CHAPTER 3

FERTILITY DIFFERENTIALS OF TWO MAJOR COMMUNITIES

FERTILITY DIFFERENTIALS OF TWO MAJOR COMMUNITIES

3.1 Introduction

In chapter 2, where classification and ranking of districts has been worked, it comes to the light that there was a continuous rise of Muslim population in Assam and its share to the total population grows rapidly. Though, at the same time there was a rise in Hindu population but its share in the total population of Assam had gone down. These findings have been taken into consideration while working out the fertility differentials among the two communities of Assam in this chapter.

Fertility trends in Assam constitute an important component of global demographic change. In view of rapid population growth of Assam, this study contributing to high fertility and age wise fertility differences between two major religious groups. The results indicate that religion has a significant effect on fertility analysis in Assam. In this chapter, the information of fertility measures such as Age Specific Fertility Rate (ASFR), General Fertility Rate (GFR), measurement of population growth and Gross Reproductive Rate (GRR) for two major communities of Assam have been computed. The analysis is based on district level Census data of 2011 of Assam.

The term fertility is the major positive constituent of population growth. It is the child-bearing commotion of a population. Fertility is influenced by many factors like age of mothers at her first birth, sex-ratio of birth, education of mother, education of father, spacing between two births, status of the mother in the society, economic condition of the mother as well as the family and so on. ASFR is more meaningful for fertility analysis because the specified rates tell us which age groups of female is showing changes in birth rates. Further, it is to be noted that only live births are to be taken into account while measuring fertility as it is only a live birth which accounts for increase in population. The study of fertility also provides important information about women reproductive behavior. The fertility patterns, trends and differentials can be presented in two ways which are age-based approach and a parity approach. Measures such as the crude birth rate and general fertility rates

show the level of fertility at a specific point in time. It also shows the time or age structure dependent nature of fertility. Here, we use age-based approaches to study fertility changes in Assam.

The first serious effort to deal with fertility differentials by religion in India was made by Kingsley Davies in 1951 [28]. From various studies it has been found that the fertility rate of Muslim women is considerably higher than that of Hindu women [22]. The National Health Survey (NFHS, 1998-99) shows that for India as a whole[49], Total Fertility Rate was 2.8 for Hindu and 3.6 for Muslim.

The variation of ASFR versus age group for Assam and India for 2011 is observed [49]. The variation is shown in the Fig.3.1.

Fig. 3.1: Differentials of Age Specific Fertility Rate
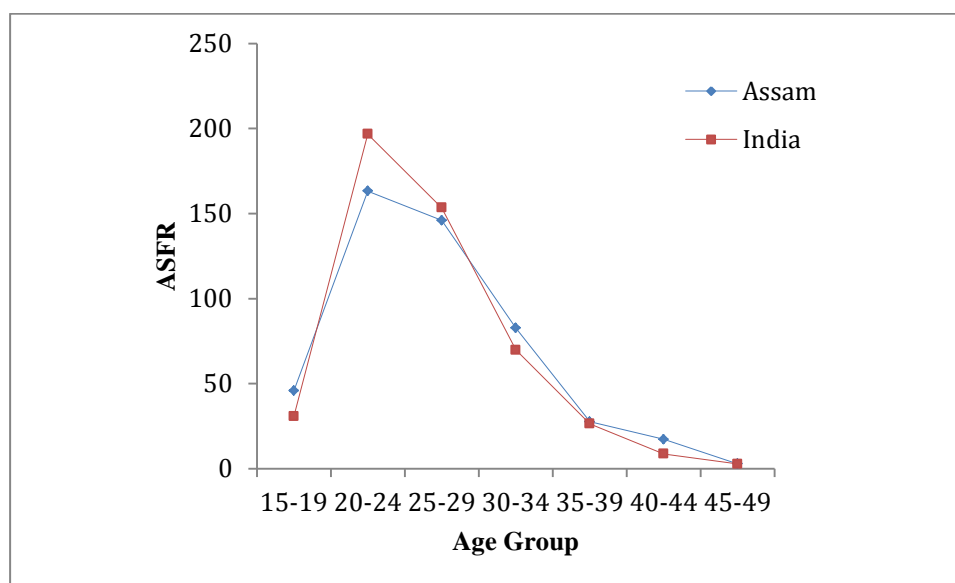
Source: Census Report of India, Government of India, 2011

It is seen from the figure that, for both state and national level, the fertility reaches the peak at the age group of 20-24 years and it declines thereafter. India's ASFR curve has declined very steeply after attaining peak for age 20-24 years. But, for Assam the ASFR curve has declined gradually up to the age of the 25-29 years after attaining peak at age 24. By the time a woman reached 35, she almost has completed her fertility career. Hence, a steep rise in the age specific birth rate between 15- 24

years age groups is observed and it has a sharp fall after 29 year. The ASFR curve shape is a bell shape curve.

Religious profile of the population is an important demographic feature. The Census data of 2011 on Population by Religious Communities, released by the Registrar General and Census Commissioner of India, confirms the declining trend in population growth rate in the country. During the last several decades, it is seen that the proportion of Muslims in India's population has been steadily increasing [54, 59]. The Age Specific Fertility Rate is needed for comparison in fertility across populations. Here, we have compared age-wise fertility differentials within the reproductive periods of the two major religions groups. The gross reproductive rate is a special case of the total fertility rate. Here, it is calculated separately for both the communities. The Table 3.1 shows the growth rates of two religions communities in Assam from 1971 to 2011.

Table 3.1: Growth rates of two religious communities in Assam

Year	Hindu Population (in percent)	Muslim Population (in percent)
1901-1971	3.29	15.06
1971-1991	-5.38	3.87
1991-2001	-2.24	2.49
2001-2011	-3.43	3.3

Source: Compiled from various Census Reports

The Table 3.1 reveals that the growth rate of the Hindu population was lower than that of the Muslim population. The relatively lower growth rate of the Hindu was due to their fertility differentials. The detail analysis in supporting of it has already been carried out in Chapter-2. It is also understandable that percentage of Muslim population increases in all the decades.

Women's education is the most important factor in explaining fertility differences. The other important piece of data is sex ratio. As per Census of 2011, the sex ratio among Muslims was 951 which were better than the 939 among Hindus.

Also, sex ratio among Muslims had been improved significantly over the decade from 936 in 2001 to 951 in 2011. The improvement was smaller among Hindus which are from 931 in 2001 to 939 in 2011.

3.2 Analysis and Results

For estimating the number of births during a given period, we need the information on the fertility behavior of the population as reflected by Age specific Fertility Rate (ASFR) of the female population. The district wise comparisons are made with the help of specified fertility measurements. The computation is performed with the help of equation (1.3), which is given in the section 1.8.2 of Chapter 1.

ASFR is defined as the number of live birth in a specific age-group of women per thousand female population of that age-group. The number of birth in a given year or reference period is classified by age of mother and the number of women of reproductive age i.e., 15-49 years.

The five-year age groups of seven numbers are presented in the data base. These are- (i) 15-19, (ii) 20-24, (iii) 25-29, (iv) 30-34, (v) 35-39, (vi) 40-44 and (vii) 45-49.The age specific fertility curve is closer to a bell shaped curve. Besides, the ASFR, the General Fertility Rate (GFR) and Gross Reproduction Rate (GRR) have also been computed. The GFR reflects the extent to which the female population in the reproductive ages (i.e.15-49) increases the existing population through live birth. Again, the GRR is defined as the sum of ASFRs calculated from female births for each year of reproductive period.

The ASFRs are evaluated separately for both Hindus and Muslims which are recorded in Table 3.2.

Table 3.2: Age-wise fertility rate of Assam

Districts	Community	Age-Groups						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Kokrajhar	Hindu	23.402	94.843	91.330	61.682	35.899	24.716	23.024
	Muslim	63.156	161.823	133.576	95.396	57.323	41.186	40.168
Dhuburi	Hindu	28.680	96.794	85.267	52.480	23.083	13.801	13.771
	Muslim	73.434	186.083	162.283	118.133	73.719	44.434	34.168
Goalpara	Hindu	20.419	96.962	95.249	60.285	28.522	18.484	18.248
	Muslim	78.526	192.915	164.635	114.356	67.236	42.065	40.362
Barpeta	Hindu	14.793	75.855	85.979	55.653	26.141	13.144	13.101
	Muslim	59.381	192.871	150.342	97.323	59.671	40.179	40.119
Morigaon	Hindu	24.485	109.171	102.813	60.063	31.208	20.286	20.121
	Muslim	53.124	179.123	160.071	113.901	73.423	51.866	39.097
Nagaon	Hindu	20.733	96.127	92.532	57.063	28.790	17.010	17.002
	Muslim	51.262	181.772	151.226	107.497	67.644	45.335	38.258
Sonitpur	Hindu	17.548	93.522	99.970	66.642	33.726	21.893	21.934
	Muslim	55.370	167.168	142.053	100.742	62.392	47.857	43.125
Lakhimpur	Hindu	22.324	103.482	101.206	64.444	32.712	20.743	20.043
	Muslim	63.856	180.723	126.355	86.813	59.079	46.033	42.749
Dhemaji	Hindu	24.466	116.568	104.239	66.480	32.939	27.685	27.085
	Muslim	24.730	122.549	103.825	55.901	30.162	38.012	40.041
Tinsukia	Hindu	20.733	108.656	99.793	58.347	28.538	20.888	20.158
	Muslim	23.839	81.193	88.787	56.260	30.787	24.096	24.006
Dibrugarh	Hindu	17.920	97.850	94.209	55.519	25.573	20.296	20.216
	Muslim	15.898	87.724	81.449	52.693	30.562	23.124	21.159
Sibsagar	Hindu	18.715	100.549	101.706	63.164	32.873	21.599	20.001
	Muslim	19.840	73.917	86.815	52.067	27.408	22.720	21.159
Jorhat	Hindu	18.239	88.249	87.272	53.782	28.494	18.565	17.632
	Muslim	19.216	85.261	76.036	52.038	25.305	17.900	16.340
Golaghat	Hindu	19.416	102.839	96.454	56.577	27.215	22.230	21.477
	Muslim	30.249	122.616	105.300	64.987	40.598	31.457	30.584
KarbiAnglong	Hindu	20.606	102.513	113.121	77.791	51.525	36.578	34.566
	Muslim	34.043	141.176	125.409	71.839	67.466	65.606	48.128
DimaHasao	Hindu	20.751	94.548	116.905	84.566	45.958	27.261	27.601
	Muslim	21.390	160.377	189.573	54.688	62.992	21.429	20.333
Cachar	Hindu	12.694	93.451	111.057	78.712	39.433	18.071	15.429

	Muslim	22.943	130.600	151.796	102.892	57.905	29.018	21.245
Karimganj	Hindu	11.704	90.104	108.912	81.445	47.160	23.298	17.953
	Muslim	35.106	172.579	184.553	142.072	86.894	48.736	39.555
Hailakandi	Hindu	15.210	106.054	118.027	89.158	50.678	25.594	15.989
	Muslim	26.475	147.442	152.307	108.772	60.357	36.304	28.938
Bongaigaon	Hindu	21.050	99.655	93.670	52.340	26.076	14.711	13.771
	Muslim	71.100	201.239	157.017	110.117	67.134	61.598	60.635
Chirang	Hindu	23.493	102.661	99.212	62.737	29.792	21.071	20.648
	Muslim	68.065	170.346	148.140	99.223	62.366	51.494	51.157
Kamrup	Hindu	13.657	76.113	88.228	51.972	23.827	13.646	12.838
	Muslim	40.919	159.725	135.278	85.870	53.440	44.658	43.958
Kamrup(M)	Hindu	11.477	58.578	73.792	55.543	24.998	12.871	11.103
	Muslim	21.970	89.144	79.478	55.019	28.957	23.344	22.044
Nalbari	Hindu	4.816	31.971	45.136	27.035	12.065	6.345	6.883
	Muslim	29.236	135.330	116.392	74.266	39.551	32.098	31.100
Baksa	Hindu	18.609	94.197	94.229	53.444	26.588	21.313	20.577
	Muslim	42.021	161.321	133.707	78.261	43.972	37.712	35.038
Darrang	Hindu	14.467	93.321	95.817	53.058	25.116	16.076	15.840
	Muslim	67.370	176.663	148.839	96.333	69.799	61.636	60.814
Udalguri	Hindu	17.555	99.098	91.679	56.659	32.122	24.821	22.275
	Muslim	59.463	160.957	132.601	94.328	61.344	53.549	52.597

Source: Census Report of India, Government of India, 2011

The comparison of fertility rate for Hinduand Muslim can be summing up from the Table3.2 as follows-

(a) Age wise fertility rate of Muslim women in the age group of 15-19 year is high in all districts. However the district Dibrugarh is exception for it.

(b) In the age group of 20-24 year, it is seen that the fertility rate of Hindu is high only in four districts namely, Tinsukia, Dibrugarh, Sibsagar, Jorhat and the fertility of Muslim is high in other districts.

(c) In the age group of 25-29 year, fertility rate of Hindu is high only the six districts namely, Dhemaji, Tinsukia, Dibrugarh, Sibsagar, Jorhat, Golaghat and in other districts, the fertility rate of Muslim is high.

(d)Similarly in the age group of 30-34 year, the Hindu fertility rate is high in seven districts namely, Dhemaji, Tinsukia, Dibrugarh, Sibsagar, Jorhat, Karbi-Anglong, Dima-Hasao and the fertility rate of Muslim is high in other districts.

(e)In the age group of 35-39 year, the fertility rate of Hindu is high in three districts namely, Dhemaji, Sibsagar, Jorhat while it is high of Muslim in other districts.

(f)In the age group of 40-44 year, two districts namely, Jorhat and DimaHasao have high fertility rate for Hindu and the fertility rate of Muslim is high in other districts.

(g) In the age group of 45-49year also, two districts namely, Dibrugarh and Sibsagar have the high fertility rate for Hindu.

The calculated fertility rates for different districts have been plotted. A sort of symmetry is observed in the plots. It is seen that the specific fertility starts from a low point and rises to a peak somewhere between 20 and 29 year of age, after that it declines steadily for both the communities. The age-specific fertility curve is therefore a highly positive skewed curve. The following figures from Fig.3.2 to Fig.3.9 bear testimony of the above analysis. Here the plots are evaluated for some selective districts only.

Fig.3.2: ASFR for Dhuburi district
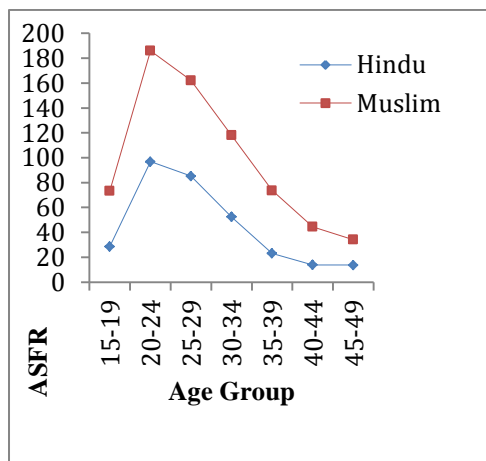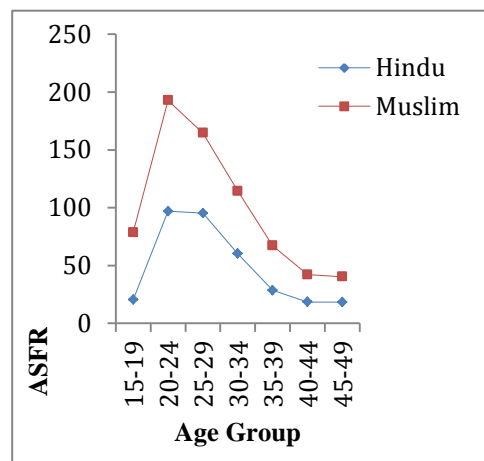
Fig 3.3: ASFR   for Goalpara district

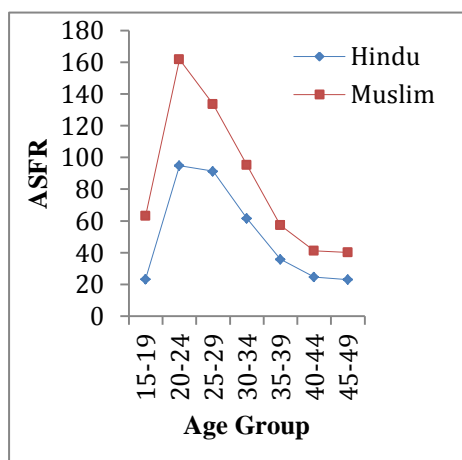**Fig. 3.4**: ASFR for Kokrajhar district

Fig.3.5: ASFR   for Nagaon   district
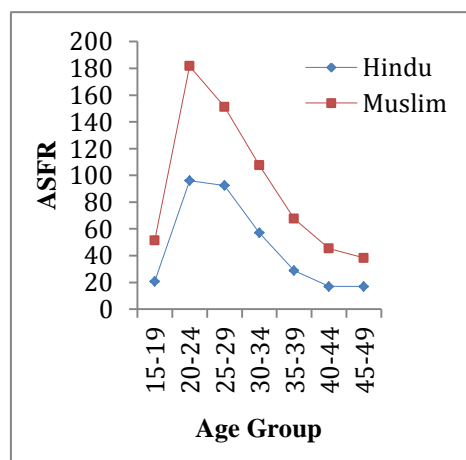
Fig.3.6: ASFR for Jorhat district

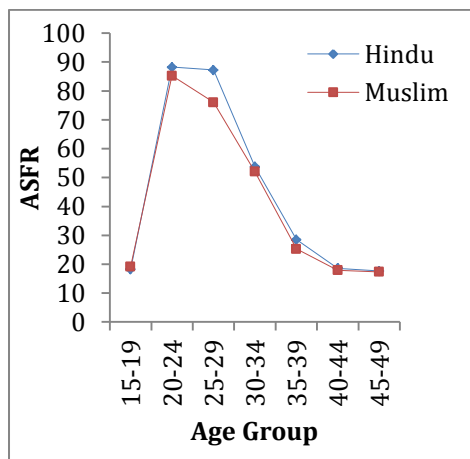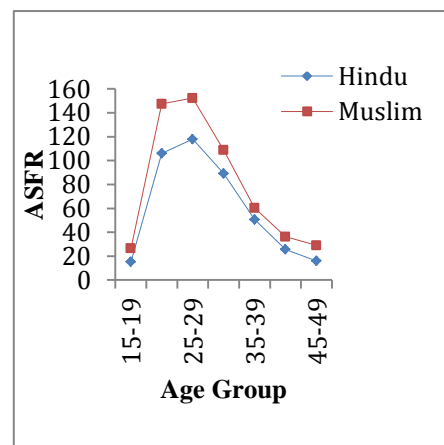**Fig.3.7**: ASFR for Karimganj district
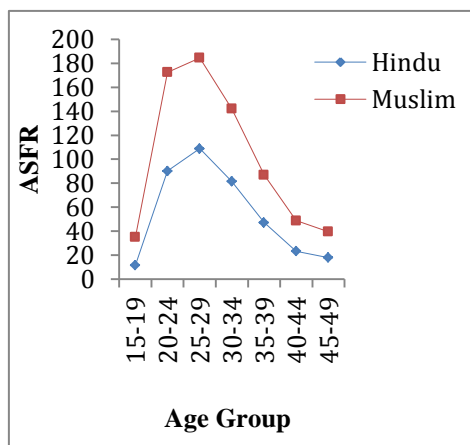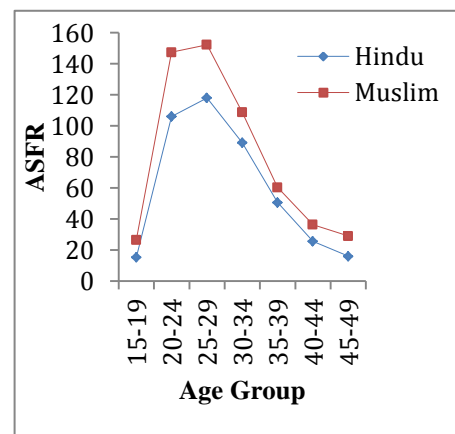

Fig.3.8: ASFR for Dhemaji district

Fig.3.9: ASFR for Hailakandi district

The figures for ASFR reveal that the fertility rate at age of 15 to 19 years has moderately decline as compared to others age group. The age groups of 20-24 and 25-29 continued to have peak of fertility rates for Hindu and Muslim, but both of these indicators are lower for Hindu community as compared to Muslim community. It may also be observed that the mean is always high in the age groups of 20-24 and 25-29 for both the communities. The independent t-test is

applied for two unrelated groups. The worked out results with SPSS is shown in Table3.3.

**Table 3.3:** Age wise Mean and Standard Deviation of two communities

Age-Groups	Means		S.D.		p- value
	Hindu	Muslim	Hindu	Muslim	
15-19	18.44	43.41	5.01	20.12	***.000
20-24	93.47	149.2	16.81	38.43	***.000
25-29	95.84	132.88	14.30	31.5	***.000
30-34	61.35	86.73	2.43	4.83	***.000
35-39	31.52	54.35	8.94	16.10	***.000
40-44	20.23	40.13	5.89	13.19	***.000
45-49	22.89	41.11	6.92	13.83	***.000

Dependent Variable: ASFR

Level of significance: ***99 percent ($p < 0.01$), ** 95 percent($p < 0.05$)

The ASFR of 27 districts for each age-group are taken as dependent variable and Communities (Hindu and Muslim) are taken as independent variable, considering for independent t-test. The entire calculation is made with SPSS. As an output, we have found that the p-value is less than 0.01for all age-groups. Hence we may come into conclusion that there are highly significant differences between two communities for all the specified age-groups i.e. fertility differentials observed for them. From the Table 3.3, it is cleared that in all the age-groups, the fertility rate of Muslim is higher than the Hindu.

If we explore the correlation between Total Fertility Rate and Female Literacy Rate for the said two communities, we have found the positive correlation for Muslim (i.e. 0.029) but for Hindu it is found as negative correlation (i.e. -0.104). It reveals that the literacy is an important factor for fertility differentials. The education status of women is therefore worked out for Hindu and Muslim. The Fig.3.10 shows the status of education for two communities of Assam.

Fig. 3.10: Level of education of two communities (in percent)
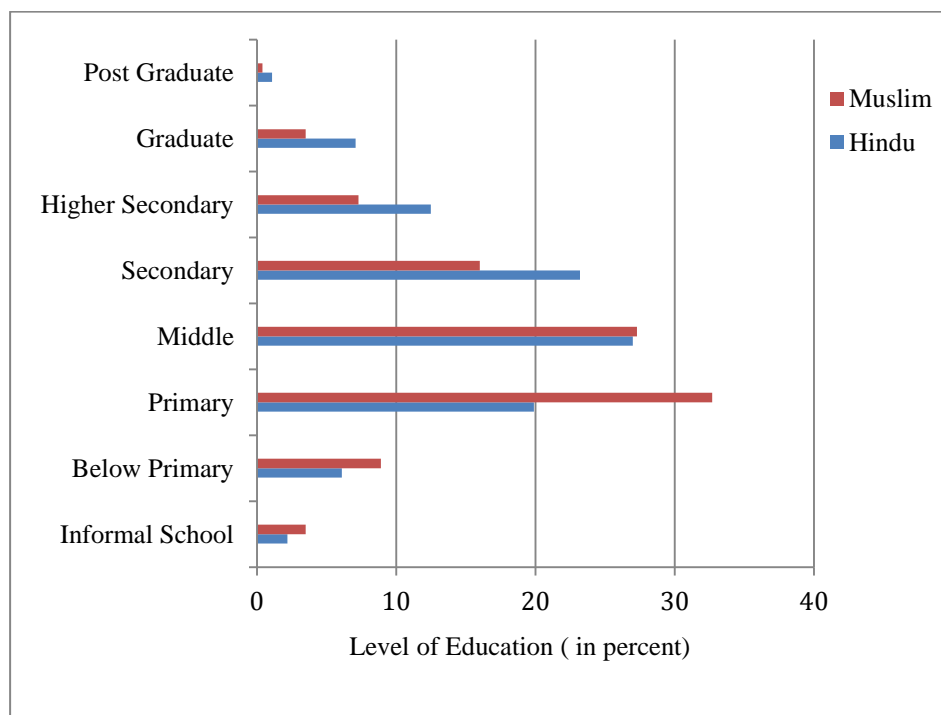
Source: HDR Survey, Assam, 2013

It has been observed that the above secondary level, both the communities have less education. Moreover, the status of higher secondary and higher education of Muslims is less than that of Hindu. It may provide a justification that the deficient of education is an important cause of high fertility rate of Muslims which affects the fertility pattern. Thus, the entire analysis illustrate that education effort is the most important contributor to the reduction of fertility. Demographers [47] explicitly agree that education is the king pin for birth planning and control.

Again, the estimated general fertility rate is the number of live births per thousand women in the reproductive age-group 15-49 years. The general fertility rate is more refined than CBR which is shown in Fig. 2.4 of Chapter-2 and gives a better idea about the general fertility level of population. It may be observed that there are considerable differences in two communities. The Gross Reproductive Rate is exactly similar with the Total Fertility Rate, except that it counts only daughters and literally measures reproduction, a woman reproducing her in the next generation by having a daughter. The Fig.3.11 and Fig.3.12 we have seen that, except four districts in all the districts the Muslim GFR and GRR is high.

Fig. 3.11: General Fertility Rate of two communities
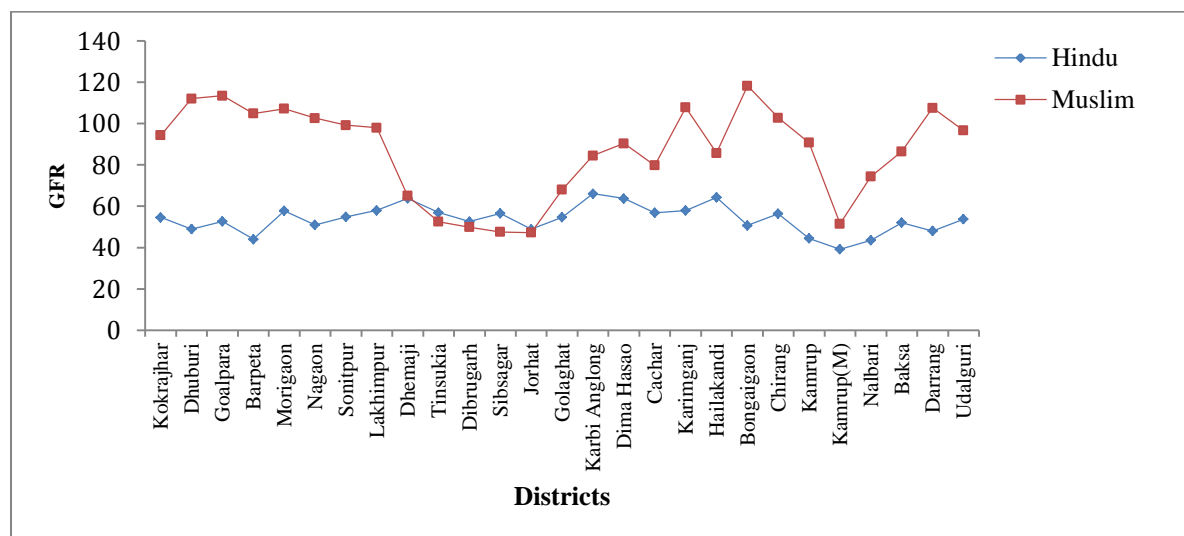
Source: Census Report of India, Government of India, 2011

Fig.3.12: Gross Reproductive Rate(per thousand) of two communities
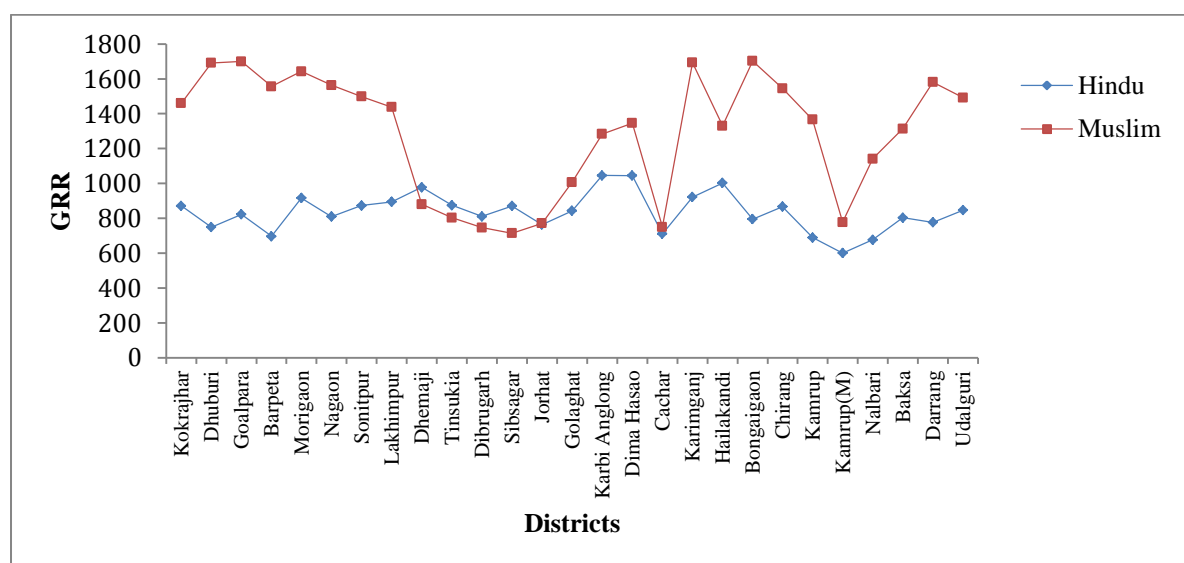
Source: Census Report of India, Government of India, 2011

From the Fig. 3.11 and Fig. 3.12 we have seen that the General Fertility Rate of Muslim is low only for four districts namely, Tinsukia, Dibrugarh, Sibsager, Jorhat ; the GFR is high in other districts of Assam. Similarly, for GRR, only four districts namely Dhemaji, Dibrugarh, Sibsager, Jorhat have lower value whereas the other districts have higher value Muslim community. It is worthwhile to note that both GFR and GRR is almost uniform for Hindu.

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It has also beenestimated that the GFR and GRR for Muslim of Assam are 98.93 and 1.4 respectively. It is to be noted that the national average of GFR and GRR are 81.2 and 1.2 and the state level average of said quantities are 82.8 and 1.1 for the year 2011. It reveals that the observed values of GFR and GRR for Muslims are greater than both national and state level average. It implies the higher fertility rate of Muslims.

3.3 Conclusion

It is accurate to state that the differential in fertility between Hindu and Muslim was carried on all over the country [8]. From our above works we can confirm the continuity of it in our state. Assam, as a whole, has fairly large fertility differentials. The entire investigation shows that the ASFR, GFR and GRR are patently high and indicate that the fertility of Muslim women has become high. One of the main reasons behind the abnormal growth of the Muslim population in Assam is due to below the legal age at marriage, higher birth rate, illiteracy, religious conversion etc. [2]. Hence, we may summaries that female education is an important influencing variable in fertility differentials among the Muslims than the Hindus [57, 63]. To find the root cause we need more analysis on socio-cultural status of both Hindu and Muslim.