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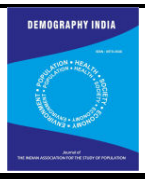

The Future of Demography as a Discipline in India

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Abstract

The future of demography as a discipline in India depends on its social relevance. To be relevant, it must contribute to people's social and economic well-being by influencing public policy. Although Indian demography is primarily a quantitative discipline with a firm methodological foundation, it has yet to strengthen its theoretical base, particularly at the micro level, by drawing on disciplines such as sociology, anthropology, economics, biology, and epidemiology. It needs to move beyond mere description toward explaining the interrelations between demographic and socioeconomic variables and identifying the mechanisms by which demographic behaviour influences socioeconomic outcomes and vice versa.

Keywords

2027 Census, Caste, Demographic dividend, Micro-level approach, Public policy.

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Introduction

Demography in India, as elsewhere, is a relatively new discipline. Thomas Malthus—known as the father of modern demography—published the first edition of *An Essay on the Principle of Population* in 1798. Although Malthus did not write explicitly about India, as Caldwell (1998) asserts, the demographic situation during the colonial period in India likely influenced him, as an employee/professor of the East India Company, in developing his famous theory of population. The Malthusian theory also influenced notable demographers, such as Davis (1951) and Coale and Hoover (1958), to write their classics, *The Population of India and Pakistan* and *Population Growth and Economic Development in Low-Income Countries,* and the Government of India to launch its first National Family Planning Programme in 1951. Essentially, demography as an academic discipline in India emerged in 1956 with the establishment of the Demographic Training and Research Centre, Bombay (now known as the International Institute for Population Sciences, Mumbai) under the joint sponsorship of the Sir Dorabji Tata Trust, the Government of India, and the United Nations. The centre served as a regional institute for training and research in population studies for the Economic and Social Commission for Asia and the Pacific (ESCAP), with an emphasis on techniques for the evaluation and analysis of demographic data.

Because of its statistical foundation, demography has, until recently, remained highly quantitative, with a focus on data and methods, thereby ranking it highly as a scientific discipline (Morgan & Lynch, 2001; Xie, 2000). As Hummer (2023) put it, "It is the core tools and concerns of demography that provide population scientists with such a high degree of credibility within the scholarly community and among policymakers." Although demography has become increasingly multidisciplinary and more closely aligned with the social sciences, it has remained essentially an applied discipline. By discussing the past and present state of Indian demography, this paper aims to address the question: What is the future of demography as a discipline in India likely to be? I begin by describing the quantitative nature of Indian demography. However, I suggest that quantitative studies be complemented by qualitative analyses—a significant strength of Indian social sciences—to make the discipline distinctive. In the next section, I discuss how, owing to its reliance on published census and vital statistics data and the lack of accessibility of individual-level data, most Indian demographic studies focus on macro-level analyses rather than micro-level analyses and, consequently, are primarily descriptive rather than analytical. In the section that follows, I show that, despite numerous advancements, Indian demography has remained a peripheral academic discipline. Not only has it not emerged as a stand-alone discipline, but it has also not been recognized as a major specialization within its collaborative fields, such as sociology, anthropology, economics, geography, epidemiology, and public health. Finally, I discuss how demography can be a policy-oriented science, while retaining its quantitative nature. I close with a summary of my observations and some concluding remarks.

Quantitative versus Qualitative Approaches

Since demography in India emerged as a subfield of statistics, early demographers focused on "formal demography" to develop new or refined techniques for data evaluation and analysis, the field's major strength. Some of the well-known contributions include Chandrasekaran and Deming's (1949) "dual record system" to check the completeness of registration of vital statistics, particularly birth and deaths; Agarwala's (1957) refinement of Hajnal's method of calculating the "singulate mean age at marriage;" Zachariah's (1962; see also United Nations, 1970) census survival ratio method for estimating internal migration; Singh's (1963) probability models for births; Rele's (1967) fertility analysis through the extension of stable population concepts; and Srinivasan's (1968) models for the study of "open birth interval." Despite the relatively poor quality of vital statistics, Indian demographers have published reasonably high-quality life tables and population projections, the two most sought-after demographic products for research and public policy.

India has been a demographic laboratory for researchers and policymakers studying population dynamics because of the availability of large amounts of data, though not necessarily of high quality. The three major demographic sources of data, the Census, registration, and sample survey, have been in existence for a long time. The first official census in India was conducted in 1881. Since then, a census has been conducted every ten years. The latest decennial census was scheduled for 2021; however, due to the COVID-19 pandemic, it was postponed. Although many other countries facing the pandemic have conducted their censuses, the Government of India has continued to delay its census and to formulate programmes and policies without adequate information, particularly for small geographic areas and small-population groups. The new census is expected to be carried out in 2027. Estimates of population size and composition by basic characteristics, such as age and sex, are now available from various sources (United Nations, 2022). Still, data for individuals by socioeconomic characteristics have been lacking. Hopefully, the new census will enable students, researchers, and policymakers to obtain not only the "complete" count of persons, households, and dwellings but also their demographic and socioeconomic characteristics.

The civil registration system for collecting vital statistics in India has existed since the mid-19th century. Initially, vital registration was a state responsibility, conducted on a voluntary basis, and limited to urban areas. The mandatory registration of births and deaths was established in 1970 to collect uniform, comparable statistics, though it remains affected by misreporting, underreporting, and late reporting. However, since the mid-1960s, the Sample Registration System (SRS) has complemented civil registration, of course, on a sample basis (Mahapatra, 2010). Key demographic data produced by SRS include various measures of fertility and mortality, as well as life tables at the state and national levels, separately for rural and urban areas. However, the current SRS sample is still based on the 2011 Census.

Sample surveys have a promising history in India. The National Sample Survey (NSS) was one of the most innovative statistical ventures of independent India, launched by the Indian Statistical Institute under the guidance of P. C. Mahalanobis. It is now administered by the National Statistical Office (NSO) of the Ministry of Statistics and Programme Implementation. Since its inception in 1950, the National Sample Survey has collected nationwide data from sampled households. To date, 80 rounds of surveys have been conducted on a wide range of demographic and socioeconomic topics, including fertility, morbidity, mortality, health, education, employment, unemployment, and consumer expenditure. These surveys have been the principal source of data for research and public policy.

Although numerous demographers and institutions have conducted demographic surveys, these studies have often been limited to specific geographic regions. Some well-known surveys include the Mysore Population Study (U.N., 1961), the Survey of Fertility and Mortality in Poona District (Dandekar & Dandekar, 1953), and the Demographic Survey of Six Rural Communities (Dandekar,1959). Since 1992-1993, the International Institute for Population Sciences (IIPS), in collaboration with USAID and Macro International, has been collecting and publishing data on various demographic topics, including individuals' background characteristics, making it available for public use. This is a cross-sectional National Family Health Survey (NFHS), a part of the global Demographic and Health Survey, based on a large sample of women of reproductive age. Since 2004-05, the National Council of Applied Economic Research, in collaboration with the University of Maryland, has been collecting national household panel data on a wide range of characteristics associated with social and economic well-being. This dataset is unique in that it tracks changes across multiple dimensions of the same households over time, including health, education, employment, economic status, marriage, fertility, gender relations, and social capital. It is anticipated that new waves of these two surveys will be conducted, providing opportunities for further studies.

By now, it is well known that a more profound understanding of human experiences—especially the topics that are considered complex and sensitive—such as fertility preferences, extra-marital sexual activity, and illegal abortions—is beyond the reach of quantitative approaches. The three basic methods of demographic data collection—census, vital registration, and sample surveys—are not efficient enough to yield the depth of information that cannot be quantified. Some social scientists (Sharma, 2023; Smith, 2024) recommend using phenomenology or qualitative methods such as ethnography, case studies, focus groups, and in-depth interviews to complement quantitative studies in understanding the motivations, emotions, and cultural contexts that shape human behaviour, such as grief, living with chronic illness, and unwanted childbirth. Ethnographic fieldwork, which has a long tradition in the Indian social sciences, particularly in sociology and anthropology (Berger, 2012), can enrich demographic research. A paradigm shift toward a mixed-methods approach that integrates quantitative and qualitative methods is a promising

avenue for Indian demography. This approach will enable the researcher to move beyond "what" to "how" and "why" in understanding and interpreting a social phenomenon.

Descriptive versus Explanatory Approach

In his 1952 presidential speech to the Population Association of America, Rupert Vance lamented the lack of theoretical advances in demography. He observed that, among the social sciences, demography has developed several advanced techniques, yet "there is one area in which demography is becoming impoverished and frayed at the edges. In the realm of high theory we have been living off our capital and borrowing from our associates." Since then, the scope of demography has expanded far beyond its core—data, methods, and the statistical study of population size, composition, and the components of population change—to encompass the study of demographic behavior within a social context and causal modeling at the individual level (Morgan & Lynch, 2001). Owing to the influence of American and European demography, numerous theories have been advanced (Mason, 1997; Graham, 2021; Pesando et al., 2024), although most are drawn from other disciplines, including sociology, anthropology, economics, geography, epidemiology, and public health. Merli et al. (2023) surveyed articles published over the past 70 years in three leading journals of Anglophone demography—*Demography, Population Studies, and Population and Development Review*—and showed how the emphasis of demography had shifted from "core demographic topics and methods and aggregate-level demographic analyses to a broad focus on social behavioral, and health demography topics that blend demographic thinking with ideas and theories about individual behaviors, health, and disease grounded in allied disciplines…though not at the expense of core demography topics."

Despite these developments, demography has remained more descriptive than analytical and therefore lacks frameworks for understanding and explaining social phenomena. As in the 50th anniversary edition of *Population Studies*, Hobcraft (1996) stated, "It is still, I believe, a fair criticism of most of the profession that we spend too little time trying to explain and to understand, rather than to quantify and to describe." After a quarter-century on, by reviewing studies on European fertility, Graham (2021) came to a similar conclusion:

> Fertility researchers, as demographers more generally, have shown increasing interest in the theoretical grounding of their analyses over the past 25 years. Many empirical investigations are now framed within a theoretical perspective, whether as an explicit test of a theory or as a justification for the research design. Nevertheless, the sheer volume of empirical work greatly outweighs the effort devoted to theorizing and explaining.... In the meantime, it seems to me that Hobcraft's criticism still stands, because there is more groundwork to do before the explanatory agenda in demography can move forward.

This observation is even more applicable to the Indian demography. Until recently, Indian demographers have been heavily dependent on published data, which has forced them to

conduct descriptive macro-level studies. They have not gone much beyond the Malthusian and demographic transition theories. The census has been a valuable tool for presenting a comparative cross-sectional picture of various facets of society at the national, regional, and small-area levels, as well as of small population groups (e.g., linguistic and tribal communities) every ten years. Micro-level analyses are largely missing. As mentioned above, NFHS has been presenting a cross-sectional picture of the demographic behaviour, but only for women in the reproductive age group. More recently, the Human Development Survey has gone one step further by following a sample over time, thereby allowing researchers to make causal inferences. These sources will enable demographers to chart social changes over time and to complement observations and description—the first stage of research—with explanation, while aiming to draw causal inferences and make predictions. As Billari (2015) argues, macro and micro-level approaches need to be integrated for a comprehensive analysis of the relationship between demographic variables and socioeconomic outcomes. Once the individual-level data from the 2027 Census become available, Indian demographers will be on even stronger footing to establish the relationships among various variables at the national, state, and small-area levels.

Demography as an Academic Discipline

Until recently, demography has been viewed as a peripheral, highly empirical, and atheoretical discipline. Although demography is a multidisciplinary field, it remains marginal within the collaborative social sciences. There are still very few stand-alone departments of demography at the college or university level. In the United States and Canada, for example, it is typically taught as a course in sociology or economics departments. As late as 1979, Charles Nam noted that in the United States,

> It has, at best, probationary status as an independent sphere of learning, and its practitioners are usually regarded as marginal in their adopted fields. It is significant that in academia, demographers are ordinarily labeled sociologists or economists. They are regarded as statisticians or social science analysts in governmental institutions and as planners or management experts in business and industry.

The situation is no better in India. Although the Indian Association for the Study of Population (IASP) has existed since 1971 and its official journal, Demography India, has existed since 1972, demography has not found a central place within the academic community. There are only a handful of Indian institutions that award degrees in demography. As of 2001, there were just six teaching centres for full specialization in demography (Nair, 2001). As Tiwari et al. (2015) observe, "Based on the annual intake capacity of these academic institutions, around 1,052 qualified professionals are available to work in the field of demography and population studies in India." Most persons with a degree in demography are employed in non-academic settings, such as the Office of the Registrar General and Census Commissioner, the Central Statistics Office, certain research institutions, or NGOs. This is a gloomy picture of demography as a

discipline in a country like India, where there are over 1,000 universities. In the current context, I do not expect demography to emerge as a stand-alone discipline in India. Its future depends primarily on its acceptance as a major component of allied social science disciplines at the college and university levels, and on its demand not only as an academic discipline but also as a policy science. As in his 2022 Presidential address to the Population Association of America, as Hummer (2023) remarked,

> …demographic training should not stand alone or as a narrow venture consisting largely of sociology, economics, and perhaps a little bit of epidemiology. Instead, a truly innovative interdisciplinary curriculum is needed to best educate students in this and related areas of science and to provide them with the theory and tools necessary to create scientific and policy breakthroughs in the coming decades.

Demography as a policy science

Demography is often viewed as an applied science laden with data and methods, aimed at addressing policy issues (Hodgson, 1983; Morgan & Lynch, 2001; Xie, 2000). Broadly, there are two types of policies that demography attempts to address. While some policies are byproducts of demographic changes, others directly or indirectly influence demographic behaviour. In the following paragraph, I primarily draw on examples from my book, *India's Demographic Challenges* (co-authored with Shefali Ram, 2025), to address this assertion.

For a long time, population control has been a key policy agenda for the Government of India. Driven by Malthusian theory, the government launched the National Family Planning Programme in 1950 to reduce the birth rate and fertility. However, it undermined the roles of other important drivers such as women's education, age at marriage, infant mortality, and sex preference for children, which made demographers such as Davis (1967) become skeptical of the success of the family planning programme. Additionally, numerous KAP (knowledge, attitudes, and practices) surveys were conducted during the programme's initial stage to assess demand for family planning services. However, the programme did not reach most eligible couples. Not surprisingly, therefore, fertility remained almost unchanged until the 1980s. However, as a result of an aggressive family planning programme, especially sterilizations for women, along with the changes in the above-mentioned drivers, fertility has fallen to below the replacement level. According to some projections, the fertility rate is expected to continue declining in the near future. Given that there is still scope for infant mortality to decline, age at marriage to increase, and women's education to rise, fertility is expected to fall further. However, in the absence of a comprehensive theory in the Indian social context, it is difficult to predict its precise future course. This is a subject for further research.

Women's education is known to be the primary determinant of fertility decline. However, studies show that little education is of little help; women need to have at least a higher secondary level of education to be

proactive in the arena of fertility control. Highly educated women are more likely to delay marriage, enter and stay in the labour force, use effective family planning methods, help their children survive to adulthood, and, consequently, control their family size. How to enable women to enter and stay in school longer is a significant policy challenge.

Fertility decline has been found to exert a profound effect on the social and economic well-being. One of the most pertinent questions is: How effective is the below-replacement fertility in women's status, labour force participation, age at marriage, and children's well-being? A most discussed effect is the "demographic dividend" (Bloom, Canning, & Sevilla, 2003). It is beyond the scope of this paper to delve into the intricacy of this concept. It suffices to say that, owing to high fertility in the past, a steady, slower decline in fertility in recent years, and a slower increase in life expectancy, India has a large working-age population and a smaller population in the "dependent" age groups, which means that India's economic growth potential exceeds that of its "rivals" such as China, Japan, and South Korea. However, the "youth bulge," half of which comprises women and the less educated, could also lead to social unrest if not adequately supported through employment. How far India will address this situation is likely to be a research and policy issue in the coming years.

Although India is among the fastest-growing economies and is currently one of the five largest economies by GDP per capita, it is classified as a lower-middle-income country. This is reflected in high income and wealth inequality, among the highest in the world. According to the World Inequality Report 2026, the top 10% of earners accounted for about 58% of national income in 2022-23, up from 30% in 1980 and 40% in 2000 (Chancel et al., 2026). Why has economic inequality been rising in India? What are the demographic reasons behind this trend? What are its effects on the social well-being, health, mortality, and other facets of life? These are some of the pertinent questions that researchers and policymakers may like to address in the coming years.

Also, with fertility decline along with life expectancy increase, India will see an increase in older people, especially women. Although India is far behind many industrialized countries in terms of aging, it is set to join the ranks of aging nations within the next two to three decades. How far the increase in life expectancy among older women intensifies loneliness and economic distress among elderly widows is another policy-relevant subject in the coming years.

Increasing the legal age of marriage has long been advocated in India and warrants further study. Currently, it is legislated that women should not get married before age 18 and men before age 21. However, we know that child marriages still exist in large numbers, especially among certain socioeconomic groups. According to the 2019-21 NFHS, 23.3% of women were married before age 18, and 4.8% before age 14. Increasing the legal age of marriage for women to 21 and for men to 25 is an ideal proposal for the well-being of men and women, as it will enable them to remain in school longer and enter the labour force. However, the extent to which this would reduce fertility is questionable. Given that

most Indian couples want to have a child soon after marriage, increasing the age at marriage during the highest stage of fecundity may backfire.

Morbidity and mortality are challenging areas of research and policy-oriented topics for Indian demographers. Despite impressive socioeconomic development, India lags behind not only industrialized countries but also many less industrialized countries, particularly in terms of infant and child mortality. Also, the country is facing the double burden of disease, as it has not fully recovered from the effects of communicable diseases among the disadvantaged and is facing an increase in chronic illness among the rising affluent groups. COVID-19, a perfect example of a natural experiment, constitutes a novel area for research for Indian demographers. This pandemic not only emerged as a major killer, but also had devastating effects on the economy (Montenovo, 2022). The study of differential effects across demographic and socioeconomic characteristics is a meaningful endeavor from the perspectives of theory, method, and policy. The excess mortality among socioeconomically disadvantaged individuals is still an important policy issue.

In India, data from decennial censuses have often been used by researchers, media, businesses, and policymakers. The long-awaited census is scheduled for 2027, and its results are expected to be released within the next two to three years. It will provide not only the complete population count but also demographic, socioeconomic, and cultural characteristics of individuals. As mentioned earlier, sample surveys provide estimates of the population's demographic, socioeconomic, and cultural characteristics; however, unlike the census, their estimates for smaller population groups and lower geographic areas are not reliable enough. Although given the cross-sectional nature of the data, it would be difficult for researchers to explain, for example, why persons from specific backgrounds are behind (or ahead of) those from other backgrounds in socioeconomic spheres, they will still find clues to make reasonable inferences. Additionally, studies based on new data will help dispel myths about various groups and communities and inform the development of public policies. To date, India has not made individual-level data available for public use; unless such data become available, the census will be of limited use.

The census is expected to serve as the basis for reapportioning Lok Sabha seats for the upcoming parliamentary election. This could be a politically contentious issue, as states that have substantially curtailed fertility and reduced population growth could be losers, whereas those that were less successful could be winners in this process. The gains and losses across states will also be apparent in data on geographic mobility and internal migration after approximately two decades. Additionally, the census will serve as a frame for sample surveys and as a basis for population projections.

For the first time after 1931, the upcoming census will collect data on caste. As a politically sensitive issue, it has attracted the attention of the national and state governments in India. It is a hidden treasure of the Indian social sciences that needs to be

exploited for the good of society. The study of caste is theoretically, methodologically, and policy-wise a relevant subject for demographers. As a distinctive feature of the Indian social stratification system, caste has long dominated sociological and anthropological research and attracted the attention of scholars such as M. N. Srinivas, G. S. Ghurye, J. H. Hutton, and André Béteille, among others. However, in the absence of sufficient factual knowledge of caste at the national, regional, and small-area levels, the central government and some state governments have continued to implement caste-related programs and policies.

It is hoped that the Indian government has made sufficient preparations over the past 15-16 years to collect higher-quality caste data for the 2027 census. It is well known that producing data on cultural characteristics such as ethnicity, language, race, and caste is a challenge for census takers. Given that there are thousands of castes in India, and that their information is likely to be affected by non-reporting and misreporting, the reliability of caste data is questionable. However, demographers and statisticians can refine it by appropriate editing and imputation techniques. The census will not only produce counts of persons by caste but also their socio-economic characteristics, thereby enabling researchers and policymakers to understand and explain why individuals from certain castes made significant progress, whereas individuals from other castes remained stagnant or regressed. Unfortunately, the absence of data from previous censuses makes it difficult to track changes over time. However, researchers will be able to analyze data by age group and, therefore, chart the picture across various birth cohorts.

Conclusion

This paper begins with the question: "What is the future of demography as a discipline in India likely to be?" The answer to this question depends on the extent to which demography is relevant to individuals' social and economic well-being. In this paper, I argued that, to make Indian demography relevant, it must move beyond data and methods to public policy, while maintaining its strengths as quantitative, data-oriented, objective, and scientific. Furthermore, to enable policymakers to make evidence-based policy decisions, demography should not only provide accurate and reliable data but also explain the interrelationships between demographic variables and socioeconomic outcomes. As such, Indian demography needs to broaden its horizons by drawing on theories and methods from other disciplines, particularly sociology, anthropology, economics, and epidemiology, and by integrating macro and micro-level analyses. Additionally, demography needs to complement quantitative analyses with qualitative analyses to understand and explain human experiences that are not quantifiable. These steps would enable researchers to identify the pathways linking demographic behaviour to socioeconomic outcomes, which policymakers can manipulate.

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