ABSTRACT

SOCIO-ECONOMIC DEVELOPMENT AND DEMOGRAPHIC CHANGE IN UTTAR PRADESH

The broad objective of this research was to understand the process of demographic changes and its linkages with socio-economic development in the districts of Uttar Pradesh. Specifically, this research attempts to fulfill the objectives. First, to examine the state of human development in districts of Uttar Pradesh. Second, it attempts to examine the fertility changes across districts and socio-economic groups and its linkages with development indicators in districts of Uttar Pradesh. Third, it aims to examine the mortality changes and its linkages with development indicators in districts of Uttar Pradesh. Fourth, it examines the effect of reproductive and child health services on demographic change in districts of Uttar Pradesh. Finally, it aims to examine the social and economic implications of population growth in the state of Uttar Pradesh by 2040.

The present study used data from multiple sources; Census of India, Sample Registration System (SRS), Annual Health Survey (AHS, 2012-13), two rounds of National Family Health Survey (NFHS-1 & 3), Second round of District Level Household Surveys (DLHS-2), Indian Human Development Survey and other published sources. The unit of analyses is mainly districts and state trends are also presented. For districts level analyses, estimates were compiled or derived using the suitable methodology. The methods used were broadly, descriptive statistics, decomposition of fertility using Bongaart's model, Beta and Sigma convergence, Age Decomposition of life expectancy at birth using Arriaga method, fixed effect and random effect models and the difference-in-difference models were used for the analysis. The population was projected using SPECTRUM package till 2040. The population was projected under three alternative scenarios i.e. optimistic, realistic and pessimistic. The Human Development Indices (HDI) were estimated using uniform methodology for three periods at district level. Fertility changes were analyzed with respect to TFR, and Mortality changes were examined with respect to Life expectancy at Birth (LEB), Infant Mortality Rate (IMR) and Under-five Mortality Rate (U5MR). The Reverse survival method (RSM) was used to estimate total fertility rate at district level and under-five mortality rate were estimated from census using MORTPACK. The Infant mortality rates were used from published sources. The effect of reproductive and child health services on fertility and child mortality in the districts of Uttar Pradesh was studied using RCH Index. The RCH Index was constructed using four key indicators; antenatal care, medical assistance at birth, child immunization and use of modern methods of contraception.

Result shows large variation and significant change in HDI among districts of Uttar Pradesh. Over the period, the state had marked 33% increase in HDI from 0.430 in 1991 to 0.572 in 2011 and 13% during 2001 to 2011. It is observed that districts that had lower HDI in 2001 did smaller progress in improving HDI during 2001-2011. These districts are Shrawasti, Balrampur, Siddharthnagar, Gonda, Maharajganj, Budaun, Kushinagar, Sitapur and Chitrakoot. On the other hand, districts that had a relatively higher HDI, many of these did a moderate progress in HDI. The changes in HDI during 1991-2011 was highest in the district of Sant Kabir Nagar (53%) and lowest in Kanpur Nagar district (17%). The districts from western and central Uttar Pradesh made significant improvement in HDI while districts from
eastern Uttar Pradesh performed poorly in human development. Districts such as Shrawasti, Balrampur, Bahraich, Siddharthnagar and Gonda districts remained low in the level of development. We found large variation in the state of human development with respect to wealth/income and less by caste and religion. There was a small variation in HDI among castes and religious groups while within castes and religious group HDI varies largely by wealth tertile. This confirms that poor are alike in the state of human development. On dimensional indices, improvement in the knowledge domain was maximum followed by income.

The state observed 48% decline in fertility during 1971-2011 and the maximum decline was during 2001-2011. During 1971-2011, fertility decline was more in rural areas, while in initial periods this decline was more in urban areas of the state. The proportion of married women followed by induced abortion were important contributor (among proximate determinants) in reducing the TFR in the state. In rural Uttar Pradesh, induced abortion followed by contraceptive use contributed more, while in urban Uttar Pradesh reduced proportion of married women followed by induced abortion contributed more to fertility decline in the state. Study found large variation in fertility levels among the districts of Uttar Pradesh, varying from a highest of 4.99 in Bahraich district to 2.56 in Kanpur Nagar district in 2011. During 1991-2011, fertility decline was highest in Etah (42%) and lowest in Bahraich (6%) district. Out of 71 districts, 11 district experienced less than 20% decline in TFR and these districts are Bahraich, Baghpat, Balrampur, Siddharthnagar, Sitapur, Shrawasti, Bara Banki, Kheri, Chitrakoot, Budaun and Shahjahanpur. Within the district rural-urban differences in fertility and changes in fertility were large. In two districts (Bahraich and Sonbhadra) differences in rural-urban TFR was more than 2 children and in 36 districts it was in the range of 1-2 children per women in 2011. During 1991-2011, decline in TFR was little higher in urban compared to rural within the district. Over the same period, out of 71, 19 districts had 10%-30% higher decline in urban TFR compared to rural TFR within the district. We found a significant effect of development (HDI) on fertility (TFR) reduction. Improving the development indicators especially female education, reducing infant and child mortality and improving family planning services can triggered fertility decline in the state. While the convergence (β-convergence and conditional β-convergence) suggests fertility convergence during 1991-2011, sigma (σ) convergence showed fertility divergence over the same period.

The life expectancy at birth has increased by 47% during 1972-2011. The annual increase in life expectancy at birth was higher among females and in rural areas during the same period. Decomposition analysis revealed that improvement in life expectancy at birth was mainly due to reduced infant and child mortality over the same period. Improvement in life expectancy at birth due to changes in different age groups across male-female and rural-urban follow the similar pattern with varying levels of contribution. During 1971-2001, state observed 67% decline in IMR, with the maximum decline during 1981-1991. The reduction in infant mortality was higher in rural and among males during the same. At District level, result depicts large variation in infant and child mortality. The ten districts experiencing high infant and child mortality are Shrawasti Balrampur Budaun Allahabad Shahjahanpur Mahraijganj Kaushambi Mirzapur Sitapur Hardoi. More than half of the districts had less than 10% reduction in infant and child mortality. We found female literacy, percentage of women having safe delivery and percentage of girls marrying below age 18 were significant in
reducing IMR and U5MR in districts of the Uttar Pradesh. Convergence (β convergence) result showed divergence in life expectancy at birth and convergence in infant mortality rate and under-five mortality rates during 1991-2011. The sigma (σ) convergence results also confirmed the result of β convergence for all three indicators.

Results suggest large inter-district variations in the coverage of reproductive and child health services in the state of Uttar Pradesh. With regard to improvement in the four RCH services, during 2002-2012, it was highest in safe delivery followed by immunization coverage and antenatal care and least for contraceptive use in most of the districts. The relative ranking of districts has not changed much over time. During 2002-2012, there was a significant improvement in RCH Index. The improvement in RCH index between 2002 and 2012 was highest in the district of Kaushambi followed by Banda, and the lowest was in the district of Ballia, preceded by Gautam Budh Nagar. Districts such as Kaushambi, Unnao, Mahoba, Banda and Hardoi performed better in the RCH index over time while the districts of Ballia, Gautam Buddha Nagar, Kanpur Nagar, Pratapgarh, and Sonbhadra remained poor. Results of regression analyses suggest that the RCH index exerts greater influence on the reduction of infant and under-five mortality, while female literacy exerts greater influence on the reduction in TFR.

The state population is likely to be increase by at least 37% between 2011-2040 with a large share of adult population. On economic front, the per capita GSDP is likely to increase by more than thrice under each alternative scenario by 2040. The per capita income of the state will be 500 rupees higher in optimistic scenario compared to pessimistic scenario; suggested that the increased population reduced the growth rate of per capita income. The dependency ratio is expected to decline during the period. It is required to create 60 million additional employment for achieving full employment of the state. On social front, it is found that the absolute number of children in the primary school age will decline and so the requirement of new schools. It is projected that the requirement of primary schools will be about 102-116 under alternative scenarios by 2040 if school enrolment ratio of 100 percent is achieved. The requirement of secondary schools will be 25 thousand and required teachers will be 188 thousand in 2040 under realistic assumption. The requirement of health professionals such as Doctors and Nurses are likely to be more in the coming years. By 2040 about 299 thousand doctors and 1.24 million nurses will be required under realistic scenario. The government should invest more and more on social overhead capital specially on health and education to improve the quality of people in the state.

Most of the backward districts on human development improved, in Uttar Pradesh did lower fertility and child mortality reduction. These districts are Shrawasti, Balrampur, Budaun, Siddharthnagar, Gonda, Maharajganj, Kushinagar, Sitapur, Chitrakoot, and Bahraich district. The factors such as female literacy, percentage urban population, percentage of scheduled caste population, institutional delivery and use of modern contraception had significant role in lowering fertility. The female literacy, percentage of women having safe delivery and percentage of girls marrying below age 18 were significant in reducing infant and child mortality. The targeted intervention in backward districts will be helpful to reduce fertility and child mortality in Uttar Pradesh.