

To study some economic implications of population projection for states in North East India till 2031

Dr. Phrangstone Khongji

*Department of Basic Sciences and Social Sciences, North Eastern Hill University, Shillong 793022, Meghalaya, India
phrang2000@yahoo.com*

Abstract

Introduction: The author had work 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. Hence, the present study can be an extended to emphasize on the implication of the projected population on some of the economic indicators of the region.

Methodology: The labor force, new job requirements and GDP per capita, are projected over a period of 20 years from 2011 to 2031 for states of North east India, by utilizing RAPID module of SPECTRUM package developed by of Future Group International for projection

Findings: The findings reveals that 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%.

Application: As far as GDP 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 GDP per capita, has been projected to increase by 77.02%, 139.73% and 169.42% respectively.

Keywords: Labor force, Gross state domestic Product, Projection, North East India.

1. Introduction

As per Census 2011 [1], 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 economic implication on population projections, vital to planning and policy making for the fulfillment of the future requirement of some of the 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 indicators on population.

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

3. Literature survey

Many studies have focused on the Population Projection and its Socio-Economic Implications. Some of those important studies are mentioned in the following paragraphs. In [2] 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% of GNP actually spent on education in 1965, this would require a very basic re-ordering of priorities in this country.

In [3] 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.

In [4] 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.

In [5] 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. A 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.

In [6] 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.

In [7] 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.

In [8] 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 reduce 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 be 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 increase 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.

In [9] 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.

In [10] 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 economic implications on the projected population.

Hence, the present study can be extended to emphasize on the implication of the projected population on 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.

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 economic 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.

7. Sources of data collection

The data for this project are based only on Secondary data where information has been collected from various sources. In connection with Labor Force and the Labor Participation rate, data were acquired from Census of India 2001- 2011 [11] and the Gross state domestic product (GSDP) of all the eight states were taken from the North Eastern Development Finance Corporation Ltd (NEDFi) Databank [12]. Data were also gathered from the different states Statistical handbook and Statistical Abstract. Some of the data were collected in person from the directorates of economics and statistics of the states of Sikkim and Assam.

8. Tools for analysis

All of the 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 year's a suitable trend analysis was used to get the values based on the past trends.

9. Findings and Interpretations

Based on the population projection for states of North East India for the year 2011 to 2031, this section attempts to project and compare the economic parameters with respect to labor force, new job requirements and GDP per capita for all the North Eastern states in India.

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:

$$Labor\ force_t = \sum_s (Pop_{15-64,t,s} \times LFPR_{15-64,t,s}) + (Pop_{10-14,t,s} \times LFPR_{10-14,t,s})$$

Where,

$Labor\ force_t$ = 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

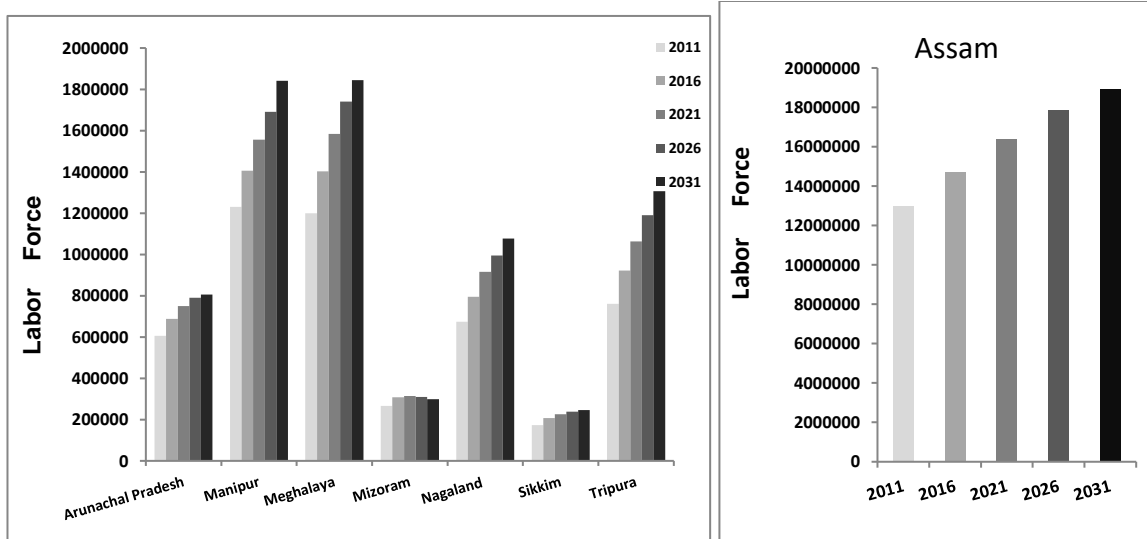
$LFPR_{5-14,t,s}$ = labor force participation rate for population by sex aged 5-14 in time t

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

Figure 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.

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.

Figure 1. Projected Labor Force for North East by states



Source: Author's own calculations

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

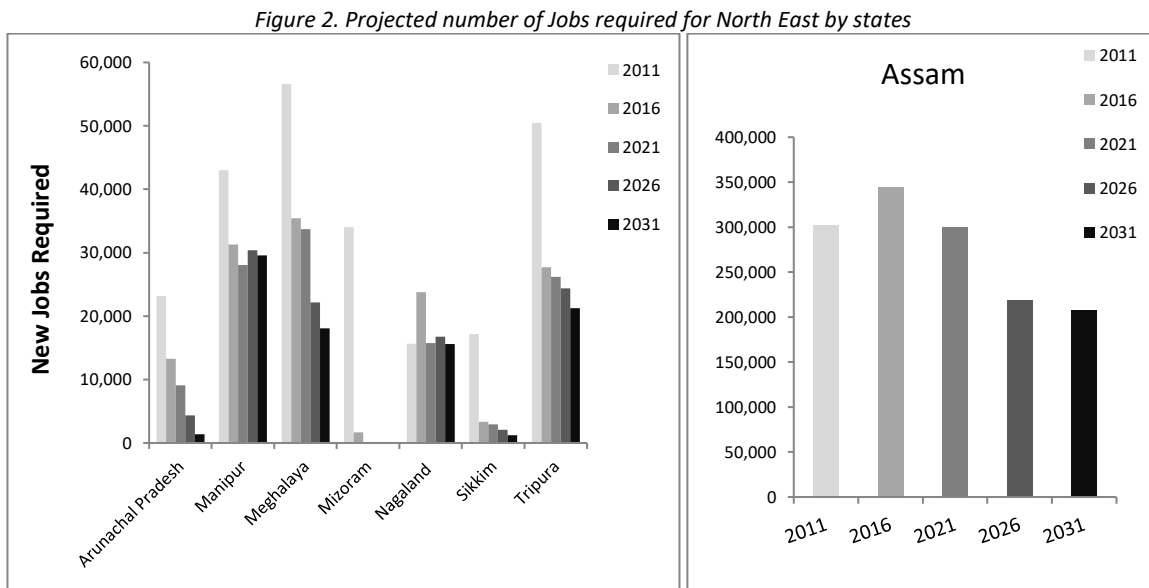
$Labor\ force_t$ = size of the labor force in time t

$Labor\ force_{t-1}$ = 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.

Figure 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.

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.



Source: Author’s own calculation

3. Gross state Domestic Product (GSDP) Per Capita

GDP 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. GDP Per capita also indicates the economic prosperity or the economic performance of a region or of a state. Higher the GDP 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 GSDP 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,

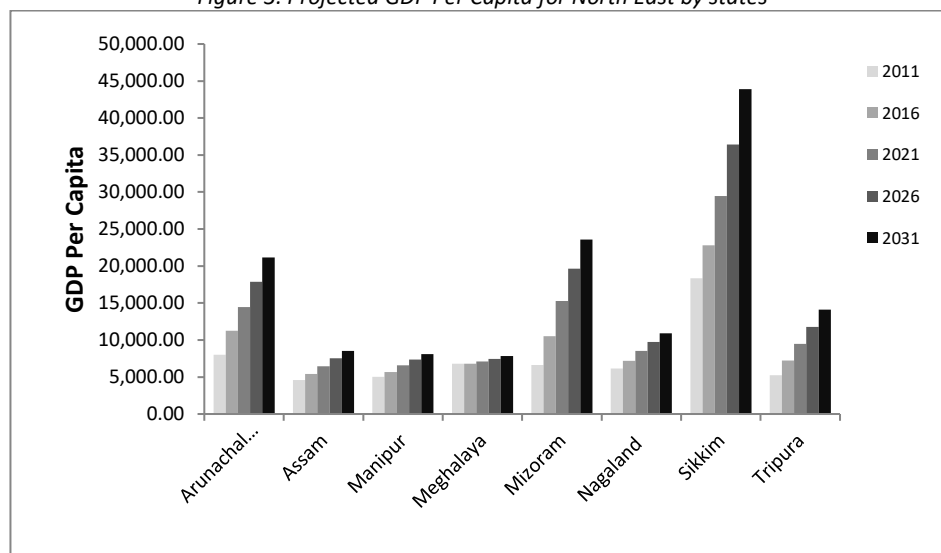
$GSDPPerCapita_t$ = gross domestic product per person in time t

$GSDP_t$ = gross domestic product in time t

$TotalPop_t$ = Total population in time t.

Figure 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 up to 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 Rs 43921 and for Tripura Rs 14092.

Figure 3. Projected GDP Per Capita for North East by states



Source: Author's own calculation

10. Summary of the findings in the above mentioned economic indicators

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 GDP 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 GDP per capita, has been projected to increase by 77.02%, 139.73% and 169.42% respectively.

11. Acknowledgement

The study was supported by a financial Minor research project grant (2017 – 2018) from the Indian Council of Social Science and Research, New Delhi.

12. References

1. Registrar General of India. Census of India: Provisional Population Totals. Registrar General and Census Commissioner of India, Ministry of Home Affairs, New Delhi. 2011; 1, 1-19.
2. L.L. Bean. Rapid population growth: implications for social and economic Development. University of California Press Stable, Asian Survey. 1974; 14(12), 1104-1113
3. P. Datta. Social and economic implications of India's population growth under alternative policy options 2001-10. IUSSP Conferences paper. 2005; 1-22.
4. P. Datta. Population projection and its socio-economic implications in India: a state level projection till 2020. Population Association of America Conferences paper. 2009; 1-16.
5. J. Davanzo, H. Dogo, G.A. Clifford. Demographic trends, policy influences, and economic effects in China and India through 2025. National Security Research Division, RAND Corporation. 2011; 1-80.
6. D.E. Bloom. Population dynamics in India and implications for economic growth. Program on the global demography of aging. Working paper series. 2011; 1-32.
7. I.W. Silva de, R. Silva de. Sri Lanka: 25 million people and implications, population and housing projections 2012-2062. United Nations Population Fund, Colombo, Review article, Sri Lanka Journal of Social Sciences. 2016; 39(1), 53-56.
8. RAPID Estimating the Impact of Population Growth on Development in Malawi. http://www.healthpolicyplus.com/ns/pubs/2105-3175_MalawiRAPIDBooklet.pdf. Date accessed: 10/2017.
9. P. Khongji. Projection of populations by age and sex for States in North East of India for 2011- 2031. *International Journal of Interdisciplinary and Multidisciplinary Studies*. 2017; 4(3), 150-169.
10. K.C. Samir, M. Springer, M. Wurzer. Population projection by age, sex, and educational attainment in rural and urban regions of 35 provinces of India, 2011-2101: Technical report on projecting the regionally explicit socioeconomic heterogeneity in India. *International Institute for Applied Systems Analysis*. 2017; 1-37.
11. Main Workers, Marginal Workers, Non-Workers and Those Non-Workers, Government of India, Ministry of Home Affairs, Office of the Registrar General & Census Commissioner, India. <http://www.censusindia.gov.in/2011census/B-series/B-Series-01.html>. Date accessed: 11/02/2019.
12. North Eastern Development Finance Corporation Ltd. <http://necouncil.gov.in/relatedlinks/north-eastern-development-finance-corporation-ltd>. Date accessed: 07/02/2019.

The Publication fee is defrayed by Indian Society for Education and Environment (www.iseeadyar.org)

Cite this article as:

Phrangstone Khongji. To study some economic implications of population projection for states in North East India till 2031. *Indian Journal of Economics and Development*. February 2019, Vol 7 (2), 1-8.

Received on: 05/02/2019

Accepted on: 18/02/2019