Chapter – V

Measures of Fertility Differentials
Various fertility measures presented in this section are based on the complete birth histories collected from ever married woman age 15-49 years. Several measures and procedures were used to obtain complete and accurate reporting of the births. Women were asked a series of questions aimed at recording all the live births that had occurred in their life times. Secondly for each child, the survey collected information regarding the age, sex, education and survival status of the child. Any available related documents were also checked to make accurate assessment. As stated earlier the survey is termed as Aligarh District Fertility Survey (AFS), in short Aligarh Survey.

The National Family Health Survey conducted surveys about fertility in U.P. during 1992-93 and subsequently during 1998-99 designed as NFHS-1 an NFHS-2. Sample Registration System (SRS) maintained by the office of the Registrar General, India also obtains fertility estimates. It would of academic interest to make a comparison between the estimates obtained by Aligarh Survey (2000-02) conducted by the author, and the
estimates obtained by NFHS-1\textsuperscript{1}, NFHS-2\textsuperscript{2} and SRS (1997)\textsuperscript{3}, for
the entire state Uttar Pradesh.

Many studies have been made for the comparison of the
fertility estimates as obtained by NFHS-1, NFHS-2 and SRS.
Narsimhan et al. (1997)\textsuperscript{4} compared NFHS-1 and SRS estimates
of fertility and concluded that both are probably under
estimates. In another study, Retherford et al. (2001)\textsuperscript{5}, observed
that the SRS estimates are likely to be closer to the true level of
fertility than either the NFHS-1 or NFHS-2.

In this chapter we have attempted comparisons between
Age Specific Fertility Rates (ASFR), Total Fertility Rates (TFR)
and Total Age Specific Fertility Rates, as obtained by NFHS-1,
NFHS-2, SRS and the Aligarh Survey. These comparisons are
for the figures between Aligarh district and U.P. state. Various
differentials due to characteristics, like Residence, Religion and
Education has also been attempted.

5.1 AGE SPECIFIC FERTILITY RATES

The rate has already been defined in the first chapter. It is
a very useful rate of measuring fertility and for making
comparisons between different populations. The age specific
fertility rate (ASFR) is calculated by dividing the number of
births to the women in the age group during the certain period
by the number of women years lived by women in the age group during the same period. These rates have been extensively used by population scientists over a long period of time in most demographic studies.

Table 5.1 gives the ASFR's as obtained by NFHS-2, the SRS and Aligarh Survey. It also gives the Urban-Rural differentials for these estimates.

Table 5.1: ASFR by Residence

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>U</td>
<td>R</td>
<td>U</td>
</tr>
<tr>
<td>15-19</td>
<td>.113</td>
<td>.057</td>
<td>.137</td>
<td>.025</td>
</tr>
<tr>
<td>20-24</td>
<td>.278</td>
<td>.195</td>
<td>.272</td>
<td>.198</td>
</tr>
<tr>
<td>30-34</td>
<td>.177</td>
<td>.095</td>
<td>.137</td>
<td>.152</td>
</tr>
<tr>
<td>35-39</td>
<td>.094</td>
<td>.040</td>
<td>.071</td>
<td>.075</td>
</tr>
<tr>
<td>40-44</td>
<td>.037</td>
<td>.012</td>
<td>.020</td>
<td>.047</td>
</tr>
<tr>
<td>45-49</td>
<td>.014</td>
<td>.004</td>
<td>.006</td>
<td>.014</td>
</tr>
</tbody>
</table>

(Source: NFHS-2, SRS (1997), Aligarh Survey)

The apparent big difference between the NFHS-2 and SRS fertility rates is quite difficult to explain. The fertility rate for
the age group 15-19 in urban areas of U.P. according to NFHS-2 is 0.057 and SRS is 0.025. The SRS estimate is about 100% more than that of the NFHS-2 estimate. Similarly the fertility rate of age group 40-44 according to NFHS-2 is 0.012 and according to SRS the corresponding figure is 0.047, which is almost four times more than the NFHS estimates. A case is point is the big difference between the ASFR (age group 35-39) NFHS-2 estimate which is 0.040 while the corresponding figure (Urban areas) according to SRS is 0.075 which is almost double the NFHS-2 figure.

The similar difficult to explain situation, emerges for rural areas. The NFHS-2 fertility estimate for age group 15-19 is 0.137, which is almost three times more than that of the corresponding SRS estimate 0.043. Similarly the ASFR estimate (age group 35-39) according to NFHS-2 (0.071), is almost half the corresponding SRS estimate (0.124). In the same way, the SRS estimate (0.066) for age group 40-44 is almost treble of the corresponding NFHS-2 estimate which stands at 0.020. The gaps in the NFHS-2 and SRS estimates are more baffling in the face of the fact that both of these surveys were conducted by reputed government agencies and during the same time period (1997-98). These variations are just unexplainable other than that either of the survey is unreliable.
The figure 5.1 shows Rural-Urban differential in Age Specific Fertility Rate for Uttar Pradesh according to NFHS-2. The Rural ASFR is higher than Urban ASFR for all age groups.

Fig. 5.1: ASFR, NFHS-2 (U.P.)
Rural ASFR Differential:

Figure 5.2 shows the rural ASFR differential between the estimates of the Aligarh Survey (for district Aligarh) and the NFHS-2 estimates for entire Uttar Pradesh. In the age groups (15-19 & 20-24) the ASFR estimate of Aligarh survey are less than the corresponding NFHS-2 estimates. In the subsequent age groups (25-29, 30-34, 35-39) the Aligarh Survey estimates are on the higher side than the corresponding NFHS-2 estimate.

For the last two age groups 40-44 and 45-49, the Aligarh Survey estimates are on the lower side of the NFHS-2 estimates.
Similarly, it would be interest to compare the urban ASFR's for Aligarh district, obtained by Aligarh Survey, and Urban ASFR's for the U.P. state as obtained by NFHS-2. For the young age group of the married females (15-19 and 20-24) the rates are higher in U.P. than the Aligarh district estimates,
implying that young women of Aligarh are more aware of family planning measures than the U.P. state women. For the next two age groups (25-29 and 30-34) the Aligarh district estimates are higher than the corresponding U.P. estimates. For the last two groups (40-44 and 45-49) the estimates are almost same. The figure 5.3 depicts the Urban differentials in ASFR’s for Aligarh district and U.P.

(Source: Table 5.1)

Fig. 5.3: ASFR, Urban Differential
5.2 TOTAL FERTILITY RATE

The Total Fertility Rate (TFR) has already been defined in the first chapter. It is a summary measure, based on the ASFR’s, that gives the number of children a woman would bear during her reproductive years if she were to experience the ASFR’s prevailing at the time of the survey. Mathematically the TFR is calculated as five times, the sum of all the ASFR’s for the five-year age groups.

Rural-Urban differential:

The table 5.2 presents the total fertility rate estimates as obtained by the NFHS-2, the SRS (1997) and the Aligarh Survey. These surveys were conducted during the last five years (1997-2002) period, therefore a comparison of the estimates is quite desirable. The figures are available separately for rural and urban areas. Thus the rural-urban differentials for the estimate of these surveys can be easily looked into, by reading the data carefully.
Table 5.2: Total Fertility Rates (Rural-Urban)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Rural</td>
</tr>
<tr>
<td>TFR (15-44)</td>
<td>4.27</td>
<td>2.86</td>
<td>4.91</td>
</tr>
<tr>
<td>TFR (15-49)</td>
<td>4.31</td>
<td>2.88</td>
<td>5.04</td>
</tr>
</tbody>
</table>

(Source: NFHS-2, page 62; Aligarh Survey)

Table 5.2 indicates that there are large fertility differentials in U.P. as well as Aligarh district with the TFR varying widely between the rural and urban populations. The Aligarh survey estimates are slightly lower than the SRS estimates and higher than the NFHS-2 estimates for U.P. Fig. 5.4 shows TFR by residence for age (15-49) as obtained in NFHS-2, SRS and Aligarh survey.
Differential By Religion:

Religious beliefs of the people have been established to play an important role in the levels of fertility. It would be of interest to study and compare the TFR differentials by
background characteristics, religion. Table 5.3 shows the TFR’s by religion according to NFHS-2 and Aligarh survey.

Table 5.3: TFR by Religion

<table>
<thead>
<tr>
<th></th>
<th>HINDU</th>
<th>MUSLIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFHS-2 (U.P.)</td>
<td>3.87</td>
<td>4.76</td>
</tr>
<tr>
<td>Aligarh Survey (Aligarh District)</td>
<td>3.92</td>
<td>5.10</td>
</tr>
</tbody>
</table>

(Source: NFHS-2, p. 64; Aligarh Survey)

The total fertility rates, is significantly higher for both religions in Aligarh survey than the corresponding figures as reported by the NFHS-2 for U.P. as a whole. Both the surveys show that among Muslims the TFR is nearly one child higher than among the Hindus. The results of NFHS-2 have been criticised by population geographers as being on the tower side. The results for the district as obtained in the Aligarh Survey conducted by the author would be more closer to the ground reality.

Fig. 5.5 gives a plausible distribution regarding total fertility rates by Religion in Aligarh District.
Differential by Education

According to NFHS-2, in Uttar Pradesh, the TFR as a whole is more than two children higher among illiterate women than among the literate women who have completed at least high school education. Total fertility is more than two children higher, among women in households with a low standard of living than among women in households with a high standard of living: TFR is 4.8 among women from scheduled tribes, 4.4 among women from scheduled castes, 4.1 among women from other backward classes and 3.8 among women who do not belong to any of these groups (NFHS-2, p. 65).
It would be interesting to compare the TFR's as obtained by NFHS-2 and as obtained in the Aligarh survey. Although the results of NFHS-2 apply for entire Uttar Pradesh, our results relate to Aligarh district alone, the comparison is quite revealing in that the TFR’s for Aligarh district are on the higher side than TFR for the whole state. Table 5.4 shows the TFR estimates by education for NFHS-2 and the Aligarh Survey.

Table 5.4: TFR by Education

<table>
<thead>
<tr>
<th>Education</th>
<th>NFHS-2 (U.P.)</th>
<th>Aligarh survey (Aligarh District)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>4.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Less than middle</td>
<td>3.4</td>
<td>4.1</td>
</tr>
<tr>
<td>Middle +</td>
<td>3.1</td>
<td>3.8</td>
</tr>
</tbody>
</table>

(Source: NFHS-2, Aligarh Survey)

For the illiterates category, the TFR in Aligarh district is higher by .3 child than the TFR for Uttar Pradesh. In Aligarh district the TFR is about one child higher than Uttar Pradesh TFR for the category less than middle educated class. The details of the comparison between the state and Aligarh district by education is diagrammatically represented in Fig. 5.6.

146
The categories A, B & C stand as
A: illiterates       B: literate < middle       C: literate > middle

Fig. 5.6: TFR by Education

5.3 TOTAL AGE SPECIFIC FERTILITY RATE

Apart from age specific fertility rate by various characteristics such as residence, education and religion it would be of beneficial to compare total ASFR for the Aligarh
district and the whole Uttar Pradesh state. The data reported by NFHS-2 and SRS (1997) about the total ASFR is given in the following table along with the data obtained in the Aligarh Survey. This rate is calculated considering the entire sample without any stratification by any characteristics such as education, residence or religion.

Table 5.5: Total ASFR

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>.120</td>
<td>.040</td>
<td>.035</td>
</tr>
<tr>
<td>20-24</td>
<td>.256</td>
<td>.248</td>
<td>.262</td>
</tr>
<tr>
<td>25-29</td>
<td>.208</td>
<td>.271</td>
<td>.238</td>
</tr>
<tr>
<td>30-34</td>
<td>.127</td>
<td>.198</td>
<td>.250</td>
</tr>
<tr>
<td>35-39</td>
<td>.064</td>
<td>.115</td>
<td>.105</td>
</tr>
<tr>
<td>40-44</td>
<td>.018</td>
<td>.062</td>
<td>.042</td>
</tr>
<tr>
<td>45-49</td>
<td>.006</td>
<td>.023</td>
<td>.013</td>
</tr>
</tbody>
</table>

(Source: NFHS-2, p. 62; Aligarh Survey)

The Aligarh Survey, NFHS-2 and SRS fertility estimates can be easily compared, by deeply studying the figures in the above table. There is big difference in the age group (15-49) between NFHS-2 figures and SRS and as well as Aligarh Survey. The NFHS-2 figure for this age group is more than double for SRS and Aligarh Survey figures. The figures for SRS and
Aligarh Survey for this age group are almost same. For the age groups 40-44 and 45-49, the rates for NFHS-2 are lesser than SRS and Aligarh Survey rates. Similarly for the age groups 30-34 and 35-39, the NFHS-2 rates are lesser than the corresponding SRS and Aligarh Survey estimates.

Fig. 5.7 represents the total ASFR curves according to SSR and Aligarh Survey estimates. The zig-zag curves for the age groups 20-24 to 35-39 show variations in the fertility for U.P. and Aligarh district.
Fig. 5.7: Total ASFR

(Source: Table 5.5)
Similarly, for gauging the differentials between the estimates of NFHS-2 and Aligarh Survey the Fig. 5.8 is drawn.

(Source: Table 5.5)

Fig. 5.8: Total ASFR
References:


3. SRS, Sample Registration System, Office of the Registrar General, Government of India.


