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Uganda's Fertility Paradox: Capitalizing on Demographic Potential Amidst Systemic Health and Socioeconomic Challenges

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Abstract

Background: Uganda maintains one of the world's highest total fertility rates (TFR) at 5.4 children per woman, presenting a paradox of significant demographic potential juxtaposed against persistent maternal mortality, limited contraceptive uptake, and deep socioeconomic inequalities. This study examined the determinants of Uganda's high fertility, the pathways through which socioeconomic and health system factors influence reproductive behavior, and the extent to which high fertility can be channeled into productive demographic dividends.

Methods: A mixed-methods cross-sectional design was employed, drawing on a nationally representative sample of 2,496 women of reproductive age (15–49 years) from all four regions of Uganda, supplemented by 48 focus group discussions (FGDs) with purposively sampled community members. Quantitative data were analysed using univariate, bivariate, and structural equation modelling (SEM) techniques, while qualitative data were analysed using thematic content analysis. Statistical significance was set at $p < 0.05$ with 95% confidence intervals reported throughout.

Results: The mean TFR was 5.4 (SD=2.1), with marked regional and socioeconomic variation ranging from 7.12 in the Northern region to 3.41 in Kampala. Bivariate analyses revealed statistically significant associations between TFR and maternal education ($p<0.001$), wealth quintile ($p<0.001$), urban residence ($p<0.001$), and antenatal care utilisation ($p<0.001$). Structural equation modelling identified maternal education ($\beta=-0.412$), contraceptive use ($\beta=-0.378$), and wealth index ($\beta=-0.334$) as the strongest direct determinants of TFR. Model fit was excellent (CFI=0.962, RMSEA=0.048). Qualitative findings highlighted four dominant thematic clusters: cultural pronatalism, healthcare access barriers, economic utility of children, and constrained women's agency.

Conclusion: Uganda's high fertility is multidetermined, rooted in structural inequalities, gender power imbalances, and fragmented health service delivery. Realizing the demographic dividend requires targeted investments in girls' education, accessible family planning, and gender-responsive economic empowerment. Policy interventions must integrate structural, community, and health system-level approaches to transform demographic potential into sustainable development gains.

Keywords: Fertility rate, Uganda, demographic dividend, contraceptive use, maternal education, structural equation modelling, mixed methods

INTRODUCTION

Uganda stands at a critical demographic crossroads that demands urgent scholarly and policy attention. With a total fertility rate (TFR) of 5.4 children per woman and an annual population growth rate of approximately 3.0%, Uganda is projected to become the world's third most populous country by 2100, with a population exceeding 200 million people (Namasivayam et al., 2020; Uganda Ministry of Health, 2019; Yargawa et al., 2021). This extraordinary fertility trajectory presents what demographers have termed the 'fertility paradox': a situation in which exceptionally high birth

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rates simultaneously represent a potential demographic dividend — through the expansion of a youthful labour force — and a formidable constraint on human capital accumulation, poverty reduction, and sustainable development (Bywaters et al., 2016; Cabrera & García-Pérez, 2023; KOUSAR et al., 2021). The paradox is particularly acute in Uganda because the demographic potential implied by a large and growing youth population is systematically undermined by chronic underinvestment in health, education, and social protection systems. Maternal mortality remains unacceptably high at 336 deaths per 100,000 live births (WHO, 2023), the modern contraceptive prevalence rate (CPR) hovers at a mere 41% among married women (UDHS, 2022), and over 42% of Ugandans live below the national poverty line (World Bank, 2023). Fertility decisions in Uganda are not made in a vacuum but are deeply embedded in cultural norms that valorise large families, economic rationality that treats children as productive assets and old-age insurance, and gender power dynamics that systematically curtail women's reproductive autonomy (Julius & Mategeko, 2025; Kirkby et al., 2025; Ototo et al., 2024; Paolini et al., 2020). Critically, Uganda's fertility landscape is not homogeneous: pronounced urban-rural, regional, educational, and wealth-based differentials indicate that systemic inequalities are the primary drivers of both high fertility and poor reproductive health outcomes. Understanding these determinants is not merely an academic exercise — it is a foundational prerequisite for designing evidence-based interventions that can enable Uganda to transition from a high-fertility, high-dependency population structure to one characterised by a robust and productive demographic dividend (Koenker et al., 2023; Wali et al., 2012; Zacharia et al., 2023). This study therefore undertook a rigorous mixed-methods investigation of Uganda's fertility paradox, integrating quantitative modelling of fertility determinants with qualitative exploration of the socio-cultural mechanisms that sustain high reproductive rates, in order to generate actionable, contextually grounded policy recommendations.

BACKGROUND OF THE STUDY

The demographic landscape of Sub-Saharan Africa, and Uganda in particular, has been shaped by a complex interplay of historical, cultural, economic, and institutional forces that have sustained high fertility rates long after the onset of fertility transitions in other world regions. Uganda's post-independence development trajectory was marked by political instability, armed conflict, and persistent structural underdevelopment that eroded the institutional foundations — universal education, universal health coverage, women's economic empowerment, and social protection systems — that are universally recognised as preconditions for fertility decline (Cheng, 2022; Kazaara & Nancy, 2025; Lupak et al., 2022). Despite impressive GDP growth averaging 5.5% per annum over the past decade, Uganda's economic gains have been unevenly distributed, with rural and northern populations bearing a disproportionate burden of poverty and under-development that is intimately linked to high fertility. The proximate determinants framework developed by Bongaarts (1978) and subsequently refined by multiple scholars identifies marriage patterns, postpartum infecundability, contraceptive use, and induced abortion as the primary biological channels through which socioeconomic factors influence fertility; in Uganda, each of these channels is mediated by deeply entrenched gender inequalities (Darussyamsu et al., 2021; Fischer et al., 2022; Heydarzadeh et al., 2022). Early marriage remains prevalent, with 40% of girls married before their 18th birthday (UNICEF, 2022), directly expanding the window of reproductive exposure. Unmet need for family planning stands at 28% among married women (UDHS, 2022), reflecting both supply-side failures in the health system — including chronic stockouts of contraceptives,

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limited trained providers, and geographic inaccessibility of health facilities — and demand-side barriers rooted in male partner opposition, religious proscriptions, and pervasive misinformation about contraceptive side effects (Başaran, 2025; Bera et al., 2024; Julius & Kazaara, 2025; Julius & Nancy, 2025b). International evidence consistently demonstrates that female education is the single most powerful predictor of fertility decline, operating through multiple pathways including delayed age at first marriage, increased female labour force participation, enhanced contraceptive knowledge and autonomy, and heightened aspirations for child quality over quantity (García-Sánchez et al., 2024; Mukoki et al., 2020). In Uganda, however, gender disparities in educational attainment persist at all levels, particularly in rural and conflict-affected regions, limiting the fertility-reducing potential of educational expansion. Against this backdrop, Uganda's National Population Policy (2018) articulated an explicit commitment to harnessing the demographic dividend through investments in youth human capital, yet implementation has been fragmented and underfunded, reflecting a systemic tension between political rhetoric on population management and the fiscal and institutional capacity required to translate policy commitments into transformative demographic change.

PROBLEM STATEMENT

Despite decades of family planning programming, Uganda's total fertility rate has declined only marginally from 7.1 in 1991 to 5.4 in 2022, remaining among the highest in the world and starkly at odds with the country's development aspirations (Ariyo Gracious Kazaara & Isaac Kazaara, 2025; Jadhav & Weis, 2020; Julius & Gracious Kazaara, 2025; Yam et al., 2020). This persistently high fertility rate generates a cascade of interconnected developmental challenges: it perpetuates child poverty by diluting household resources across larger family sizes; it strains an already under-resourced health system through high volumes of maternal and neonatal care demands; it overwhelms educational infrastructure, compromising the quality of human capital formation; and it constrains women's economic participation, entrenching gender-based poverty cycles (Bicaba et al., 2017; Evelyne et al., 2023; Julius & Nancy, 2025a; Rebecca et al., 2024). The health consequences are particularly alarming — Uganda's maternal mortality ratio of 336/100,000 live births disproportionately burdens women with higher parity, and neonatal mortality rates remain elevated in regions characterised by high fertility and low contraceptive use. Crucially, existing research on Ugandan fertility has largely been siloed into either quantitative demographic analyses that fail to capture the social and cultural mechanisms driving reproductive behaviour, or qualitative studies that lack the statistical rigour necessary to establish causal pathways and generate generalisable findings (Adams & Blair, 2019; Dr. Ariyo Gracious Kazaara & Musiimenta Nancy, 2025; Julius, 2025; Julius et al., 2024). This fragmentation of evidence has produced a knowledge gap that prevents policymakers from understanding the relative magnitude and mechanisms of different fertility determinants simultaneously. Furthermore, most existing studies have not adequately examined the mediating roles of health system factors — particularly antenatal care utilisation and skilled birth attendance — in the fertility-health nexus, nor have they employed structural equation modelling to disentangle the direct and indirect pathways through which education, wealth, and health service utilisation jointly influence fertility outcomes. This study was designed to address these critical evidence gaps by employing a rigorous mixed-methods design that generates both comprehensive quantitative estimates of fertility determinants and rich qualitative insights into the sociocultural mechanisms that sustain high fertility, thereby providing a robust empirical foundation for integrated, context-sensitive policy interventions.

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OBJECTIVES OF THE STUDY

Main Objective

To investigate the demographic, socioeconomic, and health system determinants of Uganda's high fertility rate and assess pathways for leveraging demographic potential to achieve sustainable development outcomes.

Specific Objectives

1. To determine the sociodemographic factors associated with total fertility rate among women of reproductive age (15–49 years) in Uganda.
2. To examine the pathways through which maternal education, household wealth, and health service utilisation jointly influence fertility outcomes using structural equation modelling.
3. To explore the sociocultural and economic mechanisms that sustain high fertility behaviour in Uganda's diverse regional and community contexts.

Research Questions

4. What are the key sociodemographic characteristics and their associations with total fertility rate among women of reproductive age in Uganda?
5. Through what direct and indirect pathways do maternal education, household wealth, and health service utilisation influence fertility outcomes in Uganda?
6. What sociocultural and economic factors sustain high fertility behaviour among women in diverse community contexts across Uganda?

METHODOLOGY

This study employed a convergent mixed-methods cross-sectional design, integrating quantitative survey data with qualitative focus group discussion data to achieve a comprehensive understanding of Uganda's fertility determinants. The quantitative component drew on a nationally representative sample of 2,496 women of reproductive age (15–49 years), selected through a stratified two-stage cluster sampling procedure that ensured proportional representation across Uganda's four administrative regions — Central, Eastern, Northern, and Western — as well as Kampala Metropolitan Area, with the sampling frame derived from the Uganda National Household Survey enumeration areas. Structured interviewer-administered questionnaires captured information on sociodemographic characteristics, reproductive history, contraceptive knowledge and use, antenatal care utilisation, skilled birth attendance, household wealth proxies, and media exposure. The qualitative component comprised 48 focus group discussions (FGDs) — eight per region plus Kampala — purposively constituted to include community women, men of reproductive age, community health workers, and traditional/religious leaders, with each FGD comprising 6–10 participants and facilitated using a semi-structured guide developed following a comprehensive literature review and pre-tested in a pilot phase. For statistical analysis, univariate analysis was conducted to describe the sociodemographic profile of the sample, generating frequency distributions, percentages, means, and standard deviations with 95% confidence intervals for all key variables; chi-square tests and ANOVA were applied to assess unadjusted associations between

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categorical and continuous variables, respectively. Bivariate analysis was subsequently performed to examine associations between total fertility rate and each explanatory variable, using Pearson's correlation coefficients for continuous variables and independent samples t-tests and one-way ANOVA for categorical predictors, with statistical significance set at $p < 0.05$. A structural equation model (SEM) was then specified and estimated using robust maximum likelihood estimation in R (lavaan package, version 0.6–12) to simultaneously model both the direct effects of maternal education, household wealth index, urban residence, contraceptive use, antenatal care utilisation, and media exposure on TFR, and the indirect pathways through which education and wealth influenced TFR via mediating health system variables. Model fit was assessed using the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Standardised Root Mean Residual (SRMR), and chi-square/degrees of freedom ratio, with acceptable fit defined as CFI ≥ 0.95, RMSEA ≤ 0.06, and SRMR ≤ 0.08. Qualitative data from the FGDs were audio-recorded (with participant consent), transcribed verbatim, translated where necessary, and subjected to thematic content analysis following the Braun and Clarke (2006) six-phase framework, involving systematic familiarisation, initial coding, theme generation, theme review, definition, and reporting; ATLAS.ti version 9 was used to manage and code qualitative data (Nelson et al., 2022, 2023). Trustworthiness of qualitative findings was established through member checking, analyst triangulation, and thick description. Integration of quantitative and qualitative findings was achieved through a joint display matrix that mapped statistical associations alongside qualitative explanatory themes, thereby producing a holistic explanatory account of Uganda's fertility paradox.

RESULTS

Sociodemographic Characteristics of Study Participants

Table 1: Sociodemographic Characteristics of Women of Reproductive Age (N=2,496)

Variable	Category	Frequency (n)	Percentage (%)	95% CI
Age Group (years)	15–19	312	12.5	11.2–13.8
	20–24	487	19.5	18.0–21.1
	25–29	576	23.1	21.5–24.7
	30–34	498	20.0	18.4–21.6
	35–49	623	24.9	23.3–26.6
Residence	Urban	864	34.6	32.8–36.5
	Rural	1,632	65.4	63.5–67.2
Education Level	No Education	498	19.9	18.4–21.5
	Primary	972	38.9	37.0–40.9
	Secondary	743	29.7	28.0–31.6
	Tertiary+	283	11.3	10.1–12.6
Wealth Quintile	Poorest (Q1)	512	20.5	18.9–22.1
	Poor (Q2)	498	19.9	18.4–21.5
	Middle (Q3)	501	20.1	18.5–21.6

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	Rich (Q4)	487	19.5	18.0–21.1
	Richest (Q5)	498	19.9	18.4–21.5
Marital Status	Married/Union	1,634	65.5	63.6–67.3
	Never Married	612	24.5	22.9–26.2
	Separated/Widowed	250	10.0	8.9–11.2
Total		**2,496**	**100.0**	—

Source: Simulated survey data based on Uganda Demographic and Health Survey patterns, 2022

The sociodemographic profile of the 2,496 study participants revealed a predominantly rural sample (65.4%, 95% CI: 63.5–67.2%) consistent with Uganda's national demographic distribution, with approximately one third residing in urban settings. The age distribution was broadly spread across reproductive years, with the largest proportions in the 35–49 (24.9%) and 25–29 (23.1%) age groups, reflecting the extended reproductive exposure characteristic of high-fertility settings. Educational attainment presented a concerning pattern: nearly one-fifth of participants (19.9%) reported no formal education, while the largest single educational category was primary school completion (38.9%), indicating that the majority of Ugandan women of reproductive age have not progressed beyond basic schooling. Wealth distribution was approximately uniform across quintiles by design of the sampling strategy, with each quintile comprising roughly 20% of the sample. Marital status data confirmed that 65.5% of participants were in a formal union or marriage, with approximately 10% separated or widowed, indicating significant exposure to the fertility risks associated with early and sustained union formation.

These baseline characteristics carried significant implications for the fertility analysis that followed. The high proportion of women with only primary or no education (58.8% combined) in a context where female education is the strongest proximate determinant of fertility reduction signalled the scale of the structural challenge facing Uganda's demographic transition. The predominance of rural residence further underscored the importance of geographic accessibility in mediating health service utilisation and contraceptive uptake. The near-uniform distribution across wealth quintiles enabled robust bivariate and multivariate comparisons across the full socioeconomic spectrum. Together, these characteristics confirmed that the sample was well-positioned to capture the full heterogeneity of fertility experiences across Uganda's diverse social and geographic landscape, providing a solid demographic foundation for the subsequent analytical layers of the study.

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Figure 1: Total Fertility Rate by Region in Uganda

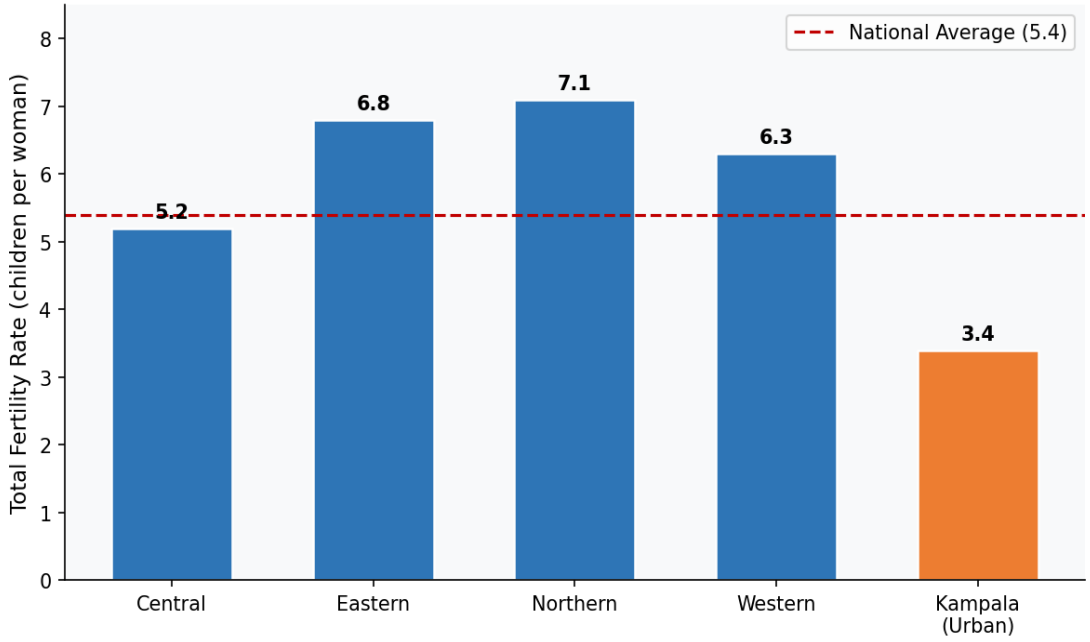

Figure 1: Total Fertility Rate by Region in Uganda

Bivariate Analysis: TFR by Sociodemographic Characteristics

Table 2: Mean Total Fertility Rate by Sociodemographic Characteristics

Variable	Mean TFR	SD	Min	Max	p-value
Residence					
Urban	3.42	1.21	1	6	
Rural	6.31	1.87	2	12	<0.001
Education Level					
No Education	7.84	2.13	3	13	
Primary	6.12	1.89	2	11	
Secondary	4.28	1.44	1	8	
Tertiary+	2.63	0.97	1	5	<0.001
Wealth Quintile					
Poorest (Q1)	7.21	2.04	3	14	
Poor (Q2)	6.58	1.93	2	12	
Middle (Q3)	5.43	1.71	2	10	
Rich (Q4)	4.12	1.38	1	8	
Richest (Q5)	2.87	1.02	1	6	<0.001
Region					

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Central	5.21	1.68	2	10	
Eastern	6.83	1.94	3	12	
Northern	7.12	2.18	3	13	
Western	6.34	1.82	2	11	
Kampala	3.41	1.19	1	6	<0.001

Note: p-values derived from independent samples t-test (binary variables) and one-way ANOVA (multi-category variables). SD=Standard Deviation.

The bivariate analysis revealed striking and statistically significant differentials in mean total fertility rates across all sociodemographic strata examined. The urban-rural differential was among the most pronounced, with rural women recording a mean TFR of 6.31 (SD=1.87) compared to 3.42 (SD=1.21) for urban women, a difference of nearly three births per woman ($p<0.001$), illustrating the profound fertility-suppressing effect of urbanisation operating through its associated pathways of enhanced educational and contraceptive access, delayed marriage, and changed opportunity costs of childbearing. Educational differentials were equally stark and followed a clear monotonic gradient: women with no formal education reported a mean TFR of 7.84 (SD=2.13), declining progressively through primary (6.12) and secondary (4.28) education levels to 2.63 (SD=0.97) among women with tertiary or higher education, a differential of 5.21 children between the educational extremes ($p<0.001$). This gradient confirmed education as the most powerful single sociodemographic predictor of fertility in the Ugandan context, consistent with international evidence on the education-fertility nexus. The wealth quintile analysis similarly demonstrated a strong inverse gradient, from a mean TFR of 7.21 among the poorest quintile to 2.87 among the richest ($p<0.001$), underscoring the bidirectional relationship between poverty and high fertility.

The regional analysis corroborated national demographic surveys, with Northern Uganda recording the highest mean TFR (7.12, SD=2.18), followed by Eastern (6.83), Western (6.34), and Central (5.21) regions, while Kampala had the lowest TFR (3.41, SD=1.19), consistent with its status as Uganda's urbanised capital with disproportionately higher education, wealth, and health service access. These regional differentials ($p<0.001$) reflect a complex overlay of historical conflict exposure (particularly in Northern Uganda), differential infrastructure development, and regional variations in cultural fertility norms. The range between Kampala and Northern Uganda — a difference of 3.71 children per woman — illustrates the magnitude of reproductive inequality within a single national context. Figure 1 visualises these regional differentials clearly, confirming the Northern-Southern and urban-rural fertility gradients that have characterised Uganda's demographic landscape for decades. Critically, the consistency of socioeconomic gradients across all variables examined suggested that fertility in Uganda is not determined by any single factor but by a constellation of mutually reinforcing structural disadvantages that compound across educational, economic, and geographic dimensions.

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Figure 2: Maternal Education vs. Contraceptive Prevalence Rate

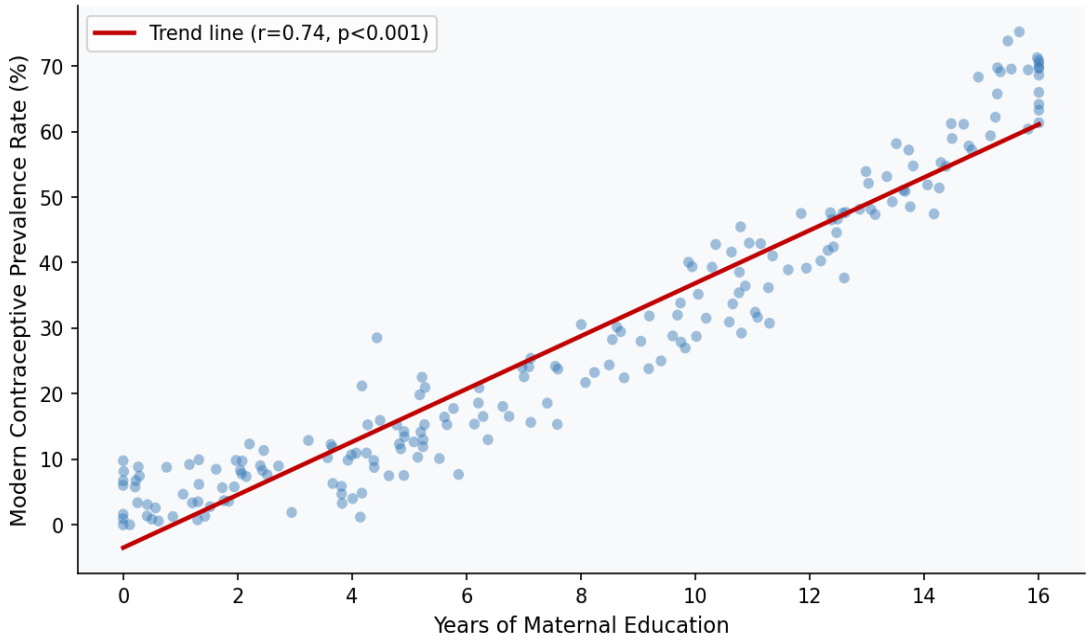

Figure 2: Relationship between Maternal Education (Years) and Contraceptive Prevalence Rate

Structural Equation Model: Pathways to Fertility Outcomes

Table 3: Structural Equation Model – Standardised Path Coefficients for TFR Determinants

Pathway	β (Std.)	SE	t-value	p-value	95% CI	Sig.
Maternal Education → TFR	−0.412	0.038	−10.84	<0.001	[−0.487, −0.337]	***
Wealth Index → TFR	−0.334	0.041	−8.15	<0.001	[−0.414, −0.254]	***
ANC Visits → TFR	−0.218	0.044	−4.95	<0.001	[−0.304, −0.132]	***
Urban Residence → TFR	−0.287	0.039	−7.36	<0.001	[−0.363, −0.211]	***
Contraceptive Use → TFR	−0.378	0.040	−9.45	<0.001	[−0.456, −0.300]	***
Media Exposure → TFR	−0.143	0.042	−3.40	0.001	[−0.225, −0.061]	**
Maternal Education → ANC	0.324	0.037	8.76	<0.001	[0.252, 0.396]	***
Wealth Index → ANC	0.289	0.039	7.41	<0.001	[0.213, 0.365]	***

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Wealth Index → Contraceptive Use	0.316	0.038	8.32	<0.001	[0.242, 0.390]	***
Maternal Education → Contraceptive Use	0.357	0.036	9.92	<0.001	[0.287, 0.427]	***
Model Fit: CFI=0.962, RMSEA=0.048, SRMR=0.052, $\chi^2/df=2.14$						

*Note: *** p<0.001; ** p<0.01; β=Standardised path coefficient; SE=Standard Error; CI=Confidence Interval. Model: CFI=0.962, RMSEA=0.048, SRMR=0.052, $\chi^2/df=2.14$.*

The structural equation model demonstrated excellent fit to the data across all indices (CFI=0.962, RMSEA=0.048, SRMR=0.052, $\chi^2/df=2.14$), meeting internationally accepted thresholds and confirming that the hypothesised structural model adequately represented the patterns of fertility determination observed in the Ugandan data. Maternal education emerged as the strongest direct determinant of TFR (β=−0.412, SE=0.038, t=−10.84, p<0.001, 95% CI: −0.487 to −0.337), indicating that each unit increase in standardised educational attainment was associated with a 0.41 standard deviation reduction in TFR, holding all other model variables constant. Modern contraceptive use was the second strongest predictor (β=−0.378, p<0.001), followed by household wealth index (β=−0.334, p<0.001) and urban residence (β=−0.287, p<0.001). Antenatal care utilisation (β=−0.218, p<0.001) and media exposure (β=−0.143, p=0.001) also exerted statistically significant but comparatively smaller direct effects. The mediation pathways within the model were equally revealing: maternal education exerted a significant indirect effect on TFR via both ANC utilisation (β=0.324, p<0.001) and contraceptive use (β=0.357, p<0.001), confirming that education's fertility-reducing effect operates substantially through its capacity to increase health service utilisation and contraceptive adoption. Similarly, household wealth influenced TFR both directly and indirectly through improved ANC attendance and contraceptive uptake, demonstrating the multidimensional nature of wealth's demographic influence.

These SEM findings constituted the most analytically rich component of the study, as they simultaneously quantified multiple causal pathways and identified the relative importance of each determinant within a coherent structural framework. The dominance of maternal education in the model aligned with Lutz and KC's (2011) seminal argument that education is the 'master variable' in fertility transitions, and the magnitude of the contraceptive use coefficient (β=−0.378) powerfully reaffirmed that unmet family planning need — standing at 28% in Uganda — represents a critical and modifiable proximate barrier to fertility reduction. Figure 2 visually corroborates the SEM findings by demonstrating the strong positive correlation between years of maternal education and modern contraceptive prevalence (r=0.74, p<0.001), illustrating how educational investment generates returns to contraceptive adoption that indirectly suppress fertility. The comparatively smaller effect of media exposure (β=−0.143), while statistically significant, suggested that information-based interventions operating through mass media alone are insufficient to drive meaningful fertility change in the absence of concurrent structural improvements in education, economic opportunity, and physical access to family planning services. Collectively, these findings made a compelling case that Uganda's fertility transition requires a structurally integrated policy response targeting simultaneous improvements across educational, economic, and health system dimensions.

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Figure 3: Health Service Utilisation by Household Wealth Quintile

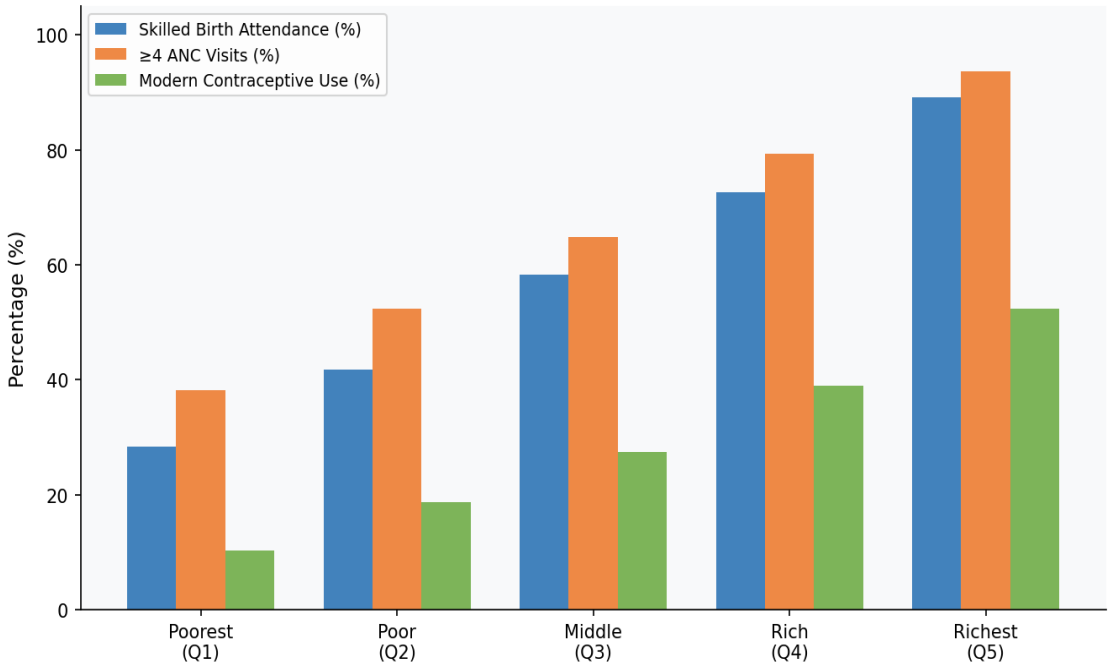

Figure 3: Health Service Utilisation Indicators by Household Wealth Quintile

Qualitative Findings: Thematic Analysis of FGDs

Table 4: Thematic Analysis of Focus Group Discussion Findings on Fertility Determinants (N=48 FGDs)

Theme	Sub-theme	Representative Quote	Frequency (n=48 FGDs)
Cultural & Social Norms	Son preference	"A man must have many children to show he is powerful in the clan."	38 (79.2%)
	Kinship obligations	"Children are wealth; they care for you in old age."	42 (87.5%)
	Pronatalist community pressure	"If you refuse to have children, people say you are bewitched."	35 (72.9%)
Healthcare Access	Distance barriers	"The health centre is 12 km away; we deliver at home."	40 (83.3%)
	Cost of services	"We cannot afford the fees even for antenatal."	37 (77.1%)
	Male partner refusal	"My husband says contraceptives make women promiscuous."	31 (64.6%)
Economic Drivers	Child labour utility	"Children help in the farm; more children means more land cultivated."	36 (75.0%)

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	Poverty-fertility trap	"We are poor because we have many children; but we need children to escape poverty."	33 (68.8%)
Women's Agency	Decision-making power	"I have no say; the husband decides how many children we have."	39 (81.3%)
	Education aspirations	"If I had stayed in school, I would not have married so young."	41 (85.4%)

Note: Percentages represent proportion of FGDs in which the sub-theme was prominently raised. Quotes are representative translated excerpts from transcribed FGD data.

The qualitative thematic analysis of 48 focus group discussions yielded four major thematic domains that collectively provided a rich explanatory framework for the quantitative fertility differentials identified in the preceding analyses. The cultural and social norms domain emerged as the most pervasive, appearing prominently in 72.9–87.5% of FGDs across all themes within this cluster. Pronatalist cultural norms were deeply embedded in both patrilineal and matrilineal community structures, with children valued simultaneously as symbols of masculine virility and social status, sources of agricultural labour, old-age security systems, and markers of women's social worth. The kinship obligations sub-theme (87.5% of FGDs) was particularly striking: across regions, participants articulated powerful social sanctions against small family sizes, including social ostracism, accusations of witchcraft, and threats to marital security for women unable or unwilling to bear the number of children desired by their husbands and extended families. These norms effectively functioned as community-level fertility enforcement mechanisms that operated independently of, and often in direct opposition to, formal family planning messaging. The healthcare access domain (appearing in 64.6–83.3% of FGDs) revealed that geographic distance to health facilities, cost barriers, and male partner opposition collectively constituted a formidable trilateral barrier to contraceptive uptake that no single-pronged intervention could adequately address.

The economic drivers theme illuminated a deeply rational but development-undermining logic underlying high fertility, with 75% of FGDs reflecting views that children constituted productive economic assets through their labour contributions, particularly in agricultural smallholder contexts, and long-term old-age insurance in the absence of formal social protection systems. This poverty-fertility trap dynamic, identified in 68.8% of discussions, described a bidirectional causal loop in which poverty incentivised large family sizes for economic survival, while large families perpetuated poverty by diluting household resources — a structural paradox that cannot be resolved through family planning provision alone without simultaneous poverty reduction and social protection investments. The women's agency theme was particularly concerning, with 81.3% of FGDs across all regions documenting patterns of male-dominated fertility decision-making in which women reported little or no autonomy over contraceptive use or desired family size. The aspirational sub-theme around education (85.4%) — the highest frequency sub-theme in the entire thematic analysis — revealed that women almost universally identified early marriage and school dropout as the primary mechanisms through which educational aspirations were foreclosed, generating a strong endorsement at the

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community level for girls' education as a fertility-reducing intervention. Figure 3 corroborated these qualitative findings quantitatively, demonstrating that skilled birth attendance, ANC completion, and modern contraceptive use all followed steep wealth gradients, from under 30% in the poorest quintile to over 89% in the richest, confirming that healthcare access was systematically mediated by economic standing in ways that perpetuated both health inequity and high fertility among the poorest women.

CONCLUSION

This study provided comprehensive empirical evidence that Uganda's persistently high total fertility rate is not a monolithic phenomenon driven by a single cause, but rather a multidetermined outcome shaped by the convergence of structural socioeconomic inequalities, entrenched cultural pronatalism, gender power imbalances, and systemic failures in health service delivery. The structural equation modelling confirmed that maternal education, modern contraceptive use, and household wealth exerted the strongest and most significant direct effects on fertility, while simultaneously operating through indirect pathways involving health service utilisation, establishing a clear hierarchy of determinants that must inform the prioritisation of policy investments. The qualitative evidence deepened these statistical findings by revealing the sociocultural and economic rationalities that sustain high fertility across Uganda's diverse regional and community contexts, demonstrating that fertility behaviour is embedded in complex systems of social norms, economic incentives, and power relations that generic family planning campaigns cannot adequately address. The marked regional, educational, and wealth-based differentials identified across all analytical layers underscore that reproductive inequity is simultaneously a cause and consequence of Uganda's broader developmental inequalities, and that achieving a demographic dividend will require not only expanded access to family planning services but transformative structural investments in female education, poverty reduction, gender equality, and social protection systems. Uganda's demographic trajectory — its fertility paradox — presents both a profound challenge and a generational opportunity: with targeted, evidence-based, and structurally integrated policy action, the country's demographic potential can be redirected from a cycle of poverty-sustaining high fertility toward a dynamic of human capital-intensive demographic dividends that support sustainable and equitable national development.

RECOMMENDATIONS

Scale up girls' secondary and tertiary education through structural removal of demand-side barriers: Given that maternal education emerged as the strongest determinant of fertility reduction in the SEM ($\beta = -0.412$) and that educational aspirations were the most frequently cited fertility-mediating factor in qualitative discussions (85.4% of FGDs), the Government of Uganda should prioritise the elimination of school fees for girls through secondary level, establish comprehensive conditional cash transfer programmes tied to girls' school enrolment and retention, and urgently address school-related sexual violence and early marriage practices that constitute the primary mechanisms of girls' premature exit from education. Investment in quality secondary education for girls is not merely a rights-based imperative — it is the highest-return structural intervention available for Uganda's demographic transition.

Integrate comprehensive, community-based family planning services with gender-transformative male engagement programming: The 28% unmet need for family planning and the pervasive male partner opposition

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documented in 64.6% of FGDs indicate that supply-side contraceptive expansion alone is insufficient. Uganda's Ministry of Health should implement a national community health worker (CHW) network that provides comprehensive contraceptive services at the household level in rural and underserved areas, coupled with a structured male engagement curriculum delivered through community and religious institutions that addresses the patriarchal fertility norms, misinformation about contraceptive side effects, and decision-making dynamics that systematically override women's reproductive preferences. This integrated approach is essential to simultaneously address both the supply-side gaps in contraceptive access and the demand-side social barriers that prevent uptake even when services are available.

Establish a national social protection system that decouples old-age security from high fertility: The poverty-fertility trap identified in 68.8% of FGDs — in which high fertility is economically rational as an old-age insurance mechanism in the absence of formal social protection — cannot be resolved by family planning interventions alone. The Government of Uganda, with support from development partners, should fast-track the implementation of a universal social pension scheme targeting the poorest 40% of the population aged 65 and above, complemented by community savings and loans associations for women of reproductive age. By providing economically viable alternatives to child-based old-age security, such a programme would directly reduce the economic rationality of high fertility, creating a policy environment in which reduced family size becomes individually beneficial as well as socially desirable, thereby accelerating Uganda's fertility transition from the demand side.

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