.394	0.002	1.166	1.666	1.491	0.000	1.247	1.782
PAK/BGD 2.5G	1.498	0.183	0.909	2.468	1.507	0.177	0.914	2.485
Other 1.5G	1.126	0.475	0.857	1.481	1.134	0.450	0.863	1.490
Other 2G	0.932	0.772	0.624	1.392	0.896	0.654	0.600	1.339
Other 2.5G	1.117	0.542	0.829	1.504	1.138	0.476	0.845	1.532
Missing	1.999	0.038	1.155	3.460	1.719	0.108	0.987	2.994

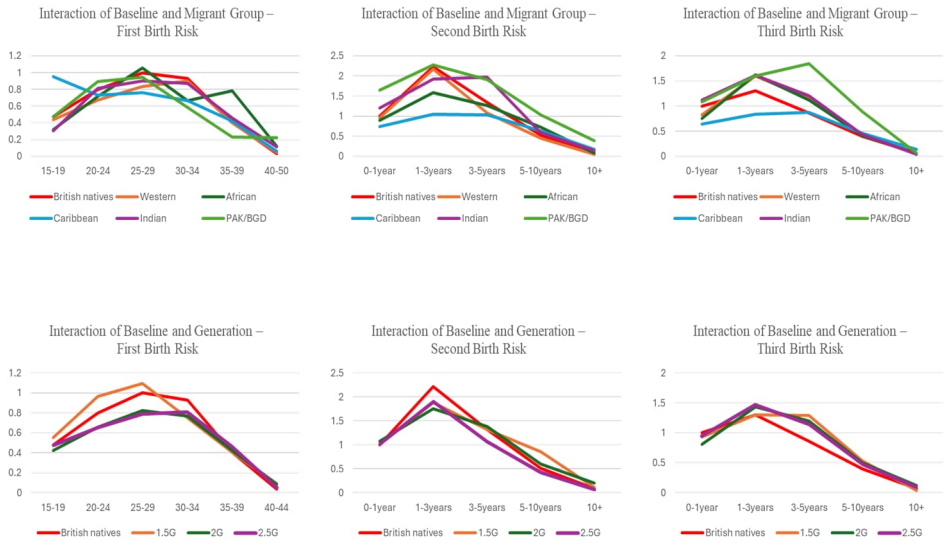
Note: Apart from the age at first birth, this model controls for time since previous birth, birth cohort, migrant generation group, religiosity, number of siblings, previous child's sex, employment status, education level.
Source: Author's own calculations based on Understanding Society data (2022).

Table A-7: Number of 2G with mixed parents

Migrant group	Number of 2G Women	Number of 2G women with mixed parents	Percentage of 2G women with mixed parents
Western 2G	201	36	17%
African 2G	293	52	17%
Caribbean 2G	400	30	7%
Indian 2G	395	45	11%
PAK/BGD 2G	847	36	4%
Total	**2,136**	**199**	**9%**

Source: Author's own calculations based on Understanding Society data (2022).

Figure A-1: Interaction of baseline and migrant group/generation



Source: Author's own calculations based on Understanding Society data (2022).

Table A-8: Interaction of employment status and generation by parity

First birth	Hazard ratio	P>|z|	[90% conf.	interval]
Full-Time Employee # British natives	1.00			
Full-Time Employee # 1.5G	1.03	0.62	0.94	1.13
Full-Time Employee # 2G	0.79	0.00	0.72	0.87
Full-Time Employee # 2.5G	0.89	0.02	0.82	0.96
Part-Time Employee # British natives	1.49	0.00	1.40	1.59
Part-Time Employee # 1.5G	1.38	0.04	1.07	1.78
Part-Time Employee # 2G	0.95	0.71	0.76	1.19
Part-Time Employee # 2.5G	1.34	0.02	1.09	1.64
In Full-Time Education # British natives	0.29	0.00	0.27	0.31
In Full-Time Education # 1.5G	0.38	0.00	0.33	0.44
In Full-Time Education # 2G	0.29	0.00	0.25	0.33
In Full-Time Education # 2.5G	0.30	0.00	0.26	0.36
Unemployed # British natives	1.26	0.00	1.12	1.41
Unemployed # 1.5G	0.94	0.79	0.64	1.39
Unemployed # 2G	0.75	0.14	0.55	1.03
Unemployed # 2.5G	0.97	0.88	0.67	1.40
Other # British natives	1.96	0.00	1.86	2.06
Other # 1.5G	2.71	0.00	2.33	3.16
Other # 2G	2.21	0.00	1.92	2.55
Other # 2.5G	1.35	0.00	1.14	1.60
Second birth				
Full-Time Employee # British natives	1.00			
Full-Time Employee # 1.5G	0.93	0.46	0.79	1.09
Full-Time Employee # 2G	0.97	0.70	0.86	1.10
Full-Time Employee # 2.5G	0.87	0.09	0.75	1.00
Part-Time Employee # British natives	1.28	0.00	1.21	1.35
Part-Time Employee # 1.5G	1.30	0.02	1.09	1.54
Part-Time Employee # 2G	1.40	0.00	1.16	1.68
Part-Time Employee # 2.5G	1.24	0.03	1.05	1.46
In Full-Time Education # British natives	0.91	0.12	0.82	1.00
In Full-Time Education # 1.5G	0.91	0.52	0.71	1.16
In Full-Time Education # 2G	0.68	0.00	0.54	0.84
In Full-Time Education # 2.5G	0.83	0.26	0.64	1.09
Unemployed # British natives	1.10	0.19	0.98	1.25
Unemployed # 1.5G	1.12	0.60	0.78	1.61
Unemployed # 2G	0.72	0.18	0.48	1.08
Unemployed # 2.5G	1.04	0.89	0.66	1.64
Other # British natives	1.46	0.00	1.39	1.53
Other # 1.5G	1.45	0.00	1.29	1.63
Other # 2G	1.48	0.00	1.32	1.67
Other # 2.5G	1.28	0.00	1.14	1.43

Table A-8: (Continued)

Third birth				
Full-Time Employee # British natives	1.00			
Full-Time Employee # 1.5G	0.90	0.54	0.69	1.19
Full-Time Employee # 2G	1.05	0.73	0.84	1.31
Full-Time Employee # 2.5G	0.95	0.75	0.72	1.25
Part-Time Employee # British natives	1.03	0.64	0.93	1.13
Part-Time Employee # 1.5G	1.11	0.54	0.84	1.46
Part-Time Employee # 2G	1.09	0.58	0.84	1.43
Part-Time Employee # 2.5G	1.52	0.00	1.20	1.92
In Full-Time Education # British natives	1.07	0.49	0.91	1.27
In Full-Time Education # 1.5G	1.92	0.00	1.38	2.67
In Full-Time Education # 2G	0.91	0.67	0.62	1.33
In Full-Time Education # 2.5G	1.54	0.08	1.03	2.28
Unemployed # British natives	1.82	0.00	1.53	2.18
Unemployed # 1.5G	1.10	0.76	0.65	1.87
Unemployed # 2G	0.99	0.98	0.53	1.86
Unemployed # 2.5G	1.28	0.55	0.65	2.51
Other # British natives	1.51	0.00	1.39	1.64
Other # 1.5G	1.72	0.00	1.46	2.02
Other # 2G	2.02	0.00	1.73	2.37
Other # 2.5G	1.77	0.00	1.50	2.08

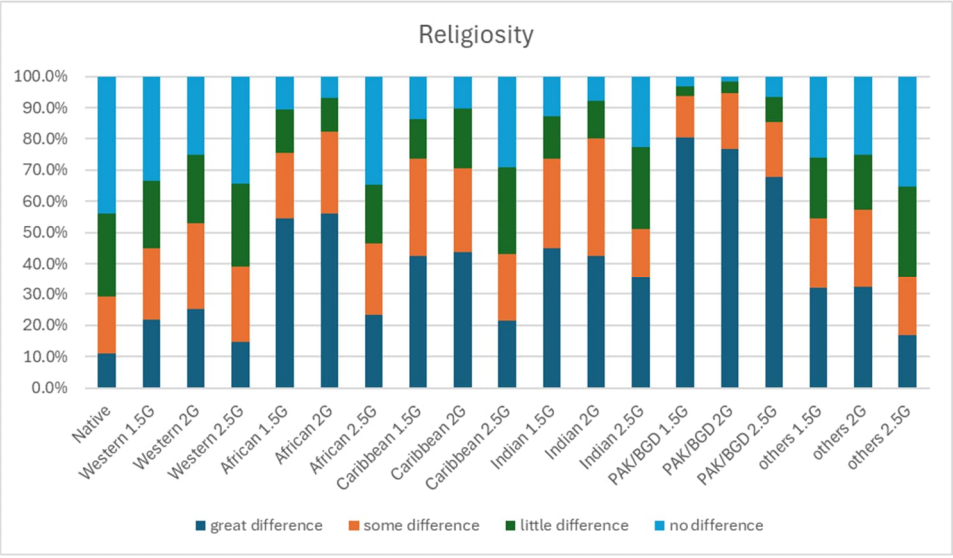
Note: First birth controls for woman's age, birth cohort, migrant generation group, religiosity, number of siblings, and education level. Second and Third births control for time since previous birth, age at first birth, birth cohort, migrant generation group, religiosity, number of siblings, previous child's sex, and education level.
Source: Author's own calculations based on Understanding Society data (2022).

Table A-9: First birth risks of 2.5G subgroups

		Hazard Ratio	P>|z|	[90% conf. interval]	
Model1	Western Mum	0.88	0.04	0.80	0.97
	Western Dad	0.84	0.01	0.76	0.93
Model2	Western Mum	0.87	0.03	0.79	0.97
	Western Dad	0.83	0.00	0.75	0.91
Model3	Western Mum	0.91	0.16	0.81	1.02
	Western Dad	0.85	0.02	0.76	0.95
Model1	African Mum	0.70	0.11	0.48	1.01
	African Dad	0.66	0.01	0.50	0.86
Model2	African Mum	0.71	0.13	0.49	1.03
	African Dad	0.60	0.00	0.46	0.79
Model3	African Mum	0.73	0.26	0.46	1.15
	African Dad	0.66	0.02	0.48	0.89
Model1	Caribbean Mum	0.82	0.44	0.54	1.25
	Caribbean Dad	1.27	0.01	1.09	1.49
Model2	Caribbean Mum	0.83	0.47	0.54	1.27
	Caribbean Dad	1.26	0.01	1.08	1.48
Model3	Caribbean Mum	0.92	0.78	0.57	1.48
	Caribbean Dad	1.21	0.09	1.01	1.46
Model1	Indian Mum	0.81	0.27	0.58	1.11
	Indian Dad	0.76	0.09	0.59	0.99
Model2	Indian Mum	0.88	0.51	0.64	1.21
	Indian Dad	0.77	0.10	0.59	1.00
Model3	Indian Mum	0.79	0.32	0.54	1.17
	Indian Dad	0.74	0.11	0.55	1.01
Model1	PAK/BGD Mum	1.12	0.70	0.69	1.80
	PAK/BGD Dad	1.18	0.37	0.87	1.61
Model2	PAK/BGD Mum	1.24	0.46	0.77	2.00
	PAK/BGD Dad	1.12	0.54	0.82	1.53
Model3	PAK/BGD Mum	1.24	0.49	0.74	2.10
	PAK/BGD Dad	0.74	0.24	0.48	1.13

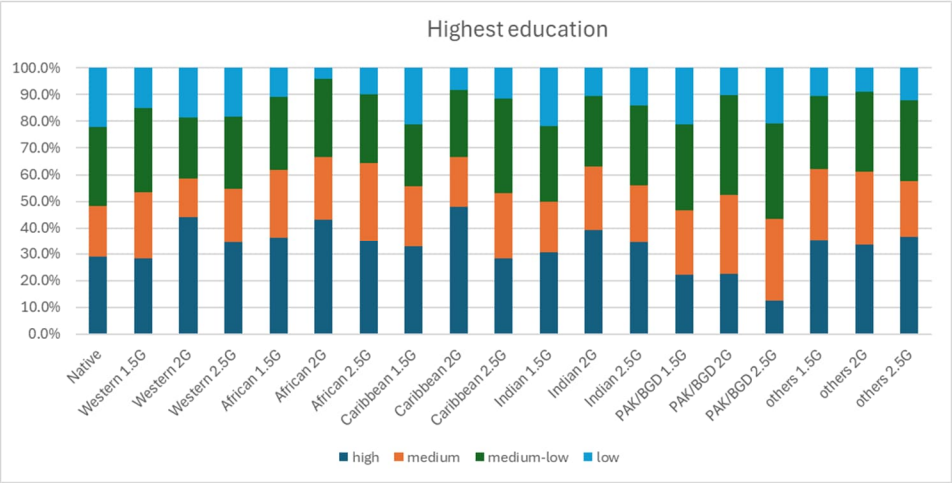
Note: Reference: British natives. Model 1 controls for age, birth cohort, and migrant generation group. Model 2 additionally controls for religiosity and number of siblings. Model 3 additionally controls for education level and employment status. Due to a small sample size, the comparison between 2.5G with immigrant mothers and with immigrant fathers is only done for the first-birth risk. Apart from Caribbean 2.5G subgroups, there is no apparent distinction between 2.5G with immigrant mothers and 2.5G with immigrant fathers.
Source: Author's own calculations based on Understanding Society data (2022).

Figure A-2: Distribution of time-constant covariates – religiosity (the importance of religion in their lives)



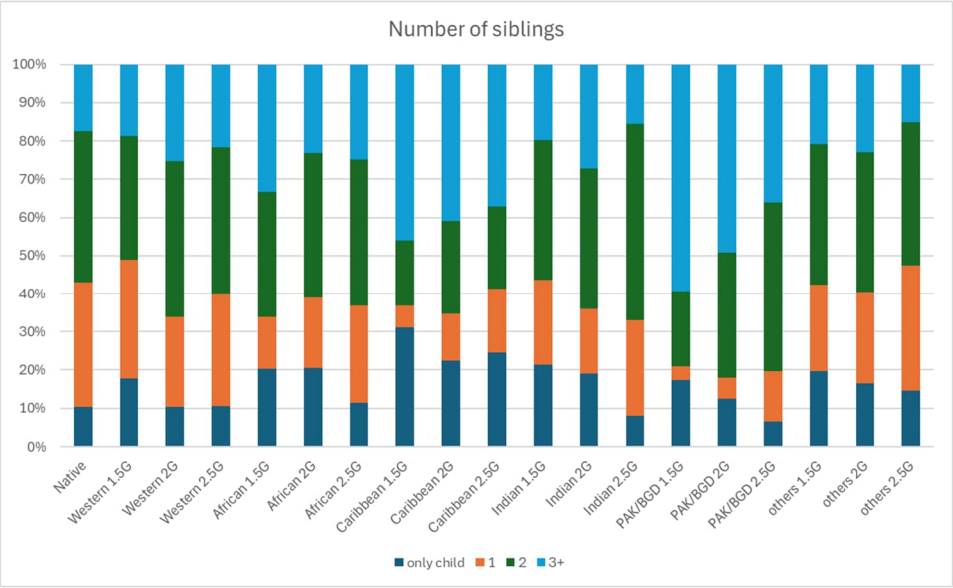
Source: Author's own calculations based on Understanding Society data (2022).

Figure A-3: Distribution of time-constant covariates – highest educational level



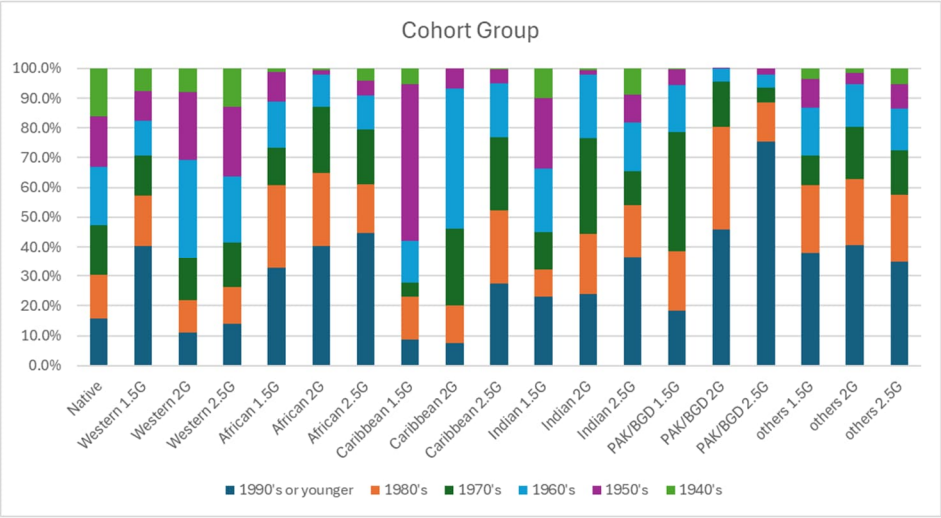
Note: High Education includes those with a university degree or higher (equivalent to ISCED 5 or higher). Medium Education indicates those with an A-level qualification (ISCED 3). Medium-low Education includes those with a GCSE qualification (ISCED 3). Low Education indicates those with a qualification lower than GCSE or without any educational qualification.
*The education variable in the main analysis is time-varying, whereas in this table it is time-constant. In the main analysis, education is categorised in three levels: high, medium, and low. Low education includes ithose with GCSE qualifications or lower because time information is unavailable for levels below GCSE. However, in this table, education levels below GCSE can be differentiated since time information is not required.
Source: Author's own calculations based on Understanding Society data (2022).

Figure A-4: Distribution of time-constant covariates – number of siblings



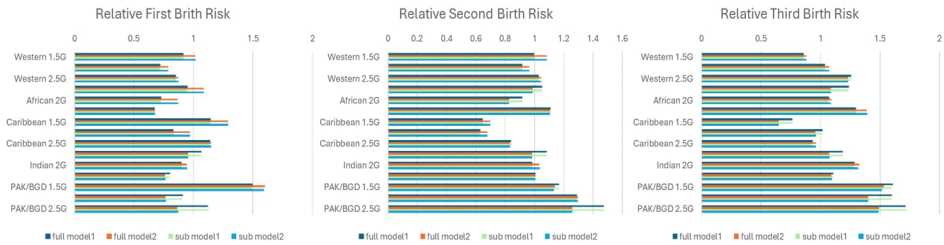
Source: Author's own calculations based on Understanding Society data (2022).

Figure A-5: Distribution of time-constant covariates – cohort group



Source: Author's own calculations based on Understanding Society data (2022).

Figure A-6: Comparison of a full model and an employment sub-sample



Note: Full model 1: a full sample including the employment sub-sample, controlling for all covariates from the main analysis except for employment status. Full model 2: a full sample including the employment sub-sample, controlling for all covariates from the main analysis including employment status. Sub-model 1: a sub-sample excluding those who do not have an employment history, controlling for all covariates from the main analysis except for employment status. Sub-model 2: a sub-sample excluding those who do not have an employment history, controlling for all covariates from the main analysis including employment status. Reference: British natives.
Source: Author's own calculations based on Understanding Society data (2022).