IMPLICATIONS OF POPULATION PROJECTION ON SOME SOCIO ECONOMIC INDICATORS FOR   STATES IN NORTH EAST INDIA TILL 2031.

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ABSTRACT

Introduction: Khongji (2017) focuses on population projection for states of North east Region(NER), but yet no study has been done on the various economic implications on the projected population in the region. Hence, the present study can be an extended to emphasize on the implication of the projected population on some of the socio economic indicators of the region.

Methodology:. The economic indicators consider are labor force, new job requirements and GDP per capita and educational indicators are the numbers of school going children, numbers of teachers and requirement of new schools. These are projected over a period of 20 years from 2011 to 2031 for states of North east India, by utilizing RAPID module of SPECTRUM software developed by of Future Group International for projection.

Findings: The findings reveals that during the period of projection, labor force would rise by different percentage points in all the states of the region. However, the findings reveals that this increase would not be translated in to the projected number of requirement for new jobs.

As far as gross state domestic product per capita is concerned, the study depicts that the indicator would increase for all states of North East during the period of projection.

The study also reveals that there will be a fall in the number of Primary students in every state from the year 2011 through the year 2031. In connection with Secondary school section, the study shows that the number of secondary students will increases for all states through the years of projection.

Keywords: Labor force, Gross state domestic Product, Educational outcomes, Teachers per schools, Population projection, North East India.

JEL classification codes: C870, I210, J210, J220

1. INTRODUCTION

As per Census 2011, North-East India, comprising of the seven states, has a population of over 45 million, which is 3.76 % of India's population. Assam stands out to be the most populated state which contributes 31 million or 68% of the total population of the region. The report also reveals that population growth of the region show variation, with the state of Meghalaya recorded to have the highest population growth of 27.8% which is higher than the National average which is at 17.64%. Nagaland on the other hand records to have the lowest population growth with a negative of 0.5%.

In connection with the economy of the region, NER is predominantly agricultural based in nature and more than half of the region's total population is dependent on agriculture for their livelihood. The region's potential in productivity is very low; it only produces 1.5% of the country's total food grain production. The agriculture sector has always been depressed in the region. Therefore, due to this reason and various other factors such as absence of industrial establishments and other employment opportunities, most people are unemployed and the standard living of the people has been lagging significantly when we compare it with the rest of the region or states in the country.

Social and Economic progress is slow and lacking in NER. Due to low income and rapid population growth, services like healthcare and education are over burden with the needs and not everyone has access to it.

Thus the present study will provide an insight into the Socio and economic implication on population projections, vital to planning and policy making for the fulfillment of the future requirement of some of the social and economic indicators for a region and respective states.

2. STATEMENT OF THE PROBLEM

The most important goal of any country/ region in their planning and policies is human development and the need to improve the quality of life of the people. In order to gaze upon the level of development, it is necessary to examine the economic and social indicators on population.

Not many literatures have focused on the future levels of socio and economic requirements especially in the North-East. Therefore, this study will try to address these lacunae in providing information on this aspects by utilizing the population projected by Khongji(2017) up to the year 2031 and study the impending implication on some of the social and economic indicators.

3. REVIEW OF LITERATURE

Many studies have focused on the Population Projection and its Socio-Economic Implications. Some of those important studies are mentioned in the following paragraphs.

Lee (1974) focuses on the short-run implications of population growth in Pakistan after the country had its partition i.e. the first in 1947 and the second in 1971. Lee notices the economical progress between the first and second partition, but the social and economic problems still prevails in the country. The author further discussed briefly the problems of inadequate educational facilities for the large and increasing "young population" and the problems related to the employment sector in the country. He further states that according to the Third Five Year Plan, the country would have to invest 6% of its GNP in educational programs, and although it would not be impossible for Pakistan to reach this level from the 1.6 percent of GNP actually spent on education in 1965, this would require a very basic re-ordering of priorities in this country.

Datta (2005) clearly mentioned that the challenge before India is it has to invest more and more on social overhead capital (SOC) i.e., on health and education to improve the quality of the people of the country. Focus should also be given towards full and proper coverage of Maternal and health services, Reproductive and Child Health services, on contraceptive care; Gynecological problems and the quality of services should be improved. This will be helpful in a way or another to accelerate demographic transition and achieve population stabilization. Efforts should be given for providing adequate inputs and to utilize the available abundant human resource to accelerate economic growth and overall development.

Datta (2009) in her work, projected the future population from 2005 to 2020 of Uttar Pradesh and Tamil Nadu, along with the socio- economic and demographic scenarios of these two states. She revealed that by 2020 Tamil Nadu will be better than Uttar Pradesh in terms of its economic infrastructure and in connection with some the social factors, Uttar Pradesh is expected to face a greater need for medical personnel as well as health expenditures per person due to the great proportion of population with high health risk.

Davanzo, Dogo and Clifford (2011) compare demographic conditions and their implications in China and India where he found that in the short run China holds more of the qualities needed to take full advantage of its demographic dividend: "more flexible labor markets; higher rates of female labor force participation, more highly educated women, and more open attitudes about women working; less illiteracy in general; better infrastructure; more internal migration…and a higher degree of urbanization, more openness to foreign trade, and slightly higher rates of coverage by public pensions." However, in the long run the authors find that in comparison to

India, China's prospects for sustained economic growth might be curtailed by shifting demographics. A rapidly aging population in China will definitely create new demands and strains, which would result in wealth transfers from working-age populations to the elderly. In this respect, India will have a demographic and economic advantage over China in the decades to come.   .

Afzaal (2011) discussed about the negative effects of population growth on all the social and economic spheres in Pakistan. The authors emphasize on the lack of government attention and efforts to eradicate the challenges and the fertility rate, which has not decreased to achieve at a desirable level has been the major factors for the inverse relation between the population growth and the factors involved in sustainable socio and economic development. Their findings reveals that most people especially from the poor and illiterate background due to poverty, are often believed not to be health conscious and they do not have the urge for educational attainment however, they prefer earnings on daily wages. The findings further reiterate that a low fund allocated by the government to the various sectors especially to the education sector is the main reasons for high levels of unskilled labor. They also stress on the low level of labor force participation and this increases the unemployment rate resulting with least utilization of human capital.

Bloom (2011) clearly pointed out that "healthier mean wealthier". New thinkers have come into conclusion to consider that health itself is an instrument of economic growth and not just a consequence of it. Therefore, he believes in greater availability of healthcare, combined with lower fertility rates which would result to an urbanization, which will offer advantages that can help in accelerating economic growth in the region. Therefore, through the implications of socio and economic trend on the predicted population, it would enable to eradicate unfavorable conditions in the region.

Silva and Silva (2016) projected the population of Sri Lanka from 2012 to 2062. They predicted that with the increase in population arable land per capita will definitely reduce in the future in order to meet the high demand for food production and for the development activities. It has also been mentioned in the study that the number of children in Sri Lanka would begin to decline rapidly, therefore the required expenditure on educational infrastructure can actually be reduced and predictions has also been made on Labor force which states that it would begin to decline from the mid 2030s.

Economic Planning and Development Malawi (2017) projects the social and economic implications on population growth and reveals that if total fertility rate is reduced to 2.3 by the year 2050 from the current rate of 4.4 in 2015-2016, it has been predicted that there would be many changes in relation with the social and economic spheres of the region.

The report mentions that if population in the country is expected to decline by 20% , child dependents will reduces by 6.3 million; requirement of health professionals would decline as well. Further , it has been predicted that with the present fertility rate the number of students both in primary and secondary school would be more than double by 2050, but if the fertility rate declines with the above mentioned rate, the number of students would reduced by 7.3 million, resulting to fewer students. With a decline in the number of students the required number of teachers and schools also reduces.

The report also emphasize that , with a fall in the population growth, the GDP per capita will definitely increases by 25% and fewer new jobs will be required by the people in Malawi. Arable land per capita will increase by 30% with a reduction in the fertility rate and looking into the urbanization of the region a reduction of 2.6 million people and 600,000 urban households will be occupying the urban areas.

Khongji (2017) in his attempt to work on population projection for some states of North East Region(NER) of India, clearly pointed out that there would be a differential increase in the population growth for all the states in the NER within 2011 – 2031. As for the state of Arunachal Pradesh there is a 24.8% increase in the population growth, for Assam an increase is of 21.8%, Manipur will be experiencing an increase of 33.7%, Meghalaya is of 31.8%, Mizoram, Sikkim and Tripura's increase in its population growth is of 26.7%, 5.3% and 14.7% respectively. This increase in population would have an effect on socio and economic implications.

Samir, Speringer and Wurzer (2017) in their population projection for India from 2011 to 2051, revealed that there will be a decline in the total fertility rate to 1.85 children per woman by 2051 and stabilization for the rest of the century. Their study also revealed that the pace of urbanization in India is at a slower rate i.e. a change of only 9% from 2011 to 2051. The main reason for this slow rate is because of the large rural population, less education facilities and large populations in Bihar and Uttar Pradesh, which is responsible in slowing down the pace of urbanization in India. In relation to educational attainment, it has been shown that the younger population is progressing with their educational attainment; however, adult population will take some more time in attaining universal basic education.

4. RESEARCH GAPS

The above literature mainly highlights the population growth of India and other countries and focuses less on the North Eastern Region (NER). Khongji (2017) focuses on population projection for states of NER, but yet no study has been done on the various social and economic implications on the projected population. Hence, the present study can be an extended to

emphasize on the implication of the projected population on social and economic sectors of the region. This study would be an important tool for the State planning and National planning.

5. RESEARCH OBJECTIVES

To study the socio and economic implications on population projection for the North Eastern states of India with reference to the Economy, Education, Health and Urbanization.

6. NEED OF THE STUDY

There are scanty studies on the state level population projections of North Eastern region and therefore, study like this will help the state government in formulating the policy for identifying the thrust areas to be emphasized to improve the overall socioeconomic development.

The economic projection for the sectors such as labor force will appraise the likely magnitude of supply of labor, 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.

7. SOURCES OF DATA COLLECTION

Most of the data for this project are based only on Secondary data where information has been collected from various sources. Some of the data were collected in person from the directorates of economics and statistics of the states of Sikkim and Assam.

In connection with Labor Force and the Labor Participation rate, data were acquired from Census of India 2001- 2011 and the Gross state domestic product (GSDP) of all the eight states were taken from the North Eastern Development Finance Corporation Ltd (NEDFi) Databank.

In connection with enrollment rate, student teacher ratio, expenditure, etc, data were collected from the Unified District Information System for Education (U-DISE).

8. TOOLS FOR ANALYSIS

This study is descriptive and analytical in nature. It utilizes the demographic projection of the North Eastern region and studies the socio economic implications of this projection on Economy and Education.

All of the social and economic indicators are projected over a period of 20 years from 2011 to 2031 with the help of the Resources for the Awareness of Population Impact on Development

(RAPID) module of SPECTRUM package developed by of Future Group International for projection.

MS Excel was used to compile the data collected, forming trends and Interpolation. For almost all the indicators, values were available up to the year of 2017. In order to get the values for the upcoming years a suitable trend analysis was used to get the values based on the past trends.

9. FINDINGS AND INTERPRETATIONS ON SOME OF THE ECONOMIC INDICATORS

Based on the population projection for states of North East India for the year 2011 to 2031, this section attempts to project some of the *economic indicators* viz., with respect to labor force, new job requirements and GSDP per capita. and *educational indicators* viz., the numbers of school going children, numbers of teachers and requirement of new schools for all the North Eastern states in India.

9.1 Labor Force projection

As one of the objectives of the present study is to project the labor force up to the year 2031 and for this exercise, projected LFPR up to the same year is a requirement for the RAPID module.

In the context of the present study, the labor force is obtained from census of India by summing up the total number of main workers, marginal workers, marginal workers who are seeking or available for work, marginal workers who worked for less than 3 months, and those marginal workers who worked for less than 3 to 6 months.

The LFPR by age of 5 –14 and 15 -59 which is required in the present study can be computed as the ratio of the labor force to the total population corresponding age group for Males and Females respectively.

In the present study the input data required in RAPID the LFPR from 2011 to 2031. Thus, in order to obtain these figures, an exercise is undertaken to extrapolate LFPR up to the year of 2031. By the use of Census 1991 and 2001 together with census 2011, the extrapolation is performed by fitting a suitable trend in excel sheet.

After obtaining the LFPR, the values are fed into RAPID which utilizes the data and together with the projected population it provides us the future labor force size for each state.

The methodology which was used in SPECTRUM to attain the required result of Labor force is given below:

$$Labor\ force_t = \sum_s (Pop_{15-59,t,s} \times LFPR_{15-59,t,s}) + (Pop_{10-14,t,s} \times LFPR_{10-14,t,s})$$

Where,

$Lobor\ force_t$ = size of the labor force in time t

$Pop_{15-59,t,s}$ = population of sex s aged 15-59 in time t

$LFPR_{15-59,t,s}$ = labor force participation rate for population of by sex aged 15-59 in time t

$Pop_{5-14,t,s}$ = population of by sex aged 5-14 in time t

$LFPR_{5-14,t,s}$ = labor force participation rate for population by sex aged 5-14 in time t

The following is a tabulation representing the figures of the projected labor force for North East as a whole obtained from the outcome of RAPID.

The following are the graphical representation of the projected future Labor size for states of North east India.

Fig 1: Projected Labor Force for North East by states
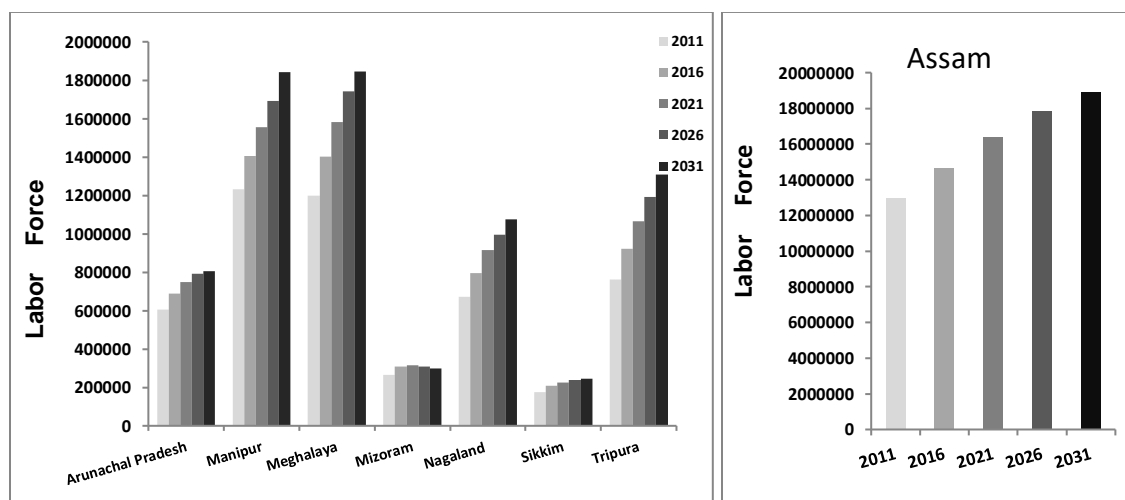
Source: Author's own calculations

Fig 1 reveals, that there would be an increase in the labor force for all the North Eastern states. This increase is because of the bulging of the population in the middle age group as depicted in Khongji (2017).

During the years of projection i.e., 2011 to 2031, Arunachal Pradesh will have an addition of 200,719 labor force by 2031, Assam will experience an addition of 5,929,283; Manipur by 611,458; Meghalaya an increase of 644,091; Mizoram a gain of 33,179; Nagaland a rise of 403,003; Sikkim of 73,220 and Tripura will experience an addition labor force by 546,950.

9.2 New Jobs required

New Jobs required is an important indicator for the region's economic growth in order to maintain the present employment levels. This indicator takes into account the new entrants to the labor force and requirements. Following is the methodology for calculating the future levels of new jobs required obtained from RAPID.

The methodology which was used in SPECTRUM to attain the required result of New Jobs required is given below

$$New\ Jobs_t = Laborforce_t - Laborforce_{t-1}$$

Where,

|	
$New\ Jobs_t$	= newjobs required in time t
$Labor\ force_t$	= size of the labor force in time t
$Labor\ force_{t-1}$	= size of the labor force in the previous year

The following is a graphical representation of the projected Jobs required for states of North east India.

Fig 2 shows that the requirement of new jobs decreases for all the north eastern states from 2011 to 2031 and this fall in the new job requirement from 2011 to 2031 for Arunachal will be 21,793; Assam 95,166; Manipur 13,457; Meghalaya 38,549; Mizoram 34,008, Nagaland 76; Sikkim 15,968 and Tripura will require 29,224 fewer jobs in 2031.

Fig. 2: Projected number of Jobs required for North East by states
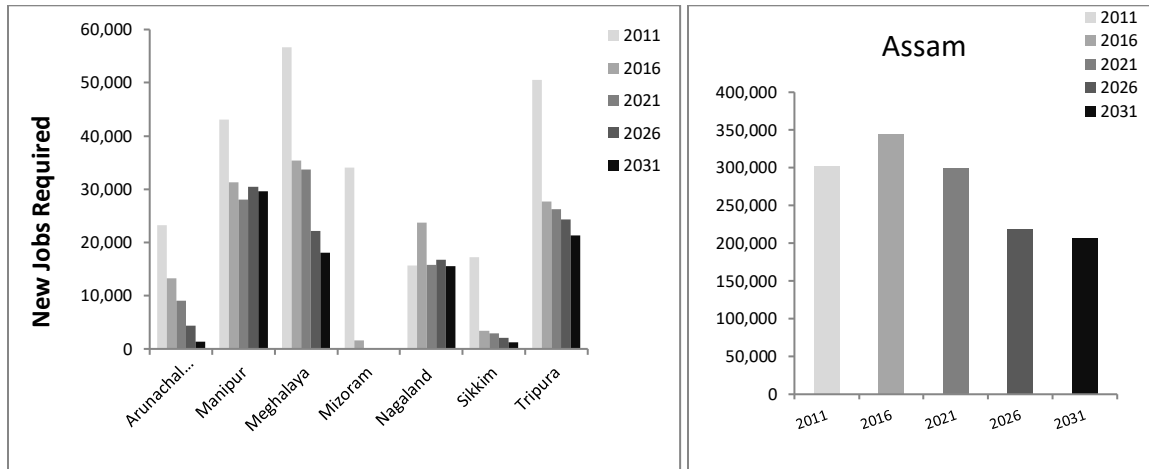
Source: Author's own calculation

The reduction of the number of jobs required as depicted in almost all states form the year 2011 to 2031 may be due to decrease in the population growth overtime or some other socio-economic or demographic factors.

9.3 Gross state Domestic product (GSDP) Per Capita

GSDP Per capita as we know is an estimate of how much an individual spends as a consumer compared to the total population spends on products and services. GSDP Per capita also indicates the economic prosperity or the economic performance of a region or of a state. Higher the GSDP Per capita, higher is the living standard of the people.

As per the requirement of the RAPID module of the SPECTRUM projecting software, the necessary input figures are the base year gross domestic product and the annual growth rate in gross domestic product of each state from the year 2011 to 2031.

The GDP figures of all the states were collected from NEDFi Databank. Since data were available only up to the year of 2017, values beyond 2017 are extrapolated by fitting a suitable trend in excel sheet.

The methodology was used for calculating GDP per capita.

$$GSDP\ Per\ Capita_{t} = GSDP_{t} / TotalPop_{t}$$

Where,

$GSDP\ PerCapita_{t}$ = gross domestic product per person in time t

$GSDP_t$ = gross state domestic product in time t

$TotalPop_t$ = *Total population in time t.*

Fig 3 portrays the GDP per capita for states of NER. GDP Per capita is projected to increase for each state in the NER. This increase upto the year 2031 for Arunachal Pradesh is projected to be Rs 21166; for Assam Rs 8545; Manipur Rs 8088; Meghalaya Rs 7822; Mizoram Rs 23569; Nagaland Rs 10903; Sikkim 43921 and for Tripura Rs 14092.

Fig 3: Projected GDP Per Capita for North East by states
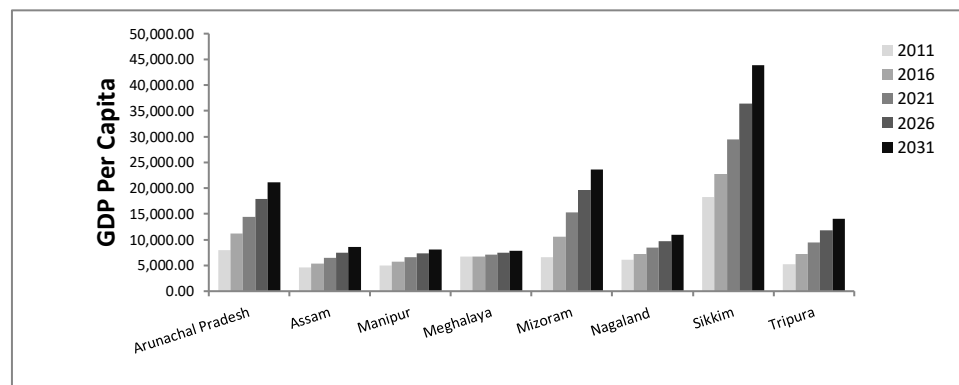
Source: Author's own calculation

Summary of the section

During the period of projection, labor force of NER would increase for Arunachal Pradesh by 33.17%, Assam is 45.70%, Manipur is 46.69%, Meghalaya is 53.69%, Mizoram is 12.48%, Nagaland is 59.85%, Sikkim is 42.18% and for Tripura is 71.35%.

And, as for the new jobs required by the various states, the need of new jobs for Arunachal Pradesh decreases by 93.97%, for Assam by 32%, for Manipur by 31.26%, for Meghalaya by 68.44%, for Mizoram by 95.83%, for Nagaland by 71.73%, for Sikkim by 93% and for Tripura by 53%.

As far as GSDP Per capita is concerned, the indicator would increase for all states of North East in Arunachal Pradesh by 164.46%; Assam by 86.12% , Manipur by 60.53% , Meghalaya, will experience a hike of 15.42%, ; Mizoram an increase of 256% . As for the states of Nagaland, Sikkim and Tripura the GSDP per capita, has been projected to increase by 77.02%, 139.73% and 169.42% respectively.

10. FINDINGS AND INTERPRETATIONS ON SOME OF THE EDUCATIONAL INDICATORS

Based on the population projection for states of North East India for the year 2011 to 2031, this section attempts to project some of the *educational indicators* viz., the numbers of school going children, numbers of teachers and requirement of new schools for all the North Eastern states in India.

The required data inputs in this chapter are the number of Primary and Secondary schools, the enrollment rates and the number of teachers per student in both schools. It is important to note that the primary school age at entry for most state is 6 years and for the Secondary school age is 12 years. The normal number of years of primary school varies from state to state. The state of Arunachal Pradesh, Assam, Meghalaya and Mizoram, considers Primary school to start from 1st grade up to the 4th grade. Whereas, Manipur, Nagaland, Sikkim and Tripura considers Primary school to extend from 1st grade to the 5th grade. Looking into the number of years for secondary school it is for two year i.e. from the 9th to the 10th standard and this holds standard for all the states.

10.1 Projection for Primary Students

This section will focus on projections on the Primary stage of education on some of the educational factors like the enrollment of school students, number of teachers and number of primary schools required by 2031 in the region.

All the data that were used were collected from U-DISE from the year of 2005 – 2017. The data inputs are also required to be extrapolated up to the year 2031 and for this exercise, a suitable trend analysis is performed using an excel sheet.

The methodology which is used in RAPID to attain the required result of the number of Primary students is given below:

$$\Pr Students_t = Children \Pr Age_t \ x \Pr Enr\ Rate_t$$

Where,

$\Pr Students_t$ = *number of primary students in time t*

$Children \Pr Age_t$ = *children of primary school age in time t*

$\Pr Enr\ Rate_t$ = *primary enrollment rate in time t*

The following table represents the figures of the projected number of Primary students for North East as a whole which has been extracted from RAPID.

From the table 4 above we can see that the total number of primary students in the whole of North east will be decreasing overtime. This may be due to the fall in the fertility rate or due to some unknown factor.

Fig. 4: Projected number of Primary Student for North East by States
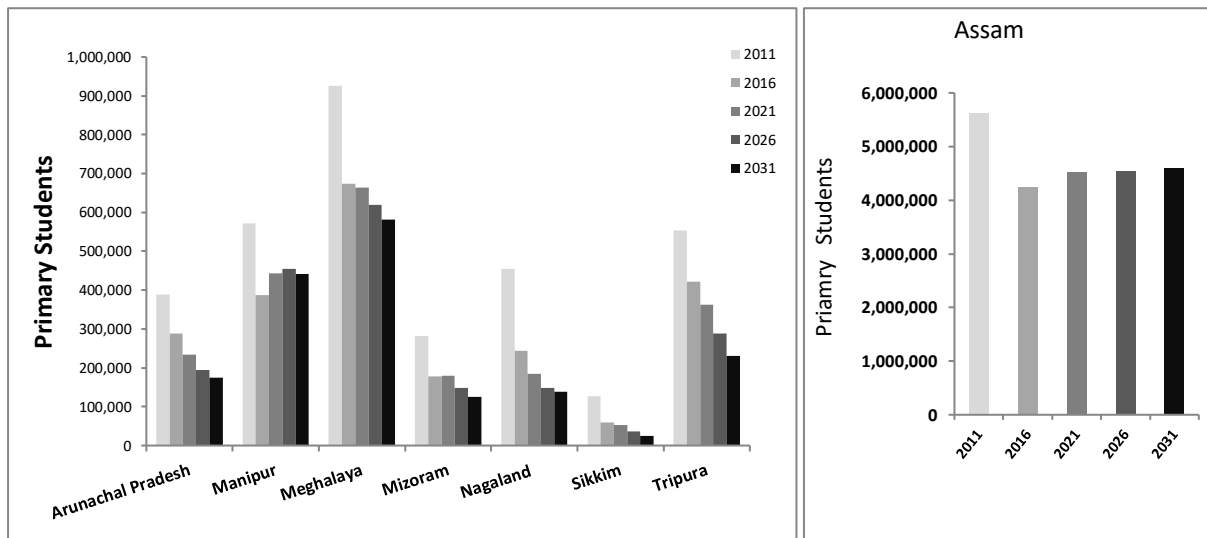
Source: Author's own calculations

The Fig 4 above represent the projected number of primary students up to the year of 2031. It can be clearly seen from the figures above that, in all the states, the number of primary students' decreases through the year 2031, which may be due to the decrease in the population growth which is caused by the fall in the fertility rate as we can see from Chapter 2.

The graphs above, distinctly shows us that, the number of primary students will reduce by 213,867 in 2031 for the state of Arunachal Pradesh; for the state of Assam a fall of 2,216,395 number of primary students will be seen in 2031; Manipur's total primary students will fall by 130,505; Meghalaya by 344,345; Mizoram by 156,412; Nagaland by 315,937; Sikkim by 101,856 and Tripura's will experience a reduction of 323,063 primary students from 2011 to 2031.

10.2 Projection of number of Primary Teachers required

The methodology which is used in RAPID to obtain the result of the required number of primary teachers is given below:

$$\Pr Teachers_t = \Pr Students_t \, / \, Students \, Per \Pr Teacher_t$$

Where,

$\mathbf{Pr}\,Teachers_t$ = number of primary teachers in time t

$\mathbf{Pr}\,Students_t$ = number of primary students in time t

$Students\,Per\,\mathrm{Pr}\,Teacher_t$ = ratio of primary students to primary teachers in time t

The following table represents the figures of the projected required number of Primary teachers for North East as a whole which is the outcome from RAPID.

Fig. 5: Projected number of Primary Teachers Required for North East by states
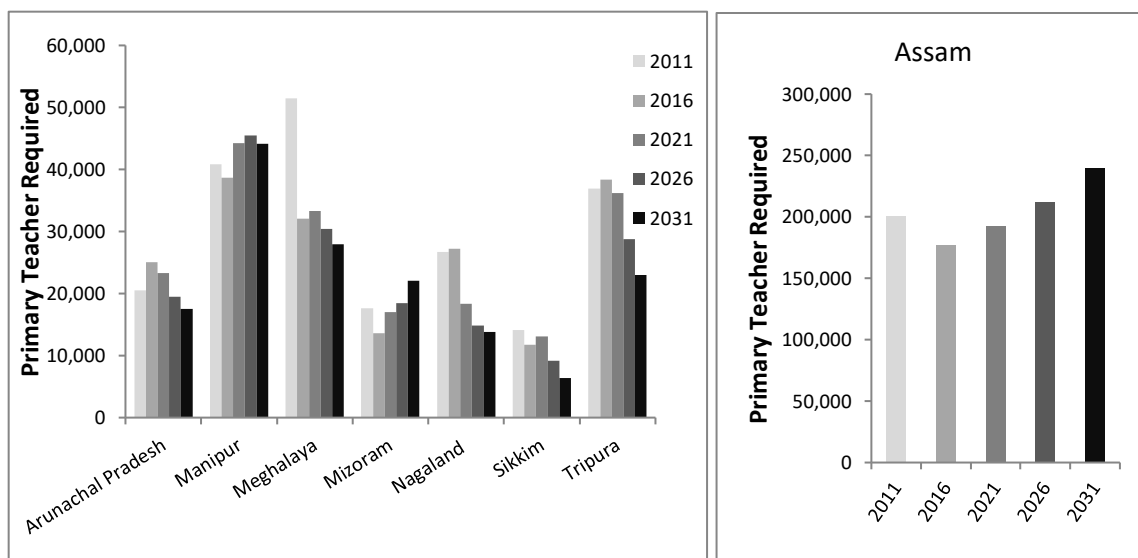
Source: Author's own calculations

The Fig 5. reveals that the number of primary teachers required will fall through the year 2031 in the state of Arunachal Pradesh by 2,954, in Meghalaya by 23,482, in Nagaland by 12,903, in Sikkim a reduction by 7,796 and Tripura by 13,868. Whereas for the state of Assam and Mizoram, there will be a slight increase in the required number of Primary teachers by 3,277 and 4,422 respectively.

10.3 Projection of number of Primary Schools Required

The number of primary schools required is also projected in this study, using the methodology given below in the RAPID module.

$$Pr\,Schools_t = Pr\,Students_t\,/\,Students\,\,Per\,Pr\,School_t$$

Where,

Pr Schools $_t$ = number of primary schools in time t

Pr Students $_t$ = number of primary students in time t

Students Per Pr School $_t$ = *ratio of primary students to primary schools in time t*

The table above portrays the total number of primary schools required in the entire North eastern region. From what we can see from the table, the number of schools required will be decreasing upto the year 2024 and eventually increase to 174747.

Fig 6 represents the number of primary schools required for the north eastern states. The figure shows that the number of primary school required in meeting the demands of the population by 2031 rises for some states and for the other states it is declining overtime. The states which will undergo a decline in the requirement of primary school is that of Arunachal Pradesh which will require 3,930 fewer number of primary school from 2011 to 2031, Meghalaya will require 9,630 fewer schools, Mizoram will decrease its requirements by 656 and Sikkim will reduce its requirements for primary schools by 171 number of primary schools between 2011 to 2031. On the contrary, Manipur, Nagaland and Tripura are projected to have an increase in demand for primary schools.

Fig. 6: Projected primary schools required for North East by States
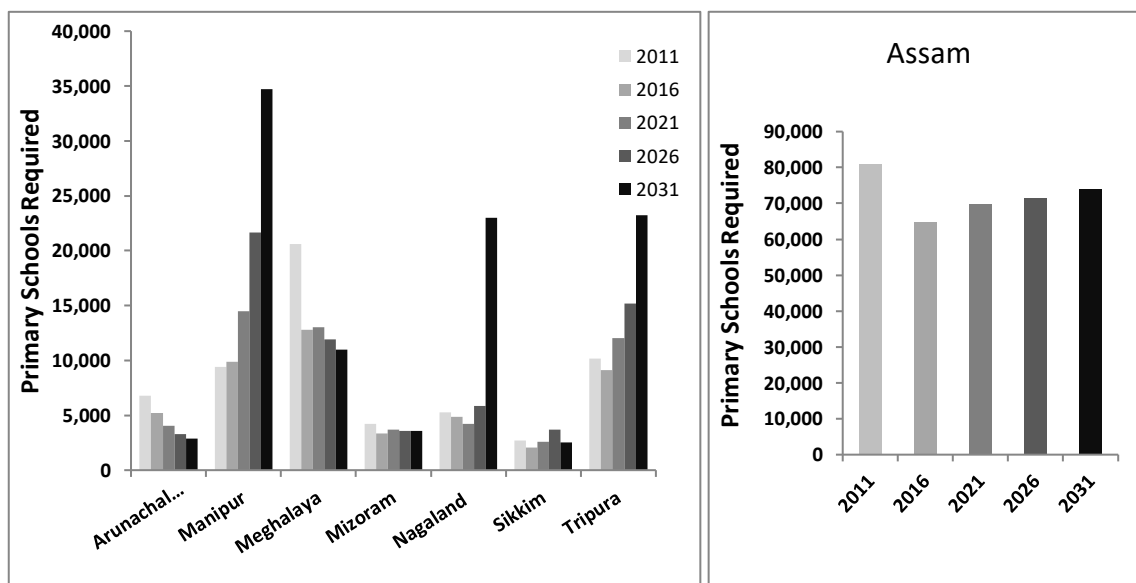
Source: Author's own calculations

10.4 Projection of number of Secondary Students

In this section, we now focus in obtaining the projected number of secondary students to achieve one of the objectives of the study. The following methodology is used in RAPID module is given as follows:
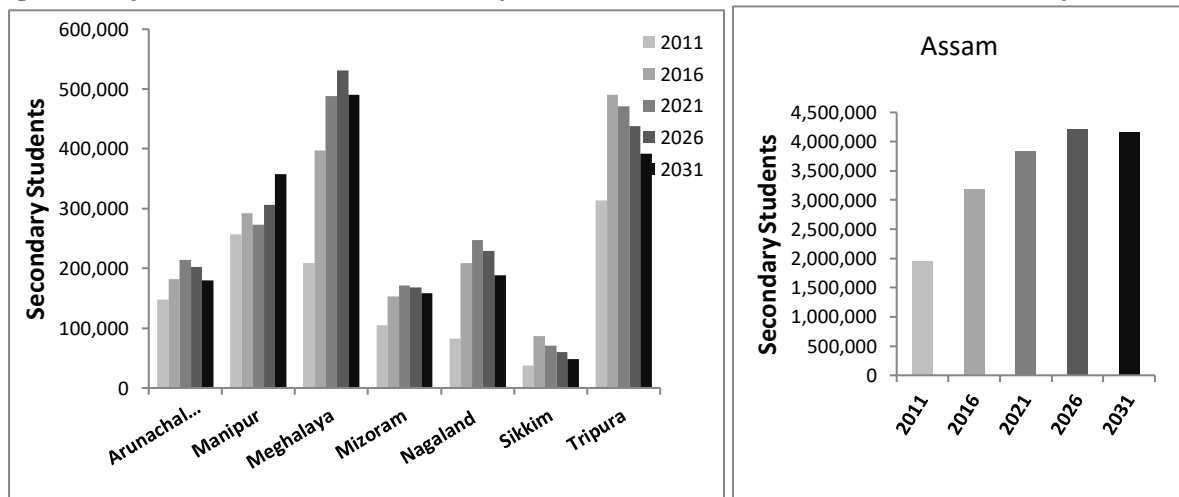
$$Sec\ Students_t = Children\ Sec\ Age_t\ x\ Sec\ Enr\ Rate_t$$

$Sec\ Students_t$ = number of secondary students in time t

$Children\ Sec\ Age_t$ = children of secondary school age in time t

$Sec\ Enr\ Rate_t$ = secondary enrollment rate in time t

Fig 7: Projected number of Secondary schools students in the for North East by States

Source: Author's own calculations

The graphs above depicted that almost all the north eastern states shows an increase requirement in the number of students in the secondary school section. Arunachal Pradesh will have a total of 180,405 i.e. an addition of 32,471 secondary students from 2011 to 2031. Assam will have an a total of 4,162,392, Manipur a total of 101,042; Meghalaya a total number of 490,380; Mizoram of 158,509; Nagaland of 106,555; Sikkim a total of 10,359 and Tripura a total of 78,392 number of secondary students in north eastern states by 2031.
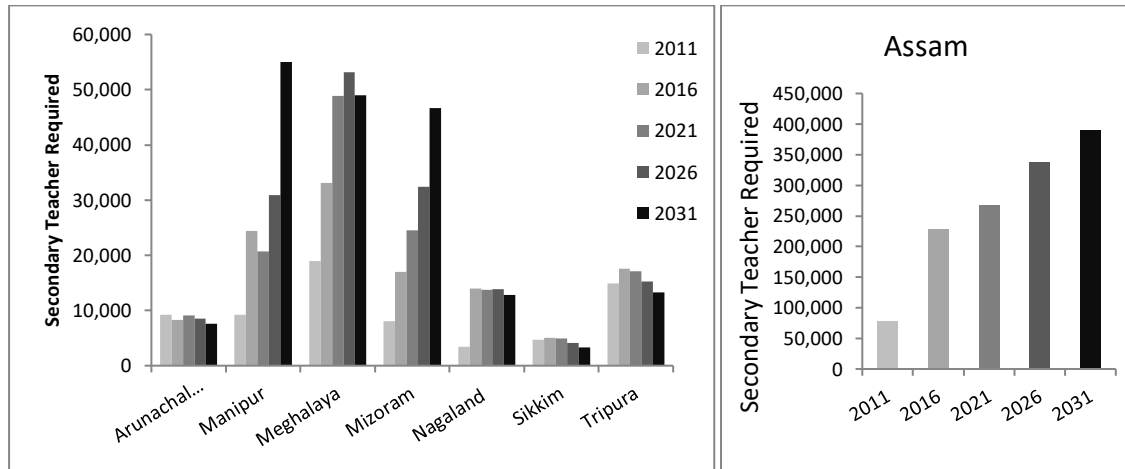
10.5 Projection of number of Secondary Teachers required

To get the result for the number of Secondary schools teacher required by 2031, the following methodology has been followed:

$$Sec\ Teachers_t = Sec\ Students_t / Students\ Per\ Sec\ Teacher_t$$

Where,

Sec Teachers_t = *number of secondary teachers in time t*

Sec Students_t = *number of secondary students in time t*

$\text{Students Per Sec Teacher}_t$ = *ratio of secondary students to teachers in time t*

Fig 8: Projected number of Required Secondary schools teachers for North East by States

Source: Author's own calculations

The above graphical illustration represents the number of Secondary teachers required by the year 2031 for each state in the NER. The state of Assam, Manipur, Meghalaya, Mizoram and Assam shows a sharp increase in the number of secondary teachers that are required by 2031. Manipur will require an additional of 45,863 number of secondary teachers, Meghalaya will have to extend its teachers size by 30,075; Mizoram by 38,544 and Assam by 311,169. As for the state of Arunachal Pradesh, the number of secondary teachers will have a slight decrease by 1,602; Sikkim will require 1,428 fewer number of secondary teachers and Tripura will decrease its need for secondary teachers by 1,694.

10.6 Projection of number of Secondary Schools required

RAPID module also provide a facility to estimate the required number of Secondary schools and the methodology is as follows:

$\text{Sec Schools}_t = \text{Sec Students}_t / \text{Students Per Sec School}_t$

where,

Sec Schools_t = *number of secondary schools in time t*

Sec Students_t = *number of secondary students in time t*

$\text{Students Per Sec School}_t$ = *ratio of secondary students to secondary schools in time t*

The fig 9 depicts that by 2031, Arunachal Pradesh is projected to require a total of 1,932 number of secondary schools by 2031; Manipur a total of 4,738; Meghalaya a total of 5,359; Mizoram a total of 2,271; Nagaland will require a total of 1,712; Sikkim a total of 235 and Tripura a total number of 1,435 number of secondary schools required by 2031 in order to meet the present and future educational needs of the population.

Fig 6: Projected total number of Secondary schools required for North East by States
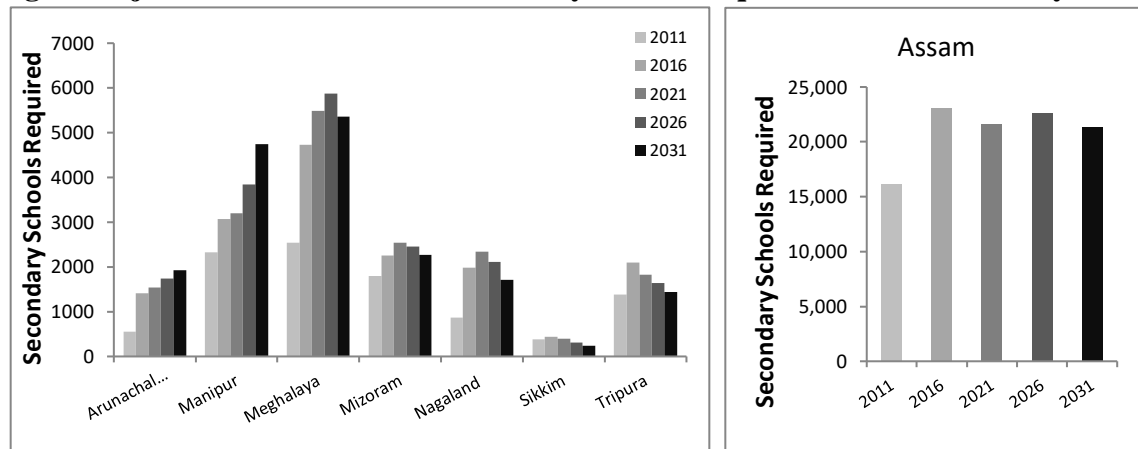
Summary of the findings of the section

This study throws light into the importance of education which is one of the major factors for social growth and development. Thus, through the projections in this chapter, we are able to understand the future educational needs of the population.

Focusing into the Primary section, the present study reveals that there will be a fall in the number of Primary students in every state. During the years of projection, the reduction in the number of Primary students in Arunachal Pradesh will be 54.96%; Assam will be 22.84%; Meghalaya of 37.17%; Mizoram of 55.44%; Nagaland of 69.60%; Sikkim of 80.07% and Tripura of 58.41% by the year 2031.

As for the number of teachers required, Manipur, Mizoram and Assam shows an increase requirement and the rise will be 8%, 25% and 19% respectively. Whereas other states shows a decrease in the number of teachers require for which the fall in the requirement in Arunachal Pradesh, Meghalaya, Nagaland, Sikkim and Tripura will be 14%, 46%, 48%, 55% and 38% number of teachers.

When we focus into the required number of primary schools, it is very apparent that most states shows a decline in the requirement which can be due to the decrease in the primary age school

population. The state of Arunachal Pradesh will undergo a decline in the requirement of primary school by 58% Assam by 9%; Meghalaya by 47%, Mizoram by 16% and Sikkim by 6%.. However, other states like Manipur, Nagaland and Tripura shows an increasing demand for the primary schools overtime. The percentage change that has been projected for the need of primary schools in Manipur is 268%; Nagaland is 338% and for the state of Tripura the percentage change in the demand of primary schools from 2011 to 2031 is 129%.

In connection with Secondary school section, the present study reveals that the number of secondary students will increases for all states. In Arunachal Pradesh the increase will be 21.95%; Assam 113.90%; Manipur 39.37%; Meghalaya 135%; Mizoram 50.98%; Nagaland 129.45%; Sikkim 27.38% and Tripura will have an increase in the total number of secondary students by 24.98% by 2031.

With an increase in the number of secondary students, the number of teachers is expected to increases in most states. The required number of secondary teachers for Assam rise by 400%, for Manipur is 500%; for Meghalaya is 159%; Mizoram requires a rate of change by 477% and Nagaland by 272%. On the contrary the requirements for the number of secondary teachers falls in the state of Arunachal Pradesh, Sikkim and Tripura by 17%; 30% and 11% respectively.

The study depicts that secondary schools are projected to increase for almost all the states except for Sikkim which shows a decrease or declining rate of 38%. The increase for Arunachal Pradesh is 247%, for Assam is 32%; for Manipur is 104%; for Meghalaya is 111%; for Mizoram is 27%; for Nagaland is 98% and for Tripura is 3%.

ACKNOWLEDGEMENT

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