CHAPTER II

LITERATURE REVIEW AND METHODOLOGY

2.1 Literature Review
2.2 Methodology

- Data Base and Sampling Techniques
- Sample Design and Sample Selection
- Tools and Technique for Data Collection
- Questionnaire

- Data Processing and Analysis
- Techniques Applied
- Measures of Fertility
- Limitations of the Study
This chapter reviews the available literature on fertility and social structure and discusses the methodology applied for the present doctoral work.

2.1 Review of Literature

Fertility is one of the important components in the study of population analysis and there is no dearth of literature which contributes to the understanding of concept of fertility, its determinants, indicators and differentials. Some of the important available literatures related to the present doctoral work are reviewed briefly.

Sinha (1957) highlighted the fact that differential fertility is always basic to population analysis and it acquires all the more importance in a country which is passing through a phase of significant advances in different spheres of social life. Rele (1963) pointed out the importance of the study of fertility differential with respect to economic development and national planning. Its utility lies in the fact that it may give indications regarding future trends in the birth rate. Agarwala (1966) studied the relationship between age at marriage and the birth rate. He said that one of the factors that influences fertility is the age at which women gets married. It has been noticed that women who get married between the ages 15-19 give birth to a large number of children than those who marry at or after the age of 20 years. Pakrasi and Malaker (1967) studied fertility differential with respect to family type in India. They said that since reproduction is one of the primary functions of the family, the organizational pattern of the family itself is of special significance in the study of fertility, particularly within the traditional establishment of Asian society. They found that joint families are not essentially recognised by higher fertility and that relationship between family type and fertility is a pertinent issue which cannot be ruled out in context of current socio-demographic research. Weller (1968) studied the relationship between wives’ employment and fertility in Puerto Rico and observed a negative relationship. Participation of females in the labour force is associated with increased influence by the in family decision making particularly with respect to having additional children. It lowers the degree of authority of husbands to a certain degree.

Morris and Weinstock (1969), on the basis of clinical records of women client of a family centre, observed that increasing education of women is directly related with increased family planning behaviour among them. Michlin (1969) specified the fact that urban areas will have lower fertility than their rural counterparts. The reason
being the fact that technology of birth control are available first in cities and only later they diffuse to the rural areas. Also, he pointed out that the urban setting is such that a person tends to have smaller families as compared to persons who are typically rural and unskilled. It was established that fertility is certainly a function of socio-economic factors. An empirical work in this regard was done by Paydarfar and Sarram (1970). They examined the relationship between socio-economic status and the fertility pattern among married Shirazi (Iran) women. Occupation, education and income of the husbands were treated as measures of socio-economic status. It was found that a negative relationship existed between the three measures and fertility pattern.

Ryder et al. (1971) identified that there are two polar types of analysis towards task of fertility measurement. One is the causal analysis, consisting of attempts to provide explanations for fertility behaviour as the dependent variable. Second type of inquiry about fertility is directed to questions of consequential analysis. Mandelbaum (1973) insisted that behaviour related to fertility is moulded by a person’s culture and involves some of his most compelling social relations. He said that social context has such a bearing on fertility control that future plans would do well to direct family planning efforts to particular region within a state. Freedman (1976) throws light on the relationship between income and fertility on the basis of Easterlin hypothesis (1968). He said that an apparent contradiction was observed in the relationship between income and fertility. Since income is constraint in supporting children, couples with high incomes were expected to have more children than poorer couples. Yet a reversed trend has been observed, even after a great rise in per capita income. Easterlin explained this by adding taste variable in the relationship between income and fertility. Another work on the same lines of income and fertility was done by Ewer and Gardner (1978). They used all the measures of income variable to determine any significant relationship with that of family size. They came out with the result that income variable which most consistently accounted for variation in family size was wives’ income. Neither husbands’ income nor expected incomes were significantly related with family size.

Caldwell (1980) put forward evidences which linked fertility decline with mass education. He said that greatest impact of education is not direct but through the restructuring of family relationship and hence family economies and the direction of wealth flow. Albarracin and Carlos (1982) reiterated the fact that fertility is sociological and cultural issue as it can be controlled by various means and methods.
The factors that affect fertility behaviour are largely socially determined and therefore bringing the study of fertility well within the realm of social sciences. This work basically compared the fertility status of three occupational groups. Teinda (1984) investigated how the community characteristics influenced the completed fertility in Peru. The empirical result of this analysis showed that residence in communities with higher level of access to benefits of development decreased fertility beyond what one would have predicted based on women’s characteristics alone. Many works have been devoted towards understanding the exact factors affecting fertility. In this regard Srinivisan et al (1984) analysed the factors controlling fertility in India. They observed that a shift to deliberate fertility control from natural fertility is mainly due to an increase in the motivation of people to control fertility or decrease in the perceived costs of fertility regulation. Basu (1984) selected six villages in India to find out empirically the knowledge of women about contraception. He revealed at that time that low use of contraception in India was mainly due to lack of knowledge of various methods of contraception for birth control, especially of the modern reversible methods. He insisted that in interest of achieving demographic targets, greater emphasis must be given on spreading practical information about reversible contraceptives. Jain and Nag (1986) studied fertility behaviour in India and highlighted the fact that in India there is considerable evidence that female education definitely monotonically increases the use of contraception and age at marriage, both of which in turn reduces fertility. They suggested that educational policy should give high priority to expansion of female primary education particularly by reducing the dropout rates. Fertility status was further studied with reference to occupation, income, education and economic status of couples in India by Lakshmi and Bandyopadhyay (1986). It was found that men’s education up to graduate level and women’s education up to high school level is effective in increasing age at marriage and eventually reducing fertility. Rele (1987) attempted to estimate the fertility change in India during 1951-81. The fertility estimates were presented for quinquennial periods. The study concluded that fertility in India at that period declined at an accelerated pace, in both urban and rural areas. It was also observed that fertility in North India was higher as compared to rest of India. Chowdhary and Bairagi (1990) conducted their study in Bangladesh and observed that parental preference of sons over daughters is found in many societies. This preference has implications for the level of fertility in a stable state. He also made reference of Sheps
thereby reiterating the fact that higher the preference of one sex over other, the higher will be the average family size. In the same year Zhang (1990) made a micro economic analysis of socio economic determinants of fertility in China. He concluded that even after controlling age, marriage duration and child mortality, the educational level of women, occupation of husbands and place of residence affected fertility.

Manzoor (1993) explored that growing concern for increasing female literacy and improvement in their socio-economic conditions, in Pakistan was mainly an offshoot of the growing awareness and concern about the population problems among planners. He said that explosive rate of population growth is a major obstacle in achieving a better quality of life for majority of the population. Gertler and Molyneaux (1994) stressed upon the importance of economic development and family planning programmes in reducing fertility. Government should make explicit policies designed to reduce population growth which includes aggressive family planning programmes as well as improving women’s education and employment opportunities. Similarly Panandiker and Umashankar (1994) reflected upon the policies of Indian Government on family planning. India was one of the first countries to introduce a policy intended to reduce the rate of population growth but it had not been able to achieve much success in this regard. They observed that in agricultural and traditional societies, fertility control has historically been difficult to introduce and overall socio-economic development is the only way to solve the problem. Results of Demographic and Health Surveys from 26 countries were analysed by Martin (1995). The analysis confirmed the fact that higher education is consistently associated with lower fertility. However, diversity exists in the magnitude of gap between upper and lower educational strata. It further proved that education enhances the women’s ability to make reproductive choices. Martin and Juarez (1995) also studied the impact of women’s education in Latin American countries. It was found that women with no education had 6 - 7 children while women education had lesser number of children. Even though, small family norm was shared by all women alike, the gap in contraceptive use between educated and uneducated women varied from 20 to 50 per cent points. Fertility rates have been declining all over the world and various studies have been devoted to analyse its factors and determinants. It was previously thought that fertility decline, like western countries, would follow economic development of a particular country. However, the studies prove otherwise. The reason being the faster rate of diffusion of ideas and technology related to birth control from developed to
developing nations. Fertility analysis now shifted towards knowing the causes of faster decline in fertility in countries like China, Bangladesh and South India. Adnan (1998) pointed out the paradoxical situation in Bangladesh, where fertility registered quite a significant decline under absolute poverty. It was found that factors which were found to be conducive for higher fertility in 1970s continued to persist even after 2 decades. Even then fertility rates were decreasing. Manna (1998) also studied the factors affecting fertility decline and fertility variation in India during 1990s. He found that there was higher degree of correlation between wanted and actual fertility as well as a strong association between fertility and women education and mother and child health. Roy et al (1999) said that standard of living or economic status data are not always sufficient to understand complex mechanism of fertility change. A number of others social factors directly or indirectly influence a couples’ decision on family size. They were of the view that it is difficult to establish any economic theory of fertility which will be universal. This is more obvious for a country like India because of its unique regional economic diversity. Sunil et al (1999) evaluated the success of various family planning programmes introduced in India through various approaches. Some of them provided monetary benefits and others were motivational programmes meant to improve the contraceptive use among illiterate women. They found that implementation of incentives programmes in a socio-economically homogeneous population resulted in an increased contraceptive use. James (1999) also appraised the fertility decline in Andhra Pradesh. He found that educational level, religion and caste are significant variables with respect to which significant fertility difference are found in India. It was also observed that rate of acceptance of contraception was almost similar among Hindus and Muslims but varied at different educational level of women.

Guilmoto and Rajan (2001) tried to understand the mechanism behind the regional variation in fertility. They took fertility as a regionalized variable, i.e. a variable which is assumed to be spatially continuous. The maps based on geospatial data revealed that spatial variation in fertility is far from random. Fertility decline began in periphery along the coast and in the extreme south and then spread progressively towards interior. Along the Ganga valley which is the heart of traditional India, decline in fertility has been very low. The importance of education was again underlined by Kaur (2001). Education helped to a large extent in rising the age at marriage and enhanced the bargaining power of women with regards to family
size. She pointed out that in order to control population growth it is necessary to make people aware of the population problems. Sekhar et al (2001) tried to find out the slower pace of fertility transition in Karnataka. A district level analysis was made and it was found that the districts which recorded higher fertility rates were the regions which had lowest percentage of literate females and higher concentration of Muslims in the state. Parikh and Gupta (2001) however had a different opinion. They said that without overall development, literacy, although critical preconditioner, affected fertility reduction in small percentage terms. Kingdon (2002) stressed on the point that women’s education is of greater importance than men’s education. The social benefits from investing in women’s education are far greater than those from investing in men’s education. Akmam (2002) also probed women’s education and fertility in developing countries and observed that education does have a major impact on fertility even after controlling for other relevant factors. Morgan et al (2002) made a comparative study of Muslim and non Muslim fertility in Asian countries. The study revealed that Muslims have more children, are more likely to want another child and are consistently less likely to use contraceptives. However the pro-natalist attitude of Muslim women is not accounted by having less autonomy than their non Muslim counterparts. It resulted from greater poverty of Muslims and other socio-economic disadvantages. Education is a recurring theme in studies related to fertility analysis. Omariba (2003) evaluated the patterns of fertility in Kenya with respect to educational attainment of women. The author concluded that there was a strong theoretical and empirical relationship between educational attainment and fertility behaviour. Female education has been claimed to alter household power relations, making women more autonomous and giving them greater control of various dimensions of their lives. Bongaarts (2003) investigated the role of educational differences in completing the fertility transition in developing world. He concluded that educational composition of population remains the key predictor of overall fertility in late transitional countries and that low levels of schooling can be a cause of stalling fertility. Religion has been recognised as one of the major factors affecting fertility differential in developing countries. In this regard Alagrajan (2003) did a revaluation of the overall fertility decline below replacement level in Kerala. It was found that among Muslims fertility was higher and contraceptive prevalence lower than Hindus and Christians. He employed interaction hypothesis whereby religion was correlated with socio-economic factors, to find out whether the effect of religion on fertility remains
constant across other factors. It was observed that Hindu-Muslim difference found at lower educational level did not persist at higher levels. He opined that the observed fertility gap between Hindus and Muslims is a passing phenomenon. McNay et al (2003) pointed out an important feature which has surfaced in the demographic scenario of India. It is the spread of contraceptive use among uneducated women. It has been claimed that changes in their fertility pattern are now making major contribution to the country’s overall fertility decline. Their analysis revealed that, while many of the socio-economic factors played their expected role, there are also considerable diffusion effects in progress. The relationship between fertility and women’s labour force participation is a long standing issue in demography. In this regard, Engelhardt et al (2004) perceived that decreasing fertility is associated with increasing employment. The negative association between them is evidence for incompatibility of rearing children and staying in the work force in today’s society, where the place of work and home are spatially separated. Triparthy and Sarangi (2004) attempted to understand the important proximate determinants of fertility based on NFHS-I and NFHS-II data. Multiple regression analysis was employed and it was found that fertility is significantly affected female age at marriage, interval between successive births, female reproductive span, and age at first birth and desired fertility. It was also observed that mass media and female literacy, although not significant in mathematical analysis, play a vital role in making women conscious about their social responsibilities. Schultz (2005) concluded in his work that fertility is often higher in poorer families within a society and countries which have higher average fertility tend to have lower average income. Bryant (2007) emphasized upon the strong linkage of development indicators and fertility and said that fertility falls when socioeconomic conditions change modifies the incentives to have children, new ideas about child bearing diffuse in the society and women achieve greater access to contraceptives. Skirbekk (2008) argued that before fertility decline, high status was associated with relatively higher fertility, but thereafter had a neutral or negative effect. The switch towards more negative status-fertility relation is found to be more pronounced in Asia, Africa, Latin America and the Middle East than for Europe and North America. However the contemporary fertility differences by status are much smaller than historical ones as there has been partial convergence in fertility levels.
The inverse relationship between education and fertility has been confirmed in many of the recent micro level studies as well. Siddiqui and Yadav (2009) conducted micro-level study of fertility differentials in Aligarh district and concluded that distance of educational institutions from a region is negatively associated with fertility. It was also noted that increasing educational status of females considerably lowers down fertility. The relationship between parent’s educational status and the fertility in Dhanbad district also showed that mother’s education is more important than father’s education in lowering fertility (Siddiqui and Jamal, 2012). Similar results were observed in the case study of Malda district by Siddiqui and Hussain (2011).

2.2 Methodology

Data base and Sampling Techniques

The present work is empirical in nature and the study is based basically on primary sources of data. However, secondary sources of data, like Census of India, National Family Health Survey data have been used to support the primary data. The major objective of this study is to examine fertility levels, differentials and trends in fertility of Dhanbad district. Since data for fertility are not available at a micro-level i.e. block or village level, there was an urgent need to generate data through extensive and intensive field survey. Hence, for this doctoral work, to empirically examine the fertility differential, primary survey has been conducted for collecting data and information at a micro level. For the collection of village wise maps, the block development offices had been consulted and village wise information of the district had been obtained from the Census Office of India, New Delhi. The information obtained from various other offices of the district was also taken into consideration.

Sample Design and Sample Selection

For generating village level data, a sample design has been worked out, keeping in mind the research objectives. According to 2001 Census, there are 1121 inhabited villages in the district of Dhanbad. Since it is not possible to collect information from all the villages, a certain number of samplings are selected which will be an accurate representation of the blocks and the district. A sampling technique is chosen so that it represents the entire set of relevant unit of analysis of the whole population.
A statistical sample is a miniature picture or cross section of the entire group or aggregate from which the sample is taken (Young, 2003).

A multi-stage stratified sampling has been adopted for the selection of villages. Firstly, the primary sampling units (PSUs) were selected and in the second stage the households within each of the identified sampling units were selected. The 2001 Census list of block wise villages and wards served as the framework for selecting the PSUs which were selected at 5 per cent level (i.e. 5 per cent of the total villages and the wards were selected as PSUs). Thus out of 1121 inhabited villages, 33 villages from the 6 six dominantly rural blocks and 13 wards from the two urban blocks of the district. A list of selected PSUs and their details are given in Appendix – I. For the present study data have been collected from 1340 households, from the eight developmental blocks of the village.

The first level of stratification was geographic, i.e. villages were selected from each of the eight blocks of the district. In each blocks, villages were further stratified by population size and literacy rate of the villages. Villages were arranged according to population size and literacy rate and it was graded into five categories of very high, high, medium, low and very low population according to range method (where the categories of very high, high, medium, low and very low are divided on the basis of the maximum and minimum values of the variables). The size of each of the categories was different for all the blocks, depending upon the population size and literacy rate of the villages and wards in each block. The PSUs were then selected in proportion to the number of villages and wards falling in each of the five categories. Attempt had been made to select the PSUs so that all the five categories by population size and the literacy rate of the villages and wards were adequately represented. The details are set out in Appendix – II and III.

Apart from these two stratification variables, care was also taken that PSUs, thus selected were spread all over the district i.e. they were not in proximity with each other. Also the accessibility and the connectivity of the villages were also taken into consideration, so that the remote villages were also taken in to the sampling frame. This ensured that PSUs selected were adequate representative of the entire district. From the list of the villages according to 2001 Census, those villages which had less
than 50 households were excluded from the sampling frame. The households from each of the PSUs were selected randomly at 20 percent. The details of the households and number of respondents selected from each of the blocks and villages are arranged in Appendix – IV.

The purpose of this study is to make a comprehensive assessment of the social structure and to examine the fertility differential by the social structure of the district. Hence, during survey the households were so selected in such a manner that it represented the social structure of the district. Households have been selected keeping in view the income categories, educational status, religion, family type and family size of the households. Since the point of investigation is the women fertility differential, those households which had married women in the age group of 15 – 49 were selected for survey. The details of the sample size with respect to the social structure variables are shown in Table 2.1. The sample size by the educational categories is not shown in the table as educational status is a personal characteristic of an individual and cannot be aggregated at household level. Also it is possible that in a household, one person may be illiterate, another might be educated upto primary level and still other may be highly educated.

Table 2.1 Sample Size According to Variables of Social Structure

<table>
<thead>
<tr>
<th>Monthly Income (Rs)</th>
<th>Sample Size</th>
<th>Residence</th>
<th>Sample Size</th>
<th>Family Type</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  ≤ 2000</td>
<td>202</td>
<td>1 Urban</td>
<td>552</td>
<td>1 Nuclear</td>
<td>644</td>
</tr>
<tr>
<td>2  2001-5000</td>
<td>444</td>
<td>2 Rural</td>
<td>788</td>
<td>2 Joint</td>
<td>248</td>
</tr>
<tr>
<td>3  5001-10000</td>
<td>284</td>
<td>3 Extended Nuclear</td>
<td>448</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  10001-15000</td>
<td>218</td>
<td><strong>Religion</strong></td>
<td><strong>Family Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5  &gt; 15000</td>
<td>192</td>
<td>1 Hindus</td>
<td>1056</td>
<td>1 ≤ 6</td>
<td>828</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Muslims</td>
<td>284</td>
<td>2 &gt; 6</td>
<td>512</td>
</tr>
</tbody>
</table>

| Total Sample size  | 1340        |

Tools and Technique for Data Collection

The data for the present study have been collected through direct personal interview method by the researcher. A well structured questionnaire consisting of both open-
ended and closed ended questions has been employed for the data compilation. However, any response or suggestions by the interviewee was readily accommodated in the section ‘any other information’.

**Questionnaire**

Two types of questionnaire have been prepared keeping in mind the objectives of the research – household questionnaire and women questionnaire (Appendix - VII). The household questionnaire was related with general information about the members of the household. It covered information related with number of members, their age, sex, religion, caste, family type, educational qualification, occupation, income etc. The basic information on the age, sex and marital status of household members and visitors was used to identify eligible respondents to the Woman’s Questionnaire.

The Woman’s Questionnaire was used to collect information from all ever-married women in the selected households who were 15 – 49 years old. In all a total of 1832 women were interviewed. The questionnaire covered the following relevant points:
- Background characteristics
- Age at marriage
- Number of children
- Reproductive history
- Knowledge and use of contraception
- Antenatal, natal and postnatal care
- Quality of care
- Pregnancy
- Immunization and the health of children
- Reproductive health
- Fertility preferences
- Status of women
- Husband’s background and woman’s work

It was ensured that for collecting information only adult members of the household were interviewed. Before asking the questions, the respondents were assured that the study had nothing to do with the any official or political work and their information would be kept confidential and would be used only for research purpose. The information related to household questionnaire was comparatively easier.
to collect. The problem incurred while interviewing women candidates. Usually the male members would not allow the women of their households to be interviewed separately. After much persuasion when they became ready for interview, they were not very eager to give detailed information about the fertility behaviour. However, these problems were overcome by crosschecking the responses by other members of the household. The data collected through questionnaires were assessed on daily basis. Any other facts regarding the village or any relevant information were noted down on the same day of survey. The data obtained, were coded and fed in the computer accurately for further calculation and analysis.

**Data Processing and Analysis**

The data collected through field survey were first fed into the computer. Great attention was given while data were being fed on computers, because there were chances of missing or duplicating some points. Hence, while feeding data, it has been checked and cross checked several times. But these data were in raw format. It was then processed keeping in mind the research objectives. Data had then been arranged and rearranged, to collect necessary information. The data were also tabulated and simple mathematical and statistical operations have been applied. The percentages of all variables have been calculated so that the difference in observation of selected indicators is scientifically perceptible.

The present study is purely descriptive and analytical in nature, seeking out to provide insight into the existing reality of the region and give possible explanations for it. The logically connected and generally accepted variables of social structure of the district have been selected to observe the women fertility differential. The list of selected variables for examining fertility differential by social structure is shown in Table 2.2. For any geographical study there is a need of unit of analysis. Unit of analysis is very critical for regional analysis as extent and sometimes direction of relationship among variables may change with varying size of unit of analysis (Hussain, 2011). For the present study, the list of villages and wards, according to 2001 Census, has been used as smallest administrative unit and households have been taken as the smallest unit for data collection. In this study three tier analyses have been done, namely, at district level, block level and village level.
Table 2.2 Selected Variables of Social Structure

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variables</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Age of Women</td>
<td>Percentage of women in age group of &lt; 20 years</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of women in age group of 20 – 29 years</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of women in age group of 30 – 39 years</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of women in age group of 40 – 49 years</td>
</tr>
<tr>
<td>2.</td>
<td>Age of First Marriage of Women</td>
<td>Percentage of women who married below &lt; 15 years of age</td>
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<td></td>
<td></td>
<td>Percentage of women who married in the age group of 15 – 19 years</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of women who married in the age group of 20 – 24 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of women who married in the age group of 25 – 29 years</td>
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<tr>
<td>3.</td>
<td>Religion</td>
<td>Percentage of Hindu population</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Muslim population</td>
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<tr>
<td>4.</td>
<td>Family Type</td>
<td>Percentage of families by Nuclear Family Type</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of families by Joint Family Type</td>
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<td></td>
<td></td>
<td>Percentage of families by Extended Nuclear Family Type</td>
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<tr>
<td>5.</td>
<td>Family Size</td>
<td>Percentage of Families with family size ≤ 3</td>
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<td></td>
<td></td>
<td>Percentage of Families with family size 4 – 6</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Families with family size 7 – 9</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Families with family size 10 – 12</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Families with family size ≥ 12</td>
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<tr>
<td>6.</td>
<td>Educational Status</td>
<td>Percentage of Women who are illiterate</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Women who are literate</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Women with education level – Middle School</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Women with education level – Intermediate Level</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Women with education level – Graduate and above</td>
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<tr>
<td>7.</td>
<td>Occupational Status</td>
<td>Percentage of Husband’s engaged in Primary Activities</td>
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<td></td>
<td></td>
<td>Percentage of Husband’s engaged in Business.</td>
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<td></td>
<td></td>
<td>Percentage of Husband’s engaged as Labours/Daily Wagers</td>
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<td></td>
<td></td>
<td>Percentage of Husband’s engaged in Government Jobs</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Husband’s engaged in Private Jobs</td>
</tr>
<tr>
<td>8.</td>
<td>Income</td>
<td>Percentage of Husband’s with monthly income level - ≤ Rs. 2000</td>
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<tr>
<td></td>
<td></td>
<td>Percentage of Husband’s with monthly income level - Rs.2001 – 5000</td>
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<td></td>
<td></td>
<td>Percentage of Husband’s with monthly income level - Rs.5001 – 10000</td>
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<td></td>
<td></td>
<td>Percentage of Husband’s with monthly income level - Rs.10001 – 15000</td>
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<td></td>
<td></td>
<td>Percentage of Husband’s with monthly income level - &gt;Rs. 15000</td>
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</tbody>
</table>
Techniques Applied

For the present study both qualitative and quantitative methods have been applied to explain the information collected. However, the quantitative methods have been kept simple to make it easily comprehensible. Percentages and averages of the indicators of social structure and fertility have been calculated to explain the existing scenario of the district and also to differentiate between the blocks and villages with respect to these variables. In order to make the data of the indicators comparable, the data were standardized with the help of z-scores (Smith 1973). Thus the original data were linearly transformed into standardized scores. The z-scores quantify the departure of individual observations, expressed in a comparable form.

The formula is thus:

\[ z_i = \frac{x_i - \bar{x}_i}{SD} \]

Where, \( z_i \) is the standard score of the \( i^{th} \) variable;
\( X_i \) is the original value of individual observation;
\( X_i \) is the mean of variable and SD stands for the standard deviation.

The values of the individual variables are added and averaged to obtain Composite z-scores by the formula:

\[ CS = \frac{\sum z_{ij}}{N} \]

where, CS refers to composite z-score; \( z_{ij} \) stands for the sum of z-score of variable j in observation i; and N symbolize the number of variables.

For analysing the relationship between variables of social structure and women fertility, Karl Pearson’s technique of correlation coefficients has been applied. As the fertility differential have been analysed both at block and village level, the correlation coefficients has also been calculated at both these levels separately. To find out the significant values of coefficients of correlation, Student’s t – test has been used to find out significant degree of relationship between the variables at 1 per cent and 5 per cent level.

Measures of Fertility

There are several measures of fertility. But some of the selected measures are to be used in the present study to assess the fertility level. They are briefly discussed as follows:
Child Woman Ratio (CWR) – It is the number of children under five years of age per 1000 woman of child bearing age in a given year. Mathematically, it can be expressed as:

\[
CWR = \frac{\text{No. of children under age 5}}{\text{No. of women of age group 15-49}} \times 1000
\]

It is a useful index of fertility as it takes into account only those females who are in reproductive age group.

General Marital Fertility Rate (GMFR) – It is the most commonly used measure of fertility. This measure is an improvement over general fertility rate as married female population in reproductive age group is used as denominator against total number of live births in a given year. It is expressed as:

\[
GMFR = \frac{\text{No. of live births in a year}}{\text{No. of married women of age group 15-49}} \times 1000
\]

The above two measures of fertility are used to measure the current fertility levels by different units in the district.

Mean of Child Ever Born (MCEB) – It comprises an average of total number of children born alive to women in reproductive age groups up to the survey date. It is the child bearing experience of a real age cohort and reflects the current and past fertility. It is expressed as:

\[
MCEB = \frac{\text{Sum of total number of live births to all women in age group 15-49}}{\text{Total no. of women of age group 15-49}}
\]

For analysing the women fertility differential with respect to the social structure of Dhanbad district, the mean of child ever born has been used as a measure of fertility. Child ever born is more often used to study the fertility differentials by socio-economic characteristics as this provides cumulative fertility behaviour of women belonging to different groups. The current fertility rates have deliberately not been chosen to study the differentials, even though its importance cannot be underestimated. The reason mainly being the occurrence of only few births to the sub-sample of women (according to the indicators of social structure), often make a reliable study on fertility difficult (Unisa and Bhagat, 2000). Therefore, in the present study, the children ever born measure is used to study the fertility differentials. However, in the village wise analysis, all the three measures of fertility have been
employed to assess the relationship between fertility and social structure of the
villages.

Limitations of the Study

The researcher wants to draw the attention to the fact that Jharkhand state is
one of the strong bases for Naxal and Maoist activities and Dhanbad district is one of
the Naxal hit zones of the state. People there become rather hostile towards any
newcomers and incidents of stray violence are reported almost on weekly basis.
Hence all the selected villages could not be surveyed according to the plan. Few
villages, especially of Tundi block, were left out and instead other nearby villages was
surveyed, because of potential threat of Naxalite’s and Maoists’ attack. The most
common deficiencies in all sample surveys are omission of recording some births
(especially birth of children who died at a very young age) and of determining the
exact date of birth (Qadeer, 2007). Despite all measures taken for improving the
quality, these shortcomings are found in this survey too. This problem was more
strongly felt in rural areas where the female literacy rate was very low.
References


