

Some Demographic Trends in the World's Most Populous Country-to-Be

By Nimish Adhia



Crowd of Indian people celebrating at India-Pakistan Wagah border flag ceremony during India Republic Day on January 26th, 2015, in Wagah, India. Source: Shutterstock stock image by Cornfield. © Shutterstock.

Sometime around the year 2023, India will surpass China as the world's most populous nation, with a population approaching 1.4 billion (see Figure 1).¹ Such change at the top of demographic rankings is rare, and so it is likely to generate some attention, reflection, and commentary. People are likely to be curious about India's population growth—does it show signs of slowing? In the Western imagination, India, perhaps more than any other country, has been associated with overpopulation. Stanford ecologist Paul Ehrlich begins his famous book *The Population Bomb* by describing an Indian city street scene: “People eating, people washing, people sleeping. People visiting, arguing, and screaming. People thrusting their hands through the taxi window, begging. People defecating and urinating. People clinging to buses. People herding animals. People, people, people, people.”²

According to the widely accepted theory of demographic transition, a developing country's population is expected to go through a phase of rapid growth before it stabilizes. India has been developing for a while, so people are wondering when its population size will stabilize. The stabilization is not expected to occur before 2050, but recent demographic trends in the country will offer some reassurance to those who have been kept awake at night by the prospect of people, people, people, people. First, the country's fertility rate is expected to continue on the path of long-term decline. Second, rather than mass starvation, as Ehrlich predicted, many economists now expect the economy to receive a boost from the growing size of its working-age population relative to its total population. Third, the country is experiencing a worsening sex ratio of female-to-male infants. This trend is exacerbated by the desire to have smaller families and better access to modern prenatal health care.³ These trends are discussed in more depth in the essay that follows.

Declining Fertility

One of the determinants of population growth is the total fertility rate, which is the average number of children that the women in a country have in their lifetimes. When Ehrlich wrote his book, India's fertility rate was approximately five children per woman, a high rate but lower than the rate of six children per woman that prevailed a decade earlier. Today, the rate is 2.3, and in about half of the states, it has dropped below 2.1. Demographers consider the fertility rate of 2.1 (called the replacement rate) to be an important threshold because if the rate of 2.1 is sustained over time, it leads the birthrates and death rates to equalize and therefore the population to stabilize. Unlike in the case of China, aggressive measures to restrict fertility by the government in India have not been a significant factor in bringing about the decline. The government attempted forced sterilization on a small scale during the “emergency” years (1975–1977) when civil liberties were suspended. Outside of that episode, the government's efforts to promote family planning have been largely noncoercive and, according to some observers, rather muted.⁴ So what factors have been responsible for the fertility decline? Other than the spread of cable TV, which one study

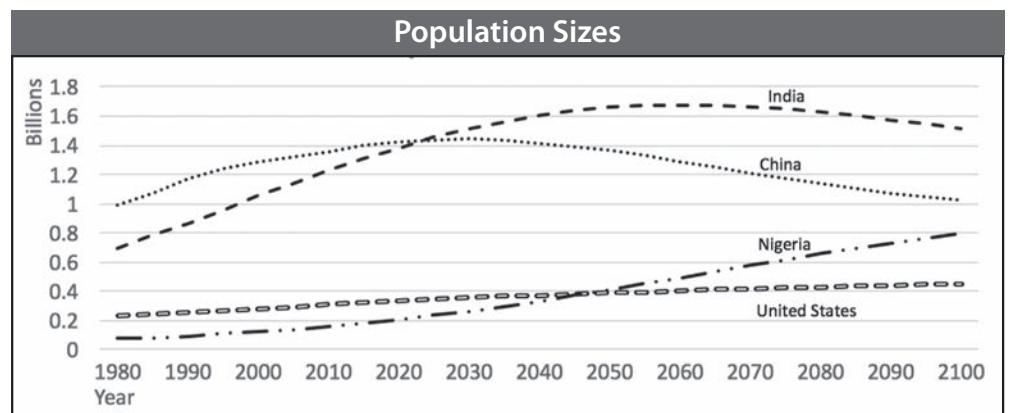


Figure 1: Population sizes. Source: UN Population Division at <https://tinyurl.com/y7suqxtv>.

India's Jobless Demographic Dividend

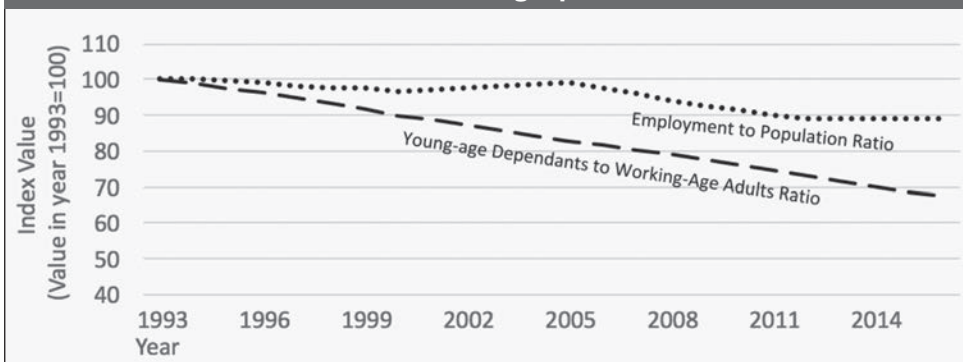


Figure 2: India's jobless demographic dividend. Source: World Bank at <https://tinyurl.com/q56nd8o>.

has linked to depressed fertility in some Indian villages, the factors found by most studies to be responsible for the long-term decline are very prosaic: economic development, urbanization, rising female literacy and education, and falling child mortality.⁵

The economic theory of fertility explains how such factors operate. Economic development and urbanization turn children from assets to liabilities. On a farm, a child can help out from a very young age. Grown children in traditional societies provide old-age income support to parents. But in Mumbai or Kolkata today, just as in Los Angeles and Tokyo, children require outlays for additional housing, education, and play. This also diverts their parents' time from paid work. At the same time, children's function as old-age income support for their parents is supplanted by the growth of retirement savings, pension plans, and government welfare programs. Rising literacy and education give women access to more and better opportunities for paid work. This, in turn, contributes to lower fertility in two ways.

First, a higher market wage increases the opportunity cost of women's time, rendering the time-intensive task of childrearing less attractive for the household. Second, having an independent source of income enhances a woman's "bargaining position" in the household and gives her a greater say in the decision about the number of children to have. Surveys have found that women on average tend to desire a smaller number of children than their male partners, a finding not surprising given that the costs of bearing and rearing children fall disproportionately on women.⁶ In addition to expanding economic opportunities, having access to the written word also enables a woman to better take care of her children's health and thereby contribute to the reduction in child mortality. With lower expected child mortality, couples require fewer births to feel reassured that their desired number of children will make it to adulthood, so instances of parents overshooting that number due to chance are also reduced.

Though India's overall fertility rate is estimated to reach the replacement rate sometime between 2020 and 2035, it will take longer for the population size to stop growing because of demographic momentum.⁷ Just because the fertility rate of women *over their lifetimes* will equal the replacement rate, this does not necessarily mean that *at any given time* the number of births and deaths will be equal. Because of the rising number of births in the years prior to the replacement rate being reached, the momentum will continue because of the sheer number of women entering their childbearing years. Consequently, the number of births will keep rising past the year the overall fertility rate reaches the replacement level, so the population will continue to grow. As shown in Figure 1, the population is expected to keep growing beyond 2050, when it is estimated to have surpassed 1.65 billion.

The government attempts to promote family planning by advertising the benefits of small families and offering free sterilization. Recent deaths at government-run "mass sterilization camps" have drawn attention to negligence at the camps, as well as the fact that some women feel socially

compelled to undergo the procedure. It is mostly women who undergo sterilization, since there is strong cultural aversion to male sterilization. The Supreme Court has asked the government to phase out sterilization camps in favor of something less hazardous and more just.⁸ There is also some room for the government to hasten the fertility decline indirectly. Improvement in the female literacy rate—which at 60 percent still needs to climb—provides a ripe area for policy.⁹ Adolescent women are less likely to bear children if they are in school, and in India, 40 percent of adolescent women currently are not.¹⁰ Also, an unmet need for contraception persists. The most common form of publicly provided contraception in India is female sterilization, a method chosen by 66 percent of couples using contraception.¹¹

The irreversibility of sterilization renders it poorly suited for women (such as adolescents) seeking to merely delay or space childbirths. Nonpermanent forms of contraception (such as the morning-after pill) are available only in urban areas to those who can afford the price. More available methods for family planning have been known to reduce fertility, therefore providing a fruitful area for social policy.

The Demographic Dividend

Because India is experiencing fertility decline in the presence of rapid growth in the working-age population, a window of opportunity for the country's economic growth rate has opened. This phenomenon is termed "the demographic dividend." The opportunity comes from the fall in the country's young-age dependency ratio (the number of children/the working-age population), which fell from 0.63 to 0.42 between 1993 and 2016.¹² In general, fewer children per working adult means that adults have greater opportunities to perform paid work. It also means that fewer resources need to be expended by households on children's life-sustaining needs. The savings, under the right conditions, can enhance the acquisition of financial and human capital, both of which can boost economic growth.¹³ The right conditions consist of a financial system that functions well to convert financial savings into capital investments by firms, a business climate that is conducive to the generation of employment, and an education system that prepares people well for such employment.

Does India have the conditions? It does to some degree, but not enough to reap the dividend in full. The number of formal-sector jobs is not increasing anywhere near the rate required to employ its burgeoning working-age population. As Figure 2 shows, the country's young-age dependency ratio has fallen. But the ratio of employment to working-age population has failed to rise as expected and has instead fallen. India's pattern of economic growth has relied to an unusual degree on capital investment and generated disproportionately high-skilled jobs—for which the education received by a large chunk of young people has not been adequate.¹⁴ Though the country has made great strides toward universal enrollment at the primary school level, Esther Duflo and Abhijit Banerjee—two development economists who have widely studied India's public programs—find that students' learning outcomes are very poor on average. A widely publicized survey they cite found that 60 percent of students in the seven to fourteen age group could not do second-grade-level reading, and 70 percent could not perform second-grade-level math. In addition to the general dysfunction that characterizes India's many public institutions, Duflo and Banerjee point to several reasons for the poor outcomes. One is the widespread belief that children's ability to learn is innate rather than acquired, which leads to the neglect of slow learners by teachers and parents. The second reason is that the curricular emphasis at the primary level is elitist in the sense that it emphasizes abstract thinking and the memorization of esoteric facts more than the development of basic literacy and numeracy through

remedial instruction. Consequently, children who are lagging rarely catch up and do not feel motivated to continue schooling.

The government has attempted to create a better business climate for low-skilled, labor-intensive manufacturing, but such measures have been gradual and incremental. Meanwhile, the window of opportunity to reap the demographic dividend is passing. The present combination of a burgeoning number of workers-savers plus the shrinking number of children will translate into a future combination of too many old-age dependents and a shrinking number of workers-savers. At that point, the demographic dividend will give way to a demographic drain.

The Lopsided Sex Ratio

There are approximately 940 women for every 1,000 men in India, while in North America and Europe, there are 1,050 women for every 1,000 men.¹⁵ Low female-to-male ratios are observed in many Asian and North African countries. In India, the low value is a product of two main disparities: fewer girls being born compared to boys and an excess mortality among female children.

There are approximately 900 baby girls born for every 1,000 baby boys in India, reflecting a stubbornly long-standing cultural preference for sons. In countries devoid of such preference, the sex ratio at birth (SRB) is 952 girls to 1,000 boys.¹⁶ Even before the recent spread of technology that enables sex-selective abortion, India's reported sex ratio at birth had been low due to the tendency of some parents to conceal the births of baby girls and allow the babies to die by infanticide or neglect. Nobel laureate and economist Amartya Sen famously sounded the alarm on the problem in his much-cited article on the world's 100 million "missing girls."¹⁷ The figure refers to the difference between two numbers: (1) the actual number of females alive in the world and (2) the estimated number of females that would be alive if female-to-male ratios in countries with son preference were similar to the ratios found in countries devoid of such a preference. The 100 million figure, admittedly a crude estimate of the consequences of son preference, nevertheless brought attention to its scale and human toll.

The problem has gotten worse. The enduring preference for sons combined with a newer preference for smaller families has raised the stakes for parents concerning the sex of their first- and second-born children. The recent spread of ultrasound technology has allowed parents to more easily ensure the birth of a son by identifying the sexes of fetuses so they can abort the female ones. Since 1994, there has been a law against prenatal identification of the sex of the fetus (though abortion is legal), but like several other Indian laws, it is poorly enforced. This combined with the excess mortality of female children has led the sex ratio of children under six to drop precipitously, as seen in Figure 3.

For every 1,000 girls born in 2014 in India, forty of them died before their fifth birthday, while the comparable figure among boys was thirty-seven.¹⁸ The main reasons for the excess mortality are that female children are less likely to receive vaccinations and more likely to be malnourished compared to their brothers.¹⁹ A small mercy is that Indian girls who manage to make it to the age of five have, as is the case elsewhere in the world, a life expectancy higher than that of men. So, as seen in Figure 3, the sex ratio of the overall population is less lopsided, and becoming even less so as life expectancy increases.

In addition to the obviously problematic ethics of the behavior contributing to the lopsided sex ratio, some scholars have pointed to the specter of Indian society being socially and politically destabilized in the future by a shortage of women in the marriageable age range.²⁰ Since the men higher up on the socioeconomic ladder can always "marry down," young men at the bottom of the ladder are more likely to bear the entire brunt of the shortage of prospective brides. Such an underclass of unattached males, already being implicated in the recent surge of sexual assaults on women in Indian cities, could experience greater rootlessness, alienation, and social exclusion. Radical political movements could then exert a greater draw on them.

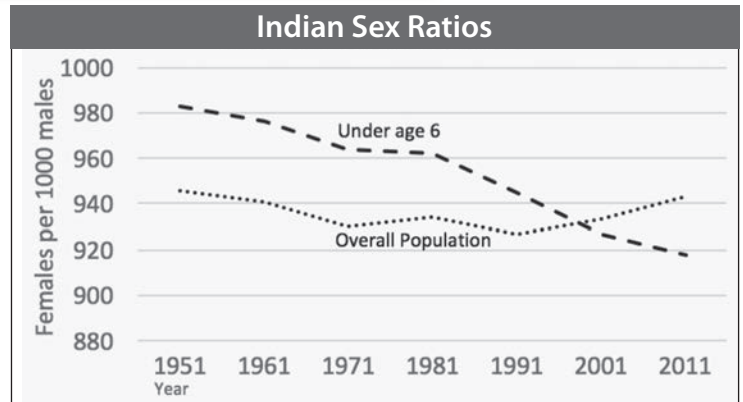


Figure 3: Indian sex ratios. Source: 2011 census of India at <https://tinyurl.com/y853lkku>.

To counter the effects of son preference, some local governments offer cash subsidies to parents with daughters. The reach and value of such subsidies should be expanded.²¹ If the subsidies were to be conditional on parents making certain investments in the health of their daughters, it would also go some way in alleviating the excess female mortality among children under the age of five.²²

Future Challenges, Opportunities, and Reforms

Though India is not on the verge of demography-induced disaster, its demographic trends present some challenges, but also some economic potential. As the essay has argued, the challenges arise from its lopsided sex ratio, as well as the slower growth of economic opportunities compared to the rapid growth of the population. The positive potential arises from the relatively youthful demographic profile combined with a falling fertility

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Fertility Rates of Indian States, Plotted Against Their Poverty Rates

(Sizes of the bubbles are proportional to the state populations.)

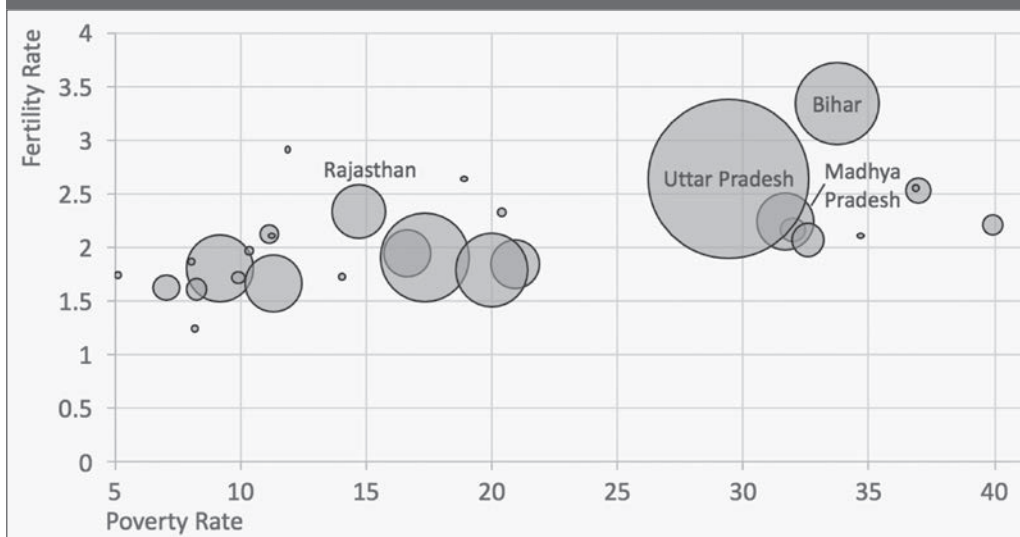


Figure 4: Fertility rates of Indian states, plotted against their poverty rates. Source: Niti Ayog (Planning Commission of India) and the 2018 *Handbook of India States*, Reserve Bank of India at <https://tinyurl.com/ybek7x4j> and <https://tinyurl.com/ya4mozszy>.

rate. Meeting the challenges and fulfilling the potential would be easier had the country's economic development been more widely spread. There is a positive relationship between fertility and poverty rates. As Figure 4 shows, the populous states of Bihar, Madhya Pradesh, Uttar Pradesh, and Rajasthan are among the least developed, and their fertility rates remain above the replacement rate. These states are also disproportionately represented among the states with the most lopsided sex ratio. If manufacturing plants employing low-skilled labor—the kinds of plants that have employed millions of Chinese women—were more available in such states, they would contribute, through the economic mechanisms described in this essay, to

a lower fertility rate and a better sex ratio. But it seems India may have missed the boat on prospering by becoming a global hub for labor-intensive manufacturing, as Japan and China have done before. Manufacturing all over the world is now becoming more automated and less hungry for low-skilled labor.

For India, it seems, further economic development will require greater upfront investments in health, education, and workforce skills. But India's social programs—especially those providing health and education to the poor, who constitute the vast majority—function less effectively than do a lot of its counterparts in other developing Asian countries.²³ Reasons include inadequate public resources, corruption, poor design of social programs as a result of commitment to certain ideologies, resistance of entrenched interests to reforms, slowness of the democratic process, and a lack of political commitment to widespread social progress.²⁴ In other Asian countries, such as

China, South Korea, and Indonesia, the obstacles to widespread progress were dismantled by the use of sheer force by dictatorial political leaders. Reformers in India will have to find another way. Some recent successes by technocrats and academics, such as the use of information technology to track the delivery of government benefits and the use of innovative social experiments to evaluate the effectiveness of social programs, point to some viable avenues for reformers to pursue.²⁵ An improvement in the effectiveness of social programs, especially those targeted to women, offers the country the best hope for meeting the challenges and fulfilling the potential presented by its demography. ■

NOTES

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- The Poverty Action Lab at MIT does an excellent job generating the knowledge that supports such tinkering.

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