CHAPTER 7

FERTILITY AND GENDER IMBALANCE

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7.1 Introduction

The goals of population growth and sustainable development can be achieved only by bringing equality between men and women through proper education. Literacy and education are considered as one of the key indicators of human resources development. Education is essential to eliminate gender gap and bring women in parity with men in the society. In the census report of 2001 and 2011, we have observed a huge gender gap in education which reveals the educational disparities pertaining to Assam [21, 68]. Education is essential to eliminate gender gap [72] and being women in parity with men in the society. A district level analysis has been made which examines some of the relevant relationship based on district level data from the 2011 Censes of India. The major outcomes under the study are the literacy rate, gender imbalance and related demographic and socio-economic factors.

7.2 Gender and Sex

Sex is the biological difference between men and women. It is a fact of human biology. On the other hand the state being male or female can be recognized as gender. The experience of being male or female differs from culture to culture. It is a social building. The gender relations are concerned with how power is distributed between the sexes. Gender and development work is based on gender analysis. Gender and gender equality characterize an important challenge for fertility research.

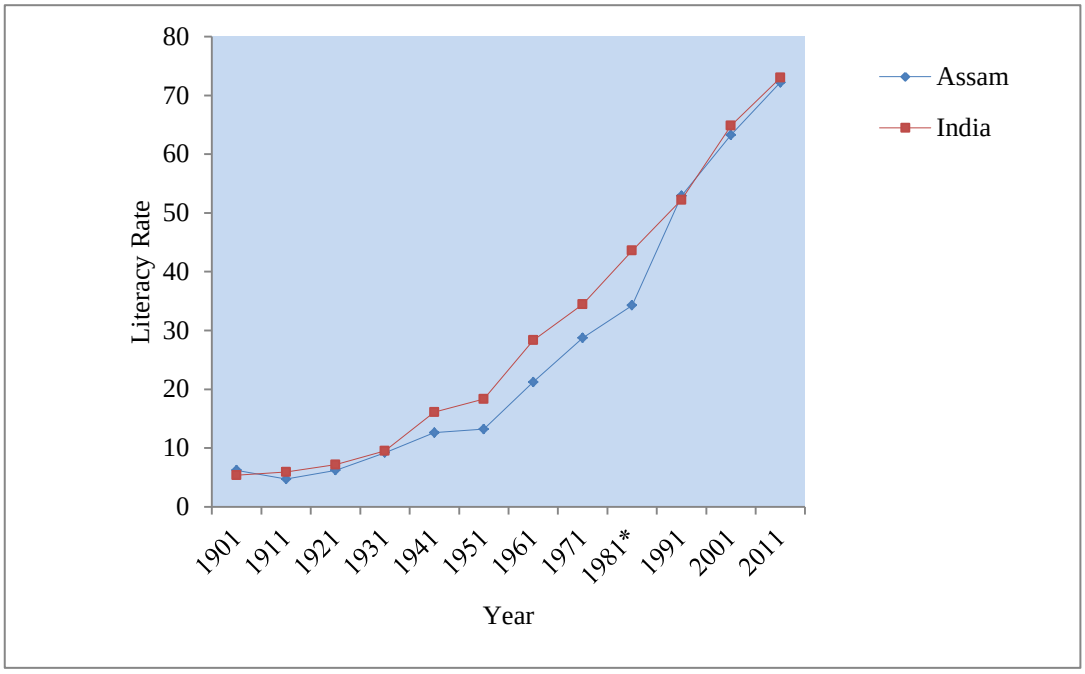
7.3 Analysis and Findings

A closer look has been thrown at gender disparity in literacy and variation among the districts of Assam. Here a cross-sectional study has been performed for 27 districts of Assam. The Correlation and Regression tests were performed using SPSS. The close relationship between literacy and demographic change has also been clearly emerged in this investigation. Female education can be expected to reduce family size for several factors [60, 67].

7.3.1 The Literacy rate, Gender imbalance and Fertility

From the available census data we have evaluated variations of literacy rate as well as educations of mother and father. The literacy in Assam and India in the interval of 1901 to 2011 is sketched in Fig. 7.1.

Fig.7.1: Literacy rate (in percentage) of Assam and India



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

The literacy rate of mother and education of father is also plotted in a certain interval of time which is shown in Fig.7.2 and Fig.7.3. It has been observed that literacy rate of mother in Assam is higher than that in India. Fertility is influenced by the factor like status and literacy of the mother in the society. Educated woman are more likely to lighten the burden of repeated pregnancies. This may occur because there is an issue of prestige. Again, educated woman are likely to be less dependent on their sons and this may lead to a reduction in desired family size. Due to these causes fertility may decline at higher rate of literacy [19]. The women literacy rate of Hindu and Muslim in different districts of Assam is evaluated from the census data of 2011 which is shown in Fig.7.4. It is observed from the plot that the average literacy rate of Muslim women is lower than the Hindu. This reveals the higher fertility rate of

*Estimated value for the decade 1981 of Assam

Muslim women [15]. The following figures for literacy rate of Assam and India for female and male respectively.

Fig.7.2: Literacy rate for Female

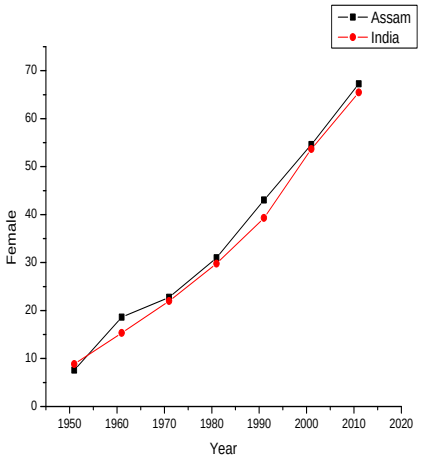


Fig. 7.3: Literacy rate for Male

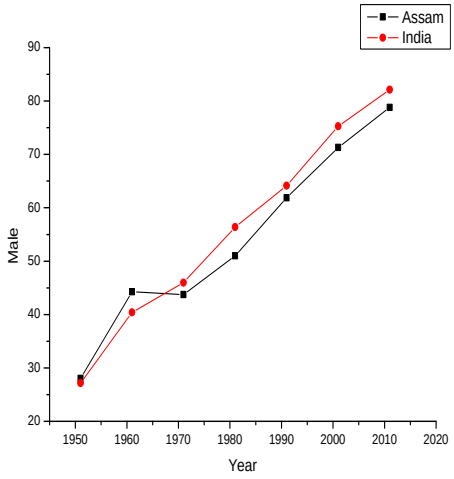


Fig. 7.4: Estimated female literacy rate of Hindu and Muslim

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

The literacy gap between rural and urban has also been studied for the districts of Assam. Table 7.1 shows the dimensions of literacy gap of Assam.

Table 7.1: Various Dimensions of Literacy gap in Assam, 2011

Districts	Literacy Gap		Rank	
	Male- Female	Rural-Urban	Male- Female	Rural -Urban
Kokrajhar	9.04	23.78	5	3
Dhuburi	9.11	25.34	4	1
Goalpara	8.62	10.44	7.5	22
Barpeta	8.92	24.5	6	2
Morigaon	7.99	17.39	12	12
Nagaon	8.3	17.86	9	10
Sonitpur	7.6	21.7	14	5
Lakhimpur	7.21	10.35	15	23
Dhemaji	8.19	16.49	11	15
Tinsukia	5.22	22.87	19	4
Dibrugarh	5.61	17.3	18	13
Sivasagar	3.56	11.78	26	20
Jorhat	4.64	10.03	23	24
Golaghat	4.92	15.73	21.0	16
KarbiAnglong	8.62	17.25	7.5	14
Dima Hasao	6.54	19.97	16	8
Cachar	5.89	11.63	17	21
Karimganj	4.82	15.07	22	17
Hailakandi	4.95	21.09	20	6
Bongaigaon	4.56	20.19	24	7
Chirang	10.61	18.19	2	9
Kamrup	9.25	17.56	3	11
Kamrup(M)	3.96	14.13	25	18
Nalbari	7.76	13.02	13	19
Baksa	11.47	3.96	1	25
Darrang	-0.46	2.48	27	26
Udalguri	8.29	1.24	10	27

Source: Statistical Hand Book of Assam, 2012

There is wide gap between male-female and rural-urban literacy ratio. From the Table 7.1 it is seen that literacy gap for rural-urban is highest in Dhuburi district. Similarly, the literacy gap for male-female is highest in Baksa district. Thus the gender imbalanced can usually be investigated on the basis of district level data of Assam.

7.3.2 Sex Ratio and Child Sex Ratio

Sex ratio is an index of the socio economic conditions of any population in an area and has a profound impact on the demographic structure of a region. Sex ratio is defined as the number of females per thousand males. It is commonly understood that males and females in the population balance each other in number. It is an important and useful indicator to assess relative excess of deficit of men or women in a given population at that point of time [5]. India had an average sex ratio of 933 as per the census of 2001. According to census report of 2011, the sex ratio in Assam is 954 whereas the national average is 940. The sex ratio of Assam and India was almost coinciding in the census of 2001. In 2011 the state sex ratio is improved by 14 points. Among Muslims, it increased from 936 in 2001 to 951 in 2011. The improvement was smaller among Hindus which was from 931 in 2001 to 939 in 2011. The Fig.1.7 shows the variations of sex ratio of Assam and India from 1901-2011. It reveals the increase rate of sex ratio of Assam. It may be noted that the growth rate is closely related with sex ratio. Greater the value of sex ratio, greater will be the growth rate. It may also be pointed out that the women literacy [Fig.7.2] as well as fertility investigation in this period supports our view point.

The child sex ratio is an important demographic indicator for measuring population structure of a nation [21, 68]. It is defined as the number of girl children per 1000 children. At the Census of 2001, sex ratio of the population in the age group (0-6) years has been registered as 927, in India. It has declined from 962 in 1981 to 945 in 1991. In 2011 it further declined to 919.In Assam child sex ratio shows a significant decline from 975 in 1991 to 957 in 2011. A comparative Statement on Sex ratio and child sex ratio is evaluated as given in Table 7.2. This exposes that there is a strong son preference attitude in Assam. Similarly, the child women ratio for the two major religious communities is an important demographic indicator for measuring gender inequality in a population. In Table 7.2 the Child Sex Ratio and Sex Ratio of Assam have been presented.

Table7.2: Comparative Child Sex Ratio and Sex Ratio

Districts	Child Sex Ratio		Sex Ratio	
	2001	2011	2001	2011
Kokrajhar	955	954	951	955
Dhuburi	965	968	965	965
Goalpara	974	963	954	974
Barpeta	961	961	955	961
Morigaon	966	956	950	966
Nagaon	975	964	958	975
Sonitpur	929	956	958	974
Lakhimpur	967	959	958	967
Dhemaji	970	950	945	970
Tinsukia	957	960	971	957
Dibrugarh	962	962	957	962
Sibsagar	968	960	957	968
Jorhat	967	964	963	967
Golaghat	963	963	961	963
KarbiAnglong	973	959	916	973
Dima Hasao	955	967	956	955
Cachar	961	954	955	961
Karimganj	965	969	958	965
Hailakandi	927	954	948	927
Bongaigaon	972	969	965	983
Chirang	957	968	958	959
Kamrup	964	967	962	964
Kamrup(M)	943	946	936	943
Nalbari	961	967	963	961
Baksa	960	966	962	960
Darrang	977	969	941	977
Udalguri	974	973	965	974

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

The sex composition by age groups is crucial for studying the demographic trends of young population. The decreasing sex ratio in this age group has a negative effect on population [5, 10, 51]. The sex ratio in Assam is leading to diminish over a period. Some of the reasons for low child sex ratio are negligence of girl child, son preference etc. Small family norm coupled with easy availability of sex determination tests may be a catalyst in the declining child sex ratio. So, literacy is considered as one of the key indicators of human resource development [11]. Various

dimensions of socio-cultural change in any society can be understood in light of the level of literacy [50, 58, 59]. Hence, there is a negative correlation between the Child Sex Ratio and Literacy Rate of Assam. It shows clearly in Table 7.3.

Table 7.3: Correlation between Child Sex Ratio and Literacy Rate

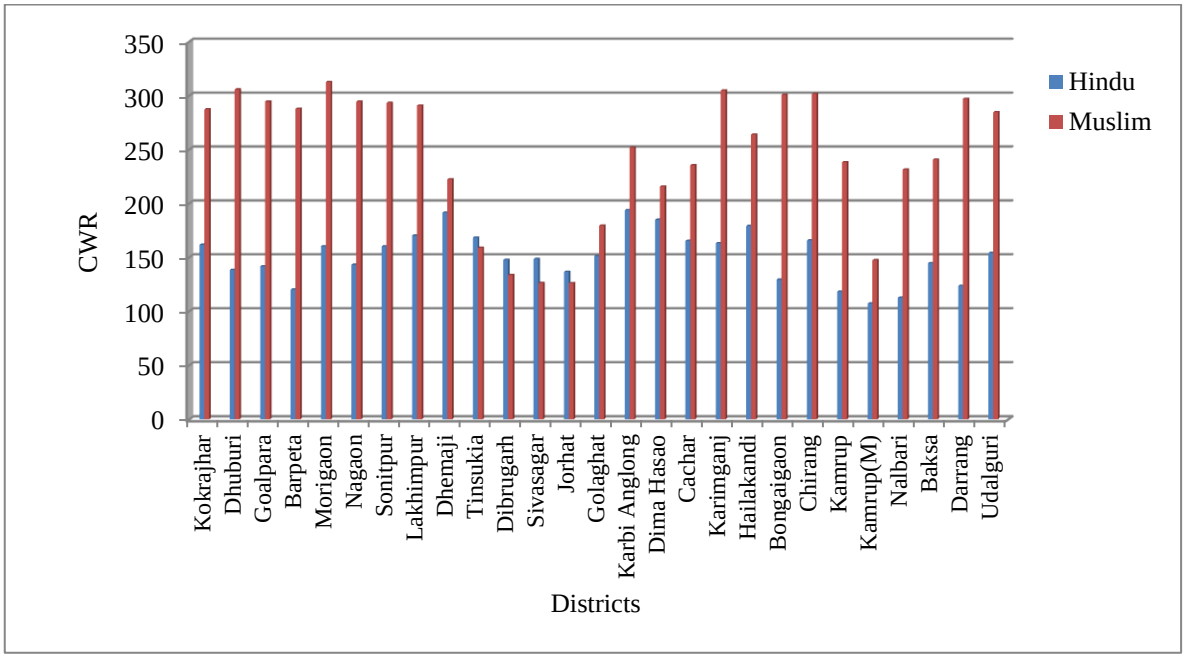
Correlation Coefficient	*t*–statistic	Probable error
-0.89	$\| t \|$=4.63	0.0530

From the evaluated Correlation Coefficient value -0.89, it established that as gender gap in literacy increases the child sex ratio decreases. It is calculated by the method of Pearson's coefficient of Correlation. The calculated value of t – statistic and probable error shows that gender gap is significantly related to sex ratio. The correlation coefficient tests are performed using SPSS. So, we may say that CSR is correlated with the women education. In the work of Bose et. al.[20], it has been observed that the son preference as well as gender biased attitude is found to be existed. The female child foeticide incidents occurred in large scale resulting imbalanced child sex ratio and gender gap. Our present study concludes that there is an almost perfect negative correlation between gender gap in literacy and child sex ratio in Assam.

7.3.3 Child Women Ratio (CWR)

The child-woman ratio of a population is defined as the number of children under age 5 per 1,000 women of age group 15-49 in a population in a given year. We are investigating the Child Women Ratio of both Hindu and Muslim communities of Assam. The change of Child Woman Ratio has been presented in the following figure.

Fig.7.5: Estimated Child Women Ratio of two communities of Assam



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

It has been observed that Child Women Ratio is high for Muslim community. However, the CWR of Muslim community is low in four districts. The districts are Tinsukia, Dibrugarh, Sibsagar and Jorhat. In view of the fact that the TFR is also low in these specified four districts [Fig.2.5]. It indicates that CWR is another key factor of fertility which implies that the fertility rate is higher for Muslim community than Hindu. The mean of Child Women ratio for Hindu is less than the Muslim.

7.3.4 Family Planning Methods

Family planning means the planning of how many children are going to have and how to prevent unwanted pregnancy. It is the practice of controlling the number of children in a family and the intervals between their births [38, 44, 51]. It allows individual and couples to anticipate and have their desired of children and to archive health spacing and timing of their birth. There are a few family planning methods that a person can choose from. Here, the analysis has been done for 27 districts of Assam. A regression model is found by taking "any modern method" as dependent variable and Female Sterilization, IUD, Pill, Condom, Total Unmet Need and Unmet for Spacing as independent variables. The following Table7.4 shows the regression estimates for these variables.

Table 7.4: Regression Estimates for the variable determining

Explanatory Variables	Unstandardized Coefficients		t-value	Significant Level
	B	Std. Error		
Female Sterilization	0.124	0.013	9.243	***0.000
IUD	0.108	0.067	1.619	0.121
Pill	0.118	0.013	8.935	***0.000
Condom	0.100	0.054	1.867	0.077
Total Unmet Need	0.009	0.020	0.458	0.652
Unmet for Spacing	0.030	0.044	0.690	0.498
Adjusted R^2= 0.837				

Dependent Variable: Any Modern Method
Level of Significance: *** 99 percent (p< 0.01) ** 95 percent (p<0.05)

The regression analysis reveals that the uses of female sterilization and pill are highly significant for each district and they are the important predictors for fertility analysis of Assam. The classifications are made on the basis Table 7.4. The tabulated form of classification is done in two categories which are shown in Table 7.5.

Table 7.5: Classification of districts on use of Family planning

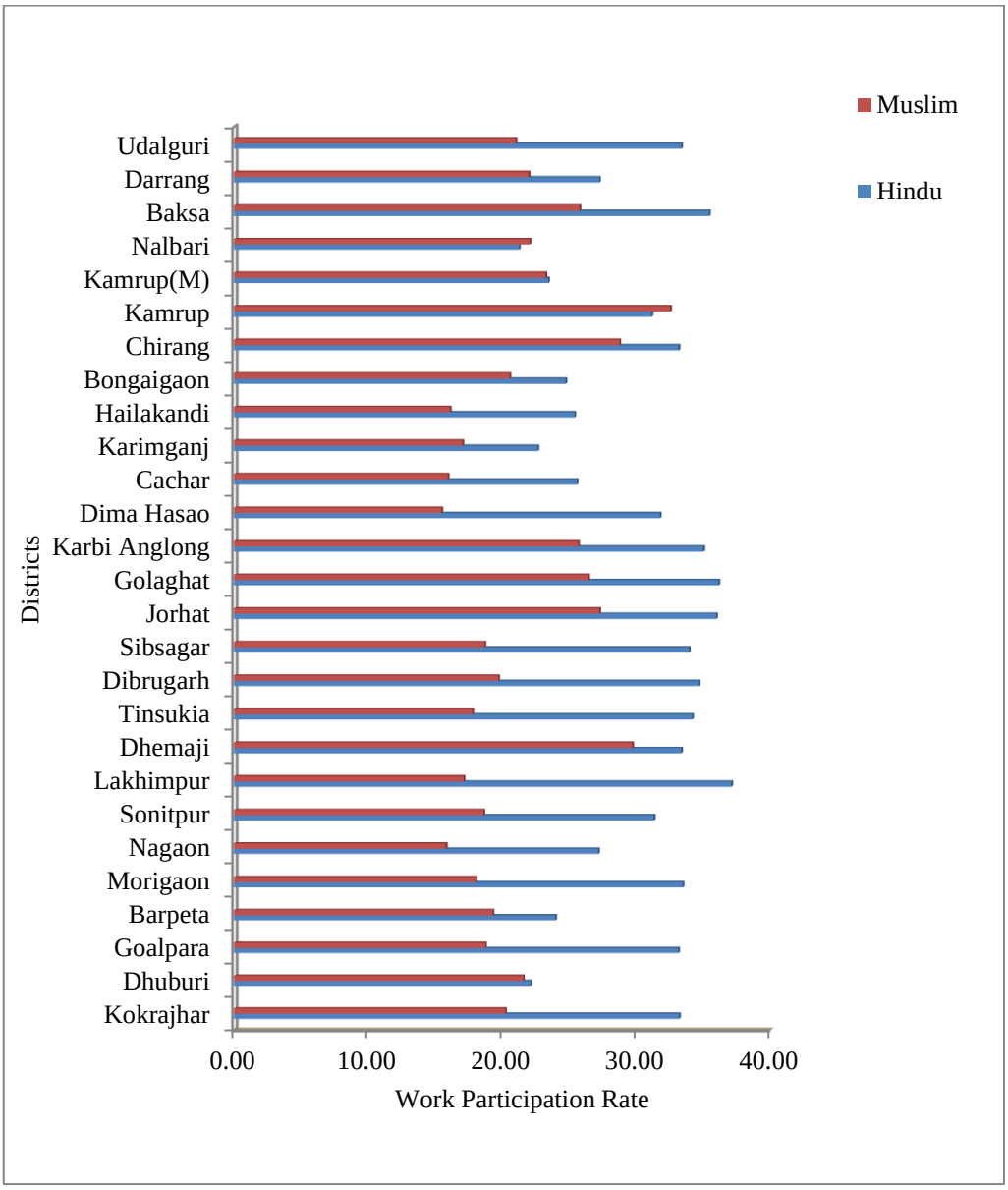
Methods uses	Classifications	
	Low	High
Any Method	[2], [3], [22]	[7], [21], [24], [26], [27]
Any Modern Method	[2], [16], [17], [21], [22]	[6], [7], [10], [15], [24], [26], [27]
Female Sterilization	[21]	[9], [10], [11], [12]
IUD	[2], [6], [18]	[1], [12], [23], [25]
Pill	[6], [7], [15], [20], [24], [26], [27]	[10], [11], [12], [17]
Condom	[8], [9], [12], [15], [16], [27]	[17], [18], [19], [23]
Total Unmet Need	[7], [21], [24], [26], [27]	[8], [22]
Unmet for Spacing	[7], [21], [24], [26], [27]	[3], [8], [17], [18]

It is worthwhile to state that the districts like Dhuburi[2], Goalpara[3], Udalguri[27], Bongaigaon[20], Nagaon[6], Darrang[26], Nalbari[24] etc. are lying in low category. Moreover, the literacy rate of women in these districts is also found to be low. These facts reflect the higher value of fertility in the districts.

7.3.5 Work participation by religion

A relationship between female work participation rate and fertility is more predictable and it comes into interest in this regard. Generally, we expect greater female to work participation have a negative impact on fertility. Since the double burden of household work and gainful employment makes repeated child bearing particularly stressful. But, this effect may not be important in Assam for whole communities. Women's works [65] plays a significant role in reducing gender inequality and it also seen to affect the levels of fertility. Since, family size, literacy and the decision to participate in the work force could be jointly determined [40, 60]. Higher rate of female work participation lead to lower value of TFR. In Fig. 7.6 the estimated work participation rate has been shown.

Fig.7.6: Work Participation Rate of two major communities



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

From the figure it is seen that wide variations are found in the female work participation among the Hindu and Muslim. Muslim has the lowest participation rate than the Hindu. The gender gap in the work participation rate is particularly very large for Muslim community than the Hindu. Therefore we present the results by treating the work participation rate of female of Hindus and Muslims with TFR. We have seen that, there is a negative correlation between Total Fertility Rate and Work participation rate for Hindu which is -0.289 and there is a positive correlation

between Muslims i.e. 0.325. It has also been observed that the mean of total female worker for Hindu is higher than the Muslim female worker. So we may also summarize that Muslim women are self-employed and engaged in home. Also, Muslim women do not want to provide higher education [2, 61]. As a result their fertility rate is high than the other communities.

Fig.7.7: Classifications of districts based on Child Women Ratio for Hindu

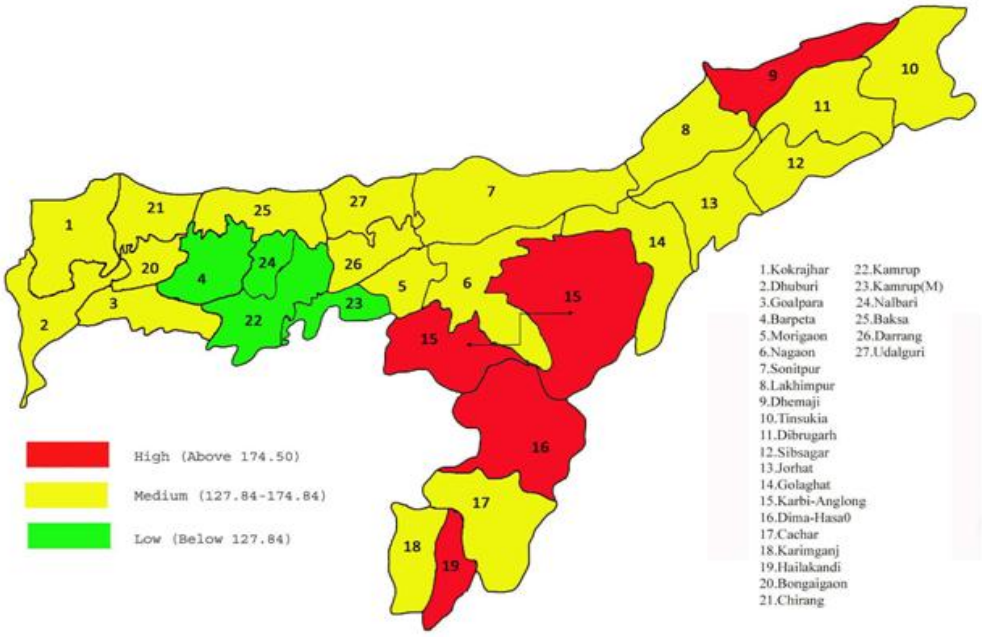
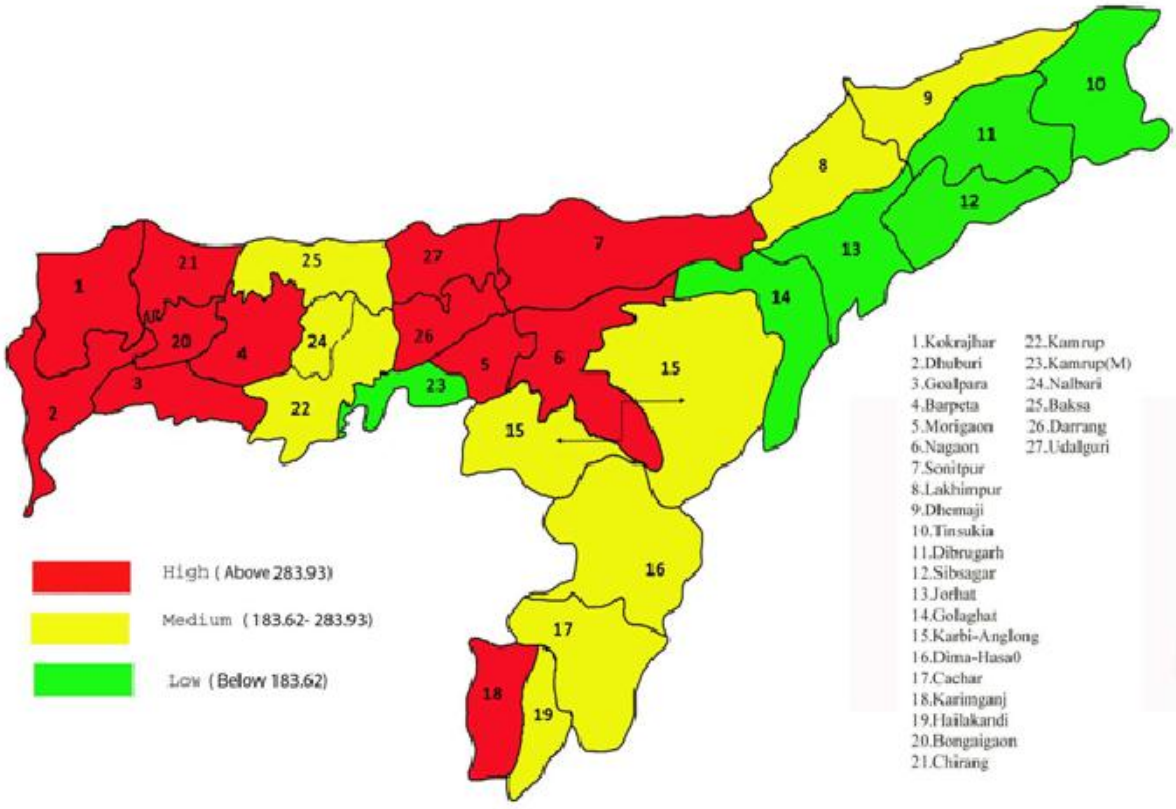


Fig. 7.8: Classifications of districts based on Child Women Ratio for Muslim



7.4 Conclusion

The continuously declining sex ratio of child is a clear example of gender bias. Various factors have been identified in the available literature as well as by this study. It has been observed that sex ratio and gender bias are influential factors in fertility. It needs to increase the literacy ratio that helps people to understand the importance of female in the today era. Without the improvement of the standard of female the state cannot get the target of total development and success. People need to understand that girls are the ornaments not the burden of the family. They have to stop son preference and help in to remove gender bias. There is a need to improve the gender bias for the growth of the state as well as the country.

In the present study a high level of fertility growth is witnessed among the Muslim women of Assam. The comparatively higher fertility rate of Muslim women also indicates the abnormal increase of Muslim population in Assam. The disparity of population growth among the Hindus and Muslims is so glaring that by the projected year a total demographical restructuring of Assam may be witnessed. However, as the present study is only confined to analyze the fertility rate, the field is still open for further investigation, which will definitely portray a holistic picture.

Among the north-eastern states of India, the position of Assam in socio-economic sector is becoming stable. But a vast demographic change in terms of population has been observing from last few decades. Proper investigations of cause and results of these changes are highly essential. The report of our study will supposed to offer a millage in this regards. It is worthwhile to state that fertility as well as population growth of Muslim in Assam increases gradually. To understand the ideal growth mechanism we need to investigate the other demographic factors with different social platforms.