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Demographic Transition, Migration and Sustainability in Assam, India: Population Dynamics, Inequalities and Development Outcomes

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Abstract

Assam is experiencing rapid demographic transition, and complex migration flows that significantly impact its sustainability and socio-economic inequalities. This study analyses recent fertility decline, mortality improvements, migration patterns, and multidimensional poverty in Assam. Total fertility rate has dropped below the replacement level to 1.87, while infant mortality rate declined to 32 per 1,000 live births. Migration data reveal over 10 million migrants, primarily internal, driving urban growth concentrated in Guwahati and other towns, leading to land-use change and environmental pressures. Multidimensional poverty decreased from 36.97 per cent to 22.47 per cent, yet remains high in rural, tribal, and environmentally vulnerable areas. The demographic dividend window (2020-2040) offers growth potential if inclusive policies address spatial disparities, environmental risks, and labour market challenges.

Introduction

Sustainable development in India is unfolding under conditions of rapid demographic change, persistent inequalities and intense pressure on natural resources and livelihoods. Assam offers a particularly compelling lens on these dynamics because of its distinctive population history, ethnic and linguistic diversity, and exposure to recurrent environmental shocks such as floods and riverbank erosion in the Brahmaputra and Barak valleys. The demographic trajectory of the state, along with migration patterns and uneven development outcomes raises fundamental questions about how population dynamics shape and is shaped by the pursuit for sustainability.

Assam has experienced steady population growth over the recent decades, accompanied by changes in fertility, mortality and age structure that places the state at an intermediate stage of demographic transition relative to other states of India. The population density of the state increased from 340 persons per square kilometre in 2001 to about 398 persons per square kilometre in 2011, indicating continued pressure on the land and the ecosystem in a region that is already ecologically fragile. At the same time, the share of the urban population, though still below the national average, increased from 12.9 per cent in 2001 to 14 per cent in 2011, reflecting gradual but significant urbanisation and the emergence of towns and peri-urban areas along key transport and economic corridors.

These shifts suggest that Assam is undergoing a complex transition in which traditional rural, agrarian livelihoods coexist with increasing urban and non-farm livelihood opportunities, with important implications for sustainability.

Demographic transition in Assam is reflected in notable improvements in survival and reduction in fertility, even as gaps remain across districts and across social groups within. Between 2015-2016 and 2019-2021, the infant mortality rate in the state declined from about 48 deaths per 1,000 live births to around 32 while the under-five mortality rate fell from roughly 57 to 39 per 1,000 live births, indicating progress in child survival and improvement in health services (Government of India, 2022). More than one-quarter of the population of the state is below 15 years of age, suggesting that demographic momentum will continue to drive population growth in the coming years. The young age structure of the population of the state also offers a demographic window of opportunity for hastening the pace of development if education, skills, and employment opportunities can keep the pace with the demand. However, there are marked inter-district differences within the state in fertility levels and age-specific fertility patterns, with some districts progressing faster than others in terms of fertility transition, which can reinforce spatial and social inequalities in development outcomes.

Migration is another critical dimension of the population dynamics of Assam that intersects with urbanisation, labour markets, environmental vulnerability, and identity politics. Data available from 2001 and 2011 population censuses show that the number of in-migrants in Assam increased from about 6.8 million in 2001 to more than 10.6 million in 2011, reflecting a mix of internal migration within the state, in-migrants from other parts of India and neighbouring countries and circulation between rural and urban areas. Urban centres such as Guwahati have become important destinations for migrants seeking employment in services, construction, trade, and informal activities. Migration has contributed to the growth of slums and peri-urban settlements that are often inadequately serviced and exposed to environmental risks. At the same time, out-migration of youth and working-age adults from rural and ecologically stressed areas to urban areas has altered population age structure at the place of origin and at the place of destination and has influenced care arrangements and local labour availability, with implications for both agricultural sustainability and social support systems.

The development outcomes of Assam reveal persistent and multidimensional inequalities that intersect with these demographic and migratory trends. State-level human development indicators mask substantial disparities across districts, ethnic and linguistic communities, Scheduled Tribes and other marginalised groups, as well as between urban and rural areas. National and state reports on multidimensional poverty indicate that, although poverty has declined in recent years, a significant share of the population continues to experience overlapping deprivations in health, education and living standards, with particularly high concentrations in rural and riverine “char” areas, tea-garden communities and border districts (Government of India, 2022; Government of Assam, 2014). These patterns suggest that population growth, migration and demographic transition interact with structural inequalities, shaping both exposure to risks and access to opportunities.

From the sustainability perspective, the interplay between demographic change, environmental stress and economic transformation is particularly salient in Assam.

Recurrent floods, erosion, and climate-related hazards displace people, destroy land and assets and drive cycles of temporary and permanent migration, thereby reshaping settlement patterns, and livelihood strategies. Expanding urbanisation and infrastructure development can generate new economic opportunities but also lead to land-use change, congestion and pressure on water, waste, and transport systems if they are not planned and governed inclusively.

The demographic transitions and migration patterns in Assam present both substantial opportunities and critical challenges for the sustainable development of the state. The population of Assam has expanded dramatically over the last century, with its demographic composition increasingly shaped by natural population growth alongside complex internal and cross-border migration flows. These dynamics have altered landholding patterns, shifted the linguistic and cultural landscape of the state and intensified pressure on natural resources, infrastructure, and social services. The evolving religious demographics and regional population imbalances have heightened social tensions and raised concerns about identity, equity, and inclusion.

At the same time, Assam stands at a pivotal moment with a window of demographic dividend projected between 2020 and 2040. The potential to harness the economic growth and human capital benefits of a young population can be transformative, provided strategic investments in education, skill development and healthcare are made equitably across diverse social groups and geographic locations. However, the persistence of multidimensional poverty, pronounced health and education disparities, environmental vulnerabilities, such as frequent floods and erosion along urban stress call for a nuanced understanding of how demographic transition and migration interact with sustainability challenges.

It is well known that without rigorous, evidence-based analyses, linking demographic trends and migration patterns to inequalities in development outcomes, policy responses may be reactive, fragmented, or exclusionary. It is, therefore, important to provide empirically grounded insights into how population dynamics of Assam correlates with the spatial and social disparities in health, education, livelihoods, and poverty in the state. The findings of such an analysis may inform more inclusive, context-sensitive policies and programmes that strategically harness demographic opportunities while mitigating the risks posed by migration and environmental stress, thereby advancing sustainable and equitable development of Assam.

The above considerations constitute the rational for the present paper which attempts to analyse how the evolving demographic dynamics and migration patterns in Assam are linked to spatial and social inequalities in development outcomes and to key dimensions of sustainable development. More specifically, the paper has the following specific objectives:

1. To describe recent trends in fertility, mortality, and age structure in Assam, highlighting inter-district and rural–urban differentials.
2. To examine internal and cross-border migration flows and their relationship with urbanisation, environmental stress, and labour market changes.
3. To explore how population dynamics is associated with disparities in health, education, livelihoods, and multidimensional poverty in the state.

Review of Literature

Existing research on the demographic dynamics of Assam reveals a state amid fertility and mortality transitions yet marked by persistent regional disparities and migration pressures that challenge sustainability. Studies using NFHS data document that total fertility rate of Assam has declined from 3.5 live births per woman of reproductive age in the early 1990s to 1.87 during the period 2019-2021(Government of Assam, 2014). Below replacement fertility in Assam is however associated with marked inter-district variation with district-level clustering showing high fertility pockets in Muslim-majority and rural areas alongside faster decline in urban areas and districts having high concentration of Scheduled Tribes population (Baruah et al, 2025). Mortality analyses highlight improvements in infant mortality from 48 to 32 infant death per 1,000 live births between 2015-2015 and 2019-2021 but persistent gaps linked to incomplete civil registration (57 per cent for under-5 deaths) and vulnerabilities in tea gardens and char communities (Government of Assam, 2014).

Studies on migration in Assam emphasise the role of the state both as a source and a destination. The data from the 2011 population census data indicates that there were more than 10.6 million inhabitants in the state whose place of enumeration was different from the place of birth at the time of enumeration. Reasons for migration include urbanisation (14 per cent of the migrants lived in the urban share) and environmental stressors like floods. Studies link 2010-2020 inflows to 23 per cent higher land-use change, 4.8 per cent annual urban expansion in high-migration zones, air quality degradation (PM2.5 up 45 per cent) and strained services, exacerbating ethnic tensions and informal labour saturation (Singh, 2025). Circular migration of flood survivor's underscores livelihood shifts from agriculture to urban construction, amplifying vulnerability in peri-urban slums (Kakati, et al, 2025).

On inequalities and sustainability, scholarships highlight multidimensional deprivations among Scheduled Tribes (high marginal workers, low literacy, firewood dependence) and spatial divide in health and education facilities and poverty that intersect with demographic shifts (Government of Assam, 2016; Talukdar, 2025). Human development reports of the state highlight uneven demographic dividend due to youth out-migration and gender gaps (27.8 per cent secondary dropout for girls) (Government of Assam, 2014). Broader Indian transition models caution that the state faces intermediate stage risks of stalled progress in the absence of inclusive policies (Singh et al, 2025; Jadhav 2026).

Source of Data

The study is based on the secondary data available from different sources including 2011 population census, Sample Registration System, different rounds of the National Family Health Survey (Government of India, 2022), Economic Survey of Assam (Government of Assam, 2025), Assam State Human Development Report (Government of Assam, 2014) and estimates of multidimensional poverty in the state prepared by the Government of India (2023). The last population census in India was carried out in 2011. The scheduled 2021 population census could not be carried out but the next census is due in 2027. The data

available from the population census is dated. The Sample Registration System is the only system in India which provides annual estimates of key fertility and mortality indicators of Assam. However, the system does not provide estimates of fertility and mortality for the districts of the state. The National Family Health Survey Programme has been instituted by the Government of India five rounds of the survey have so far been carried out. The first three rounds of the survey provided state level estimates of selected population and health related indicators but the fourth and fifth rounds of the survey have provided district level estimates also. Estimates of poverty for the districts of the state are prepared by the Government of India while other data used in the present analysis have been taken from the publications of the Government of Assam. All data used in the present study are anonymised, and publicly available. Therefore, no ethical clearance was required.

Methodology

The study adopts a quantitative research design based entirely on population and development related data from different secondary sources. It employs a combination of descriptive, spatial, and inferential statistical analysis techniques to examine the linkages of demographic transition in Assam with multidimensional poverty, human development, migration patterns, and associated socio-economic and environmental implications. Descriptive analysis of the demographic transition is primarily confined to the description of the change in selected demographic indicators over time in the state. On the other hand, district-level mapping and visualisation of key demography and development indicators has been done to highlight the spatial dimension of demography and development within the state. Both bivariate and multivariate statistical analysis tools have been used to analyse the relationship between demographic dynamics and development scenario in the state based on the variation in demographic patterns and development outcomes across the districts of the state. The bivariate analysis examined the relationship between such variables as female literacy and TFR, poverty headcount and infant mortality, migration rate, and urban expansion. On the other hand, multivariate regression analysis has been carried out to explore how inter-district variation in the demographic scenario is associated with the inter-district variation in the development situation as described through female education, household living conditions measured in terms of the wealth index estimated for the purpose, religious composition of the district population, degree of urbanisation in the district based on the characterisation of the population as urban and rural according to the classification adopted at the 2011 population census, access to health care facilities, the extent of exposure to floods by the population of the district, and the employment status of the working age population of the district. The reliability of the multivariate regression model was examined through testing the multicollinearity among the independent or explanatory variables used in the analysis via variance inflation function (VIF), heteroscedasticity tests, and unadjusted and adjusted proportion of the variance in the original data explained by the regression model (R^2 and adjusted R^2). The statistical significance of the parameters of the model was tested at 95 per cent and 99 per cent level of significance. The methodology adopted for the present analysis provides a comprehensive understanding of the demographic transition in Assam highlighting, at the same time, spatial inequalities in demography and development and resulting policy implications.

Findings

Demographic Transition

The population of Assam increased from 26.66 million in 2001 to 31.21 million in 2011, recording a decadal growth of more than 17 per cent which is slightly below the national average of 17.6 per cent. There has been a marked slowdown in the growth of the population of the state during the decade 2001-2011 compared to decade 1991–2001 when the population of the state increased by more than 18.8 per cent. It is projected that the population of the state would have crossed 36 million by the year 2026 *Government of India, 2020). Within the state, population growth during 2001-2011 varies widely across districts from just around 5 per cent in district Kokrajhar to more than 24 per cent in district Dhubri (Figure 1). There are three districts whereas population increased by less than 10 per cent during 2001-2011 but more than 20 per cent in 10 districts indicating substantial inter-district migration.

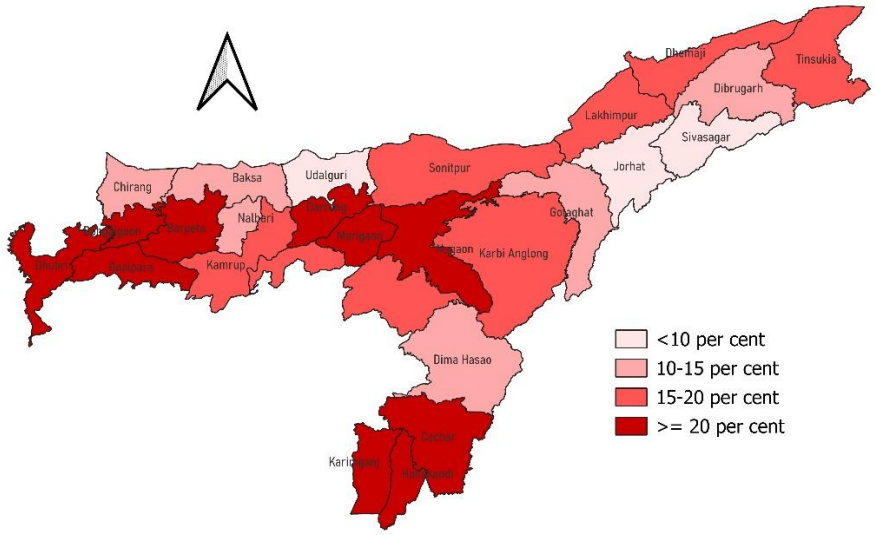

Figure 1: Decadal population growth in districts of Assam, 2001-2011.
Remarks: There were 27 districts in Assam at the time of 2011 population census.
Source: Author

There has a change in the age composition of the population which has implications for development. The proportion of the young population, population below 15 years of age decreased from 32 per cent in 2005-2006 to 26 per cent in 2019-2021 according to the National Family Health Survey while population aged 60 years and older remained virtually unchanged leading to an increase in the proportion of working age population from 58 per cent to 64 per cent. The increase in the proportion of working age population provides a demographic window of opportunity for the state.

Assam exhibits a demographic transition that is characterised by declining fertility and mortality, although inter-district disparities persist that challenge the uniform progress toward sustainability. The total fertility rate (TFR) in the state has fallen below the replacement level to around 1.9 live births per woman of childbearing age according to the latest round of NFHS (Government of India, 2022). Estimates available from the Sample Registration System also suggest that fertility in the state is now below the replacement level (Table 1).

Table 1: Trend in TFR in Assam.

Year / Period	Source	TFR (Children per Woman)	Remarks
1992-93	NFHS-1	3.5	High fertility phase
1998-99	NFHS-2	2.3	Sharp decline
2005-06	NFHS-3	2.4	Minor fluctuation
2015-16	NFHS-4	2.2	Approaching replacement level
2019-21	NFHS-5	1.9	Below replacement level (2.1)
2018	SRS	2.2	SRS annual estimate
2019	SRS	2.2	SRS annual estimate
2020	SRS	2.1	Continued decline
2023	SRS	2.0	Latest available SRS figure

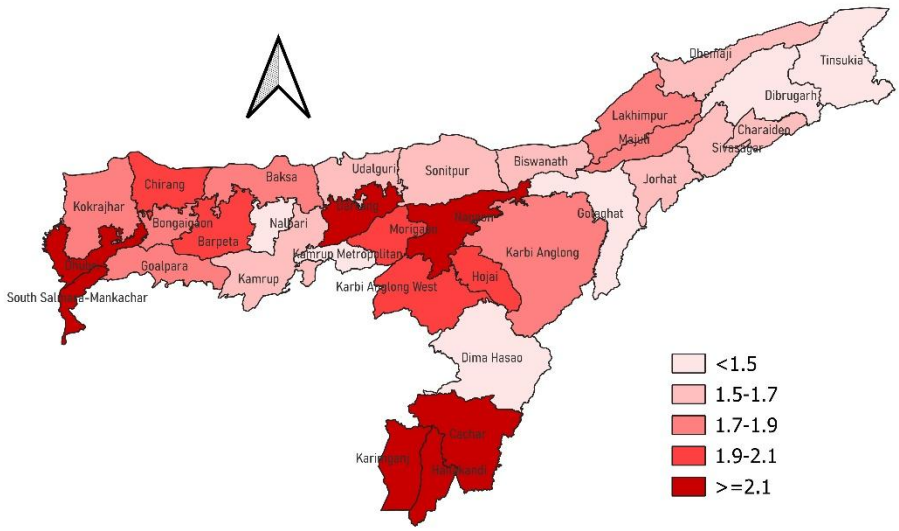

Figure 2: Inter-district variation in TFR in Assam, 2019-2021.
Remarks: There were 33 districts at the time of NFHS fifth round in Assam.
Source: Author based on the estimates prepared by Borah and Borah (2018).

Within the state, TFR varies widely across the districts (Figure 2). There are seven districts where TFR was above the replacement level according to the latest (2019-2021) round of the National Family Health Survey (Begum and Sinha, 2025). On the other hand, there are 3 districts in which TFR was well below the replacement level (TFR=2.1) according to the survey. District-level analysis reveals clustering of districts. High-fertility districts like Dhubri and South Salmara-Mankachar contrast with very low fertility districts like Kamrup Metro (1.2), because of marked variation in social and economic development and social class composition of population.

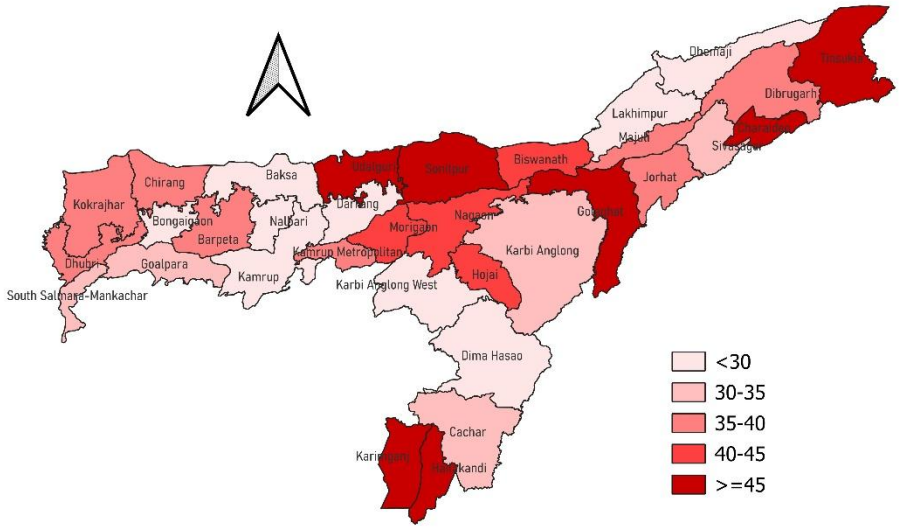

Figure 3: Inter-district variation in Under-5 mortality rate in Assam, 2019-2021.
Remarks: There were 33 districts at the time of NFHS fifth round in Assam.
Source: Author, based on the estimates prepared by Begum and Sinha (2025).

Mortality improvements are equally pronounced. The life expectancy at birth in Assam increased from 63.3 years during 2009-2013 to 68.6 years during 2019-2023 according to the estimates available from the Sample Registration System (Government of India, 2025a). The life expectancy at birth in the state, however, remains lower than life expectancy at birth in India. The infant mortality rate (IMR) dropped from 41 to 30 infant deaths per 1000 live births between 2018 and 2023 (Government of India, 2025b) while the under-five mortality rate (U5MR) dropped from 57 during 2015-2016 to 39 under-five deaths per 1000 live births during 2019-2021 according to the National Family Health Survey, although it varies widely across districts (Figure 3) ranging from less than 20 under-five deaths for every 1000 live births in district Bongaigaon and Nalbari to more than 50 under-five deaths for every 1000 live births in districts Sonitpur and Hailakandi.

Migration flows constitute a dominant force in shaping the distribution of population within Assam, across districts. According to the 2011 population census, there were 10.6 million migrants (32 per cent of total population) in the state in the sense that their place of birth was different from the place of enumeration. Within the state, movement of people from rural to urban areas has fuelled urbanisation. The proportion of the urban population to the total population in the state increased from 12.9 per cent in 2001 to 14.1 per cent in 2011. Rural to urban migration is estimated to have accounted for around 65 per cent of the urban population growth in the state between 2001-2011). The degree of urbanisation, measured in terms of the proportion of urban population to the proportion of rural population, however, is not the same in all districts of the state. According to the 2011 population census, the urban population in district Kamrup Metro was almost five times the rural population of the district whereas, in district Baska, the urban population was just around 1 per cent of the rural population of the district. Besides district Kamrup Metro, there was no other district in the state in 2011 where urban population was more than rural population of the district (Figure 4).

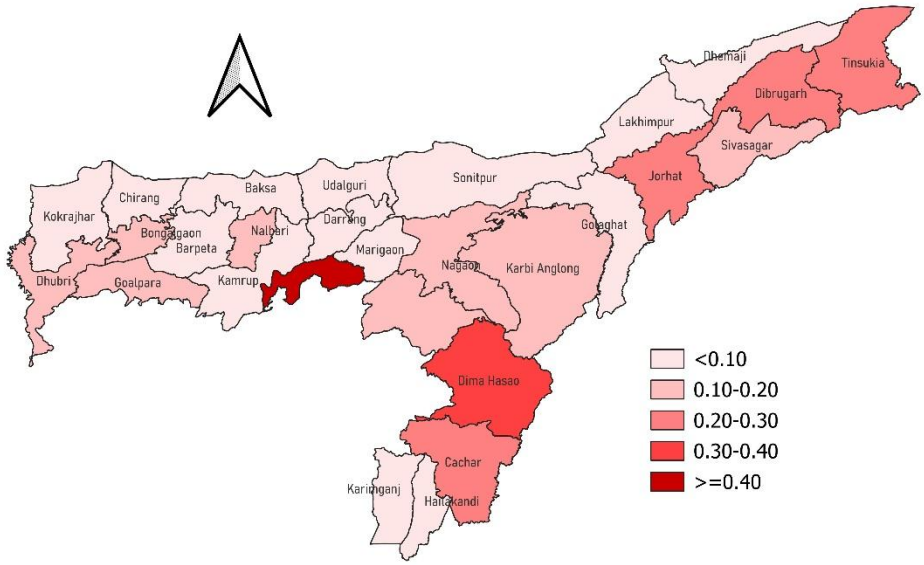

Figure 4: Degree of urbanisation in districts of Assam.
Remarks: There were 27 districts in Assam at the time of 2011 population census.
Source: Author

Cross-border and inter-state inflows, including from Bangladesh and Bihar in border districts like Dhubri and Karimganj have contributed to accelerating population growth and increasing ethnic tensions. High migration zones in the state are primarily concentrated in the Barak Valley, Central Assam, and specific border districts that act as

gateways for both inter-state and international influxes. These zones have seen significant demographic changes in the recent past (Das and Chowdhury, 2026). There has also been out-migration of rural youths from some districts of the state resulting in the depletion of agricultural labour and change in the dependency ratios.

Inequality and Sustainability

There has been a marked decrease in the poverty headcount ratio in the state from almost 37 per cent in 2013-2014 to around 22 per cent in 2023. There is, however, wide variation in the poverty headcount ratio within the state with comparatively higher poverty headcount ratio in the rural population (27 per cent), in the Scheduled Tribes population (35 per cent) and in the riverine areas of the state. According to the estimates prepared by the Government of India, the multidimensional poverty index (MPI) in the state was 0.156 in 2015-2016 which reduced to 0.086 in 2019-2021. The MPI in the state (0.086) is substantially higher than the MPI in India (0.066) during the period 2019-2021 (Government of India, 2023). Within the state MPI varies widely across districts from the lowest (0.024) in district Kamrup Metro to the highest (0.164) in district Hailakandi. There are nine districts in the state where MPI is estimated to be more than or equal to 0.100 according to the estimates prepared by the Government of India (Figure 5).

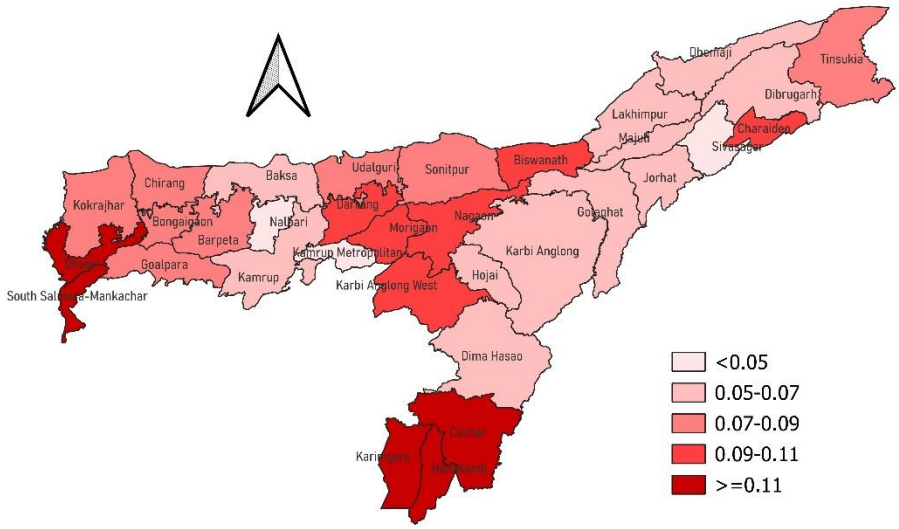

Figure 5: Inter-district variation in multidimensional poverty index (MPI) in Assam during 2019-2021.

Remarks: There were 33 districts in Assam at the time of the fifth round of National Family Health Survey (NFHS, 2019-2021).

Source: Author, based on Government of India (2023).

Finally, we carried out multivariate regression analysis to explore how inter-district variation in selected indicators of development are related to inter-district variation in selected explanatory indicators after controlling inter-district variation in a set of independent variables. For example, we analysed how variation in MPI is related to the variation in rural TFR across districts after controlling inter-district variation in female literacy, wealth index, degree of urbanisation, access to health facilities, religion, and district development index. The district of the state were divided into two categories – districts having rural TFR above the state average were coded as 1 and districts having rural TFR equal to or below states average were coded as 0. The analysis suggests that the MPI in districts in which rural TFR is higher than the state average is, on average, more than 17 per cent higher than MPI in those districts in which rural TFR is lower than the state average, after controlling the variation across districts in female literacy rate, wealth index, degree of urbanisation, access to health facilities, religion and the level of development across districts as measured by district development index (Table 2). This observation suggests concentration of poverty in those districts in which fertility is above the state average. Similarly, MPI in districts which are prone to floods is found to be around 30 per cent higher on average as compared to districts which are not prone to floods. This means that environmental exigencies have a strong impact on the incidence of multidimensional poverty in the state.

On the other hand, the U5MR has also been found to be around 25 per cent higher, on average, in districts which are prone to floods as compared to districts which are not prone floods. Similarly, U5MR is found to be almost 10 per cent higher, on average, in those districts which are classified as either tea garden districts or char (riverine) districts compared to districts which are not classified as either tea garden or Char (riverine) districts. Tea garden districts are centred in Upper Assam, while Char (riverine) districts are located along the Brahmaputra River and are prone to floods. Since U%MR is almost linearly related to the life expectancy at birth, the relationship of the environmental stress on population health of the state is obvious.

The regression analysis also reveals that an increase in the inter-district variation in migrants' inflow rate contributes to the increase in the inter-district variation in income inequality as measured through the Gini index of income inequality. Similarly, the analysis suggests that an increase in the inter-district variation in migration from rural to urban areas contributes to an increase in the inter-district variation in the urban gross domestic product (GDP) leading to increase in the income inequality across the districts of the state. Finally, the regression analysis also indicates that inter-district variation in the participation of the youth population, population aged 15-29 years, in social and economic productive activities is found to be negatively related to the inter-district variation in the proportion of youths (15-29 years) who are Scheduled Tribes and the proportion of youths who are female. The analysis, thus, reveals that even after controlling inter-district variation in such variables as female literacy urbanisation, standard of living as measured through the wealth index, ethnic composition of population and access to health facilities, a strong relationship is depicted between demographic transition and sustainable development in the state. Similarly, sustainable development in the state appears to be strongly contingent upon natural or environmental factors such as floods. Migration from rural to urban areas in search of better livelihood opportunities also appear to have resulted in an increase in income disparities within the state.

Table 2: Multivariate regression analysis results – key determinants of poverty, child mortality, inequality, and labour force participation in Assam.

Dependent Variable	Independent Variable	B	SE	β	't'	'p'	Interpretation
Multidimensional Poverty (MPI)	Rural TFR above or below state average	0.172	0.041	0.214	4.195	<0.001	17.2per cent higher poverty intensity
Multidimensional Poverty (MPI)	Flood-prone or not flood prone district	0.298	0.055	0.267	5.418	<0.001	29.8per cent higher MPI
Under-5 Mortality Rate (U5MR)	Flood-prone or not flood prone district	12.45	3.82	0.231	3.259	0.001	25per cent higher U5MR
Under-5 Mortality Rate (U5MR)	District having or not having Tea Garden/Char Area	9.87	4.12	0.178	2.395	0.017	Significantly higher mortality
Gini coefficient of income inequality	Migration inflow rate (per cent)	0.062	0.018	0.289	3.444	<0.001	Widens Gini by 0.062 points
Urban GDP growth (per cent)	Migration inflow rate (per cent)	0.347	0.091	0.251	3.813	<0.001	Positive boost to urban GDP
Labour force participation rate in population aged 15-29 years	Proportion of Scheduled Tribes aged 15-29 years above or below state average	-0.392	0.074	-0.312	-5.297	<0.001	39.2per cent lower participation
Labour force participation rate in population aged 15-29 years	Proportion of females aged 15-29 years above or below state average	-0.214	0.052	-0.189	-4.115	<0.001	Significant gender gap

Remarks: Control Variables (included in all models): Female literacy, wealth index, urban-rural residence, access to health facilities, religion, and district-level development index.
Source: Author

Discussion

The demographic transition in Assam aligns with classic population-development models but deviates through migration and environment interactions, underscoring sustainability risks faced by the state. Fertility decline signals momentum stabilization, yet pockets having above replacement fertility, such as Muslim-majority districts, sustain the pressure of population growth on the fragile ecosystem of the state, where around 23 per cent land-use shift in high migration areas threaten biodiversity and agricultural output. This echoes national patterns but are intensified in Assam due to the Brahmaputra River associated vulnerabilities. It is estimated that floods in the Brahmaputra valley displace more than 5 million people annually, driving circular migration and slum proliferation without proportional service scaling.

Urbanisation-migration nexus reveals dual edges. Around 65 per cent of the urban growth from internal migratory flows generates economic hubs, commonly known as Guwahati service boom but imposes environmental costs reflected through spikes in PM2.5 and deforestation which challenges the "Urbanisation and Migration" sub-theme of sustainable development. The inequality metrics reflects how demographic transition in the state reinforces rural-urban divide in the state – rural high-TFR zones trap families in poverty cycles, while out-migration depletes human capital, potentially squandering the advantages of demographic opportunities. The good sign, however, is that the multidimensional poverty in the state has decreased mainly through schemes like Orunodoi or 'Arunodoi Scheme 3.0,' although the decrease in multidimensional poverty at the state level masks the variation in multidimensional poverty across districts where districts dominated by char or riverine area and tea gardens face compounded deprivations. Other state sponsored programmes like Mukhya Mantri Mahila Udyamita Abhiyaan (MMUA), Chief Minister's Atmanirbhar Asom Abhiyan (CMAAA) and Assam Skill Development Mission (ASDM) Schemes are also targeted towards an accelerated reduction in multidimensional poverty.

Policy implications emerging out of the present analysis call for targeted interventions such as district-specific family planning interventions in high-fertility districts; migration-inclusive planning for urban development with s focus on green infrastructure development; skills development and improvement programmes for Scheduled Tribes youth and female youths to increase their participation in the social and economic production system to translate the demographic opportunity into economic reality and climate-resilient zoning linking SRS/NFHS data to early warning systems in the flood prone areas. The analysis emphasises the need of integrating population dynamics into sustainable development.

Conclusion

The study reveals that Assam is navigating advanced fertility decline and mortality improvement amid persistent inter-district disparities, intense migration flows and reduction in multidimensional poverty that masks the vulnerabilities in the rural areas and in the Scheduled Tribes population. These dynamics underscore the demographic transition being experienced by Assam as both an opportunity and a risk where urbanisation fuels

economic growth in urban growth centres of the state like Guwahati but strains the ecosystem and exacerbates inequalities in flood-prone char (riverine) areas and tea-garden areas. The analysis highlight the need for integrated policy action as fertility-mortality gains offer momentum stabilisation, yet high-TFR pockets sustain pressures on fragile Brahmaputra ecosystem, while migration drives 65 per cent of the urban expansion but widens income inequality. The study contributes to the nuanced, sub-state evidence for harnessing youth employment while mitigating vulnerabilities in flood prone districts of the state.

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Appendix Table: Inter-district variation in demography and development in Assam.

District	Population growth, 2001-2011 (per cent)	Degree of urbanisation 2011	Total fertility rate	Under-five mortality rate	MPI
Baksa	10.74	0.01	1.84	29.16	0.064
Barpeta	21.43	0.10	2.07	36.03	0.083
Biswanath			1.62	40.91	0.102
Bongaigaon	20.59	0.16	1.77	17.58	0.075
Cachar	20.19	0.22	2.14	30.95	0.140
Charaideo			1.52	46.28	0.095
Chirang	11.34	0.08	1.91	36.39	0.071
Darrang	22.19	0.06	2.14	28.53	0.100
Dhemaji	19.97	0.08	1.7	26.16	0.056
Dhubri	24.44	0.12	2.39	35.88	0.116
Dibrugarh	11.92	0.23	1.38	39.75	0.056
Dima-Hasao	13.84	0.40	1.48	29.48	0.061
Goalpara	22.64	0.16	1.73	33.72	0.081
Golaghat	12.75	0.10	1.37	46.42	0.065
Hailakandi	21.45	0.08	2.69	67.52	0.164
Hojai			2.02	43.67	0.059
Jorhat	9.31	0.25	1.61	38.48	0.051
Kamrup	15.69	0.10	1.54	22.61	0.053
Kamrup-Metropolitan	18.34	4.85	1.31	38.15	0.024
Karbi-Anglong	17.58	0.13	1.88	32.00	0.068
Karimganj	21.90	0.10	2.64	47.95	0.153
Kokrajhar	5.21	0.07	1.90	38.49	0.083
Lakhimpur	17.22	0.10	1.82	24.28	0.061
Majuli			1.71	37.59	0.056
Morigaon	23.34	0.08	2.03	41.88	0.100
Nagaon	22.00	0.15	2.15	44.80	0.093
Nalbari	11.99	0.12	1.47	18.71	0.049
Sivasagar	9.44	0.11	1.57	34.55	0.044
Sonitpur	15.55	0.10	1.66	50.57	0.090
South Salmara-Mankachar			2.46	31.21	0.131
Tinsukia	15.47	0.25	1.48	45.58	0.081
Udalguri	9.61	0.05	1.55	49.14	0.082
West-Karbi-Anglong			2.05	28.29	0.107

Remark: There were 27 districts in Assam at the time of 2011 population census. The number of districts increased to 33 at the time of National Family Health Survey, 2019-2021.