

# **The Relationship Between Education and Fertility Rates: A Comparative Study of Developing and Developed Countries**

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## **Abstract**

Through its effects on other factors that directly affect fertility, education can have an indirect effect on fertility. Numerous population science studies have examined the connection between fertility and education. In both theoretical and empirical findings, the causal relationship between the population's qualitative development through education and its number growth through births has been described. Scholars became more interested in the quest for a rational connection between fertility and economic development. The majority of articles from the 1950s and 1960s fall within the transmission theory paradigm, which supported the implicit premise that fertility and economic progress are inversely correlated. In terms of fertility management, the Tamil Nadu government has made incredible strides, and its record stands out when compared to other states. This exceptional achievement might be the result of the government's earnest attempts to promote family planning, but once more, there may have been other factors at play that contributed to this intriguing reduction. India's family planning program has achieved amazing strides in reducing fertility. Numerous national research on family planning and fertility indicate that the usage of contraception is significantly influenced by women's education in particular and education in general. Most of these studies have not thoroughly investigated the connection between women's reproductive behaviour, family planning, and education.

**Keywords:** Education; Fertility; Development; Government; Framework; Population.

## **I. INTRODUCTION**

India, one of the oldest civilizations in the world, has a rich cultural heritage and a wide variety of customs. It has seen overall socioeconomic growth in the last 75 years since gaining its independence. One of the most industrialized countries in the world today, India has attained agricultural self-sufficiency and is among the few that have stepped into space to conquer nature for the benefit of humanity (Cleland, 2009). It covers 32,87,263 square kilometres (1,269,346 square miles), extending from the southern tropical rain forests to the snow-capped Himalayan highlands. India, the seventh largest country in the world, has a distinct geographical identity because of the sea and mountains that divide it from the rest of Asia. Between the Arabian Sea on the west and the Bay of Bengal on the east, at the Tropic of Cancer, it tapers off into the Indian Ocean as it extends southward from the Great Himalayas in the north (Barber, 2010).

According to the oldest writings, the "Rig-Veda," an estimate of India's population was kept up to date between 800 and 600 BC. As a gauge of state policy for taxes, the renowned "Arthashastra" by "Kautilya," published in the third century BC, called for the gathering of demographic figures. It included a thorough explanation of how to carry out economic, population, and agricultural censuses. The largest single source of statistical data on various aspects of Indian citizens' characteristics is the Indian Census (Testa, 2014). Since 1872, when India's first census was carried out non-synchronously in several regions, this dependable and tried-and-true method has been producing an abundance of statistics every ten years for almost 130 years. The Indian Census has proven to be an intriguing source of information for academics and researchers in a wide range of fields, including economics, statistics, anthropology, sociology, and demography (Götmark & Andersson, 2020). The decennial census, one of the instruments used to comprehend and research India, genuinely highlights the country's tremendous diversity.

Fertility is both a biological outcome and a socioeconomic decision. According to God's plan, species are created to vanish while others are permitted to procreate. Every kid is born with the message that God is still not tired of humanity, according to a quote by Rabindranath Tagore. Humans are hence continuing. We cannot urge newlywed couples to forgo having children if India is "over-populated." Despite their differences, micro decisions and macro realities must be brought into alignment (Buyukkececi & Engelhardt-Wölfler, 2021). Based on obvious life facts, some generalizations can be formed, such as the fact that fertility is greater in underdeveloped nations and among poor populations worldwide. There had been decline in fertility in recent years and the poor too are not having as many children as they were having earlier.

With a Human Development Index (HDI) ranking of 131st out of 188 countries, India remains stagnant (Ryabov, 2015). Kant asserted that the eastern Indian states were mostly to blame for India's poor HDI performance at a speech at Delhi's Jamia Millia Islamia University. He especially listed MP, Rajasthan, Bihar, Uttar Pradesh, and Chhattisgarh. "The eastern part of India, especially states like Bihar, UP, Chhattisgarh, MP, and Rajasthan, are keeping India backward, especially on social indicators," says the chief executive officer of NITI Aayog. While our human development index has not improved, our ease of doing business has. Kant claimed that portions of southern and western India are expanding quickly in comparison to eastern India (Adhikari et al., 2024). According to Kant, India mainly lags behind in education and health. A man, woman, or couple is deemed fertile if they have given birth to at least one live child; a person who has not produced any offspring is deemed sterile. However, like with fertility, sterility metrics are often calculated only for women. There are two types of sterility: natural and artificial. Usually, the phrase refers to innate sterility. The total number of children born to a woman or a couple is referred to as family size in this study. The completed family size indicates the total number of children a woman bears till the end of her reproductive period. Whereas managed fertility entails the purposeful use of birth control, natural fertility occurs when there is no intentional use of birth control (Bongaarts, 2003). The pace of childbearing is indicated by the birth interval, which is the period of time between two consecutive live births. A mother's health and her children's chances of surviving can be negatively impacted by short birth intervals.

## II. LITERATURE REVIEW

The core idea of demographic transition theory, demographic convergence, is used by Holsinger and Kasarda (2013). They discuss the global convergence of fertility and the implications for theories explaining low fertility (Afreen et al., 2024). The final explanatory factor Mondal et al. (2012) mention is the institutional framework, in the form of the often-inadvertent effects of government measures and family policies to bridge conflicts between work and childbearing. Economic motivation is emphasized in the first component, followed by cultural and ideational change in the second, and a form of bridge connecting the two in the third (Colleran & Snopkowski, 2018). The relative importance of supply and demand factors in motivating couples to utilize family planning has been a topic of continuous debate since the UN World Population Conference in Bucharest in 1974. Demand theory proponents envision a limited role for family planning programs, whereas supply theory proponents ascribe a large percentage of the fertility drop to their efficient service delivery. According to Gayawan and Adebayo (2013), neither theory alone can fully account for the drop in reproduction, hence the argument shouldn't be framed as an "either-or" choice. According to them, supply and demand factors are significant and reinforce one another. In evaluating the economic theories of fertility, Madhavan et al. (2003) state concisely that the economic model seems bogged down in a simplistic demand-oriented framework, with the unnecessary and confusing "quality of children" notion clouding everyone's thinking (Samari, 2019). Neither the proponents of the traditional vision nor the SDT theorists specifically include the desire for upward mobility and the welfare of one's own child as a potential driver influencing fertility decisions in the post-modern world. According to Sheikh and Loney (2018), the postponement of marriage and childbearing, which is observed in both developed and developing Asian nations, may not be related to the spread of values associated with the "second demographic transition."

Countries with the male breadwinner model and traditional, male-dominated family structures would generally have lower reproduction rates than countries with the gender equity model, according to Afreen et al. (2024). According to Colleran and Snopkowski (2018), what has happened in developed countries over the last 20 years negates the idea – so widespread during the first half of the 20th century, and incorporated into numerous formulations of transitional fertility decline theories – that the waning of the traditional family and fertility decline are closely intertwined.

The answer to the question of whether couples often choose the size of their family logically is negative, according to Holsinger and Kasarda (2013). Micro-studies and anecdotal evidence have demonstrated that the majority of couples, even those with higher levels of education, do not discuss it and do not consciously decide on the number and spacing of children (Madhavan et al., 2003). It is reasonable to conclude that these ideas are clearly ineffective in describing the circumstances in India. According to Samari (2019), more than half of the world's population lives in regions with total fertility of 2.3 or less, necessitating a thorough reevaluation of fertility theories. According to Afreen et al. (2024), the theoretical framework should be broadened to encompass the causes of exceptionally low fertility in a range of social and economic settings. The following objectives are the focus of the study:

- To evaluate the literature on the socioeconomic effects of dropping fertility rates as well as the factors and policies that have influenced women's reproductive behavior in India and around the world;
- To assess India's population policy and its effectiveness within the Indian context;
- to look at Tamil Nadu's and Maharashtra's fertility rates and trends and to clarify the different micro-level responses that have led to intra- and inter-state fertility discrepancies;
- To investigate the "demographic dividend" and diminishing CSRs, two economic and social repercussions of Tamil Nadu and Maharashtra's reversal of demographic trends;
- to predict the start of the "demographic dividend" phase in Tamil Nadu and Maharashtra using actual working and non-working population statistics;
- to research the social and economic effects of falling fertility and provide policy options to take advantage of the "demographic bonus" in both states.

### **3. METHODOLOGY**

#### **1. *Research Design***

The strategy, plan, and structure of an inquiry created to find answers to research questions and manage variance is known as research design. Everything the researcher will perform is covered in the plan, from formulating the hypotheses and considering their operational implications to conducting the final data analysis. The framework, plan, and paradigm of how the variables work together make up the structure. The techniques for gathering and analysing the data are part of the plan. Therefore, the study design serves as a guide that instructs us on what observations to make, how to make them, and how to analyse the quantitative representations of those observations. It also identifies the kinds of statistical analysis that should be applied. Lastly, a suitable design describes potential inferences that might be made from the statistical analysis. The fertility rates and family planning methods in the rural and urban parts of Uttar Pradesh's Agra district are the focus of this study. The availability and application of primary and secondary data and literature serve as the study's main pillars. Primary data includes all of the original information gathered by the analysts. Data that can be utilized from other sources are referred to as secondary data. Secondary statistics, as defined by ILERSIC and PLUCK, are statistical data that are published and accessible, such as the Annual Abstract of Statistics.

#### **2. *Limitations Of the Study***

The researcher encountered a number of challenges in gathering the data needed for the analysis in the current study. Despite every attempt to make the study more realistic, research-oriented, scientific, and free of flaws, the current study has the following limitations because of circumstances without the researcher's control:

1. There can be minor differences on the same variables between sources because secondary data was gathered from multiple sources.

2. Over time, the definitions of many concepts have evolved, and it seems sense that the coverage has as well. Data is now inconsistent as a result of these modifications. However, this limitation has been overcome with the use of numerous statistical tools and metrics.
3. Because the percentages and averages were calculated using approximations, the totals occasionally might not add up exactly.
4. Another measure that has been hampered is the lack of necessary data on crucial factors pertaining to fertility and family planning welfare.
5. The various aspects of declining fertility and proper use of family planning programs were not adequately and systematically enumerated in the Census Data, Sample Registration System Statistical Report, National Sample Survey, National Family Health Surveys, and other surveys conducted by official and non-official agencies.
6. Time and money are constant.

### 3. *Research Questions*

The following research questions were the main focus of the study:

1. What are the primary international policy initiatives for the universalization of elementary education in the era of globalization?
2. How have developing nations gone about achieving the aim of universal elementary education?
3. What trends exist in the expansion and advancement of elementary education in underdeveloped nations?
4. To what extent have various developing nations succeeded in addressing regional and social disparities to attain universal elementary education?
5. Why do poor nations perform differently when it comes to attaining universal basic education?
6. In terms of the universalization of elementary education, what challenges do developing nations face?

Given that humans evolved in an environment where mortality was high due to famines, accidents, diseases, infections, and war, relatively high reproduction rates were essential to the species' survival. Despite relatively high reproductive rates, it took the whole era from human evolution to the middle of the 19th century for the world's population to reach one billion. Due to the unprecedented global speed at which health care technologies and access were developed, the twentieth century witnessed a sharp decrease in mortality and an increase in longevity.

Table 1: Descriptive Statistics relating to Socio-Economic Variables

S.No	Variables Used	Notation	Mean	S. D	Median	Min	Max
1	Type of family	X1	1.321	0.321	1.000	1.000	2.000
2	Family Size	X2	4.642	1.932	3.232	2.000	8.000
3	Age of the respondents	X3	28.232	4.232	25.321	16.000	47.000
4	Religion	X4	1.231	0.231	1.000	1.000	4.000
5	Employment status of the	X5	6.343	1.322	2.000	1.000	8.000

	respondents						
6	Family income	X6	932.123	243.120	265.000	100.000	13200.000
7	Education status of the respondents	X7	4.322	1.532	5.000	1.000	8.000
8	Fertility or number of children	X8	2.321	1.322	2.000	0.000	11.000
9	Family planning adoption status	X9	1.621	2.223	2.000	0.000	2.000
10	Age at adopting family planning	X10	22.221	3.212	22.000	0.000	34.000
11	Time lag between Age at marriage and age at adoption of family planning	X11	4.232	3.421	4.000	0.000	29.000
12	Family planning method adopted	X12	3.564	2.532	4.000	0.000	9.000

Although the population took action to lower fertility after realizing these changes, the fertility decrease was not as severe. Consequently, the world's population has increased fourfold in just a century, reaching six billion people.

Table 2: Descriptive Statistics relating to Socio-Economic Variables

S.No	Variables Used	Notation	Mean	S. D	Median	Min	Max
1	Type of family	X1	1.321	0.321	1.000	1.000	2.000
2	Family Size	X2	4.642	1.932	3.232	2.000	8.000
3	Age of the respondents	X3	27.230	4.120	24.500	16.000	47.000
4	Religion	X4	1.231	0.231	1.000	1.000	4.000
5	Employment status of the respondents	X5	6.343	1.322	2.000	1.000	8.000
6	Family income	X6	982.120	234.000	265.000	100.000	12000.000
7	Education status of the respondents	X7	4.322	1.382	5.000	1.000	8.000
8	Fertility or number of children	X8	2.321	1.392	2.000	0.000	11.000
9	Family planning adoption status	X9	1.621	2.532	2.000	0.000	2.000
10	Age at adopting family planning	X10	25.222	3.422	21.000	0.000	36.000
11	Time lag between Age at marriage and age at adoption of family planning	X11	4.322	3.342	4.000	0.000	29.000
12	Family planning method adopted	X12	3.753	2.653	4.000	0.000	9.000

In general, it was observed that areas with more economic development tended to have lower fertility rates than less developed regions over the most of the 20th century. New evidence suggests that the relationship between fertility and development may change from negative to positive among high-income countries, even though this trend holds true whether comparing low-, middle-, and high-income countries.

#### 4. CONCLUSIONS

This study began by analysing the worldwide policy perspective on the universalization of elementary education before examining the growth and development of primary education in emerging nations. Following the international policy viewpoint, the current state of universal elementary education in developing nations has been examined in order to determine the issues these nations are facing with regard to this program. The policy planning for universal

elementary education in the chosen nations was covered in the study's following section. Following this, the advancement of the chosen countries' educational attainment was examined. Additionally, the particular problems and difficulties that the chosen nations' elementary schools face have been examined. The study's last section is focused on a comparative investigation of the expansion and advancement of universal elementary education in a few chosen nations, as well as the conclusions that may be made from this comparison. The following results have been derived from these analyses and are listed under the corresponding headings.

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