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Diversity, Minority Share, and the Fertility Differential Between Turks and Han in China

Xiaozhao Yousef Yang

Sun Yat-sen University, Guangzhou, China

Correspondence: Xiaozhao Yousef Yang (Yangxzh27@mail.sysu.edu.cn)

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ABSTRACT

While fertility differentials between ethno-racial groups are often attributed to socioeconomic or cultural factors, an emerging scholarship emphasises the importance of context for these differentials to occur. This study examines how context-level ethnic composition (ethnic context) shapes fertility differentials using the case of Xinjiang, China. Contextual data from the 2010 decennial census were linked with individual-level data from the 2015 micro-census. Ethnic context was measured by minority share and ethnic diversity, while controlling for key individual and county-level covariates. Hierarchical Poisson regressions show that minority share is *positively* associated with the number of children, whereas diversity is *negatively* associated. Moreover, ethnic diversity significantly reduced the fertility differential: Turks, in contrast to Han, reported *lower* fertility as local diversity increased and the Turk-Han differentials narrowed. To interpret these findings, I combined quantitative analysis with a historical reading. I classified four ethnic context ideal types (the Industrial-military type, the Han immigrant type, the Multicultural type, and the Indigenous type) and used a simple algorithm to pick three representative cases from each ideal type. With these ideal typical cases, I explained how historical processes have created the distinct ethnic contexts that matter for fertility outcomes.

1 | Introduction

Fertility differentials among racial and ethnic groups have attracted attention from both policymakers and scholars. Even when socioeconomic status appears comparable, ethno-racial groups often display markedly divergent fertility patterns, with significant implications for social cohesion and public policy.

Several frameworks have been proposed to explain these differences. One emphasises cultural orientations, suggesting that a pronatalist subculture encourages higher fertility. Another stresses individual-level characteristics (e.g., maternal education, income, occupation, and perceived risk), arguing that group fertility reflects the aggregate socioeconomic profile of its members. This characteristics hypothesis thus expects fertility to shift as group conditions improve.

Yet these approaches often neglect the contextual nature of race and ethnicity in relation to fertility (Agadjanian 1999; Greenhalgh 1990; McDaniel 1996). Race and ethnicity are not fixed essences but historically constructed through cooperation, conflict, and struggles for recognition and resources (Alba 2020; Brubaker 2004; Emirbayer and Desmond 2015). Since the rise of nation-states in the 19th century through post-WWII decolonisation, ethnic boundaries have been reproduced in relation to neighbouring groups and political power. As such, the fertility pattern observed in any ethno-racial group should be understood in relation to the local context that defines this group.

This study aims to bridge that gap by integrating demographic research on fertility differentials with insights from critical race theories. I argue that fertility among minorities depends on the ethnic composition of the local context (or, ethnic context): it is

more pronounced in homogenous places with dense co-ethnic presence, and attenuated as ethnic diversity rises or minority share declines. Using census data from the Xinjiang Uyghur Autonomous Region – a large and diverse multicultural region in western China, I demonstrate how minority status interacts with ethnic context to affect fertility. Beyond statistical models, I classified the counties and cities by diversity and minority share and explained why such classification matters for fertility rates by referring to the historical dynamics in this region.

2 | Literature Review

Racial and ethnic fertility differentials have been well documented since early human history and they exercised powerful political and social consequences. The *Exodus* recorded Pharoah's concern from 3000 years ago that "the children of Israel are more and mightier than we" (1:9). An official of the 3rd century Jin Dynasty wrote *On Removing Barbarians* (*Xirong Lun*) that "a few years after the Five Barbarians moved in, their kinds gave a lot of births. They strengthened their power and grew tired of the aggressive Han people".

In modern social sciences, the ethno-religious divide in fertility from the same region has been a prominent theme (Goldscheider and Uhlenberg 1969; Kennedy 1973). In the previous scholarship, scholars offered cultural explanation and characteristic explanation, which focused on the constituent pro-natalist cultural elements and socioeconomic statuses as key determinants (Forste and Tienda 1996; Poston et al. 2006).

2.1 | Cultural and Characteristic Explanations

A pro-natalist culture may promote the ideal number of children and disseminate the social norms that informally encourage childbearing and even formally penalise abortion and family disunion. Such cultural orientations not only increase fertility ideal but can also influence actual fertility behaviours (Caldwell and Caldwell 1987; Wang et al. 2025). In many cases, pro-natal cultures operate without institutionalised fertility regime. Instead, they develop and promote via informal ties and communal transmission (Childs 2008; Yüceşahin and Özgür 2008).

Some criticised that culture is often used as a post hoc residual explanation. Individuals may cite pro-natal cultural elements to justify the observed fertility phenomenon, instead of explaining it as driver of the proximate fertility behaviours on the ground (Forste and Tienda 1996). As a result, some propose that the abstract pro-natal cultures must be embedded in local policy or socioeconomic context to exert effects on fertility (Caldwell and Caldwell 1987; Jalal Abbasi-Shavazi and McDonald 2006).

Another line argues that the aggregate characteristics of a race, particularly socioeconomic characteristics, are responsible for desired and completed fertilities. Once the distributions of the important socioeconomic characteristics of the minority group converge to resemble the majority through assimilation, their fertility differentials should also dissipate (Goldscheider 1971; Goldscheider and Uhlenberg 1969). The various hypotheses of the characteristic explanation have received empirical support. Particularly, studies focusing on maternal education (Alagarajan 2003; Wildeman et al. 2023), income and welfare transfer(Easterlin 1975; Sahu et al. 2012), family structure(South and Lloyd 1992; Mcdonald 2000) showed that these individual level characteristics may account for between-group fertility differentials to varying degrees.

However, the individual-level characteristics that account for fertility ideals and behaviours do not necessarily transcend to the collective level, and assuming thus commits the ecological fallacy. More importantly, racial or ethnic identity cannot be reduced to socioeconomic status, class, and any such discrete characteristics. Rather, race and ethnicity are constructed categories evolutionarily emerged from the social processes of mutual inclusion, conflict, and exclusion (Alba 2020; Emirbayer and Desmond 2015; Smedley 1998). Even the genetic foundation of race is largely flexible here (Bromham 2023). Thus, it became necessary to recall the very notion of race/ethnicity in demographic research (Forste and Tienda 1996; McDaniel 1996).

2.2 | Minority Status

Among the first to realise that racial fertility differentials were not just about SES, Goldscheider and Uhlenberg (Goldscheider and Uhlenberg 1969) proposed to examine how minority status per se, which reflects a sense of insecurity, isolation and integration, may be an irreducible factor. They argued that "the changing relationship of minority group status and fertility operates within the particularised social situation of minority groups" (Goldscheider and Uhlenberg 1969, 370). Kenney also urged to examine minority fertility in different contexts (Kennedy 1973).

The turn away from aggregated characteristics and orientation towards the very idea of minority status was promising in bringing back the critical literature on race, but the turn was at times criticised as a residual approach by attributing unexplained variations to a minority identity (Forste and Tienda 1996). How minority as a status label affects fertility remained agnostic. Scholars have proposed several mechanism that may explain why minority status matters in fertility research: the sense of insecurity (Chabé-Ferret and Melindi Ghidi 2013), stronger group integration(Stahura and Stahura 1975), life pace (St. John 1982), and inter-group competition (Goldscheider and Uhlenberg 1969; Kennedy 1973).

2.3 | Minorities in Ethnic Context

More recently, there is an emergence of scholarship that proposes any effects of minority status should be placed in a *context*. This is because ethno-racial categories only make sense when considered in the context that produced the categorisation. Blumer had inspired a group-position perspective of race, where the perceived position of a racial/ethnic group shapes the attitudes and behaviours of its members (Blumer 1958; Bobo and Hutchings 1996). Brubaker argues that ethnic categories are not even socially constructed, they are but psychological schemas to make governance and recognition easier (Brubaker 2004). Likewise, minority status is constructed and negotiated within specific *contexts* of power and social relations (Emirbayer and Desmond 2015; Smedley 1998).

The ethnic context perspective implies that fertility preferences and behaviours are not determined solely by a group's culture or socioeconomics, but by how that group is situated relative to others in their immediate life world. The stratification in different contexts shapes the relative power and opportunity for minority groups, which are in turn associated with reproductive behaviours (McDaniel 1996). Furthermore, the political economy of fertility calls for understanding the political contexts where reproductive behaviours happen (Agadjanian 1999; Greenhalgh 1990). What fundamentally affects fertility behaviours and rates is the relative position of that ethnic group placed within its living context full of people of other cultures and the institutions built by and for other cultures (Frank and Heuveline. 2005). Therefore, the impact of minority status is context-dependent: an ethnic group that is dominant in one context might be a minority in another, and its fertility behaviour will adjust accordingly to its contextualised status.

Ethnic context may change the power balance of different racial/ethnic groups. Such context embodies the daily interactional experiences between different ethnic groups and social statuses. A group with higher status or dominance in a particular setting may have higher completed fertility due to institutional support and security. Alternatively, when placed in a context of subordination, the same group of people may experience suppressed fertility (Ginsburg and Rapp 1995). Prominent examples include the stark contrast in fertility rates between Kazakhs in Kazakhstan and Kazakhs in China; Catholics in Northern Ireland and in the Republic of Ireland; the convergence of fertility rates of Jewish migrants to the native-born in Israel (Kennedy 1973; Poston et al. 2006). Ethnic context may also affect fertility by offering different life prospects for minority and majority members. The higher fertility rate of Mexican Americans post-migration has been explained as a result of the perceived economic prospect (Abma and Krivo 1991; Frank and Heuveline. 2005); overseas Chinese had heightened fertility after migration due to the emancipation from policy-induced restrictions on rights (Nie and Baizan 2021). A study on Kyrgyzstan demonstrated that minority groups' fertility desires were strongly shaped by their optimism about the group's future (Agadjanian and Nedoluzhko 2022).

2.4 | Homogeneity and Diversity of Ethnic Context

While numerous studies have highlighted the importance of context in demography, little attention has been given to the most basic demographic dimension of *ethnic context*: the ethnic composition of a place, such as heterogeneity and concentration. Durkheim called demographic compositions the most basic type of social fact. Blau(1977) was the first to clarify why the macro-structure of a population (diversity, relative size, etc.) can statistically affect individual behaviours. Ethnic context influences the intensity of intergroup interactions (English et al. 2014); various group contact hypotheses proposed that minority share may elicit antagonistic behaviours (Blalock 1967; Blumer 1958); ethno-racial diversity also seems to reduce trust and social capital (Putnam 2007).

More recent studies have shown that the diversity of a country or province modifies the health penalty associated with minority status (Lu and Yang 2020, 2022; Yang et al. 2019); ethnic homogeneity at neighbourhood-level is positively associated with both fertility and mortality (Karbeah and Hacker 2023;); ethnic composition at multiple ecological levels is associated with the chance of mixed-race union (Puur et al. 2022). A rational choice model showed that high fertility is optimal for all groups only if ethnic diversity is high (Janus 2013). Minority fertility tends to converge with the majority in less segregated places (Wilson and Kuha. 2018). Yet, in another scholarship, higher ethnic diversity is associated with lower fertility among Russian minorities in Kazakhstan (Yang et al. 2023), while homophilous social milieu (often correlated with ethnic homogeneity) increases fertility (Agadjanian and Nedoluzhko 2022).

Although ethnic context may shape fertility through many proximate pathways, such as social trust, fertility tempo, and intergroup competition, context effects cannot be reduced to interpersonal interactions or individual psychological processes (Sampson 2012). Contexts are not mere aggregates of individual traits. The diversity and homogeneity of each ethnic context embodies an upper level dynamics that cannot be captured by aggregated individual-level attributes (Forste and Tienda 1996). Ethnic contexts, in particular, are historically and politically evolved from the long-term process of group formation and dissolution that shaped the local patterns of homogeneity and diversity (Alba 2020; Brubaker 2004). One should note that no single background process determines a specific ethnic context; rather, the same context may emerge from many different historical contingencies. For example, both forced settlement and voluntary association can result in similar segregation patterns. Figure 1 below shows this conceptual framework of the irreducible context effects on fertility differentials. Once an ethnic context is formed through these processes, its impact on racial fertility differentials may operate through various intermediate or proximate determinants. Yet the context itself cannot be reduced to those proximate determinants. For example, having a greater percentage of minorities may change the local dynamics of who feels more at ease with the prevailing customs and fertility norms; greater diversity may cause fragmentation in social networks, making childcare difficult for some people. Thus, it is necessary to consider the historical origins of local ethnic contexts for a substantive *understanding* of how the context effect came into being, rather than testing numerous intermediate pathways.

2.5 | The Current Study

The current study utilises the case of Xinjiang, China to demonstrate how ethnic context is relevant to fertility differentials and explain it in a historical-comparative perspective. In China, the Han majorities concentrate in only 50% of the country's landmass to the east. The Turks in China's vast west inhabit a multicultural context with unique ethnoreligious identities. The Turks comprise of several groups including Uyghur, Kazakh, Uzbek, Kirgiz, Tatar and Salar and constitute 55% of the population in Xinjiang.

The land of Xinjiang has since prehistory been a highly diverse region intersecting multiple civilisations. Over the millennia, Xinjiang has seen continual shifts in admixture among peoples of

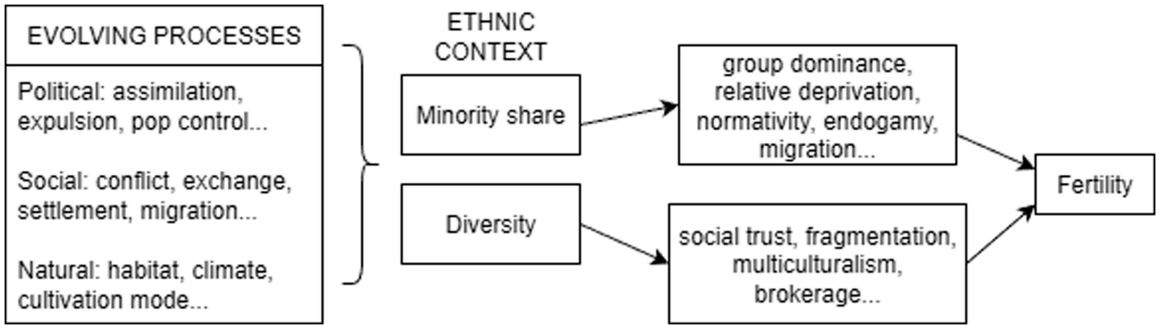

FIGURE 1 | Conceptual diagram of the formation and implications of ethnic context.

Indo-European, Turkic, Mongolic, Tibetic, and Sinitic origins, making it a key diversity hub along the Silk Road. The long historical processes have produced highly complicated ethnic contexts in Xinjiang, ranging from relative homogeneity to pronounced diversity (Millward 2021; Yang and Schieman 2024).

While it is true that Turkic minorities generally have higher fertility rates, consistent with their position in the demographic transition, their fertility levels vary considerably across local contexts. For instance, Uyghur population growth has accelerated in Kashgar and Hotan, yet declined in Turpan and Aksu, reflecting the marked regional unevenness of total fertility rates. Similarly, in 2020, the TFR of Kazakhs was 3.9 in Kazakhstan, but only 1.5 in Xinjiang, which is inexplicable by fertility culture or norms. These contradictions underscore the potential of ethnic context for fertility research in China (Poston et al. 2006; Wang et al. 2025), yet this dimension has received little scholarly attention.

Only a few studies have investigated ethnic fertility differentials in China (Jin et al. 2023; Poston et al. 2006), even fewer have examined how ethnic contexts may affect the fertility differentials (Li and Qiu 2022). Empirically, the current study combines the 2010 decennial census and the 2015 micro-census of China and applies hierarchical modelling to examine how ethnic context, measured by ethnic diversity and minority share, across Xinjiang is associated with the number of children at the individual level. In addition, I substantiate the quantitative findings with a comparative historical reading. I classify all context-level units into four types in terms of diversity and minority share: the Industrial-military type, the Han immigrant type, the multicultural type, and the indigenous type. I then interpret the fertility level of each type of ethnic context against the historical background of Xinjiang.

3 | Methods

3.1 | Sample

Nationally representative surveys in China tend to exclude Xinjiang entirely. The Micro-census from 2015 is the best available data source to assess our research questions. The China Micro-censuses are a series of intercensal surveys that sampled 1% of all populations from a representative sampling frame every ten years. The survey collected samples from every sub-municipal unit in both rural and urban areas, then, multiple sites at street and village-level are sampled within each sub-municipal unit and households from each site were visited. It started on November 1, 2015 and was completed on November 15, 2015.[1] The population in Xinjiang in 2010 is 21.82 million, and the total sample size in the original Micro-census is about 1% of that population. Our analysis is based on a 15% random sample ($N = 34{,}516$) drawn and released by the State Statistical Bureau using interval selection. For our analyses, we kept the female sample of reproductive age from 15 to 49, who were asked to complete the questionnaire section on reproduction ($n = 7143$). The context-level information was compiled from the 2010 decennial census. The decennial census was conducted 5 years prior to the Micro-census, substantially reducing concerns about reverse causality and fallacies that can arise from inferring contextual traits from compositional traits.

The Turk minority status applies to ethnic groups that speak a Turkic language and traditionally follow the Islamic religion. Thus, Uyghur (43.7%), Kazakh (8.7%), Kirgiz (1.6%), Uzbek (0.1%), Tatar (0.1%), and Salar (0.01%) collectively constitute the Turk group, whose fertility rates were compared with Han (39.5%). Other communities (6.49%) were excluded for not fulfilling both criteria.

3.2 | Measurement

3.2.1 | *Individual-Level*

The dependent variable was the number of children ever born. The micro-census asked women aged 15–50 how many children have they ever gave birth to. Since birth order was not a concern for this study, we may also refer to this number of children as parity.

Several covariates may confound fertility and ethnic context. They are age, a deprivation index, education, insurance status, migration status, and the couple's only-child status (whether they were the only child). The deprivation index was created by summating the following conditions: not owning a car, not having a latrine or kitchen in the house, being illiterate, and being currently unemployed. This deprivation index ranges from 0 to 5 with a mean of 2.69; it captures the composite socioeconomic status. It expresses the function of $D_i = \sum_{k=1}^{k} X_{ik}$, where k is car, kitchen, latrine, literacy, employment.

Migration status is measured by the question "How long has it been since you left the original place of hukou registration?" Response categories were: never, less than half year, half year to 1 year, 1–2 years, 2–3 years, 3–4 years, 4–5 years, 5–10 years, and more than 10 years. Since migrants are more likely to

postpone having children before migration and increase fertility after migration, our choice of variable may capture the migration effect and reduce the spurious relationship introduced by the fact that more Han people were migrants.

Education was measured across eight levels: none, elementary, junior high, high school, junior trade school, vocational college, college, and graduate school. Insurance status refers to whether individuals are enroled in one of China's basic medical insurance schemes. We also control for the couple's only-child status, as it reflects the fertility tradition of their families and intergenerational fertility norms. If one or both spouses were the only-child in their families, the likelihood of having only one child is elevated.

3.2.2 | *Context-Level*

Ethnic context was measured by *minority share* and *diversity*. Minority share is the percentage of non-Han population, or $p = 1 - \frac{n_{han}}{N}$. It captures the preponderancy of all minorities vis-à-vis the Han majority in a county/district and underlies interracial power dynamics and relative normativity of minority status. For diversity, we adopted the Simpson dissimilarity index: $D = 1 - \frac{\sum_j n_{kj}(n_{kj}-1)}{N_j(N_j-1)}$, where n_{kj} is the population of kth ethnic group in jth county/district. The Simpson index is commonly used to represent the likelihood of randomly meeting a person of another racial/ethnic status in a given context (Simpson 2007). Under the special case when the number of groups reduces to 2, the Simpson index is a concave function of minority share p: $D = 1 - [(1-p)^2 + p^2] = 2p(1-p)$. But, in multigroup cases, $D = 1 - \frac{\sum_j n_{kj}(n_{kj}-1)}{N_j(N_j-1)} = 1 - [(1-p)^2 + \Sigma\left(\frac{n_k}{N}\right)^2]$. It is evident that D is affected by the proportion of each kth group, instead of a simple function of p. For a given p, $\Sigma\left(\frac{n_k}{N}\right)^2$ has an upper bound of p^2 and a lower bound of $\frac{p^2}{k}$. The relationship between Simpson D and minority share p indicates that, although they are mathematically related in two-group scenarios, they represent distinct constructs in multigroup contexts. Both indicators are necessary for measuring ethnic context and do not introduce collinearity.

Some developmental and socioeconomic conditions of the context may confound the effects of ethnic context. We controlled for several county-level variables: urbanisation rate, GDP growth, the rate of primary industry, unemployment rate, and prevalence of immigrants from outside Xinjiang.

3.3 | Analytical Strategies

We estimated a series of generalised mixed-effects models with Poisson for function link, or multilevel Poisson regression models because parity is a count outcome. Individuals are nested within counties/district.

The baseline model included only a fixed effect for ethnicity and a random intercept for counties: $\log\mu_{ij} = \beta_0 + \tau Turk_{ij} + u_{0j}$.

We then allowed the effect of minority status (Turk) to vary across counties by adding a random slope for ethnicity: $\log\mu_{ij} = \beta_0 + (\tau + u_{1j})Turk_{ij} + u_{0j}$.

Next, we introduced individual-level controls (age, deprivation index, insurance, migration, and couple's only-child status) to account for individual-level confounding. Next, county-level covariates were added to account for county-level confounding: $\log\mu_{ij} = \beta_0 + X_{ij}\beta + w_j\beta + (\tau + u_{1j})Turk_{ij} + u_{0j} + \sigma$,where X_{ij} are individual-level variables, w_j are county-level variables, $\tau + u_{1j}$ specifies random slopes for minority status, u_{0j} is random intercept and σ is residual.

To test whether ethnic context conditioned the racial fertility differential, we estimated models with cross-level interaction terms: Turk × diversity and Turk × minority share. These terms assessed whether the parity of Turk women compared to Han women varied with local ethnic context. Changes in the random slope variance can be used to evaluate how much variation in minority status has been explained by each model. Analyses were conducted in R version 3.6.

To make sense of the quantitative findings on ethnic context with qualitative interpretations, I classified all places into a typology based on minority share and ethnic diversity. Then, we may explain the formation of each type of ethnic context in its historical background. Using the median as cut-off, each place was assigned to one of four quadrants: high minority share - low diversity; high minority share - high diversity; low minority share – low diversity; low minority share – high diversity. To avoid arbitrariness and cherry-picking of the cases, I used an algorithm to select three representatives from each ethnic context ideal type. The criteria for selection were 1) the most typical case in each quadrant of the typology (i.e., far from the cut-off lines); 2) the most typical of the quadrant's fertility level (i.e., close to the average fertility of that quadrant). I calculated a distance score that rewards the distance between each place from the median cut-offs, while penalizes the deviation of each place's fertility rate from the quadrant's average fertility rate: $dist_j = \frac{|minority_j - med(minority)| + |diversity_j - med(diversity)|}{|\bar{y}_j - \bar{y}_{quadrant}|}$. Three counties with the highest scores in each quadrant of the typology were selected. Figure 4 plots all places by minority share and diversity, with 12 representative cases highlighted. Figure 5 coloured all administrative units in Xinjiang by the four types.

4 | Results

Table 1 presents descriptive statistics of the sample. The sample consisted of 57.7% Turkic and 42.2% Han women. Respondents reported an average of 1.55 children ever born (range 0–8) and a mean age of 36.5 years. At the county level ($N = 105$), the average minority share was 58.9% and ethnic diversity measured by the Simpson index was 0.34. Urbanisation averaged 40.1%, tertiary education 27.6%, and the uninsured rate 5.8%. The average unemployment rate was 8.7%, while immigrants comprised 8.7% of the county population, with wide variation across contexts.

Figure 2 presents parity and age-specific fertility rates by race/ethnicity. Across all age groups, Turk women exhibit consistently higher fertility than Han women. Turk women have almost twice as many children ever born as Han women by the end of the reproductive age. A small dip in parity among Han of 40–44 years old likely reflects cohort or sample irregularities. These women, who were born 1971–1975, might have had lower parity due to special circumstances during their fertile years starting in late 1980s. However, the dip was too small to give verdict. There is also an earlier and higher fertility

TABLE 1 | Descriptive statistics of the sample.

Variable	Mean (SD) or %	Range
Individual-level variables ($N = 6681$)		
Number of children ever born	1.548 (1.081)	0–8
Age	36.547 (8.483)	15–49
Turk	57.7%	
Han	42.2%	
Deprivation index	2.691 (1.078)	0–5
Educational level	3.54 (1.53)	1–8
Time left hukou	1.481 (0.856)	1–4
Couple's One-child status		
-Neither is one-child	93.5%	
-One is one-child	3.48%	
-Both are one-child	3.04%	
Context-level variables ($N = 105$)		
Minority share	0.589 (0.311)	0.004–0.998
Diversity (Simpson index)	0.342 (0.209)	0–0.752
Urban population (%)	40.123 (22.667)	1.58–90.7
Primary industry	60.06 (28.43)	0.87–96.7
GDP growth	13.14 (5.37)	2.1–34.2
Unemployment rate	0.229(0.096)	0–0.684
Immigrant prevalence	0.087 (0.086)	0–0.358

among Turk women peaking at early 20 s, while Han women's fertility peaks later around ages 25–29.

Table 2 results from a series of mixed-effects Poisson regressions predicting the number of children ever born. All models included random intercepts at the county level, and all but the baseline model allowed the effect of ethnicity to vary across counties.

In the baseline model with only a random intercept, the Turk coefficient was 0.395 (SE = 0.026, $p < 0.001$). This would correspond to an incidence-rate ratio of about 1.48. This indicated that Turkic women had nearly 50% more children than Han women. When a random slope for Turk was added in M2, the fixed effect increased to 0.432 ($p < 0.001$). Model 3 included several important individual-level variables. Older age was positively associated with more children (0.023, $p < 0.001$). If neither couple was the only-child, they would have 0.22 more children than spouses who were both only-child. Education is associated with fewer children (−0.102, $p < 0.001$). Despite these significant individual-level predictors, the Turks' significant advantage in fertility was little explained, as the coefficient remained nearly unchanged at 0.43 ($p < 0.001$).

In Model 4, we added county-level predictors, including minority share, diversity, urbanisation rate, prevalence of college education, uninsured prevalence, and unemployment rate. The Turk coefficient decreased to 0.359 ($p < 0.001$). This deduction indicated that part of the racial fertility differential was explained by contextual variables. Minority share was positively related to fertility (0.241, $p < 0.05$), while diversity showed a negative association (p0.111, $p < 0.05$). People in more diverse places had fewer children, even after holding constant the percentage of minorities; people in places with more minorities had more children, even after holding constant the level of diversity. Another significant contextual variable is the primary industrial sector (i.e., agriculture-related): a place with a higher presence of the primary sector had more children (0.338, $p < 0.001$).

Analyzing the decremental changes in random effects can reveal how much of the spatial variation in minority status effect has been explained. In M1, where the coefficient of Turk was not allowed to vary at context-level, context-level random effect was 0.012. However, once the effect of Turk ethnicity was allowed to vary in M2, the random intercept variance was effectively eliminated, indicating that baseline spatial heterogeneity is largely attributable to cross-context variation in the minority status effect (0.012) rather than uniform contextual differences. The random slope variance for Turk dropped from 0.012 to 0.005 when individual-level covariates entered M3. The variance further declined to 0.004 in M4 and 0.003 in M5, as the spatial variation in minority status effect was gradually explained away. From M1 to M5, a total of three-fourths of the random effect has been explained.

Model 5 revealed a significant and negative cross-level interaction effect between minority status and ethnic context measured by diversity (−0.306, $p < 0.05$). This indicated that the fertility advantage of Turks was strongest in homogeneous counties and narrowed as diversity increased, even after adjusting for minority share and other covariates. Model 6 showed the cross-level interaction between minority status and contextual minority share. However, that interaction was not significant. Since minority share as a main effect had a significant association with parity in M4, it suggests the impact of contextual minority share on parity was equal for Han and Turks.

Figure 3 depicts a post-estimation marginal effect for the significant cross-level interaction in Model 5. This plot shows that, as the Simpson diversity index increases, the predicted number of children of Turk women quickly declines and that of Han slowly climbs. The decline in fertility associated with the increasing diversity was obvious for the Turk sample, while the fertility of Han barely moved. This indicated that ethnic diversity closes racial fertility differentials mainly by suppressing the fertility of Turks, rather than elevating Han fertility.

5 | Discussion

With multilevel Poisson regression of hierarchical nested administrative and census data, this study shows that ethnic context exerted a significant impact on fertility measured by parity. Minority share is *positively* associated with the number of children ever born, whereas diversity is *negatively* associated with it. This study further investigated how ethnic context may explain the racial fertility differential phenomenon – that minority and majority have different fertility rates even under similar socioeconomic conditions and demographic status. We

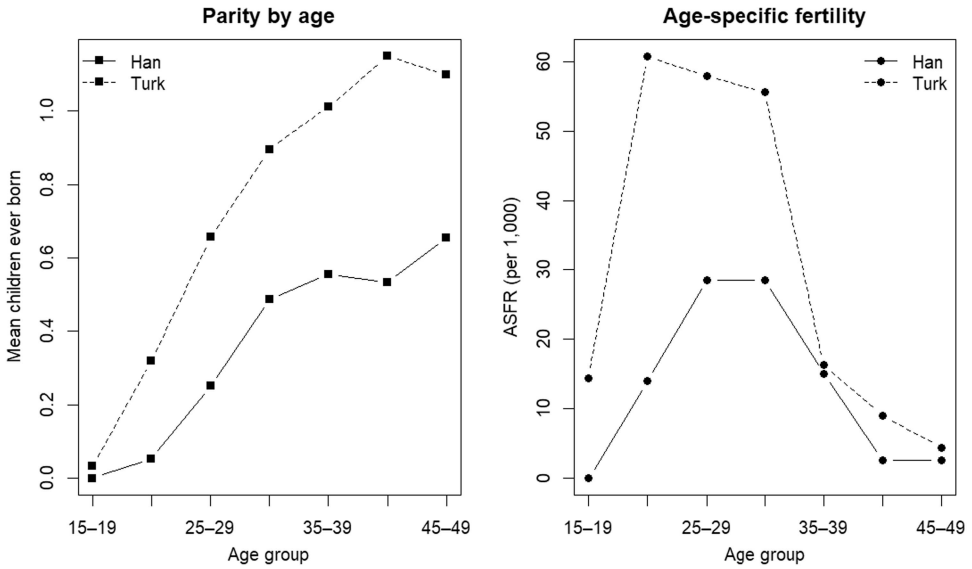

FIGURE 2 | Age-specific fertility rate and parity by age and ethno-racial groups.

found that context-level **diversity** significantly conditioned the minority effect on fertility: Turk minorities have reduced fertility in more diverse ethnic contexts. In other words, racial fertility differentials were abated in places with higher diversity; when diversity reaches the high level at a Simpson index of approximately 0.6, Turk and Han women no longer have significantly different numbers of children. In contrast, minority share does not reduce or exacerbate racial fertility differentials.

Our study resonates with the findings on the effect of ethnic compositions on a range of phenomena. At the neighbourhood and community level, minority share alleviates discrimination, bias, and stress experienced by minorities (English et al. 2014; Schmid et al. 2013); ethnic density is protective against mental illness for minorities (Shankley and Laurence 2022); but cultural diversity was associated with elevated crime rates (Sampson and Groves 1989). At provincial or national level, religious diversity was found to alleviate minorities' worse health compared to the dominant religionists (Lu and Yang 2020, 2022); ethnic diversity was found associated with lower gap in depression between minority and majority (Yang et al. 2019).

Our findings also resonate with earlier studies on fertility outcomes. For the effect of diversity, previous studies have found racial fertility differentials tend to close in less segregated places (Wilson and Kuha. 2018); homogeneity (reversely related to diversity) is associated with higher fertility in several countries (Agadjanian 2001; Agadjanian and Nedoluzhko 2022). For minority share or concentration of specific groups, our findings are in line with some earlier studies: context-level minority share accounts for the minority status effect and explain the racial fertility differentials (Kennedy 1973; Yang et al. 2023). Beyond the main effect, few studies have investigated how ethnic context moderates the race effect on fertility, or, changes the racial fertility differential. We found diversity has the power of reducing such differential, confirming with one study (Wilson and Kuha. 2018) but contradicts another(Janus 2013). In detail, this study finds that diversity reduced fertility differentials mainly because diversity was associated with fewer children among Turks, rather than with higher fertility among Han. In highly diverse contexts, social support may be weaker and pronatalist norms harder to enforce among Turks. Their sense of identity may also be further eroded by a diverse environment, on top of their already marginal economic position. For Han people, by contrast, pronatalist norms and social support are already at a low baseline, so diversity may be less likely to have an additional effect.

It is possible that the one-child policy may explain some of the Han-Turk fertility differential. Urban Han women in this sample were subject to the one-child policy throughout their reproductive years, whereas ethnic minorities were permitted two children in urban areas and three in rural or pastoral areas (Jin et al. 2023). However, because policy exposure was largely constant within each ethnic group, the contextual effects still operate above and beyond this policy background.

5.1 | Historical Interpretation of Ethnic Context

The models show that minority share and diversity matter for fertility. Yet places do not simply become homogeneous or diverse. To understand the ethnic context, we need to look back at the history behind each type of ethnic context. Figure 4 shows the distribution of places by these two dimensions of ethnic context, along with the representative cases in each quadrant. Each quadrant is an ideal type that crystalizes various cities and counties, it also latently represents the underlying realities assumed in ethnic contexts. I now use these ideal types and their algorithm-selected representatives from Figure 4 to illustrate the underlying historical processes that morphed the ethnic context and its fertility implications.

Low diversity–low minority share (the Industrial-military type): most counties and cities here are Han-dominated with few other ethnic groups. The representatives are cities founded by the Xinjiang Production and Construction Corps (XPCC) in the 1950s, a military–industrial organisation modelled on earlier frontier settlements. Built on strategic positions, such as oil fields and mountain passes (Figure 5), these places often had few existing populations prior to being populated by Han

TABLE 2 | Mixed-effects poisson regressions.

	M1 Baseline	M2 Race random effect	M3 Individual-level control	M4 County-level control	M5 Interaction 1	M6 Interaction 2
(Intercept)	0.179 (0.023)***	0.144 (0.018)***	−0.524 (0.107)***	−0.948 (0.192)***	−1.075 (0.207)***	−0.945 (0.196)***
Turk (ref = Han)	0.395 (0.026)***	0.432 (0.026)***	0.430 (0.029)***	0.359 (0.031)***	0.479 (0.069)***	0.332 (0.068)***
Age			0.023 (0.001)***	0.023 (0.001)***	0.023 (0.001)***	0.023 (0.001)***
Deprivation			0.006(0.001)	.002(0.01)	0.008 (0.011)	0.002 (0.01)
Education			-0.102 (0.009)***	-0.093(0.009)***	−0.093(0.009)***	−0.093 (0.009)***
Time left hukou			−0.020 (0.013)	−0.007 (0.013)	−0.009 (0.013)	−0.007 (0.013)
Only-child (ref = both)						
-either			0.122 (0.092)	0.117 (0.092)	0.118 (0.092)	0.116 (0.092)
-none			0.223 (0.070)***	0.211 (0.070)**	0.221 (0.070)**	0.211 (0.070)**
Minority share				0.241 (0.091)*	0.218 (0.092)*	0.224 (0.697)*
Diversity				−0.111 (0.046)*	0.032 (0.070)	−0.066 (0.048)
Urbanisation				0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Primary industry				0.338 (0.98)***	0.378 (0.100)***	0.337 (0.098)***
Unemployment rate				−0.029 (0.193)	−0.042 (0.199)	−0.026 (0.194)
Immigrant preval.				0.564 (0.332)	0.692 (0.338)	0.556 (0.333)
GDP growth				0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
Turk × Diversity					−0.185 (0.096)*	—
Turk × Minority share					--	0.051 (0.119)
Model fit						
AIC	19,076.7	19,095.8	17,290.5	17,206.9	17,205.6	17,208.1
BIC	19,097.1	19,129.8	17,364.7	17,328.2	17,333.7	17,336.4
logLik	−9535.3	−9542.9	−8634.3	−8585.4	−8583.6	−8585.3
N	6678	6676	6267	6253	6253	6253
Groups (N2)	105	105	105	98	98	98
Random effects:						
Var(Intercept)	0.012 (0.023)	0.000 (0.000)	0.001 (0.037)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Var(Turk)	—	0.012 (0.110)	0.005 (0.068)	0.004 (0.064)	0.003 (0.061)	0.004 (0.064)

Note: Standard errors in parentheses.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

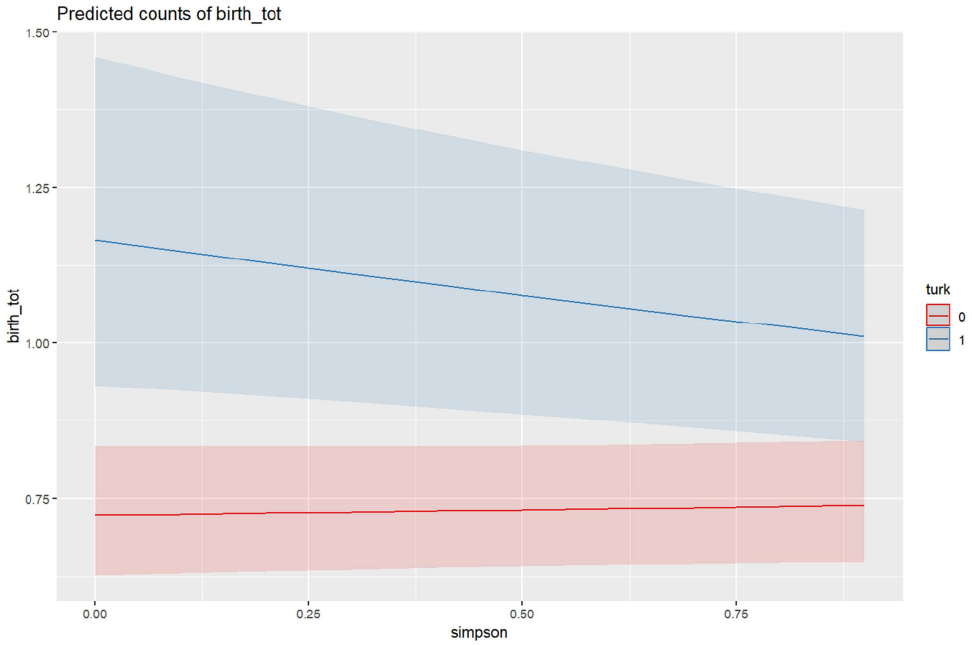

FIGURE 3 | Predicted counts of total births by diversity (Simpson's index) and Turk (blue) versus Han (red). Shaded regions represent 95% confidence intervals.

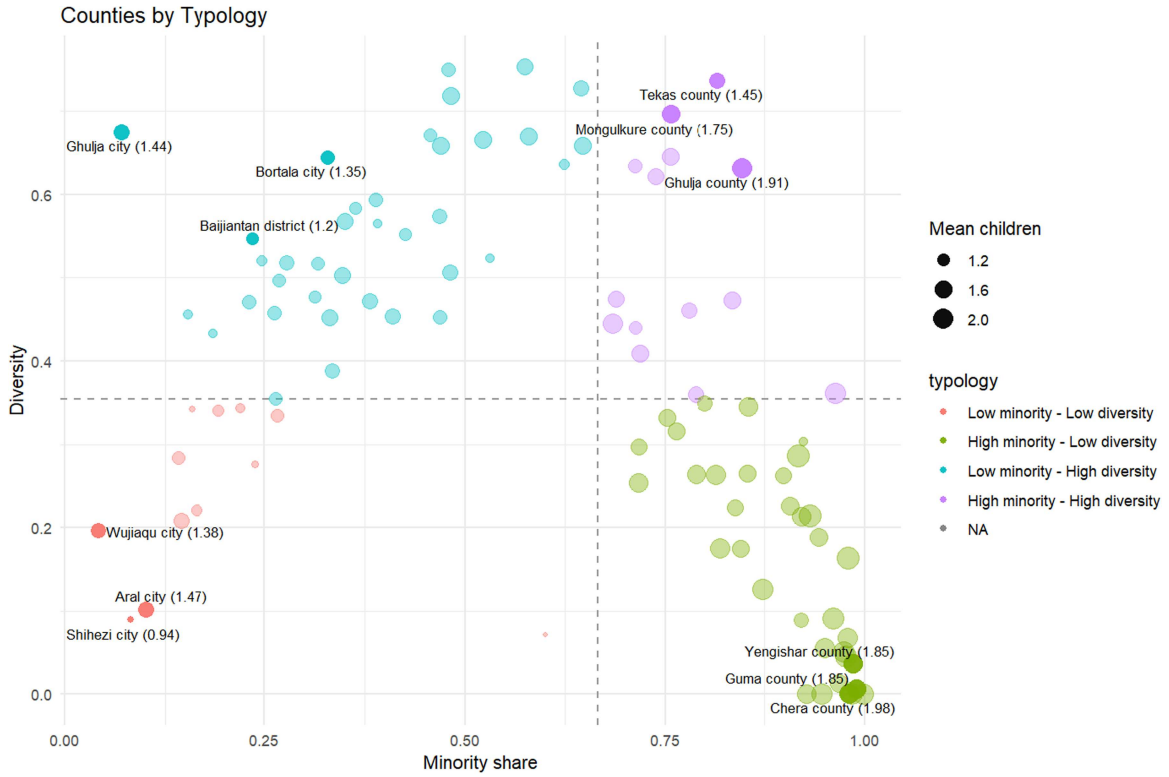

FIGURE 4 | Ethnic context types and representative cases.

soldiers and workers from inland provinces (Millward 2021). Thus, for decades, these places had male-biased sex ratios and miniscule minority populations. The directives and principles that created the industrial-military complex in the first place have also brought consequences to fertility rates. As state organs, XPCC cities enforced early and strict one-child policy. Centralised economy trumps the loosely self-organised and highly atomised grass-root society here. The composition of Han people who came here was very heterogenous and they, at least in the beginning, did not necessarily share a common culture. Technicians and skilled professionals were brought in from Shanghai, Jiangsu and Manchuria during the 1950s, while military personnel were mostly from northern provinces like Shandong and Henan. Being industrialised, atomised, and under the military governance of the XPCC, the communities in this type of context were prone to lower fertility rates.

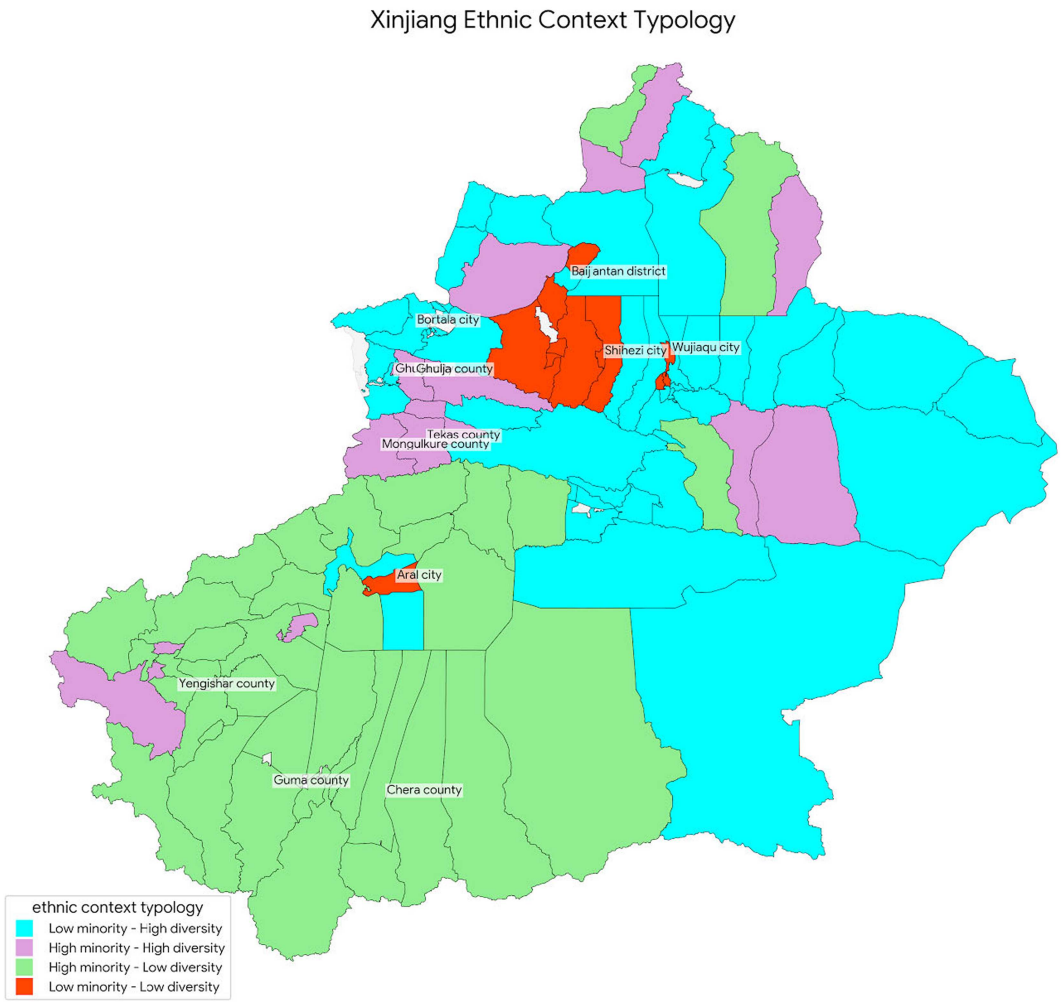

FIGURE 5 | Ethnic context typology of each administrative unit on the map of Xinjiang.

High diversity–low minority share (the Han immigrant type): This type resembles the Industrial-military type but differs in origins. Most places in this type developed more organically as Han migrants from inland China moved into the less-populated multi-ethnic areas in eastern and northern Xinjiang. Slowly, successive waves of Han migrants outnumbered the local nationalities but coexisted with them, resulting in relatively low percentage of minorities but significant diversity. Thus, I named this type of ethnic context "the Han immigrant type". Ghulja city is a representative case. While the broader area is highly diverse, the city seat itself was designated in 1952 as an administrative hub. Minorities from surrounding villages also moved in for work and trade, but the core population descended from Han migrants. According to our model, the low minority share and high diversity of this type of context would result in the *lowest* fertility and most *reduced* racial differentials among all four types. The low fertility corresponds to the low-fertility Han population. Nevertheless, Turks may also postpone childbearing because they tend not to find employment in the predominant state-sector jobs in Ghulja city and often treat the city as temporary residence. After all, living in a diverse and heterogenous environment means weaker support networks and a lower sense of security for everyone. This combination helps explain why Turk minorities in highly diverse places report fertility levels similar to the Han majority and, thus, smaller fertility differentials here.

High diversity–high minority share (the Multicultural type): this type of ethnic context features a high proportion of minority population and high diversity, making it a prominently multicultural masala. Places in this type, just like other places in Xinjiang, had a mixture of various races and ethnicities in history(Gladney 1998): in the north, Scythians, Oirat Mongols, Manchu, and Kazakhs had shifted dominance and eventually settled down; in the south, it was Kirgiz, Tajiks, and Uyghurs. But unlike other places, this type of context has maintained its diversity without being inundated by the expansion of Uyghur agriculturalists and the more recent Han immigrants. Most places in this type have been influenced by nomadism and have a significant presence of nomadic groups, such as Kazakhs, Kirgiz, and Mongols. Its representative case is Ghulja county, the surrounding regions outside Ghulja city. Ghulja county has the same high diversity as Ghulja city, but much higher minority share. The county's mean number of children is also much higher than in the city ($1.91 > 1.44$). Contextual effect could be important here: people in the countryside – Han and Turks alike – possess stronger connection with traditional communities, and they are less affected by the family plan command. Meanwhile, the higher diversity here was historically evolved and may suppress minorities' fertility: places in

this type have a long history of conflicts and migration since Scythians in the 3rd century BCE (Millward 2021). The fierce intergroup competition in history may have created an insecure environment and unstable settlement pattern for each ethnic community. Therefore, as the high minority share leads to higher fertility, the high diversity slightly suppresses the fertility rate when compared to the final type.

Low diversity–high minority share (the Indigenous type): Places in this type hold a single strong indigenous culture, either Kazakh in the north, or Uyghur in the southwest. Take the southwest for example, it is the heartland of Uyghur culture that connects Xinjiang with Transoxiana and Iran (Figure 5). Historians refer to this area by various names such as Altishar ('six cities'), Yettishar ('seven cities'), or Kashgaria, all with a flavour of the Persian-influenced sedentary culture(Gladney 1998). The town of Yengisar, for example, is predominantly Uyghur, with few other groups residing there. Principalities here were the first to adopt Islam in the 12th century. In the Indigenous type of ethnic context, the favourable intermediate factors depicted in Figure 1 (e.g., strong pronatalist norms, dense and homogeneous support networks, the absence of intergroup threat, higher social standing, and stable employment) are likely to be active for Turkic people but largely absent for the marginal Han community, who are mostly stationed here for temporary business and government posts. These factors combined have contributed to the exacerbated fertility differential between Han and Turk. This type indeed has the *highest* fertility, in line with our quantitative results.

6 | Concluding Remarks

This study demonstrates that ethnic context matters for the fertility differentials between Turkic minorities and the Han majority in Xinjiang. I have revealed three main findings. First, minority share is positively associated with the number of children ever born, while ethnic diversity is negatively associated with it. Second, diversity significantly moderates the Turk-Han fertility differential: as diversity increases, Turk fertility declines and the gap between groups narrows. Third, minority share elevates fertility equally for both groups without changing the differential between them.

This study contributes to scholarship in several ways. They move beyond cultural and characteristic explanations of ethnic fertility differentials by showing that the ethnic composition of a place matters for reproductive outcomes. We need to place minority status within specific contexts of power and social relations rather than treating it as a fixed attribute. By combining quantitative modelling with a historical typology of ethnic contexts, this study shows how long-term processes of settlement, migration, and governance have produced distinct environments that ultimately shape fertility today.

The case of Xinjiang offers broader lessons for understanding fertility in multiethnic societies. Future research could extend this framework to other multiethnic regions in China and beyond.

7 | Limitations

Several limitations warrant acknowledgement. First, we measured contextual variables using the 2010 decennial census while individual-level data came from the 2015 micro-census. The 5-year gap may introduce measurement error, although ethnic composition measures tend to change very slowly. Second, the measurement of ethnic context relies on administrative boundaries (counties and cities), which may not capture finer spatial granularities. Future research utilising "big data", such as Points of Interest or distance-based radius, could provide a more nuanced understanding of these patterns. Third, although multilevel models provide insights into contextual effects, we cannot entirely rule out self-selection, wherein individuals sort themselves into specific places. Only a research design specifically tailored for causal inference can meticulously disentangle temporal order and spatial contiguity from observed correlations.

Author Contributions

The sole author has contributed the execution of this study.

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Ethics Statement

This study used publicly available data and does not involve human subjects.

Conflicts of Interest

The author declares no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are openly available in the Sixth Population Census of China at https://www.stats.gov.cn/zt_18555/zdtjgz/.

Endnotes

[1] http://www.stats.gov.cn/ztjc/zdtjgz/cydc/

References

Abma, J. C., and L. J. Krivo. 1991. "The Ethnic Context of Mexican American Fertility." *Sociological Perspectives* 34, no. 2: 145–164.

Agadjanian, V. 1999. "Post-Soviet Demographic Paradoxes: Ethnic Differences in Marriage and Fertility in Kazakhstan." *Sociological Forum* 14, no. 3: 425–446.

Agadjanian, V. 2001. "Religion, Social Milieu, and the Contraceptive Revolution." *Population Studies* 55, no. 2: 135–148.

Agadjanian, V., and L. Nedoluzhko. 2022. "Group Normative Propensities, Societal Positioning, and Childbearing: Ethno-Linguistic Variation in Completed and Desired Fertility in Transitional Central Asia." *Population Research and Policy Review* 41: 1571–1596.

Alagarajan, M. 2003. "An Analysis of Fertility Differentials by Religion in Kerala State: A Test of the Interaction Hypothesis." *Population Research and Policy Review* 22, no. 5: 557–574.

Alba, R. 2020. *The Great Demographic Illusion: Majority, Minority, and the Expanding American Mainstream*. Princeton University Press.

Blalock, H. M. 1967. *Toward a Theory of Minority-Group Relations*. Wiley.

Blau, P. M. 1977. *Inequality and Heterogeneity-a Primitive Theory of Social Structure*. NY Free Press.

Blumer, H. 1958. “Race Prejudice as a Sense of Group Position.” *Pacific Sociological Review* 1, no. 1: 3–7.

Bobo, L., and V. L. Hutchings. 1996. “Perceptions of Racial Group Competition: Extending Blumer's Theory of Group Position to a Multiracial Social Context.” *American Sociological Review* 61, no. 6: 951–972.

Bromham, L. 2023. “Meaning and Purpose: Using Phylogenies to Investigate Human History and Cultural Evolution.” *Biological theory* 18, no. 4: 284–302.

Brubaker, R. 2004. *Ethnicity Without Groups*. Harvard university press.

Caldwell, J. C., and P. Caldwell. 1987. “The Cultural Context of High Fertility in Sub-Saharan Africa.” *Population and Development Review* 13, no. 3: 409–437.

Chabé-Ferret, B., and P. Melindi Ghidi. 2013. “Differences in Fertility Behavior and Uncertainty: An Economic Theory of the Minority Status Hypothesis.” *Journal of Population Economics* 26, no. 3: 887–905.

Childs, G. 2008. *Tibetan Transitions: Historical and Contemporary Perspectives on Fertility, Family Planning, and Demographic Change*. Brill.

Easterlin, R. A. 1975. “An Economic Framework for Fertility Analysis.” *Studies in Family Planning* 6, no. 3: 54–63.

Emirbayer, M., and M. Desmond. 2015. *The Racial Order*. University of Chicago Press.

English, D., S. F. Lambert, M. K. Evans, and A. B. Zonderman. 2014. “Neighborhood Racial Composition, Racial Discrimination, and Depressive Symptoms in African Americans.” *American Journal of Community Psychology* 54, no. 3: 219–228.

Forste, R., and M. Tienda. 1996. “What's Behind Racial and Ethnic Fertility Differentials?” *Population and Development Review* 22: 109–133.

Frank, R., and P. Heuveline. 2005. “A Crossover in Mexican and Mexican-American Fertility Rates: Evidence and Explanations for An Emerging Paradox.” *Demographic research* 12, no. 4: 77–104.

Ginsburg, F. D., and R. Rapp. 1995. *Conceiving the New World Order: The Global Politics of Reproduction*. Univ of California Press.

Gladney, D. C. 1998. *Ethnic Identity in China: The Making of A Muslim Minority Nationality*. Fort Worth, TX: Harcourt Brace College Publishers.

Goldscheider, C. 1971. *Population, Modernization, and Social Structure*. Little, Brown and Company.

Goldscheider, C., and P. R. Uhlenberg. 1969. “Minority Group Status and Fertility.” *American Journal of Sociology* 74, no. 4: 361–372.

Greenhalgh, S. 1990. “Toward a Political Economy of Fertility: Anthropological Contributions.” *Population and Development Review* 16, no. 1: 85–106.

Jalal Abbasi-Shavazi, M., and P. McDonald. 2006. “Fertility Decline In the Islamic Republic of Iran: 1972–2000.” *Asian Population Studies* 2, no. 3: 217–237.

Janus, T. 2013. “The Political Economy of Fertility.” *Public Choice* 155, no. 3/4: 493–505.

Jin, Y., W. Hu, and D. Wang. 2023. “Fertility Transition of Han and Ethnic Minorities in China: A Tale of Convergence and Variation.” *Chinese Journal of Sociology* 9, no. 4: 522–552.

Karbeah, J., and J. D. Hacker. 2023. “Racial Residential Segregation and Child Mortality in the Southern United States at the Turn of the 20th Century.” *Population, Space and Place* 29, no. 6: e2678.

Kennedy, R. E. 1973. “Minority Group Status and Fertility: The Irish.” *American Sociological Review* 38, no. 1: 85–96.

Li, J., and L. Qiu. 2022. “An Analysis on the Fertility of China's Minority Population and Its Influencing Factors: Taking the Zhuang, Hui, Manchu, Uygur, Tibetan and Mongolian Ethnic Groups as Examples.” *Journal of Northwestern Ethnic Studies* 1: 139–155.

Lu, Y., and X. Y. Yang. 2020. “The Two Faces of Diversity: The Relationships Between Religious Polarization, Religious Fractionalization, and Self-Rated Health.” *Journal of Health and Social Behavior* 61, no. 1: 79–95.

Lu, Y., and X. Y. Yang. 2022. “Health Disparities Between Religious Majority and Minority: A Cross-National Analysis.” *Review of Religious Research* 64, no. 4: 771–806.

McDaniel, A. 1996. “Fertility and Racial Stratification.” *Population and Development Review* 22: 134–150.

Mcdonald, P. 2000. “Gender Equity in Theories of Fertility Transition.” *Population and Development Review* 26, no. 3: 427–439.

Millward, J. 2021. *Eurasian Crossroads: A History of Xinjiang, Revised and Updated*. Columbia University Press.

Nie, W., and P. Baizan. 2021. “Does Emancipation Matter? Fertility of Chinese International Migrants to the United States and Nonmigrants During China's One-Child Policy Period.” *International Migration Review* 55, no. 4: 1029–1060.

Poston, D. L., C.-F. Chang, and H. Dan. 2006. “Fertility Differences Between the Majority and Minority Nationality Groups in China.” *Population Research and Policy Review* 25, no. 1: 67–101.

Putnam, R. D. 2007. “E Pluribus Unum: Diversity and Community in the Twenty-First Century The 2006 Johan Skytte Prize Lecture.” *Scandinavian Political Studies* 30, no. 2: 137–174.

Puur, A., L. Rahnu, and T. Tammaru. 2022. “What Is the Association Between the Ethnic Composition of Neighbourhoods, Workplaces and Schools and the Formation of Mixed-Ethnic Unions?” *Population, Space and Place* 28, no. 1: e2504.

Sahu, B., L. J. G. van Wissen, I. Hutter, and A. Bosch. 2012. “Fertility Differentials Among Religious Minorities: Cross-National and Regional Evidence From India and Bangladesh.” *Population, Space and Place* 18, no. 5: 503–515.

Sampson, R. J. 2012. *Great American City: Chicago and the Enduring Neighborhood Effect*. University of Chicago Press.

Sampson, R. J., and W. B. Groves. 1989. “Community Structure and Crime: Testing Social-Disorganization Theory.” *American journal of Sociology* 94, no. 4: 774–802.

Schmid, K., M. Hewstone, and A. A. Ramiah. 2013. “Neighborhood Diversity and Social Identity Complexity.” *Social Psychological and Personality Science* 4, no. 2: 135–142.

Shankley, W., and J. Laurence. 2022. “Community Ethnic Density, Ethnic Segregation, and Ethnic Minorities' Common Mental Disorders in the UK.” *Health & Place* 73: 102723.

Simpson, L. 2007. “Ghettos of the Mind: The Empirical Behaviour of Indices of Segregation and Diversity.” *Journal of the Royal Statistical Society Series A: Statistics in Society* 170, no. 2: 405–424.

Smedley, A. 1998. “‘Race’ and the Construction of Human Identity.” *American Anthropologist* 100, no. 3: 690–702.

South, S. J., and K. M. Lloyd. 1992. “Marriage Markets and Nonmarital Fertility in the United States.” *Demography* 29, no. 2: 247–264.

Stahura, J. M., and B. T. Stahura. 1975. “Class, Mobility, Minority Status AND Fertility.” *International Review of Modern Sociology* 5, no. 1: 45–59.

St. John, C. 1982. “Race Differences in Age at First Birth and the Pace of Subsequent Fertility: Implications for the Minority Group Status Hypothesis.” *Demography* 19, no. 3: 301–314.

Wang, D., Y. Jin, and T. Liu. 2025. “Universal yet Local: Estimating County-Level Fertility Ideals and Intentions in China.” *Demographic research* 53: 525–568.

Wildeman, J., J. Smits, and S. Schrijner. 2023. "Ethnic Variation in Fertility Preferences in Sub-Saharan Africa." *Population Research and Policy Review* 42, no. 4: 58.

Wilson, B., and J. Kuha. 2018. "Residential Segregation and the Fertility of Immigrants and Their Descendants." *Population, Space and Place* 24, no. 3: e2098.

Yang, X. Y., A. Hu, and S. Schieman. 2019. "Relative Deprivation in Context: How Contextual Status Homogeneity Shapes the Relationship Between Disadvantaged Social Status and Health." *Social Science Research* 81: 157–169.

Yang, X. Y., S. Liang, and Y. Lu. 2023. "Ethnic Context and Fertility Differential in Post-Soviet Kazakhstan." *Population, Space and Place* 29, no. 6: e2677.

Yang, X. Y., and S. Schieman. 2024. "Racial Disparities in Death Rates and Death Incidences in Xinjiang: A Study of Multilevel Ecological Mechanisms." *Social Science & Medicine* 340: 116405.

Yüceşahin, M. M., and E. M. Özgür. 2008. "Regional Fertility Differences in Turkey: Persistent High Fertility in the Southeast." *Population, Space and Place* 14, no. 2: 135–158.