

**Working Paper 227**

**Demographic Outcomes of MCH and  
Family Planning Services Utilization in Districts of  
Uttar Pradesh: Examining Progress,  
Linkages and Policy Imperatives**

**Rajesh Raushan, PhD**



**September, 2024**

**Giri Institute of Development Studies**

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# **Demographic Outcomes of MCH and Family Planning Services Utilization in Districts of Uttar Pradesh: Examining Progress, Linkages and Policy Imperatives**

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## **Abstract**

*Uttar Pradesh has made commendable gains in bringing down maternal and child mortality rates as well as its total fertility rate over the last few decades. Yet it remains the most populous state housing one sixth of India's population. Its annual growth rate between 2001/11 at 1.86 percent lags that of the country's 1.64 percent for the same period. The figures of declining TFR and mortality rates also fall behind the national average raising concerns in the policy domain as achievement of replacement level fertility for population stabilisation and sustainable growth poses a huge challenge.*

*Examining the issue, this study finds district development on demographic, health and RCH indices (MCH and FP) in Uttar Pradesh as having direct linkages to its poor demographic progress meriting serious attention. Using data from the National Family Health Survey-4 (2015/16), this paper has modelled linkages on 19 selected indicators. Factor Analysis with Kaiser Criterion of Eigen values greater than unity on Principal Factor solution has been used to extract factor and construct composite index of district development and divided it into five categories. It has also found structural relationship among demographic outcomes, service-related indicators and the level of socio-economic development at district level.*

*The demographic progress of Uttar Pradesh reflects a mixed picture: faster decline in mortality rates than the fertility rate, but slower progress on utilisation of RCH services. Nearly half of the districts were lagging the state average on significant indicators such as TFR, birth order, etc. The study finds poor use of maternal healthcare (MCH) and family planning (FP) services associated with poor district development. Poor demographic outcomes are also linked with women education while increased institutional delivery is found to have reduced the incidence of child malnutrition and mortality.*

*The study stresses upon the urgent need of district-based planning in poor socio-economically developed districts to speed up the progress of various MCH and FP programme interventions.*

**Key Words:**Demographic outcomes, district development, population, fertility, NRHM, RCH, Uttar Pradesh.

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## SECTION I : INTRODUCING THE STUDY

### 1.1. Introduction

India is the first country in the world that implemented population control policy as early as in 1952 to control fertility in its quest to become a healthy nation with healthy families. The country has since progressed much on demographic and health outcomes with commendable decline in maternal and child mortality rates, much faster than decline in fertility rates. Between 1992/93 and 2019/21, the total fertility rate (TFR) has declined from 3.4 children per woman to 2.0 children per woman (IIPS & ICF, 2021). By 2015/16, 24 states/union territories have already achieved replacement level fertility with TFR 2.1 or less (Odisha and Uttarakhand among them), while six states/UTs have TFRs between 2.11 and 2.50, and four states have TFR ranging between 2.51 and 3.00 and the remaining two states have recorded a TFR of more than three children per woman (IIPS & ICF, 2017).

Despite being the first nation to launch an official family planning programme, India's population rose to 1210 million in 2011 from 361 million in 1951; and it is still witnessing an annual exponential growth rate of 1.64 percent. As per the nationwide data from the latest National Family Health Survey-5 (NFHS), it is evident that the southern states have reached the replacement level fertility but a few northern states continue to pose a major problem (IIPS & ICF, 2021). One-sixth of the world's population lives across India's 28 states and eight union territories. Notably, 17 major states with 1144.6 million people account for about 94 percent of the country's population, as per the 2011 Census.

Notwithstanding the progress, poor outcomes and services utilization pertaining to reproductive and child health (RCH), primarily maternal and child health (MCH) and family planning (FP) services at regional level in many states remain an issue of concern for policy makers and planning strategists alike. Looking at the NFHS-5 findings in 2019-21, 31 states/UTs have achieved replacement level fertility and the remaining five states/UTs have a TFR of 2.2 to 3.0 children per woman. Among them three are EAG states and two are from the north-east. Within EAG, Uttar Pradesh with a TFR of 2.4 children per woman ranks second highest after Bihar which has a TFR of 3.0 children per woman in 2019-20 (IIPS & ICF, 2021). Hence, reducing fertility to replacement level in the EAG states is one of the major

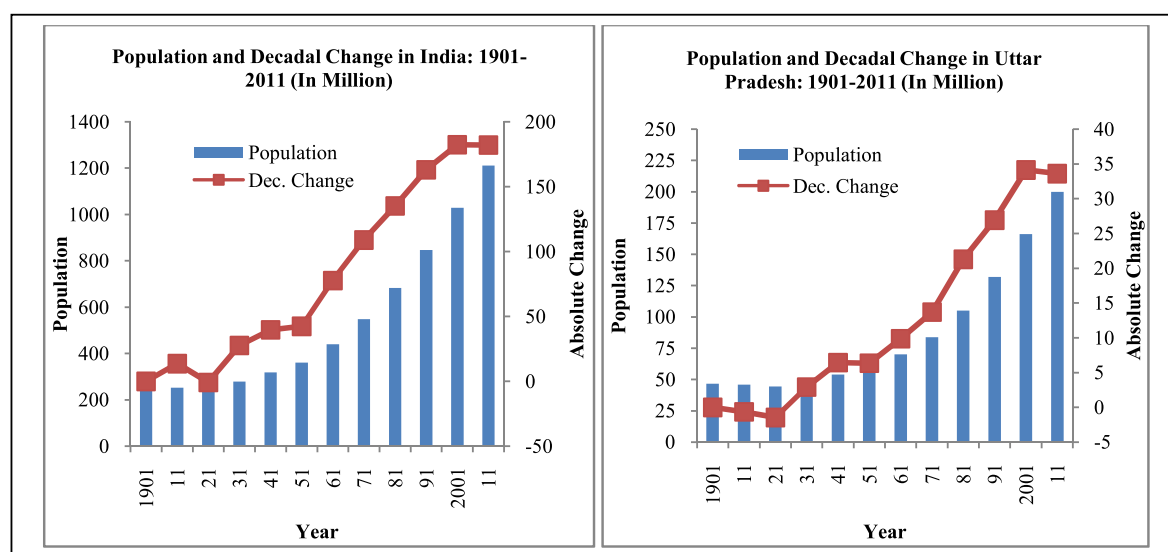
<sup>1</sup>EAG is Empowered Action Group states. These are eight socio-economically backward states, namely; Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttarakhand, and Uttar Pradesh.

concerns for population stabilisation, and Uttar Pradesh figures prominently among them. The state had formulated its population policy in 2000 with projections for 15 years. The incumbent government also introduced the Uttar Pradesh Population (Control, Stabilisation and Welfare) Bill, 2021, reflecting its commitment to the contentious issue (State Law Commission, 2021).

## 1.2. Why Uttar Pradesh Matters?

Uttar Pradesh is the most populous state with a population of around 200 million (2011 Census). It constitutes one-sixth population of the country. The projected population of the state in 2022 is 233 million (MoHFW, 2020). However, eight EAG states with a population of 556 million in 2011 constitute around 46 percent of India's people. Within EAG states, Uttar Pradesh accounts for more than one-third (36 percent) of the total EAG population. The growth of population in state as compared to that of India over the period can be understood from Figure-1 and within EAG states from Table A1.

**Figure 1: Population and growth of population in India and Uttar Pradesh: 1901/2011**



*Source:* Author calculation based on Census of India Data, 1901-2011

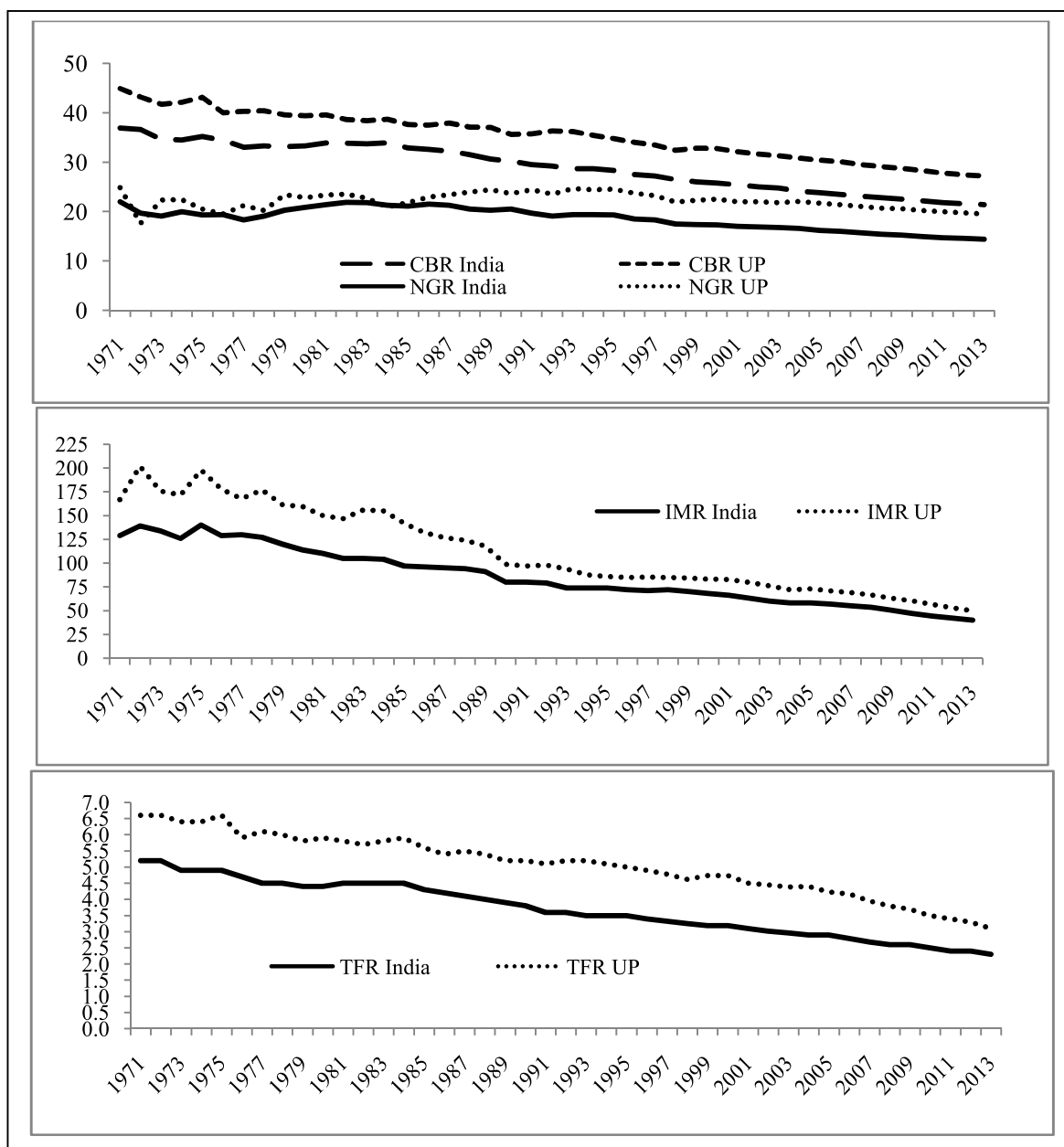
At the beginning of the 20<sup>th</sup> century, the population of Uttar Pradesh was 47 million. It increased very slowly up till 1951 to reach 60 million as it was a period marked by high birth and death rates. The state's population increased rapidly in the following six decades from 60



million in 1951 to 199 million in 2011 due to a speedy decline in death rate as compared to the birth rate (Figure 2). This meant an addition of 139 million in the latter six decades compared to the addition of only 13 million in the preceding five decades between 1901 and 1951. The population of the state increased at the rate of 1.86 percent per year during 2001-11 as against the country's growth rate of 1.64 percent per year during the same period. Thus, during 2001-11, the addition instate population was 33.6 million as compared to an addition of 182.2 million at the country level (Figure 1).

The demographic progress in Uttar Pradesh compared to the country, thus lags the national average both on demographic and health parameters. Figure 2 provides data pertaining to demographic and health development-crude birth rate (CBR), natural growth rate (NGR), infant mortality rate (IMR), and total fertility rate (TFR) in Uttar Pradesh during the last four decades under consideration. Over the past 40 years the CBR reduced from 45 per 1000 to 27 per 1000 while NGR decreased from 25 to 20, IMR declined from 167 per 1000 to 50 per 1000, and TFR from 6.6 children per woman to 3.1 children per woman. But such progress on declining trends have remained behind the country average. The annual rate of decline for the state also remains lower than the national average during the 1971-2013 period. Decline in CBR for UP was found to be 1.2 percent per year as against the national average of 1.3 percent per year during the same period. For NGR, IMR and TFR, the annual rate of decline in the state was 0.6 percent, 2.8 percent and 1.7 percent compared to the country average of 1.0 percent, 2.7 percent and 1.9 percent per year respectively.

**Figure 2: Progress on demographic indicators in Uttar Pradesh and India: 1971-2013**



**Source:** Author calculation based on SRS data for 1971-2013

### 1.3. Population Policy in Uttar Pradesh

Major paradigm shifts in India's population policies have occurred since the International Conference on Population and Development in Cairo in 1994 when the approach of such

policies shifted from the method mix-target oriented approach to client-oriented demand-driven approach. These were subsequently renamed reproductive and child health (RCH) services in 1996-97 (Singh, 2008; Gulati, 2011; Srinivasan, 2018). The paradigm shifts in India's population policy since 1994 were reflected in the National Population Policy, 2000 and National Health Policy, 2002 with stated overriding objectives of socio-economic development, addressing the unmet needs of contraception, improving health care infrastructure and delivery of government health services to achieve a stable population by the year 2045 (GoI, 2000; 2002).

Close on its heels, the Uttar Pradesh Population Policy was released in July 2000 reiterating the strategies of the National Population Policy to be adopted for achieving a faster decline in fertility and bring it down to replacement level by 2016, and thus control excessive population growth in the state (GoUP, 2000). The overarching objective in the state's policy statement was to serve the people and enable them to achieve the desired family size by bringing about a reduction in infant and maternal mortality rates, and streamlining reproductive and child health (RCH) services. These imperatives were required to accelerate the pace of achieving population stabilisation - a requisite for sustainable population growth in the state. The policy was designed for a period of 15 years. Recently, the Uttar Pradesh State Law Commission has framed 'The Uttar Pradesh Population (control, stabilisation and welfare) Bill, 2021' to *“revitalize efforts and provide for measures to control, stabilise and provide welfare to the population of the state by implementation and promotion of the two-child norm and for matters connected therewith and incidental thereto”* (State Law Commission, 2021).

#### **1.4. Context and Need of the Study**

Geographically, Uttar Pradesh is a very large state having differential district level socio-economic development that has contributed to unequal demographic outcomes and RCH services delivery which begs attention. Possibly, the regional and district level variations within the state offer a window of opportunity for detailed analysis to elicit region specific rapid population stabilization efforts within the state as envisioned in the Uttar Pradesh population policy, 2000 (GoUP, 2000). District being the basic unit of planning under the decentralized planning strategy, the need to investigate inter-dependence and linkages of demographic outcomes within socio-economic developmental context is equally important

for service access and utilization as against service delivery specific to MCH and family planning. The integration of maternal and child health (MCH) programmes and family planning (FP) services provision entails multiple opportunities to streamline, improve and maximize demographic and health outcomes. It is thus, important for the state to facilitate district-specific demographic and health policy planning to achieve its population stabilisation goal at par with the country in the larger context need detailed examination to come up the appropriate policy and programmatic strategies.

### **1.5 Theoretical and Conceptual Perspective**

Improving maternal and child health care services and reducing mortality are dependent on a set of factors which are complex and operate at many levels. Thus, many a time it is difficult to elucidate which ones are necessary and vice versa. For instance, there has been a proliferation of health policies, programmes, and interventions which have improved demographic outcomes directly or indirectly. Thus, on the supply side, RCH intervention in 1996-97 and later the National Rural Health Mission (Now, National Health Mission) since 2005 have improved access to quality obstetric services or childbirth care. At the same time on the demand or user side; the socio-economic, cultural, contexts can't be ignored altogether (Boerma et al., 2018; Braveman and Gruskin, 2003).

Large and growing evidences on the 'great debate' have hovered around the issue whether family planning programmes or socio-economic change are the key to fertility decline (Day & Brown, 1986). The use of family planning methods depends on demand and supply side factors (Day, 1982) in the framework of market economy. On the demand side, the potential users are regulated or mobilised by a set of compositional factors like social, economic, cultural deter minantsas against contextual factors like availability and accessibility of the (FP) methods or services. On the supply side; service providers' characteristics other than the gap factors (physical distance, communication gap, social and attitudinal differences) also influence the use of fertility control measures (UNDESA, 1979).

In light of the aforementioned theoretical and conceptual perspectives; empirical findings show that utilization of MCH and family planning services and their linkages with basic demographic and socio-economic parameters along with policy and programmatic factors

have emerged as significant regulators in ample studies globally and India as well (Satia et al, 1991; Bose, 1996; Visaria et al., 1999; Gulati, 2005; James, 2011; James, 2014; IIPS & ICF, 2017; Rutherford et al., 2009; Gulati et al., 2010; Dyson, 2011; Srinivasan, 2018; Gulati & Raushan, 2021).

Also, socioeconomic status and/or social position are associated with a wide range of demographic and health outcomes (Braveman & Gottlieb, 2014; Feinstein, 1993; Wilkinson, 2002; Williams, 1990). In India, socioeconomic status and cultural dimensions play a significant role in shaping outcomes (Acharya, 2013; Baru et al., 2010; Bora et al., 2019; Raushan, 2020) and are also linked with the use of quality maternal healthcare and family planning services. Various policies and programme interventions have also affirmed the provision of quality MCH and family planning services and resulted in better demographic outcomes (IIPS & ICF, 2017; Gulati et al., 2010). Hence, this study conceptualised that interplay of policy and programme factors along with socio-economic and cultural contexts will regulate access and use of MCH and family planning services resulting in positive demographic outcomes like reduction in fertility and mortality rates. Contextual factors also contribute to access and use of services, will be applicable, as district development will contribute to input and output as well.

This paper is organised as follows. Section one dwells on the background of population control measures and outcomes with special concern for Uttar Pradesh vis a vis the national average. Thereafter, the Uttar Pradesh population policy, 2000 has been discussed followed by the context and need for the study. The theoretical and conceptual perspectives have been taken up finally in this section. The second section delineates the method and materials with details on data sources, and variables under study followed by analytical framework and statistical techniques. Section three explains the state level progress on demographic, health, and healthcare outcomes between 2005/06 and 2015/16 followed by district level disparity in demographic outcomes, MCH and FP services utilization. Section four unveils the structural relationship among the outcomes, service-related indicators and the level of socio-economic development at district level. Section five covers discussion and is followed by conclusion and suggestive measures emerging from the study. The paper concludes with limitations of the study in Section six.

## **SECTION II : OBJECTIVES, DATA AND METHODOLOGY**

With the aim to examine demographic and health care development in Uttar Pradesh, this paper outlined its objective to examine the status of demographic, and reproductive and child health services utilisation in Uttar Pradesh. Second, the study intended to examine decadal progress on selected demographic and RCH indices in the state. Thirdly, the study investigated linkages of fertility behaviour, RCH services, and socio-economic development at the district level. Finally, it has suggested policy imperatives to enable the state achieve replacement level fertility. Informatively, the terms MCH and FP have been frequently interchanged with RCH in this paper.

### **2.1 Details on Data**

In the study, data have been compiled from authentic secondary sources. Important among them are Census of India, National Family Health Survey (NFHS) and Sample Registration System (SRS). Census of India data from 1901-2011 have been used to examine population growth over the period. Two waves of NFHS data (2005-06 and 2015-16) have been used for various indicators of demographic, health, and RCH components. SRS has been used for data on maternal mortality rate. District level calculation for all selected parameters including socio-economic indicators is based on the fourth round of NFHS data collected in 2015-16 for the whole country. For the first time, NFHS-4 had collected data at district level for some important outcomes and services related parameters. As state population policy was for 2000 to 2015, so NFHS-4 data has been used and not the recent NFHS-5 (2019-21) data.

### **2.2 Selection of Variables under Study**

The variables have been selected in a way that reflect outcomes on demographic front on the one hand and utilization or access to maternal and child health (MCH) and family planning (FP) services on the other. The components of demographic, health, and healthcare have been found dependent on each other and have been elicited from relevant studies so as to examine and unveil the same in case of Uttar Pradesh.

**Demographic and health parameters** Demographic indicators selected for the study pertain to two variables on fertility-Total fertility rate (TFR) and Birth order three and above, three

variables on mortality- Infant mortality rate (IMR), Under five mortality rate (U5MR), and maternal mortality rate (MMR). High value of these parameters reflects high burden of demographic outcome at district level.

**RCH parameters:** Under the umbrella of reproductive and child health services, four indicators of maternal healthcare, namely full antenatal care (ANC), institutional delivery (both govt. and private), post-natal care (PNC) within seven days of delivery, use of any family planning (FP) methods and unmet needs, and full immunization among infants between 12-23 months, have been considered.

**Socio-economic parameters:** Socio-economic developmental parameters are linked with demographic, health and healthcare in both ways. In a way, socio-economic development contributes to better outcomes whereas poor outcomes put forth additional burden that slows down socio-economic development. Hence; urbanisation rate, women education, water and sanitation, kitchen facility, cooking fuel, and proportion of poor people for specific districts have been included.

### **2.3 Methodology and Analytical Framework**

Using descriptive statistics, the study first glanced through the trend and pattern of population growth in Uttar Pradesh. Descriptive statistics provide status on selected indicators. Further, district level descriptive statistics provide the micro-level picture on variation in demographic outcomes and their linkages with the use of selected RCH indicators. It has predisposition that high level of RCH services achievements will be reflected as low burden of demographic outcomes and vice versa with some limitations. The socioeconomic development of a district will also play major role in shaping the supply and demand for RCH services and regulate demographic behaviour of its population at a given point of time.

The factor analysis method has been employed to extract the structural relationship of demographic outcomes and RCH services utilization at the district level (Gulati & Raushan, 2021; 2023). Factor analysis is a method that simplifies complex and diverse relationships which exist among a set of observed variables by uncovering common dimensions or factors that link together seemingly unrelated variables, (and) consequently provides insight into the underlying structure of the data (Kim and Mueller, 1978; Dillon & Goldstein, 1984). Here,

factor analysis has been undertaken using the principal component method of extraction with Varimax rotation criterion. The principal factor method extracts factors in such a way that each factor accounts for the maximum possible amount of the variance contained in the set of variables being factored. Here, the number of factors is restricted to Kaiser's criterion of the Eigen (E-value) values greater than unity. The commonality of the variable is the portion of a variable's total variance that is accounted for by the common factors. The basic model of factor analytic model is usually expressed (Raushan, 2020) as

$$\mathbf{X} = \mathbf{f} + \mathbf{e} \text{-----} 1$$

Here,

$\mathbf{X}$  =  $p$ -dimensional vector of observed responses i.e.,  $\mathbf{X} = (x_1, x_2, \dots, x_p)$ ,

$\mathbf{f}$  =  $q$ -dimensional vector of unobservable variables called common factors i.e.,

$\mathbf{f} = (f_1, f_2, \dots, f_p)$ ,

$\mathbf{e}$  =  $p$ -dimensional vector of unobservable variables called unique factors i.e.,

$\mathbf{e} = (e_1, e_2, \dots, e_p)$ ,

=  $p \times q$  matrix of unknown constant called factor loadings,

$$= \begin{matrix} \lambda_{11} & \lambda_{12} & \dots & \dots & \lambda_{1q} \\ \lambda_{21} & \lambda_{22} & \dots & \dots & \lambda_{2q} \\ \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots \\ \lambda_{p1} & \lambda_{p2} & \lambda_{p3} & \lambda_{p4} & \lambda_{pq} \end{matrix}$$

Extending the equation (1) i.e, linear factor model:

$$X_i = \lambda_{i1}f_1 + \lambda_{i2}f_2 + \lambda_{i3}f_3 + \dots + \lambda_{iq}f_q + e_i \text{-----} 2$$

For factoring of different variable ( $i= 1,2,3,4, \dots, p$ ) would be illustrated as

$$X_1 = \lambda_{11}f_1 + \lambda_{12}f_2 + \lambda_{13}f_3 + \dots + \lambda_{1q}f_q + e_1$$

$$X_2 = \lambda_{21}f_1 + \lambda_{22}f_2 + \lambda_{23}f_3 + \dots + \lambda_{2q}f_q + e_2$$

.

.

$$X_p = \lambda_{p1}f_1 + \lambda_{p2}f_2 + \lambda_{p3}f_3 + \dots + \lambda_{pq}f_q + e_p$$

Considering equation (2), having two uncorrelated parts of  $X_i$  is



$$X_i = c_i + e_i$$

Here,  $c_i = \lambda_{i1}f_1 + \lambda_{i2}f_2 + \lambda_{i3}f_3 + \dots + \lambda_{iq}f_q$  is that part of each variable which is common to the other  $p-1$  variables, and

$e_i$  is the part of each variable that is unique. Hence,  $X_i$  can be portioned into

$$\text{var}(X_i) = \text{var}(c_i) + \text{var}(e_i)$$

Here,  $\text{var}(c_i) = \text{common variance}$  (also called commonality), and

$\text{var}(e_i) = \text{unique variance}$  of  $X_i$ .

In the above equation,  $\lambda_i$  are the coefficients of  $X_s$ , called as factor loadings, chosen in a way that principal components are uncorrelated to each other. It has also ensured that first principal components would absorb maximum possible proportion of total variation of  $X_s$ , and out of the remaining variation, maximum proportion would be absorbed by the second principal component and the process will be repeated for remaining variations like third, fourth principal components. The total contribution of factor  $f_j$  to the total variance in the entire set of variables is given by the Eigen value of factor  $f_j$ .

All the indicators have been normalized and aggregated with appropriate weight provided to each indicator. Eigen value extracted on each factor loading is considered and used for weighting the factor loading scores. Finally, based on extracted factor scores, district level composite score has been elicited. For the purpose the weighted households scores have been aggregated at the district level to generate district level composite score.

Further, following the criteria of allocating each household based on the composite wealth score in Demographic and Health Survey (DHS) survey, dividing the  $N$  households in five equal categories; districts have been classified into five categories (Rutstein, 2008) viz. lowest, low, moderate, high, and very high-performing. Finally, districts have been placed accordingly in one of the categories as per the generated composite score.

## **SECTION III : PROGRESS AND DISPARITY ON DEMOGRAPHIC AND HEALTHCARE INDICATORS**

### **3.1 Progress on Demographic and Healthcare Indicators between 2005-06 and 2015-16**

Decadal progress on demographic, health and health care indices in the state between 2005/06

and 2015/16 has been provided in Table 1A, while Table 1B provides information on services utilization especially RCH indices for the decade under study. During the period, the rate of change in Uttar Pradesh is found to be higher as compared to the national average. It is also observed that the rate of decline on some indicators is slightly more than the country average. For instance, total fertility rate in UP declined at the rate of 3.3 percent per year compared to 2.0 percent per year in the country. Teenage pregnancy (15-19 years women bearing child) was found declining at the rate of 11.8 percent per year in UP as against 6.8 percent in the country. Similarly, women in the 20-24 years age group married before 18 years of age were also declining at the rate of 10.2 percent per annum as compared to the national average of 5.5 percent per annum. However, it's the childhood mortality that has remained an alarming concern for UP. The decline in neonatal mortality remained very low-- less than one percent per year compared to 2.8 percent national average. The figures on infant mortality and under five mortality rates were found to be similar (Table 1A). The state's IMR declined annually by 1.3 percent as compared to the national average of 3.3 percent while annual U5MR for the state declined by 2.1 percent compared to 3.9 percent at the national level.

**Table 1A: Status on selected demographic and health parameters in Uttar Pradesh and India: 2005/06- 2015/16**

Indicators	Uttar Pradesh			India		
	Decadal Progress	Exponential Rate of Change (%)		Decadal Progress	Exponential Rate of Change (%)	
		Decadal	Annual		Decadal	Annual
Total Fertility Rate	-1.08	-28.3	-3.3	-0.5	-18.7	-2.0
Teenage Pregnancy (15-19 years women)	-10	-71.4	-11.8	-8.1	-50.6	-6.8
Birth Order 3 & above	-14.1	-25.3	-2.9	-12.6	-30.7	-3.6
Neo Natal Mortality Rate	-2.4	-5.0	-0.5	-9.5	-24.4	-2.8
Infant Mortality Rate	-8.6	-11.9	-1.3	-16.3	-28.6	-3.3
Under 5 Mortality Rate	-18.3	-19.0	-2.1	-24.6	-33.1	-3.9
Maternal Mortality Ratio*	-239	-54.3	-7.5	-124	-48.8	-6.5
20-24 years women married below age 18 years	-38.6	-65.9	-10.2	-20.6	-43.5	-5.5

\* Using SRS data; remaining is calculated by author using NFHS data 2005-06 and 2015-16

Source: Author's calculation based on NFHS-3 & 4, and SRS Data.

**Table 1B: Status on selected MCH and FP services indicators in Uttar Pradesh and India: 2005/06- 2015/16**

Indicators	Uttar Pradesh			India		
	Decadal Progress	Exponential Rate of Change (%)		Decadal Progress	Exponential Rate of Change (%)	
		Decadal	Annual		Decadal	Annual
<b>MCH and FP services Indicators</b>						
Having 3 or more ANC	-0.2	-0.8	-0.1	12.6	24.2	2.2
ANC within first Trimester	20.2	78.6	6.0	26.3	59.9	4.8
Institutional Delivery	47.2	229.1	12.7	40.2	103.9	7.4
Delivered by skilled provider	43.2	158.8	10.0	34.8	74.7	5.7
Current Users	1.9	4.4	0.4	0.9	1.6	0.2
Any Modern Method	2.4	8.2	0.8	2.7	5.6	0.5
% Demand satisfied	4.3	6.4	0.6	-0.9	-1.1	-0.1
Unmet Need	-3.2	-15.1	-1.6	0.1	0.8	0.1
Measles Vaccination	33.1	87.8	6.5	22.3	37.9	3.3
Not treated for Diarrhea	-10.1	-35.9	-4.4	-8.3	-31.8	-3.8
ICDS Utilization**	16.5	74.0	5.7	20.7	62.9	5.0

Source: Author's calculation based on NFHS 2005-6&2015-16

Moving onto RCH indices, availing antenatal services doesn't seem to have progressed much in UP between 2005/06 and 2015/16. Table 1B shows a slight decline in the use of three and more ANC services, however institutional deliveries showed high increase during the period. The use of family planning services seems stuck completely, as the increase among current users is minimal in the state and the country as well. On preventive healthcare services like progress on child immunization, the percentage of children vaccinated for measles was found to have increased at the rate of 6.5 percent per annum compared to the country average of 3.3 percent per annum.

Utilization of Integrated Child Development Services (ICDS) has also been found increasing at a rate of 5.7 percent per annum in UP as compared to 5.0 percent in the country, although the quality of ICDS is concerning and its reach needs to be increased more. Only 39 percent pregnant women in 2015-16 availed the services while just 31 percent lactating mothers received services from *Anganwadi* centres in 2015/16. Moreover, comparing the current scenario of Uttar Pradesh with the national progress; UP's progress is sluggish on several demographic, health and RCH indices (Table A2). Even now, the unmet need is high and couple satisfaction rate is low in the state (Table 1B).

### **3.2 District Disparity on Demographic, Health and Service Indices**

The Uttar Pradesh Population Policy, 2000 had fixed a goal of reducing the total fertility rate to 2.1 children per woman by 2016. For IMR and MMR the target was 61 per 1000 live births and 250 maternal deaths per lakh live births respectively. Similarly, on RCH indices the goals were as follows: coverage of ANC to 90 percent, rise in institutional deliveries by 80 percent, use of modern FP methods to be increased by 52 percent, reduction of unmet need by 10 percent, complete immunization by 100 percent. On the nutritional indicators the targets were reduction in women anaemia by 15 percent and child anaemia by 20 percent, and total elimination of severe child malnutrition by the year 2016. In this context, Table 2 depicts the district level scenario on selected demographic, health and RCH indicators during 2015/16. It shows that almost all the districts still have high fertility rate with high birth order (three and above) ranging from 25 percent in Jhansi to 58 percent in Kaushambi district. Infant mortality rate was targeted at 61 per 1000 but is still found above (68 per 1000) while maternal mortality

rate is 258 as against the targeted 250, ranging from a minimum of 151 per 100000 in Gautam Buddh Nagar to the highest of 366 in Shrawasti district. On most indices, a majority of the districts in the state are lagging even the state average.

**Table 2: Descriptive statistics of selected indicators of demographic burden, MCH and FP services utilization in Uttar Pradesh: 2015-16**

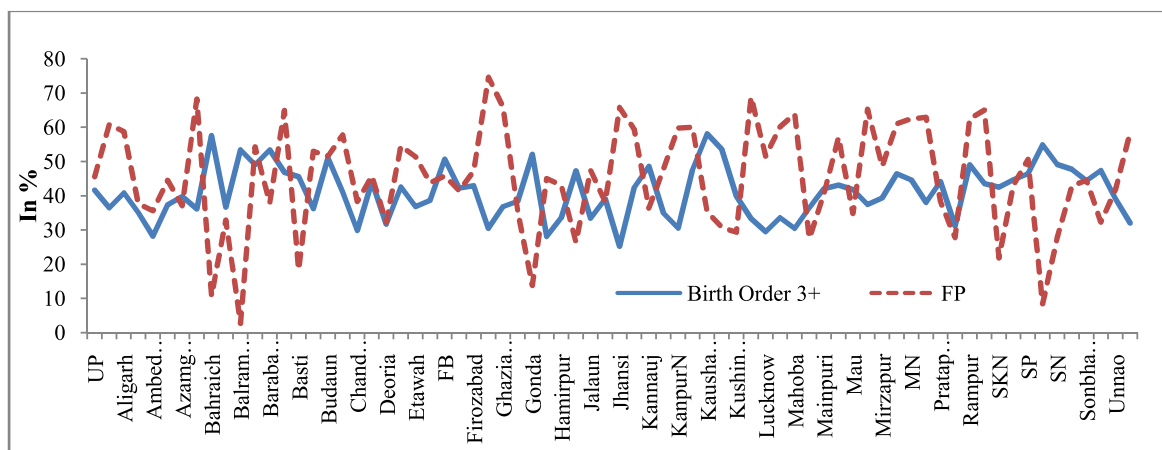
Indicators	Districts		No of districts*	Uttar Pradesh
	Minimum	Maximum		
Birth order 3 & above	25.2 (Jhansi)	58.1 (Kaushambi)	35	41.6
Infant Mortality Rate	37 (Kanpur Nagar)	96 (Shrawasti)	37	68
Maternal Mortality Ratio	151 (G B Nagar)	366(Shrawasti)	36	258
Underweight child	27.7 (Mathura)	54.3 (Shahjahanpur)	37	39.5
Child Anaemia	38.7 (Farrukhabad)	84.8 (Jalaun)	36	63.2
Women Anaemia	25.9 (Kannauj)	67.7 (Chitrakoot)	42	52.4
Full Antenatal Care	0.7 (Auraiya)	16.7 (Bagpat)	26	5.9
Delivery at govt Facility	21.4 (Meerut)	78.9 (Lalitpur)	41	44.5
Institutional Delivery	30.7 (Balrampur)	89.6 (Mahoba)	43	67.8
Post natal care within 2 Days of delivery	21.6 (Bahraich)	85.7 (Moradabad)	35	58.8
Full immunization among children 12-23 months	7.1 (Balrampur)	74.2 (Jyotiba Phule Nagar)	37	51.1
Use of any FP methods	2.7 (Balrampur)	59.2 (Lalitpur)	33	31.7
Unmet Need of FP	6.7 (Mahoba)	32.6 (Gonda)	39	18.0
<b>* Number of districts performing below state average during 2010-2015</b>				

*Source:* Author's calculation based on NFHS 2015-16

A look at MCH and FP indicators depicts poor service utilization in the state: Only close to six percent (~1.0- 16.7 percent) of women have availed full ANC while 44 percent women access government institutions for delivery, the minimum being 21 percent in Meerut district. Only 32 percent women of reproductive age (WRA) are using any contraceptives. It is noticed that the districts recording high use of contraceptives, have low burden of demographic outcomes (like high birth order) and vice versa (Figure 3). Alarming figures have emerged on prevalence of malnutrition and anaemia in the state. More than half of women in reproductive age (15-49 years) and close to two-third children below five years continue to be afflicted with anaemia. Notably, two-fifths of children are malnourished ranging from a low of 28 percent in Mathura to 54 percent in Shahjahanpur district. Another grim feature is that more than half of the

districts in the state are performing below the state average raising policy concerns (Table 3).

**Figure 3: District variation on demographic outcome and FP services use in Uttar Pradesh: 2015/16**



*Source:* Author calculation based on NFHS data, 2015/16

## SECTION IV: STRUCTURAL LINKAGES AND DISTRICT PERFORMANCE

### 4.1 Underlying Relationship of Demographic, Health and Services Utilization in Districts

To render structural linkages at district level, parameters on demographic and RCH services utilization have been reckoned employing robust multivariate technique. For a detailed district level analysis of 71 districts to extract inter-linkages on socio-economic indicators demographic, health and RCH services utilization, the Factor Analysis method is appropriate (details are provided in methodology section). Results (Table 3) from the factor analysis applying factor loading matrix reveals that most of the variables in the purview of present analysis are depicted by higher values of commonalities of more than 0.75 except for full immunization. Interestingly, most of the important parameters of demographic, health and RCH services utilization are well connected and presented in the factor loading structure.

**Table 3: Inter-linkages of demographic, health, MCH and FP indices on selected parameters in districts of Uttar Pradesh**

<b>Indicators</b>	<i>F-I</i>	<i>F-II</i>	<i>F-III</i>	<i>F-IV</i>	<i>F-V</i>	<i>Communality</i>
Birth order 3 & more	-0.34	0.145	0.669	-0.355	-0.296	0.798
Infant Mortality Rate	-0.049	0.086	0.955	0.028	-0.110	0.934
Under Five Mortality Rate	-0.048	0.097	0.954	0.031	-0.108	0.935
ANC 4 & above	0.599	-0.307	-0.29	-0.323	0.383	0.788
ANC within first trimester	0.705	-0.398	-0.355	-0.192	0.106	0.829
IFA tablets/syrup consumed for 100 days	0.126	-0.169	-0.134	0.145	0.885	0.866
Delivery at public health facilities	-0.126	0.302	-0.24	0.816	-0.067	0.835
PNC within two days after delivery	0.875	-0.137	-0.108	-0.099	0.173	0.835
Child fully immunized	0.756	0.04	-0.117	-0.057	0.132	0.608
Using any FP method	0.785	-0.528	-0.093	0.094	-0.077	0.918
Unmet need of FP	-0.752	0.566	0.016	-0.111	0.088	0.907
Child breastfed within one hour of birth	-0.07	0.115	0.029	0.862	0.078	0.768
Women not educated	-0.268	0.322	0.727	-0.246	-0.016	0.764
Poorest in District	-0.546	0.455	0.498	0.323	-0.086	0.865
Not having electricity	-0.509	0.426	0.609	0.095	-0.090	0.829
No separate kitchen for cooking	-0.175	0.507	0.284	0.277	-0.615	0.822
Piped water to premises	0.039	-0.819	-0.113	-0.12	0.169	0.729
Not having toilet	-0.500	0.716	0.15	0.285	-0.136	0.884
Not using clean fuel for cooking	-0.318	0.741	0.305	0.228	-0.284	0.875
Urban Population	0.317	-0.838	-0.252	-0.153	0.133	0.907
<b><i>Eigen value</i></b>	<b>4.643</b>	<b>4.224</b>	<b>4.01</b>	<b>2.155</b>	<b>1.663</b>	
<b><i>Variance Explained (%)</i></b>	<b>23.217</b>	<b>21.120</b>	<b>20.050</b>	<b>10.773</b>	<b>8.313</b>	
<b><i>Total Variance Explained=83.13%</i></b>						

*Source:* Author's calculation based on NFHS 2015-16

Perusal of Table 3 shows that underlying or predominant constituents on first factor (*F-I*) are dominated by MCH and FP indicators namely antenatal care, post-natal care, child immunization and the use of family planning methods. Interestingly, all the predominant constituents depict that consistent and highly correlated use of one service encourages the use of another one also. For example, in districts where women have initiated ANC within the first trimester, they also availed PNC within the first two days of their delivery and full immunization. For considering a child fully immunized they have to receive six basic vaccinations distributed over a period of one year. In the same way, high use of maternal and child health care services is linked to the use of family planning methods and low unmet need extracted on first factor (*F-I*). However, it is found to be negatively associated in districts having high proportion of poor people and less household access to electricity.

The second factor (*F-II*) has been extracted on districts having high unmet need, low use of family planning services, low urbanisation, and parameters of drinking water facilities, sanitation and hygiene. Illustrating that districts having low urbanisation, low availability of toilets, high use of unclean energy, and low on drinking water availability within premises are found in same direction on the use of family planning services i.e. high unmet need. It reflects that the use of family planning methods is less by poor people as studies have found that more poor people and marginalised caste people live in poorly developed neighbourhoods which are low on better health outcomes (Raushan, 2020).

The third factor (*F-III*) has been extracted on poor demographic outcome with low women education and low availability of electricity. The high coefficient of birth order three & above is found associated with high childhood mortality. It is also evident that the district having more proportion of uneducated women resulted in high childhood mortality and high birth order. Factor loadings of predominant constituents of fourth factor (*F-IV*) clearly shows that breastfeeding within first hour post-delivery is directly linked with institutional delivery.

Factor five (*F-V*) has been extracted on linkages for four or more ANC with consumption of IFA (iron folic acid) tablets or syrup. It shows that the government norms of four or more ANC visits during pregnancy increases the chances of consuming IFA tablets. Possibly, more visits for ANC increases the chances of encouraging the expectant mother to consume IFA tablets through counselling and making them aware and informed through community health



workers other than medical personnel. Consuming IFA tablets for prescribed duration is found to be negatively associated with districts having more share of poor people followed by low access to electricity, and non-availability of a separate kitchen within the household premises.

**Table 4: District development on demographic, health, RCH and socio-economic indices**

Performance	Composite Factor Scores	Number of Districts	Name of Districts
Very High	-19.25 to -5.93	14	Auraiya, Azamgarh, Bahraich, Balrampur, Etawah, Firozabad, Ghaziabad, Gonda, Hamirpur, Jalaun, Kanpur Nagar, Lucknow, Meerut, Varanasi
High	-5.41 to -1.27	14	Agra, Ballia, Basti, Chandauli, Deoria, Farrukhabad, Gautambudh Nagar, Jhansi, Kannauj, Mainpuri, Mathura, Mau, Shrawasti, Siddharth Nagar
Average/ Moderate	-1.26 to 2.59	15	Prayagraj, Banda, Bijnor, Bulandshahar, Etah, Fatehpur, Ghazipur, Hardoi, Jaunpur, Kanpur Dehat, Mahamaya Nagar, Moradabad, Pratapgarh, Sant Kabir Nagar, Sonbhadra
Low	2.87 to 6.64	14	Aligarh, Baghpat, Bareilly, Faizabad, Gorakhpur, Jyotiba Phule Nagar, Kanshiram Nagar, Kheri, Muzaffar Nagar, Rampur, Saharanpur, Sant Ravidas Nagar, Sultanpur, Unnao
Very Low	6.67 to 20.56	14	Ambedkar Nagar, Barabanki, Budaun, Chitrakoot, Kaushambi, Kushinagar, Lalitpur, Mahoba, Mahrajganj, Mirzapur, Pilibhit, Rae Bareli, Shahjahanpur, Sitapur
<i>Based on weighted composite score for the districts. Each district composite score has been given equal weight to which fallen to respective categories.</i>			

**Source:** Author's calculation based on NFHS 2015-16

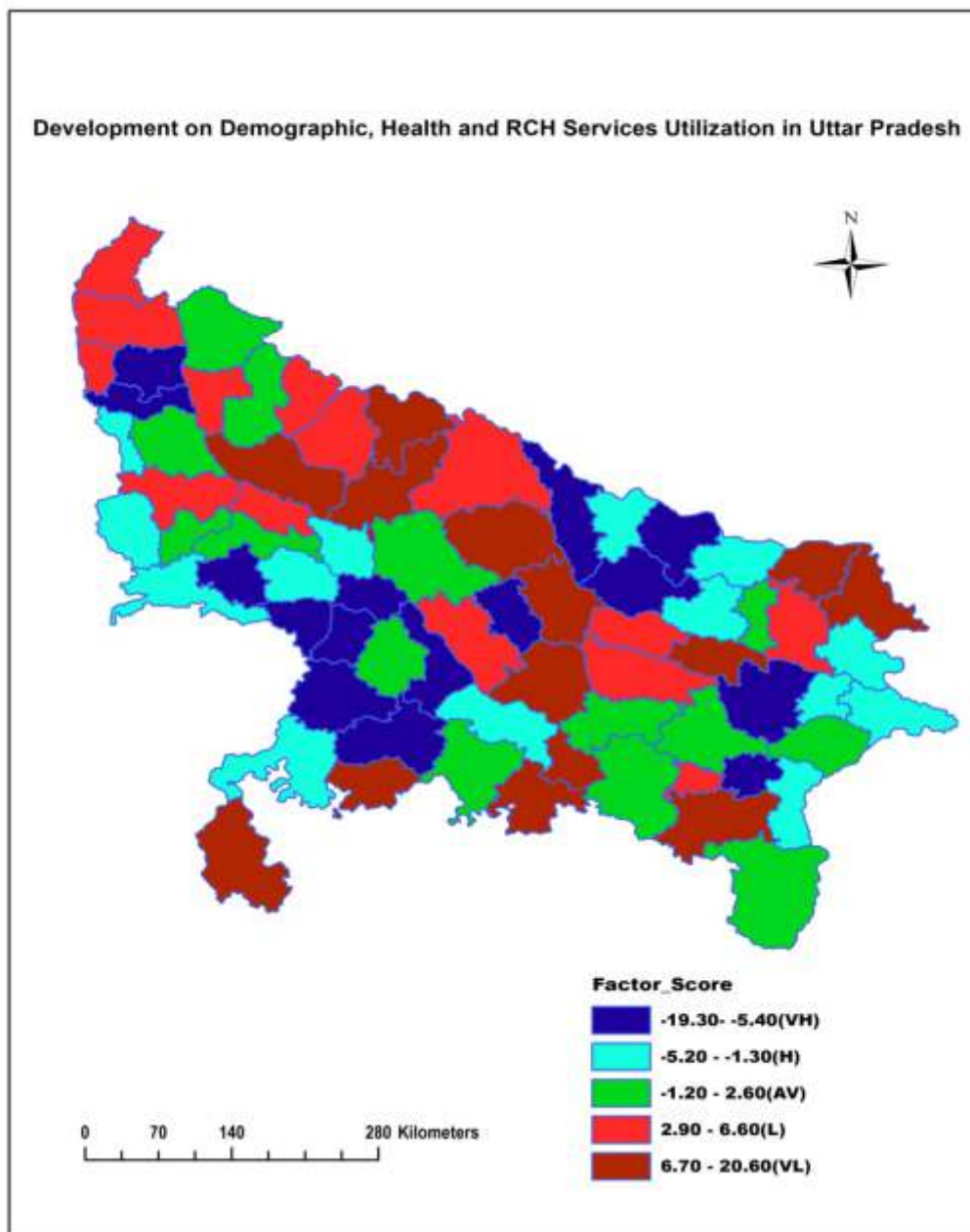
#### 4.2 District Performance on Blended Composite Scores of Demographic MCH and FP Parameters

District performance composite score based on factor loadings has been generated and districts have been classified into five categories ranging from the poorest performing to very high performing. Subsequently, the district falling in the respective category is ranked accordingly as seen in Table 4. Hamirpur is found to be the best performing district with a

composite factor score of -19.25 followed by Meerut (-17.99) and Lucknow (-15.57). Other 'very high' performing districts include Ghaziabad, Kanpur Nagar, Varanasi, Auraiya, etc. There are 14 'high' performing districts; prominent among them being Kannauj, Gautam Budh Nagar, Mathura, Agra, and Ballia. At the other end of the spectrum are poor to poorest performing districts ranging from Pilibhit (20.56), and Lalitpur (16.11) to Unnao (2.87) and Sultanpur (2.90). Other districts found under these categories are Muzaffarnagar, Gorakhpur, Bareilly, Rampur, Mirzapur, Saharanpur, etc.

The pattern of very low/low and high/very high performing districts can be visualized and understood clearly by seeing Map 1. The very low/low performing districts are located in the north-western part of western Uttar Pradesh, eastern part of western Uttar Pradesh and most districts located in Avadh region excluding Lucknow. The high/very high performing districts are found concentrated in the southern part of western Uttar Pradesh, Bundelkhand region excluding Lalitpur, Mahoba, and Chitrakoot; and south and north-west Purvanchal region. It may be pointed out here that there is a possibility of any district doing well on some indicators but performing poorly on other indicators which might have resulted in swinging its overall performance in either direction; so careful interpretation needs to be followed while assessing each district.

**Map 1: District development on demographic, health, MCH and FP services utilization in Uttar Pradesh, 2015-16**



**Source:** Based on composite factor score of district development calculated by author using NFHS-4: 2015-16 data

## **SECTION V: DISCUSSION AND CONCLUSION**

This study has examined the population and development in Uttar Pradesh and its districts encompassing demographic, health, MCH and FP services considering them important for population stabilization and healthy households. Further, the study has uncovered the underlying structural linkages of the said parameters across the districts. Uttar Pradesh remains the most populous state in India having registered a growth rate higher than the national average for a long time. However, in the ten years between 2005-2015, the annual rate of fertility decline in the state has been somewhat better (3.3 percent) due to economic growth, fertility transition (Hirschman, 1994; James, 2014) and adoption of people-oriented welfare approaches like NHM and poverty eradication programmes.

The study has expressed its alarming concern in the rather sluggish declining rates of childhood mortality in UP, compared to the national average, especially its slow progress on neonatal mortality decline. The decline in neonatal mortality depends on improving the condition of expectant mothers and providing quality healthcare for delivery and newborn care (Satia & Jejeebhoy, 1991; Hirschman 1994; Sinha et al., 1994, Mason 1997; Cleland, 2001; Rutherford et al., 2009; James, 2014; Gulati & Raushan, 2021; 2023). However, quality antenatal care services in the state have not progressed much during the period, although institutional deliveries are continuously on the rise post JSY (Janani Suraksha Yojana) and NHM (Gupta et al., 2012; Randive et al., 2014). The use of family planning services in the state seems stuck completely, as the current users are increasing at a very minimal rate. The situation is more or less similar at national level as well.

Comparatively high fertility, infant and maternal mortality rates, and low utilization of RCH services has retarded the state's progress on the population front. The Uttar Pradesh Population Policy, 2000 had fixed goals for 2016 on the aforementioned indicators. Comparing the targets fixed in the policy; the TFR is 0.6 percentage point higher than targeted, IMR 2.6 percentage points higher, while ANC is lagging by 13.7 percentage points compared to the 2016 target. Institutional delivery lags by 12 percentage points, while use of modern FP services is 20 percentage points less than the target, unmet need was higher by 8 percentage points and child immunization lagged by 49 percentage points than the target fixed for 2016.

Large geographical area and unequal development across districts has had a significant impact

on slow progress on demographic and health indicators in the state. Almost half of the districts are falling behind the state average on pertinent indicators of demographic and health development. For instance, 37 districts lag the state average on infant and maternal mortality, 43 and 41 districts are behind the state average on institutional deliveries and delivery in government institutions respectively, 42 districts are falling behind the state average on women anaemia and 39 districts are performing poorer than the state on unmet need in 2015-16. The unequal socio-economic development of districts is seen to be contributing to low demographic and health progress in respective districts, thus retarding the state's overall progress on the demographic front (Raushan, 2020).

The district level findings disclose that higher use of maternal healthcare services is directly linked to preventive healthcare services like child immunization and use of family planning methods. High use of MCH services is found to be associated with use of family planning methods and low unmet need. Districts with low urbanisation, less access to electricity, high share of poor people, low penetration of sanitation and hygiene facilities were found associated with high unmet need and less use of family planning services. Moreover, districts having higher proportions of uneducated women are pushed towards high childhood mortality and high birth order. Several studies have established linkages between women education and better demographic and health outcomes (Bora, Raushan & Lutz, 2018). These are also found to be associated with district development and promotion of girls' and women education. Increased institutional deliveries are linked with higher consumption of IFA tablets, and early initiation of breastfeeding results in reducing malnutrition and anaemia among both women and children and is consistent with the established studies globally (Raushan, Acharya & Raushan, 2023).

Overall; the mismatch on key demographic, health, MCH and FP indices during the study period is linked with poor performance and slow progress of many districts, and have emerged as areas of concern. The structural relationship between demographic and health outcomes mainly, IMR and quality RCH services is found to be consistent with established studies (Gulati, 2005; James, 2014; Raushan et al., 2017; Raushan 2020; Gulati & Raushan, 2021; 2023). Poor services utilization and poor socio-economic status potentially reduces the chance of child survival (Rosenfield, 2007; Raj et al., 2010, Raushan, Acharya & Raushan, 2023),

whereas improvement on child survival in high fertility settings motivates fertility decline as well (Angeles, 2010). It is of interest to add here that linkages on main constituents of all the elicited factors are consistent with theoretical and empirical evidences from existing studies (Satia et al., 1991; Bose, 1996; Visaria et al., 1999; Gulati, 2005; Gulati et al., 2008a; Gulati, 2011).

The study findings have contributed to established findings which suggest that adequate coverage of RCH interventions can improve child survival largely (Haines et al., 2007; Rutherford, 2009; Subramanian, 2009; UNICEF, 2009; Gulati, 2010; Singh, 2012; Ghosh, 2012). The study delineates that slow and unequal progress on demographic outcomes and low utilization of MCH services retards the state on health and demographic development (James, 2014;Rushan, Raushan and Kumari, 2017).

To begin with, strenuous efforts are necessitated in districts with low utilization of MCH and FP services to achieve optimal results in fertility and mortality reduction in the state, in concerned districts (Raushan et al., 2017;Gulati & Raushan, 2023). To overcome the problem of high population growth, poor demographic outcomes, and low MCH and FP services utilization in the state, the proposed strategy should be sectoral and prioritize underlying problems that retard the demographic development of districts.

So, possibly four different strategies may be fit for micro level planning to achieve the missed targets set by the state in its population policy, 2000. It will also be worth while to achieve replacement level fertility in the state by 2030 in the state's Population Bill, 2021. The proposed sectoral strategies are as follows.

**Strategy I:** Districts having burden of high childhood mortality with high birth order: The focus should be on educating girls and women and raising awareness, sensitization and communication for IMR and MMR reduction and shrinking high birth order.

**Strategy II:** In districts with poor utilization on RCH indices namely ANC, PNC, child immunization, initiation of breastfeeding, and use of family planning methods; priority should be on expediting the access and utilization of MCH and FP services.

**Strategy III:** The focus should be on districts having poor socio-economic development and low utilization of FP services and high unmet need. Increasing access and utilization of spacing methods would be advantageous in achieving replacement level fertility.

**Strategy IV:** Strengthening the health system with specialized services and infrastructure, and availability of medical health personnel particularly specialist doctors and paramedical staff in rural areas of districts facing shortage of MCH and FP services needs to be prioritized. Increasing health and wellness centres along with health system strengthening will also contribute to achieving the desired targets.

The efforts should primarily focus on the vulnerable and deprived sections (Acharya, 2018) and poorly performing districts having high share of multidimensional poor people. That would enable them access RCH and FP services and bridge the gap to move the district forward and obtain better outcomes. It would also contribute to achieving the goal of a healthy nation with quality healthcare as outlined in NHM (James, 2014), the National Health Policy, 2017 (MoHFW, 2017) and the Uttar Pradesh Population Control Bill, 2021 (State Law Commission, 2021).

Finally, the study suggests reframing strategies to catalyse population control, advance health outcomes and RCH services utilization in the demographically backward states, prominent among which is Uttar Pradesh (Satia & Jejeebhoy, 1991; Visaria, Jejeebhoy & Merrick, 1999; Gulati, 2005; Srinivasan, 2018). Overall, district-specific planning, especially in the poor socio-economically developed ones, needs priority so as to expedite progress on various RCH parameters. Accessibility, availability and affordability of RCH services remains an area of concern for the Indian health care system (Paul et al., 2011) and is applicable to Uttar Pradesh also. Further, district-based planning needs a push at the block/*taluka* level to strengthen the goal and targets of National Health Policy, 2017. In addition, Panchayati Raj Institutions should be made accountable for enhancing accessibility of healthcare services (Antia, 2000). It is important for speeding up the structural linkages and inter-dependence of demographic, health and RCH care utilization in Uttar Pradesh.

## **SECTION VI: LIMITATIONS OF THE STUDY**

The study is not free from limitations and some are briefly outlined here. Other than the limitations pointed out in respective sections, it is important to clarify here that the Uttar Pradesh Population Policy, 2000 was envisioned for 15 years and targets were set for 2016. Meanwhile a new population bill namely the Uttar Pradesh Population- Control, Stabilisation

and Welfare) Bill, 2021 has been introduced in the state legislature. This study has tried to examine the progress, linkages and remaining gaps at the district level in the light of Uttar Pradesh Population Policy 2000, so the study period considered here is up to 2015-16. Also, district level information and analysis in this paper is based on NFHS-4 (2015-16). In one of the sections, progress has been compared from 2005-06 to 2015-16 period. This work will serve to understand the existing gaps against the set targets and strategies needed to achieve them. The author is examining the new population bill, 2021 and its target for 2030.

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## Appendix Tables

**Table A1: Population growth in EAG states, India: 1901-2011**

	UP	Raj	Bih	MP	Odi	Utt	Jhr	Cht	EAG	India
1901	46.6	10.3	21.2	12.7	10.3	2.0	6.1	4.2	113.4	238.4
1911	46.0	11.0	21.6	14.2	11.4	2.1	6.7	5.2	118.3	252.1
1921	44.6	10.3	21.4	13.9	11.2	2.1	6.8	5.3	115.4	251.3
1931	47.5	11.7	23.4	15.3	12.5	0.0	7.9	6.0	124.5	279.0
1941	53.9	13.9	26.3	17.2	13.8	2.6	8.9	6.8	143.3	318.7
1951	60.3	16.0	29.1	18.6	14.6	2.9	9.7	7.5	158.7	361.1
1961	70.1	20.2	34.8	23.2	17.5	3.6	11.6	9.2	190.3	439.2
1971	83.8	25.8	42.1	30.0	21.9	4.5	14.2	11.6	234.1	548.2
1981	105.1	34.3	52.3	38.2	26.4	5.7	17.6	14.0	293.6	683.3
1991	132.1	44.0	64.5	48.6	31.7	7.1	21.8	17.6	367.3	846.4
2001	166.2	56.5	83.0	60.3	36.8	8.5	26.9	20.8	459.1	1028.7
2011	199.8	68.5	104.1	72.6	42.0	10.1	33.0	25.5	555.7	1210.9
A	36.0	12.3	18.7	13.1	7.6	1.8	5.9	4.6	100.0	
B	33.6	12.0	21.1	12.3	5.2	1.6	6.0	4.7	96.6	182.1
C	20.23	21.31	25.42	20.35	14.05	18.81	22.42	22.61	21.03	17.7
D	1.9	2.0	2.3	1.9	1.3	1.7	2.0	2.1	1.9	1.6

**Note:** 1901-2011 population in Million  
UP: Uttar Pradesh, Raj: Rajasthan, Bih: Bihar, MP: Madhya Pradesh, Odi: Odisha, Utt: Uttarakhand, Jhr: Jharkhand; Cht: Chhattisgarh, EAG: Empowered Action Group states.  
**A:** % Share of Pop within EAG (2011); **B:** Decadal Growth of population during 2001-11 (in Million); **C:** Decadal Growth of population during 2001-11 (in %); **D:** Annual Growth Rate of population during 2001-11 (in %)

*Source:* Author calculation based on Census of India data, 1901-2011

**Table A2: Selected indicators of demographic, health, MCH and FP services in Uttar Pradesh and India: 2005/06 - 2015/16**

Indicators	Uttar Pradesh		India		Decadal Change	
	2005/06	2015/16	2005/06	2015/16	UP	India
Total Fertility Rate	3.82	2.74	2.68	2.18	-28.3	-18.7
Teenage Pregnancy/ Motherhood at 15-19 years	14.0	4.0	16.0	7.9	-71.4	-50.6
Birth Order 3 & above	55.7	41.6	41.1	28.5	-25.3	-30.7
Neo Natal Mortality Rate	47.6	45.2	39.0	29.5	-5.0	-24.4
Post Neo Natal Mortality Rate	25.0	18.4	18.0	11.3	-26.4	-37.2
Infant Mortality Rate	72.2	63.6	57.0	40.7	-11.9	-28.6
Under 5 Mortality Rate	96.4	78.1	74.3	49.7	-19.0	-33.1
Maternal Mortality Ratio	440	201	254	130	-54.3	-48.8
20-24 years women married below Age 18	58.6	20.0	47.4	26.8	-65.9	-43.5
Having 3 or more ANC	26.6	26.4	52.0	64.6	-0.8	24.2
ANC within first Trimester	25.7	45.9	43.9	70.2	78.6	59.9
Institutional Delivery	20.6	67.8	38.7	78.9	229.1	103.9
Delivered by skilled provider	27.2	70.4	46.6	81.4	158.8	74.7
Post Natal Care	14.9	62.0	42.4	69.8	316.1	64.6
Current Users	43.6	45.5	56.3	57.2	4.4	1.6
Any Modern Method	29.3	31.7	48.5	51.2	8.2	5.6
% Demand satisfied	67.3	71.6	81.5	80.6	6.4	-1.1
Unmet Need	21.2	18.0	12.8	12.9	-15.1	0.8
Measles	37.7	70.8	58.8	81.1	87.8	37.9
Full Immunization	23.0	51.1	43.5	62	122.2	42.5
Diarrhoeal Treatment	58.3	82.0	59.8	67.9	40.7	13.5
ORS for Diarrhoea	12.5	37.9	26.0	50.6	203.2	94.6
Not treated for Diarrhoea	28.1	18.0	26.1	17.8	-35.9	-31.8
ICDS Utilization*	22.3	38.8	32.9	53.6	74.0	62.9
Mother not received any services form AWC during Pregnancy	89.8	61.1	77.5	46.3	-32.0	-40.3
Mother not received any services form AWC during Breastfeeding	92.5	68.7	82.6	51.2	-25.7	-38.0

\*Percentage of children below 6 years who received any services from AWC in last 12 months

*Source:* Author's calculation based on NFHS 2005-6&2015-16



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