

# Future Vision of India: A Sub-national Level Population Projection

*Puspita Datta*\*

## Extended Abstract

### **Background**

The main and foremost objective of all planning and policies of any country is human development and to improve the quality of life of the human resources of the country. As the second most populous country of the world, India has only 2.5 percent of global land whereas it has to provide home for one-sixth of world's population. On examining the past trends of India's population, it may be observed that during the later half of the twentieth century, about 650 million populations were added to the country. Thus, living in a country with a high population density and high growth rate of population, which increases pressure on the existing resources of the country, planners perceived that there is a serious threat coming up on the way to achieve developmental goals. Demographic transition is that important phenomenon through which it was pretend. The transition is from a high fertility, high mortality to a low fertility, low mortality and towards a stable population situation.

In its first phase of demographic transition, India experienced a steep fall in the mortality rate due to increasing availability and accessibility of improved health care, whereas the fall in fertility rate was comparatively less and so the population grew at a rapid speed. In the next phase population continued to grow at a faster rate though the fall in mortality is not steep and fall in fertility continues, until the replacement level of fertility is achieved. Even if the replacement level of fertility is attained, then due to the "momentum" of population growth, it will take a long period to reach at the stable population situation. The reason behind this is that, the large number of people in the reproductive age group will not be so less at the same time.

The Tenth Five Year Plan (2002-07) is aimed at achieving the Gross Domestic Product (GDP) growth rate of 8 percent, doubling the per capita income and creation of 100 million of employment opportunities in next 10 years (Planning Commission 2002). These targets are formulated based on the past growth trends and the vision of making India as a developed country by 2020. In the last decade the country has experienced higher economic growth, reduction in poverty ratio, increase in foreign exchange reserve and achieved price stability. The growth rate of GDP was 6.1 percent in 1990s and the population below poverty line had declined from 39 percent in 1993-94 to 26 percent in 1999-2000 on a 30-day recall basis for the country. However, the goals of Tenth Five Year Plan are ambitious and the feasibility of these goals depends on demographic trends as well.

---

\* Research Fellow, International Institute for Population Sciences, Mumbai, India

Now the question is what will be the size of India's labour force requirement of new jobs and GDP per capita if the targets of the Tenth Five Year Plan and National Population Policy are to be achieved? What will be the expected changes in the age and sex structure of the population? What will be the requirements for health and educational infrastructure? And also, what will be the family planning situations in the near future? Any serious attempt to understand the future Scenario of India for the coming years or any future year would have to confront these questions, and make a proper assessment of country's demographic prospectus.

In this paper, an attempt has been made to project the population at state level under alternative assumptions in India. Two Indian states - one in early stage of demographic transition (viz. Uttar Pradesh located at the northern part of India) and another that have reached the replacement level of fertility (Tamil Nadu located at the southern part of India) has been chosen for that purpose. These two states also depart each other in terms of socio-economic development. The paper also tries to understand the economic and social significance of population growth in two states till 2020.

### ***Need for the Study***

Projection is a scientific attempt to speculation about the future population scenario by making certain assumptions using the data relating to the past available at present. Population is one of the most important items for which projections are often made. The population projection is a useful tool to demonstrate the magnitude of current problem and likely to estimate the future magnitude of the problem. The social and economic implications of population growth are useful for national planning of any country. Every development plans contain future estimates of a nations needs as well as for policy formulation for sectors such as labour force, education, health, urbanization, agriculture etc.

The economic projection for the sectors such as labour force will appraise the likely magnitude of supply of labour, employment as well as unemployment trends. Similarly, the GDP per capita will enable us to understand the economic progress of the country. On education, the projection of school going children, requirement of new schools as well as other infrastructure helps us to make the educational planning of the country. Similarly the health requirement with respect to the requirements of health professionals enables us to formulate the health sector planning. Finally, the family planning situation can also be seen by observing the number of married women, number of abortions and wanted and unwanted pregnancies in the future which will help the government in formulating the policy in streamlining the family planning requirements.

## ***Objectives***

The broad objective of the paper is to identify the social and economic implications of population growth by 2020. However the specific objectives are

1. To project the population of two Indian states falling in two different phases of transition following the past trend.
2. To examine the economic significance of population growth with respect to labour force and GDP per capita for both the states.
3. To estimate the educational and health requirements of those selected states of India

## ***Data***

The data for demographic, economic and social parameters are collected for the state of level. The base year refers to the period of 2001 or the latest available period. The main data sources used for this paper are- (a) National family Health Survey-II (1998-99), (b) Selected Educational Statistics (2000-2001), (c) Sample Registration System (2001), (d) Census of India (2001), (e) Tenth Five Year Plan (2002-2007) and (f) Reproductive and Child Health Project (2002-2004).

## ***Methodology***

The paper uses the SPECTRUM package of Future Group International for projection over a period of 20 years from 2001 to 2020. Spectrum has been designed to produce information that is useful for policy formulation and dialogue within a framework easy to use computer programs. The focus is given on the generation of the information useful for policy and planning process. Spectrum is an integration package. The integration is based on DEMPROJ, which is used to create the population projections that support many of the calculations in the other components – FAMPLAN, RAPID, AIMS. RAPID is used in this present study to project the social and economic consequences of high fertility and rapid population growth for sectors such as labor force, education and health.

A number of assumptions are made for the above projection with respect to economy, education, and health. The brief description on assumptions on economic and educational variables is given below.

### **Assumptions on Economic Parameters**

1. Per capita GDP are 6.65 and 4.45 percent per annum for Tamil Nadu and Uttar Pradesh respectively and it will remain constant from 2001 and till 2020. This is the actual growth rate of the economy that has been experienced during 8<sup>th</sup> and 9<sup>th</sup> Five Year plan.
2. Labour force participation of female population of 15-64 years will increase based on past trend during 2001 and 2020 while that of males will remain the same.
3. Labour force participation for 10-14 years population will remain the same.

### Assumptions on Education and Health

1. The gross attendance ratios of children of primary school are taken and it is assumed that it will reach 100 percent by 2020 for both the states.
2. The secondary school enrolment will increase from the base year 2001 according to past trend.
3. All other parameters are assumed to be constant

### Assumptions on fertility and mortality

1. Decline in TFR follow the same trend as past and same level continues till 2020 in the states of Uttar Pradesh and for Tamil Nadu as it already reached the replacement rate of fertility, it is assumed that it will remain constant over the period 2001-2020.
2. Reaching the replacement level of fertility i.e., TFR will be 2.1 by 2020 in Uttar Pradesh and for Tamil Nadu as it already reached the replacement rate of fertility, it is assumed that TFR will not be less than 1.5 by 2020.
3. Life expectancy at birth will increase according to the past trend for both the states.

### **Findings and implications<sup>#</sup>**

This exercise gives us an insight of economic and social implications of population growth under alternative assumption. It may be viewed as an approximation of selected economic and social indicators for recent future. These estimates are also available on yearly basis. Results show that if the first assumption for fertility and mortality follows then dependency ratio will decline much faster in Uttar Pradesh while there is a slight decline state of Tamil Nadu. There will be a sharp decline in IMR and CMR in Uttar Pradesh compared to Tamil Nadu. There will be tremendous increase in per capita GDP in Tamil Nadu compared to that of Uttar Pradesh. A declining trend in secondary school age population will follow up to 2010 and thereafter a slight increase till 2020 is seen in Uttar Pradesh, while the secondary school age population remains unchanged in Tamil Nadu up to 2020. Health personnel (Doctors, nurses) and health infrastructure (hospital, hospital bed, and health centers) will be required more in Uttar Pradesh. Proportion of population at high health risk will increase substantially over the period in Uttar Pradesh while in Tamil Nadu the trend is not showing any change. Required health expenditure per person will increase over time and that increase is noticeably higher for Uttar Pradesh as a result of large population, inadequate health infrastructure and higher proportion of population at high health risk. In 2020, to reduce state-level inequality in socio-economic development demographically backward state UP will continue drawing attention of policy makers.

---

<sup>#</sup> Preliminary results have been portrayed here. Work is still in progress and so results of other alternative assumptions cannot be given.