

Implications of Decreasing Fertility Rate in Bhutan

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ABSTRACT

The fertility rate is one of the important demographic indicators for a country's development and welfare. The study is exploratory and qualitative, using secondary data to analyse the implications of Bhutan's declining fertility rate. The study concluded that a decline in fertility rates can slow population growth, helping reduce the strain on a country's resources and infrastructure. With fewer children to support, families can provide them with better financial support and invest more effectively in their education and health, resulting in improved educational outcomes and a more skilled workforce. However, a declining fertility rate results in a shrinking workforce and an ageing population, with fewer people contributing to the economy and more relying on pensions and healthcare, ultimately slowing the country's economic growth.

Keywords: *Fertility rate, declining fertility, workforce, economic growth*

INTRODUCTION

The total fertility rate (TFR) is a major determinant of the population growth rate (Gotmark & Andersson, 2020). As per Li, 2015, the replacement rate of 2.1 children per woman has been steadily declining among European nations in the past thirty years. In addition to extremely low fertility rates, death has been declining, hastening demographic aging. Major concerns about the shrinking labor supply, the effect on future economic growth, and the incapacity of countries to fund pensions and healthcare for aging populations have been raised because of these trends (Li, 2015).

In Bhutan, the size of the young generations began to drop because of lower fertility rates (total number of children born or likely to be born to a woman in her lifetime), according to the Vital Statistics Report 2021. The Population Projections Bhutan 2017–2047 Report states that Bhutan has recently seen a sharp fall in fertility, and it is expected to remain below replacement level in the foreseeable future. This could not have come at a time when thousands of young and middle-aged professionals leave for overseas. The fertility status in Bhutan has changed from a state of high fertility, high mortality, and a high child dependency ratio in the late 1980s to early 1990s to one of low fertility, low mortality, and a low child dependency ratio, according to the Demographic Dividend in Bhutan 2020 (Drukpa, 2022).

OBJECTIVE AND RATIONALE

The growing concerns regarding the declining pattern of

the fertility rate in Bhutan have prompted the study of its implications. In the absence of credible literature on this issue, this study is anticipated to contribute towards highlighting the potential implications of the decreasing fertility rate in Bhutan.

Literature Review

Population dynamics play a critical role in shaping a nation's economic growth because both the size of the population and the pace at which it grows influence overall economic performance. Changes in population structure generate demographic shifts that alter the supply of and demand for labor, thereby affecting labor market outcomes. Since labor is a fundamental input in the production of goods and services, any demographic change directly influences national productivity (Mason & Lee, 2010; Li, 2015). Supporting this view, Bloom's research, cited by Belsie (2009), emphasises that fertility, mortality, and net migration together determine the size of a country's working-age population. Persistently low fertility rates are therefore linked to slower economic growth over time because per-capita output relies heavily on the proportion of individuals in the working-age group.

A proper understanding of demographic concepts requires distinguishing clearly between fertility, fertility rate, and birth rate. Fertility rate refers to the average number of children born to women of reproductive age, whereas birth rate is the number of live births per 1,000 people in the total population (Encyclopaedia Britannica, 2024; Population Reference Bureau,

2011). A key metric, the total fertility rate (TFR), represents the average number of children a woman would bear over her reproductive lifetime. A TFR of 2.1 is generally considered the replacement level. If each woman has roughly 2.1 children who survive to age 15, she and her partner are effectively “replaced” in the population. A TFR above 2.1 typically results in population growth, while a sustained TFR below this level leads to long-term population decline, although actual outcomes may differ based on immigration, emigration, and age structure (Smoak, 2022).

Li (2015) argues that fertility reduction is both an economic and a social phenomenon arising from economic development. Declining fertility significantly influences demographic structure as well as economic and social outcomes. Many countries, therefore, adopt population control policies. China’s “one-child policy,” for example, was an economic incentive mechanism that rewarded one-child households and penalised larger families (Weeks, 2008; Li, 2015). Very low fertility rates accelerate population aging; as fertility falls, the age distribution shifts and can create a demographic dividend (Li, 2015). However, declining fertility can also constrict population size, especially among younger cohorts, and shape an age structure that increases the likelihood of long-term population decline (Lal et al., 2021).

In Europe, birth rates have been declining and family sizes shrinking across all EU member states. Grant et al. (2005) found that every EU nation now has a fertility rate below the replacement level. Low fertility is also accelerating population aging. According to U.S. Census Bureau projections, the global population aged 65 and older is expected to increase from about 8 percent in 2012 to nearly 17 percent by 2050 (U.S. Census Bureau, 2012). This demographic shift poses significant economic challenges for Europe. A shrinking workforce reduces productivity, and the viability of pension and social insurance systems is strained by a growing elderly population. Smaller household sizes further increase healthcare and social support costs. Collectively, these pressures make it difficult for the EU to maintain full employment, economic growth, and social cohesion (Grant et al., 2005).

The Pew Research Center (2022) highlights that declining fertility is already leading to reduced school enrolments in many districts, which can generate short-term cost savings. Yet, in the long term, governments may face revenue constraints, labour shortages, and fiscal pressures due to fewer taxpayers. In a long-term endogenous growth model, Lee (2012) found that higher fertility can hinder economic growth because of increased child-rearing costs, whereas higher economic growth tends to increase fertility as rising capital increases child-rearing

expenses. The phrase “development is the best contraceptive,” coined at the 1975 United Nations conference, encapsulates the idea that economic development naturally reduces fertility (Lee, 2012).

Monitoring fertility trends is therefore essential for effective planning. Persistently high fertility may require investment in schools and childcare, while persistently low fertility may signal an aging population that could burden the economy with rising health and pension costs. Governments typically employ direct and indirect fertility policies. Direct policies include tax rebates or financial incentives to encourage childbirth. Indirect policies include reforms in childcare availability, parental leave, and workplace regulations, which influence fertility as a secondary effect (Smoak, 2022). One major explanation for falling fertility is the delay of first births. Women today are postponing childbearing, shortening their reproductive years and increasing the likelihood of remaining childless (Weston & Parker, 2002). International studies suggest that increased access to education and employment opportunities for women significantly delays marriage and childbearing (Bailey et al., 2018). Compared to fifty years ago, women now have more life choices, greater access to contraception, and diverse career pathways. Shortages of affordable childcare also contribute to decisions to postpone or avoid childbearing. Age-Specific Fertility Rates (ASFR) for 2017–2020 show that fertility peaks among women aged 25–29 and 30–34 before gradually declining.

In Bhutan, higher female education levels and expanding career opportunities have led many women to delay marriage and childbirth (Drukpa, 2022). The UN Population Division maintains that a TFR of 2.1 is required to sustain population replacement. However, modern societies offer women considerable autonomy, often accompanied by workplace environments that make balancing work and family difficult. As McDonald (2000, 2008) points out, women face greater career and economic risks from family formation than men, making childbearing less attractive in certain labour markets. Education is strongly linked to declining fertility. Longer schooling delays marriage, empowers women, and encourages smaller family sizes. Economic development shifts preferences toward investment in fewer children with higher “quality” better health, education, and opportunities (Jones et al., 2011; Gotmark & Andersson, 2020).

Belsie (2009) notes that each additional child reduces a woman’s lifetime labour participation by approximately 1.9 years. As fertility declines, women work more, save more, and gain experience, contributing to higher future earnings. Parents with fewer children also invest more time and resources per child,

improving education and health outcomes. Lam (2015) observed similar trends in Brazil, concluding that declining fertility enables greater investment in children, enhancing human capital. This pattern is reinforced by Bairoliya and Miller (2021), who argue that higher education and lower fertility redirect parental resources toward child development. Japan's fertility decline has also been attributed to delayed marriage. Shirahase (2000) found that increasing numbers of highly educated women remained unmarried in their twenties, contributing to sustained fertility decline since the late 1960s. The rise in women's university enrolment since the 1990s corresponds inversely with falling birth rates, suggesting a strong relationship between education and reduced fertility.

Kim (2016) offers three mechanisms through which education influences fertility among women:

1. Income and opportunity cost: Higher-earning women experience greater income loss from childbearing and therefore prefer fewer children.
2. Health improvements: Education enhances maternal and child health, increasing child survival and reducing the economic need for larger families.
3. Knowledge effect: Educated women have more knowledge and better use of contraception.

Understanding how income, health, and knowledge intersect with fertility decisions in specific national contexts is critical for effective population policymaking.

METHODOLOGY

This study adopts an exploratory qualitative research design, aiming to gain a deeper understanding of the implications of declining fertility rates in Bhutan. The exploratory approach is particularly suitable because the topic is complex and multifaceted, with social, economic, and demographic dimensions that require in-depth understanding rather than purely quantitative analysis. The study focuses on interpreting patterns, trends, and implications of fertility changes by leveraging secondary data from credible sources.

Data Sources: The study utilises a variety of high-quality secondary sources to ensure reliability, credibility, and comprehensiveness of the findings:

Government Reports and Official Statistics: Labour Force Survey Reports (National Statistics Bureau, 2021, 2024) provided up-to-date demographic and labor market data.

Peer-Reviewed Scholarly Journals: High-indexed, open-access journals were prioritised to ensure the integrity and academic rigor of the literature. Examples include BMC Public Health (e.g., studies on maternal education and fertility outcomes); the

Lancet (systematic analyses linking education, fertility, and child mortality); Population and Population Studies (on demographic transition and fertility trends) and proceedings of the National Academy of Sciences (PNAS) (on fertility, contraception, and socioeconomic effects)

Grey Literature and Online Data Sources: Macrotrends websites and other open-access demographic data platforms were used to track historical trends in fertility, birth rates, and population growth. Policy briefs, working papers, and official press releases were consulted to understand government strategies, fertility-related programs, and broader demographic implications.

Data Collection Process and Analysis: The data were collected systematically through a literature survey and structured keyword searches. Keywords included: fertility rate, declining fertility, implications of decreased fertility, women's fertility choices, population stability, reproductive health, empowerment, and socioeconomic impacts of fertility decline. Collected secondary data were analysed qualitatively to identify patterns, trends, and relationships relevant to fertility and its societal implications in Bhutan. Quantitative components such as birth rates, fertility rates, and population trends were presented using tables, charts, and graphs, processed in Microsoft Excel and MS Office for clarity and visualisation.

RESULTS AND FINDINGS

Bhutan's fertility rate has declined since 2015, when it fell below the sustaining level of 2.1, as displayed in Figure 1. The current fertility rate of 1.824 has raised concerns about the country's stability both now and in the future. Low fertility has the drawback of reducing population size only among the young, rather than across the board. If the population is to be demographically sustainable, low fertility will eventually lead to an age structure that will accelerate further population decline. The long-term effects of this decline will be felt because the State's tax bases may eventually be threatened by smaller working-age populations, which is a major source of fiscal uncertainty.

The Birth Rate in Bhutan

Bhutan has had substantial socioeconomic growth since the introduction of planned development in 1961. In other words, over the past 60 years, the nation has undergone significant demographic changes. If Bhutan is to benefit from sustainable population growth, the declining birth rate, a growing concern, needs to be reversed to at least a replacement level (Dorjee & Spoorenberg, 2016). Otherwise, due to an aging population and a declining labor force, Bhutan is likely to experience significant societal issues in the future, as depicted in Figure 2. Furthermore, the old-age dependency ratio is expected to rise, potentially reducing economic growth as the proportion of the population that is older relative to the working-age population increases. If Bhutan is slow to invest in human capital and implement growth-promoting measures that are guided by a national population

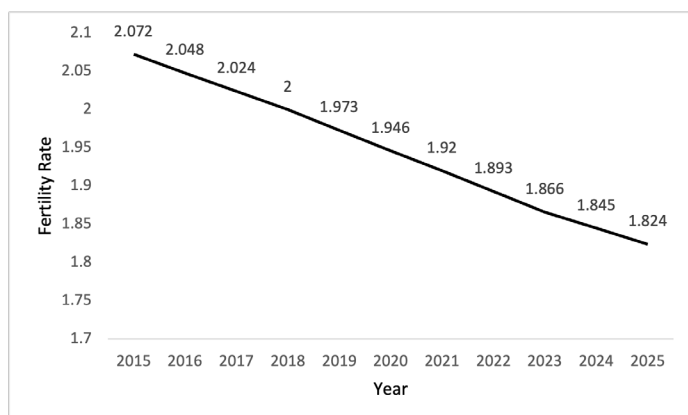


Figure 1 Trend of Fertility rate in Bhutan

Source: Bhutan Fertility Rate 1950-2025

(<https://www.macrotrends.net/countries/BTN/bhutan/fertility-rate>)

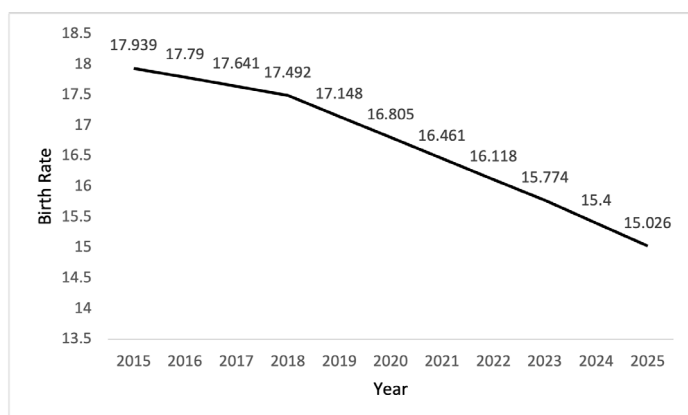


Figure 2 Trend of Birth rate in Bhutan

Source: Bhutan Birth Rate 1950-2025

(<https://www.macrotrends.net/countries/BTN/bhutan/birth-rate>)

policy, the effects of a declining birth rate could be detrimental (Wangchuk, 2020).

Two countervailing trends dominate the demographic discussion. On the one hand, Bhutan is undergoing rapid demographic change with an increase in population and rising life expectancy, as displayed in Figure 3. On the other hand, fertility is on the decline. Bhutan is undergoing rapid demographic change with rising life expectancy and literacy rates and a sharp decline in fertility. Economically, the country benefits from a high proportion of the working-age population. However, as demographic change progresses, the number of older people increases, turning the demographic dividend into a demographic tax. According to the Asian Development Bank (2020) on Bhutan's Demographic Dividend, declining fertility has been accompanied by an increase in life expectancy and is expected to increase further. The child dependency ratio, the number of children (under the age of 15) per 100 working-age population, decreased from 53.1 in 2005 to 38.3 in 2017.

Population Pyramid in Bhutan

Bhutan has experienced a decrease in birth rates over the years. In 2024, the birth rate is approximately 15.4 births per 1,000 population. Advancements in healthcare have led to a steady increase in life expectancy in the past ten years. Population growth (annual %) in Bhutan was reported at 0.69815 % in

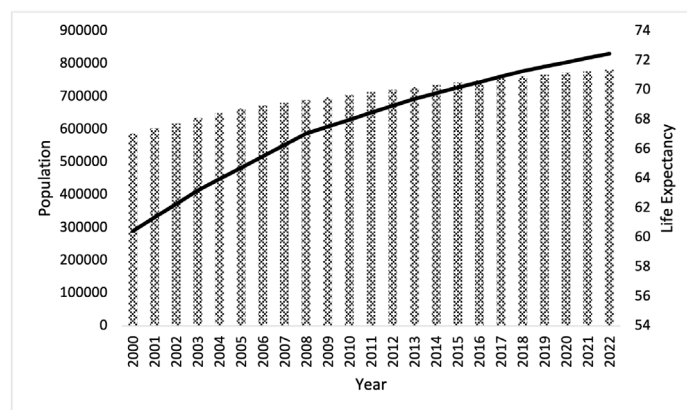


Figure 3 Trend of population and life expectancy

Source: <https://www.worldometers.info/world-population/bhutan-population/>

<https://countrysteconomy.com/demography/life-expectancy/bhutan>

2023, according to the World Bank collection of development indicators (Trading Economics, 2025), suggesting a lower growth rate could eventually lead to a declining population in the long run, especially if birth rates continue to fall. The demographic trends suggest that Bhutan is transitioning from a youthful population to an aging one, as seen in Figure 4, whereby the shift poses challenges such as a shrinking workforce and increased dependency on the elderly, putting pressure on public services and pensions.

Labour Force Participation

According to the National Statistics Bureau (2025), the overall employment rate in Bhutan is 96.89%, with men having a slightly higher rate at 97.7% compared to women at 95.6%. The Labor Force Participation Rate (LFPR) is defined as the ratio of the economically active population to the working-age population. In general, as shown in Figure 4, the men's labor force participation rate (LFPR) in 2024 stands at 74%, notably higher than the women's rate at 54.6%, reflecting a gap of approximately 19 percentage points. While men's LFPR has steadily increased over the years, peaking in 2024, women's participation has been more volatile. In 2021, it reached its highest recorded level at 65.3%. Despite the fluctuations, women's LFPR demonstrates their growing engagement in the workforce, largely driven by higher educational attainment and expanded career opportunities, which have also contributed to delays in marriage and childbearing.

DISCUSSIONS

Bhutan is facing the demographic transition wherein the younger

generation is starting to shrink in size due to declining fertility rates, which are expected to remain below replacement levels for the foreseeable future. The fertility rate, or the number of children born per woman, is an important demographic indicator

which is below the replacement rate of 2.1. However, having fewer children means parents have more resources to invest in their children's education and health, leading to better educational outcomes and a more skilled workforce.

Fertility rates can also be indicators of gender equality and women's empowerment. Studies show that fertility rates tend to decline as women become more educated and gain employment opportunities. Women understand these benefits would be significantly compromised once they have a child, and given these results, it is possible to hypothesise that the rise in women's access to higher education and the fall in fertility rates are related. High fertility is also associated with higher maternal and infant mortality, while lower fertility tends to align with better health outcomes, a link supported by evidence that increased maternal education reduces both maternal mortality (Gakidou et al., 2010) and under-5 child mortality (Bbaale, 2019). Fertility is a crucial factor in both policy and decision-making, especially in areas related to population, economy, and health. Understanding fertility rates allows governments to make informed decisions about resource allocation and welfare programs. Bhutan needs to maximise the benefits of the demographic transition so that it will increase the working-age population and reduce the burden of dependence. The impact of very low fertility rates on future labour forces and the sustained low fertility rates may be difficult to reverse. Further research and analysis are needed to better understand the impact of declining fertility and develop effective strategies to mitigate its negative implications, since tracking fertility rates allows for more efficient and beneficial planning and allocation of resources within a given region.

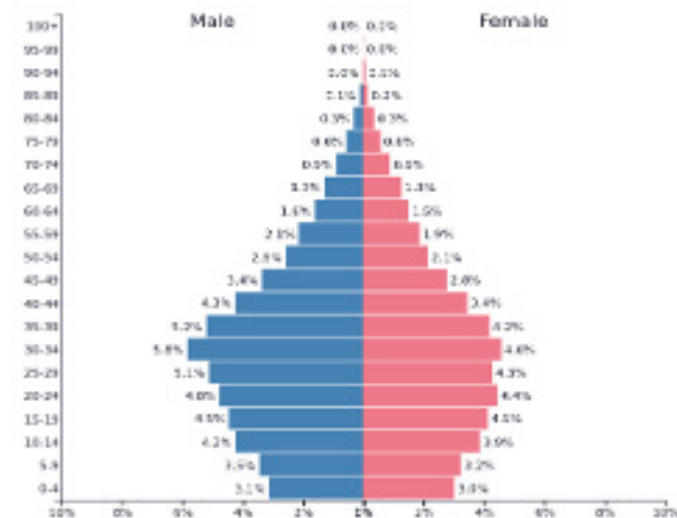


Figure 4 Population Pyramid in Bhutan

Source: <https://www.populationpyramid.net/bhutan/2024/>

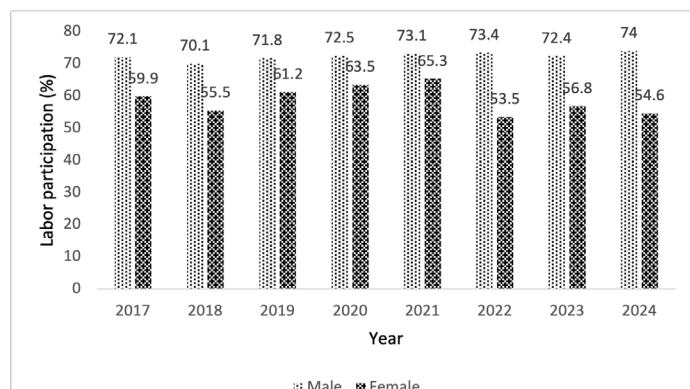


Figure 5 Labor Force Participation rate by sex

Source: Labor Force Survey Report, from 2017 to 2024

with social, economic, and political implications. Therefore, this research aims to examine the implications of declining fertility rates in Bhutan, contributing to a deeper understanding of the demographic and socioeconomic consequences of this trend. The fertility rate determines the rate of population growth since high fertility rates can lead to rapid population growth, straining resources and infrastructure. Low fertility may contribute to an aging population and labor shortages, which can, in turn, affect economic growth and increase the dependency burden on the working population. Moreover, Bhutan has seen increasing population and life expectancy over the years, but declining fertility and birth rate. The fertility rate of 2025 stands at 1.824,

CONCLUSION

Declining fertility rates are a growing global concern, and Bhutan is no exception. This study highlights that Bhutan is experiencing a decline in fertility and birth rates alongside rising life expectancy, resulting in an aging population. Fewer children and longer life expectancy have shifted the population structure, increased the proportion of older adults, and placed greater demands on healthcare and social security systems. The study also finds that declining fertility contributes to a shrinking workforce, which has implications for economic growth due to fewer individuals participating in the labor market. Rising women's education and labor force participation further influence fertility decisions, as women balance career and personal development with family responsibilities. These findings underscore that declining fertility has significant implications for both individuals and society. Policymakers, governments, and communities must proactively address these challenges by implementing strategies that support aging populations, sustain workforce participation, and balance gender equality with demographic stability.

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