

Population Dynamics and Sustainable Development in India

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Abstract

India is undergoing a decisive demographic transition in which continued population increase coexists with below-replacement fertility, a large working-age population, rapid urbanisation and the beginnings of population ageing. This paper examines how these changes condition India's prospects for sustainable development. It uses a descriptive-analytical, secondary-data research design drawing on the Sample Registration System (SRS) 2024, National Family Health Survey-5, Periodic Labour Force Survey 2025, United Nations World Population Prospects 2024, NITI Aayog's SDG India Index 2023–24, UNDP and UNFPA reports, World Bank indicators and official water-resource assessments. The evidence shows a clear demographic transition: India's total fertility rate was 1.9 in SRS 2024, the crude birth rate was 18.3 per thousand, and infant mortality fell to 24 per thousand live births, while UNFPA reported a 2025 population of about 1.464 billion. At the same time, the working-age population remains large, but labour-market absorption, especially for women, is incomplete, and the share of older persons is projected to rise rapidly. Urbanisation, water stress, regional demographic divergence and unequal human-capital outcomes further complicate the relationship between demography and sustainability. The paper argues that population dynamics are neither an automatic dividend nor an inevitable environmental burden. Their developmental effect depends on investments in health, education, productive employment, gender equality, resilient cities, social protection and resource efficiency. A sustainable demographic strategy for India therefore requires differentiated, life-course and region-sensitive policies rather than a uniform population-control approach.

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Introduction

Population dynamics influence sustainable development through changes in the size, growth, age composition, spatial distribution and health characteristics of a population. These processes affect labour supply, household saving, demand for education and healthcare, urban infrastructure, food and water requirements, energy use, environmental pressure and the fiscal capacity of the state. Sustainable development, in turn, shapes demographic behaviour because improvements in survival, education, gender equality, reproductive health and income tend to alter fertility, mortality and migration. The relationship is therefore reciprocal rather than mechanical. The classic definition of sustainable development emphasises meeting present needs without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development [WCED], 1987). In a country of India's scale, this principle requires attention not only to how many people there are, but also to where they live, how long they live, their capabilities, their opportunities for productive work and the resource systems on which their well-being depends.

India's demographic profile has changed substantially. The United Nations Population Fund (UNFPA, 2025), using the World Population Prospects 2024 revision, reported India's mid-year population at about 1.464 billion in 2025. The United Nations projects continued growth for several decades because of population momentum, with a peak of about 1.701 billion around 2062 under the medium projection, followed by gradual decline (United Nations Department of Economic and Social Affairs, Population Division [UN DESA], 2024). Yet population growth is slowing. The Sample Registration System (SRS) Statistical Report 2024 estimated a total fertility rate (TFR) of 1.9 children per woman, below the conventional replacement benchmark of about 2.1. The SRS Bulletin 2024 reported a crude birth rate of 18.3 per thousand population, a crude death rate of 6.4, a natural growth rate of 11.9 and an infant mortality rate of 24 per thousand live births (Office of the Registrar General & Census Commissioner, India [ORGI], 2026a, 2026b). These figures indicate that India is no longer appropriately characterised simply as a high-fertility, rapidly expanding population.

The developmental implications are more complex. A large working-age population can support higher output, saving and fiscal revenues, but only if people are healthy, educated and productively employed. SRS 2024 placed roughly two-thirds of the population in the 15–59

age range, illustrating the scale of India's current demographic opportunity (ORGI, 2026a). At the same time, the Periodic Labour Force Survey (PLFS) 2025 estimated labour-force participation for persons aged 15 years and above at 59.3 per cent, with a pronounced gender gap: 79.1 per cent for men and 40.0 per cent for women (Ministry of Statistics and Programme Implementation [MoSPI], 2026). Thus the existence of a favourable age structure does not itself guarantee a demographic dividend. India also faces the parallel transition towards ageing. UNFPA and the International Institute for Population Sciences (IIPS) estimated that persons aged 60 years and above constituted about 10.4 per cent of the population in 2022 and could reach 20.8 per cent by 2050 (UNFPA & IIPS, 2023). This creates an overlapping policy challenge: India must generate productive opportunities for a large working-age population while simultaneously building income security, healthcare and care systems for a rapidly growing elderly population.

These demographic changes interact directly with the Sustainable Development Goals (SDGs). India's overall score in the SDG India Index increased from 57 in 2018 to 71 in 2023–24, although NITI Aayog cautions that scores across editions are not strictly comparable because the indicator framework has evolved (NITI Aayog, 2024a). Human development has also improved: the 2025 Human Development Report placed India at an HDI value of 0.685 for 2023 and a rank of 130 among 193 countries (United Nations Development Programme [UNDP], 2025). At the same time, rapid urban expansion, unequal employment opportunities, pressure on water and land, nutrition deficits and regional differences in fertility and ageing can undermine sustainable progress. Official assessments estimate average annual per-capita water availability at 1,486 cubic metres in 2021 and project 1,367 cubic metres in 2031, both below the 1,700 cubic metre threshold commonly used to indicate water stress (Department of Water Resources, River Development & Ganga Rejuvenation, 2025).

The central research problem is therefore not whether population growth is intrinsically good or bad for India. It is how a changing demographic structure can be translated into inclusive human development without intensifying resource stress and intergenerational inequality. Much public debate remains focused on aggregate population size or fertility control, whereas contemporary demographic evidence points to a more differentiated transition: sub-replacement fertility at the national level, continued population momentum, large inter-state variation, a sizeable labour-force opportunity, rapid ageing in some regions and continued youthful populations in others. This creates a research gap between demographic description and integrated sustainable-development analysis. Studies of the demographic dividend have

often focused on economic growth, while environmental and ageing studies commonly examine separate outcomes. A more integrated assessment is needed to connect fertility, mortality, age structure, employment, urbanisation, poverty reduction and environmental resource pressure within a single sustainability framework.

Accordingly, the paper pursues four linked objectives: to identify the principal features and direction of India's contemporary demographic transition; to evaluate how age structure and labour-force participation shape the potential demographic dividend; to assess how population change interacts with urbanisation, human development, poverty reduction and environmental resource pressure; and to identify policy priorities for aligning demographic change with sustainable development. These objectives generate four corresponding research questions: What do the latest demographic indicators reveal about the direction of population change in India? Under what conditions can the present age structure produce an inclusive demographic dividend? How do population dynamics affect social and environmental dimensions of sustainability? What policy approach is most appropriate for a country experiencing both continued population momentum and accelerating ageing? The paper proceeds from the proposition that demographic outcomes are mediated by institutions and capabilities: the same age structure can produce very different development outcomes depending on education, health, gender equality, employment creation, urban governance and resource management.

Literature Review

Demographic transition theory provides the principal conceptual starting point for understanding India's changing population profile. In the transition from high to low mortality and fertility, population growth usually accelerates when death rates decline before birth rates and later decelerates as fertility also falls. Lee (2003) describes this as a fundamental historical transformation that alters population size, age structure and intergenerational economic relations. Bongaarts (2009) similarly emphasises that fertility decline changes age composition as well as growth, creating a temporary increase in the proportion of working-age people before population ageing becomes more pronounced. For India, this sequence is especially important because national averages conceal large regional differences in the timing and speed of transition.

The economic literature on demographic dividend argues that age-structural change can raise per-capita income when the working-age share grows relative to dependants, but the effect is conditional. Aiyar and Mody (2011), using variation across Indian states, found a significant

association between the working-age ratio and economic growth and argued that demography contributed materially to India's growth acceleration. James (2011) likewise identified demographic change as a major opportunity but stressed the unevenness of transition across states and the need for human-capital development, migration and gender-sensitive policy. More recent work by Jain, Goli and Jana (2025) updates this argument using a longer panel and estimates that demographic transition contributed substantially to per-capita income growth over 1981–2021. Crucially, their interaction models show that the dividend is stronger where health, decent employment and gender empowerment are more favourable. This strengthens the institutional interpretation of demographic dividend: age structure creates potential, while policy and labour markets determine realisation.

This literature challenges deterministic claims that a large youth or working-age population automatically generates growth. If employment is insufficient, education quality weak or female labour-force participation low, the same demographic structure may produce underemployment, migration pressure, household insecurity and social frustration. The PLFS data are therefore as relevant to demographic analysis as fertility data. The demographic dividend is also time-bound. As smaller cohorts replace larger ones and survival improves, the dependency structure shifts towards old age. UNFPA and IIPS (2023) show that ageing is already an important policy issue in India, with substantial differences by state, gender, residence and economic status. The ageing transition requires moving beyond a narrow youth-centred dividend framework toward a life-course approach involving healthy ageing, pensions, long-term care and opportunities for older persons to remain economically and socially active.

A second body of literature links demographic transition to human development. The fertility decline in India is associated with expanded family planning, female education, later marriage, child survival and changes in desired family size. NFHS-5 recorded a national TFR of 2.0 in 2019–21 compared with 2.2 in 2015–16, alongside wider contraceptive use and improvements in several maternal and child health indicators (IIPS & ICF, 2021). Subsequent SRS evidence places TFR at 1.9 in 2024 (ORGI, 2026a), confirming that below-replacement fertility is no longer a temporary survey artefact. This matters for sustainability because voluntary, rights-based reproductive health and expanded human capabilities reduce demographic pressure through social development rather than coercive population control. They also improve women's autonomy and the health and education investment available per child.

A third strand concerns population, urbanisation and environmental stress. Population does not translate into environmental pressure through numbers alone; consumption patterns, technology, urban form, inequality and resource governance are equally important. Nevertheless, rapid urban concentration can intensify demand for housing, water, transport, sanitation, energy and waste management when infrastructure lags behind population change. The World Bank's World Development Indicators estimate that about 35 per cent of India's population was urban in 2024, while official policy documents expect the urban share to rise markedly over the coming decade (World Bank, 2026). Water illustrates the interaction between demographic scale and ecological limits. India is already in a water-stressed range on a national per-capita basis, while climatic variability and spatially unequal supply mean that many locations face more acute stress than the national average (Department of Water Resources, River Development & Ganga Rejuvenation, 2025).

The sustainable-development literature therefore requires a broader analytical frame than demographic transition theory alone. WCED (1987) places intergenerational equity at the centre of sustainability; the SDGs add multidimensional targets for poverty, health, education, gender equality, decent work, sustainable cities, responsible consumption, climate action and institutions. NITI Aayog's national SDG monitoring shows simultaneous progress and persistent gaps. Multidimensional poverty declined substantially between NFHS-4 and NFHS-5 periods, and NITI Aayog's discussion paper estimates a further decline to 11.28 per cent in 2022–23, while explicitly identifying this latter figure as projected rather than directly observed (NITI Aayog, 2024b). These gains demonstrate that population scale does not preclude rapid social progress, but they also underscore the need to maintain investments as the age and spatial composition of demand changes.

The literature reveals three unresolved issues that motivate the present analysis. First, economic studies of the demographic dividend often treat environmental sustainability only indirectly. Second, population-environment debates may overemphasise aggregate numbers and understate the importance of age structure, human capital, consumption and governance. Third, national averages can obscure a dual demographic reality in which some Indian states remain relatively young and above replacement fertility while others face very low fertility and rapid ageing. The present paper addresses these gaps through an integrated, secondary-data synthesis that treats population dynamics as a set of interacting demographic processes embedded in social, economic and ecological systems.

Research Methodology

This study adopts a descriptive, analytical and comparative secondary-data design. It does not use primary surveys, interviews or invented respondent data. The study area is India, with subnational variation discussed where official sources establish its relevance. The principal demographic sources are the SRS Statistical Report 2024 and SRS Bulletin 2024 produced by the Office of the Registrar General & Census Commissioner, NFHS-5 (2019–21), and UN DESA's World Population Prospects 2024. Labour-market conditions are assessed using MoSPI's PLFS Annual Report 2025. Sustainable-development outcomes are examined with the SDG India Index 2023–24, NITI Aayog's multidimensional-poverty estimates, UNDP's Human Development Report 2025, UNFPA's India Ageing Report 2023, World Bank urbanisation data and the Ministry of Jal Shakti's official water-resource assessments.

The analysis uses indicator-based triangulation rather than statistical causal estimation. Core demographic indicators include total population, TFR, crude birth and death rates, natural growth, infant mortality, age structure and old-age share. Socio-economic indicators include labour-force participation, female labour-force participation, multidimensional poverty, HDI and the national SDG score. Spatial and environmental indicators include urban population share and per-capita water availability. The analytical framework links these indicators through four pathways: demographic transition, demographic dividend, human development and ecological/resource sustainability. Trends are interpreted against theoretical and empirical literature, with particular attention to the distinction between demographic opportunity and realised development outcomes.

Several limitations are important. India does not yet have a completed post-2011 population census available for analysis, so recent population totals and age-structure trends necessarily combine sample-registration evidence, surveys and international demographic estimates or projections. The reference periods of the sources differ: for example, SRS indicators refer to 2024, PLFS to calendar year 2025, NFHS-5 to 2019–21, and some environmental indicators to earlier observed years or future projections. The paper therefore avoids treating values from different datasets as if they were measured simultaneously. Definitions also differ: SRS commonly presents working age as 15–59, whereas international datasets often use 15–64. Finally, the design establishes patterns, tensions and policy implications but does not claim causal effects from simple associations.

Analysis and Discussion

The following analysis integrates the latest demographic evidence with labour-market, human-development, urban and environmental indicators. Because the datasets have different reference periods, comparisons are interpretive rather than synchronous, and projected values are explicitly identified as projections.

From population expansion to demographic transition

The first major finding is that India is simultaneously large, still growing and decisively transitioning toward low fertility. These conditions are not contradictory. Population momentum means that a country can continue to add population for decades after fertility falls to or below replacement level because large cohorts are moving through the reproductive ages. UNFPA's 2025 population estimate of approximately 1.464 billion and UN DESA's projection of a peak near 1.701 billion around 2062 illustrate this lag between fertility decline and population stabilisation (UNFPA, 2025; UN DESA, 2024). The policy implication is that below-replacement fertility should not be confused with immediate population decline.

Table 1. Selected indicators of India's demographic transition

Indicator	Latest value / reference year	Source / data note
Estimated population	1.464 billion (2025)	UNFPA (2025), based on WPP 2024
Total fertility rate	1.9 children per woman (2024)	ORGI SRS Statistical Report 2024
Crude birth rate	18.3 per 1,000 population (2024)	ORGI SRS Bulletin/Statistical Report 2024
Crude death rate	6.4 per 1,000 population (2024)	ORGI SRS Bulletin 2024
Natural growth rate	11.9 per 1,000 population (2024)	ORGI SRS Bulletin 2024
Infant mortality rate	24 per 1,000 live births (2024)	ORGI SRS Bulletin 2024
Population aged 15–59	66.4% (2024)	ORGI SRS Statistical Report 2024
Population aged 60+	9.7% (2024); 20.8% projected for 2050	ORGI (2026a); UNFPA & IIPS (2023)

Recent SRS indicators confirm the direction of transition. The national TFR of 1.9 in 2024 is below replacement level and below the NFHS-5 estimate of 2.0 for 2019–21 (IIPS & ICF,

2021; ORGI, 2026a). The crude birth rate stood at 18.3 per thousand population, while the crude death rate was 6.4 and the natural growth rate 11.9 per thousand (ORG, 2026b). Infant mortality fell to 24 per thousand live births. The combination of lower fertility and improving survival is characteristic of a later phase of demographic transition. It also changes the appropriate policy question from “how to control population” to “how to manage demographic change while protecting reproductive rights and improving human capabilities.”

National averages, however, conceal regional divergence. SRS 2024 reports very low fertility in several southern and western states and Delhi, while Bihar and Uttar Pradesh remain above replacement level (ORG, 2026a). Such differences reflect variations in education, urbanisation, marriage timing, child survival, health services, economic structure and social norms. A uniform national fertility target is therefore analytically weak. Higher-fertility states require continued investment in female education, reproductive health, child survival and voluntary family planning, while very-low-fertility states increasingly need policies for ageing, labour supply, childcare, housing and work-family reconciliation. Sustainable population policy must be differentiated by stage of demographic transition.

Demographic dividend, employment and gender

India’s age structure remains potentially favourable for economic development. SRS 2024 indicates that about 66.4 per cent of the population is in the 15–59 age group, while the 0–14 share has declined and the elderly share is rising (ORG, 2026a). A large working-age share can raise per-capita output when employment and productivity expand faster than dependency. This is the mechanism behind the demographic dividend identified in the Indian state-level literature (Aiyar & Mody, 2011; Jain et al., 2025). It can also increase household savings and public revenues while reducing the relative fiscal burden of child dependency.

The labour-market evidence shows, however, why this opportunity is conditional. PLFS 2025 estimated the overall labour-force participation rate for persons aged 15 years and above at 59.3 per cent. Male participation was 79.1 per cent, compared with only 40.0 per cent for women (MoSPI, 2026). The female rate has improved compared with earlier years, but the gender gap remains substantial. A demographic dividend that excludes a large share of women from productive and adequately paid employment is inherently incomplete. Gender equality therefore operates through two demographic-development channels: it contributes to informed reproductive choice and lower fertility, and it expands the effective labour and talent pool available to the economy.

Job quality is as important as participation. India's labour force includes substantial self-employment and informal work, and many young people face mismatches between educational credentials and available employment. The sustainable-development objective is not merely to absorb new entrants into any work, but to expand productive employment with adequate earnings, social protection and opportunities for skill accumulation. This aligns demographic policy with SDG 8 on decent work, SDG 4 on education and SDG 5 on gender equality. In practical terms, the demographic dividend requires stronger foundational learning, vocational and tertiary skills, labour-intensive manufacturing and modern services, care-economy jobs, support for small enterprises, and urban transport and childcare systems that make women's employment feasible.

Inter-state demographic divergence adds a spatial dimension. Younger, higher-fertility states will contribute a large share of future labour-force growth, whereas some lower-fertility states may experience slower labour-force expansion and faster ageing. Internal migration can partly reconcile these differences by moving workers toward regions of labour demand, as James (2011) anticipated. But migration produces a dividend only when migrants have access to housing, portability of social protection, healthcare, education for children and non-discriminatory labour markets. Population mobility should therefore be understood as part of demographic adaptation rather than as a problem to be suppressed.

Human development, health and poverty reduction

Demographic transition in India has proceeded alongside measurable improvements in health and social development. NFHS-5 showed a decline in TFR from 2.2 in 2015–16 to 2.0 in 2019–21 and improvements in institutional births, vaccination and several mortality indicators (IIPS & ICF, 2021). SRS 2024 further reports infant mortality at 24 per thousand live births, indicating continued progress (ORGI, 2026b). These improvements reduce child dependency and increase the probability that families invest more resources per child, but they also raise expectations for the quality rather than merely the coverage of education, nutrition and healthcare.

The broader development evidence is similarly mixed but positive. India's SDG India Index composite score reached 71 in 2023–24, compared with 57 in the 2018 baseline, although revisions to the indicator set mean that the series should not be interpreted as perfectly comparable over time (NITI Aayog, 2024a). UNDP's 2025 Human Development Report records an HDI value of 0.685 for 2023 and ranks India 130 out of 193 countries (UNDP, 2025). NITI Aayog reports multidimensional poverty at 14.96 per cent for 2019–21 and

estimates, using an extrapolation method, that it may have declined to 11.28 per cent in 2022–23 (NITI Aayog, 2024b). The latter estimate is useful as an indication of direction but should not be treated as a direct survey observation.

Table 2. Selected population–sustainability indicators

Indicator	Latest value / reference year	Source / data note
LFPR, age 15+ (usual status)	59.3% total; 79.1% male; 40.0% female (2025)	MoSPI PLFS 2025
Urban population share	About 35% (2024)	World Bank, WDI
Human Development Index	0.685; rank 130/193 (2023)	UNDP Human Development Report 2025
SDG India Index	71 (2023–24)	NITI Aayog; cross-edition comparability is limited
Multidimensional poverty	14.96% observed (2019–21); 11.28% projected (2022–23)	NITI Aayog (2024b); projected value is not a direct observation
Per-capita annual water availability	1,486 m ³ (2021); 1,367 m ³ projected (2031)	Ministry of Jal Shakti; <1,700 m ³ indicates water stress

These trends weaken simplistic arguments that a large population necessarily prevents social progress. At the same time, aggregate improvements coexist with significant deficits in nutrition, learning quality, health access and regional inequality. Sustainable demographic development therefore depends on the distribution of capabilities. A child born into a high-fertility, low-income district with weak schools and health services faces a different life-course trajectory from a child in a low-fertility, high-capability region. The relevant unit of policy is not only the national population total but the individual's access to health, education, nutrition, reproductive choice and productive opportunity.

The relationship is circular. Better child survival and female education contribute to fertility decline; smaller desired families can facilitate greater investment per child; healthier and better-educated cohorts can raise productivity; and higher productivity can strengthen the fiscal base for social investment. Conversely, undernutrition, poor learning and insecure work can prevent a favourable age structure from translating into sustainable development. This is why human-capital policy is not separate from population policy: it is the principal mechanism through which demographic change becomes a social and economic asset.

Urbanisation, migration and infrastructure sustainability

Population dynamics are also becoming increasingly urban. The World Bank estimates that around 35 per cent of India's population was urban in 2024, while government assessments expect the urban share to continue rising substantially over the next decade (World Bank, 2026). Urbanisation can support sustainability when density lowers the unit cost of infrastructure, public transport reduces dependence on private vehicles, and agglomeration raises productivity. Yet poorly planned urban growth can produce the opposite outcome: congestion, informal housing, heat exposure, air pollution, groundwater depletion, inadequate sanitation and long commuting times.

The demographic significance of urbanisation extends beyond migration. Urban fertility is generally lower than rural fertility, and SRS 2024 shows a pronounced rural–urban gap in TFR, with national rural fertility at about replacement level and urban fertility well below it (ORGI, 2026a). This suggests that continued urbanisation will reinforce the fertility transition. At the same time, low urban fertility and rising longevity will gradually age urban populations, while migration may keep many cities relatively young. Sustainable-city planning must therefore accommodate multiple life stages: childcare and schools for young migrant families, affordable rental housing for workers, accessible public transport, primary healthcare, and age-friendly neighbourhoods for older residents.

Migration can also reduce demographic imbalance between regions. States with younger populations may supply labour to ageing and more industrialised states, but unmanaged migration can transfer demographic pressure into precarious settlements. Portability of food security, health benefits, social insurance and school access is therefore central to sustainable urbanisation. Digital portability initiatives can help, but they must be complemented by physical service capacity. The core policy question is not whether migration should occur; it is whether institutions can convert mobility into productivity and inclusion rather than vulnerability.

Population, water and ecological limits

Environmental sustainability is the area in which aggregate population scale remains most visible, but it must be interpreted together with consumption, production and governance. India's average annual per-capita water availability was assessed at 1,486 cubic metres in 2021 and is projected to fall to 1,367 cubic metres by 2031 as population and demand change (Department of Water Resources, River Development & Ganga Rejuvenation, 2025). Both

figures lie below the 1,700 cubic metre threshold used to identify water-stressed conditions. The national average also conceals large seasonal and basin-level variation. Rapid urban and industrial demand can intensify competition with agriculture, while groundwater depletion creates local ecological and livelihood risks.

Demographic transition can moderate future pressure by slowing population growth, but fertility decline alone cannot secure environmental sustainability. If per-capita material and energy consumption rises rapidly through inefficient systems, total environmental pressure may still increase. Conversely, compact urban planning, clean energy, efficient irrigation, wastewater reuse, circular-economy practices and lower material intensity can improve living standards with less ecological damage. The appropriate framework is therefore not population versus environment, but population multiplied by patterns of production and consumption, mediated by technology and institutions.

The intergenerational dimension is especially important. A development strategy that raises current incomes by degrading aquifers, soils or urban ecosystems shifts costs to younger and future cohorts, contradicting the core sustainability principle identified by WCED (1987). Population ageing also changes environmental vulnerability: older persons are particularly exposed to heat stress, air pollution and disaster risk, while children remain highly vulnerable to poor water, sanitation and nutrition. Climate-resilient infrastructure and ecosystem protection are thus demographic as well as environmental policies.

Ageing and the emerging second demographic challenge

India's demographic debate has historically concentrated on fertility and population growth, but ageing is becoming an equally important sustainability issue. UNFPA and IIPS (2023) project the share of persons aged 60 years and above to rise from about 10.4 per cent in 2022 to 20.8 per cent by 2050. This implies a major shift in healthcare demand, household structures, pension needs and the organisation of care. The transition will occur unevenly, with several southern and more demographically advanced states ageing much faster than the national average.

Ageing should not be framed solely as a fiscal burden. Longer lives are a human-development achievement, and older people contribute labour, care, knowledge and community support. The challenge is to increase healthy life expectancy and reduce old-age dependency through preventive health, management of non-communicable disease, lifelong learning, flexible work

and income security. The care economy will also become a major employment sector, creating opportunities for formal job creation if training, standards and financing are developed.

Nevertheless, ageing exposes weaknesses in informal social protection. A large share of India's workforce has historically been outside contributory pension systems, and smaller families may reduce the availability of traditional family care. Women face particular risks because they tend to live longer, often have lower lifetime earnings and may spend more years widowed. Sustainable development therefore requires a transition from an implicit assumption of unlimited family care toward a mixed system of family support, community services, public health provision, pensions, insurance and regulated long-term care.

The coexistence of a demographic dividend and rapid ageing is not a contradiction but a sequence. The investments made during the working-age window determine how manageable future ageing becomes. High employment, formalisation, savings, preventive health and gender equality today can strengthen household and public finances for tomorrow. Failure to use the current window productively would create the risk of ageing before achieving sufficiently broad-based prosperity.

Conclusion

India's demographic transition has entered a new stage. The country remains the world's largest national population and will continue to grow for several decades because of population momentum, yet fertility is already below replacement level nationally. SRS 2024 places TFR at 1.9, while birth rates and infant mortality continue to decline. The central population challenge has therefore shifted from a singular concern with numerical growth toward the management of age structure, regional divergence, mobility, urbanisation and ageing.

The first research question is answered by the evidence of a mature but uneven demographic transition: lower fertility and mortality, slower natural increase, a large working-age population and a growing elderly share. The second question concerns the demographic dividend. India possesses a favourable age structure, but the dividend is conditional rather than automatic. PLFS 2025 shows that overall labour-force participation remains far below the size of the working-age population and that the female participation gap is still substantial. Human capital, productive job creation, women's economic participation, migration systems and labour-market institutions are therefore the decisive mediators between demography and growth.

The third question concerns social and environmental sustainability. Population change interacts with improvements in health, poverty reduction and human development, demonstrating that large population scale is compatible with social progress when institutions and public investment improve. However, rapid urbanisation and declining per-capita water availability show that ecological and infrastructure constraints cannot be ignored. Fertility decline may reduce the long-run rate of demand growth, but it cannot substitute for efficient resource use, climate-resilient infrastructure, sustainable agriculture and better urban governance. The fourth question concerns policy. A uniform population-control framework is no longer suited to India's differentiated demographic reality. High-fertility and youthful regions require continued investment in girls' education, reproductive health, child survival and decent employment; low-fertility and ageing regions increasingly require childcare, productivity enhancement, migration integration, pensions, geriatric health and long-term care.

The broader conclusion is that population dynamics should be treated as a development-planning variable rather than as an isolated target. The most sustainable population policy is one that expands human capabilities and reproductive choice while aligning employment, cities, social protection and natural-resource management with the changing age and spatial structure of the population. This approach also avoids a false trade-off between demographic opportunity and environmental responsibility. India can benefit from its current working-age structure while preparing for ageing if it raises the quality of education and health, expands productive and gender-inclusive employment, supports internal mobility, builds resource-efficient cities and protects ecological assets.

The study is limited by its reliance on secondary sources with different reference periods and by the absence of a completed recent population census. Future research should use the forthcoming census to reassess age structure, migration, urbanisation and household composition at fine spatial scales; link demographic change to district-level climate and resource indicators; and examine how fertility decline, labour-market transitions and ageing differ across states and social groups. Such evidence will be essential for a population strategy that is not merely smaller or larger, but healthier, more productive, more equal and ecologically sustainable.

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