Chapter II

Literature Review and Methodology

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REVIEW OF LITERATURE AND METHODOLOGY

LITERATURE REVIEW

Education has been looked upon as the most vital and crucial investment in human development (Ratan, 2003; p.19). Education and employment are important indicators of the socio-economic development. Female education and employment from different viewpoints are now widely studied by sociologists, economists, demographers and geographers. A variety of works have been done on the various aspects of female education and employment by many scholars all over the world. The present chapter puts in brief a review of the available literature concerned with the female title of the thesis in India and abroad (For detail see Bano, 2005, p.46 ). Studies conducted so far on women focussed on the different aspects of women’s problem – social or economic. The status of women in all ages remained the centre of attraction for studies and research by many scholars for many years. Most of the studies are undertaken on female education, health and employment. The spatial pattern and rise in literacy rates, its distributions, causes and consequences have been studied in the context of demographic, social and economic situations of India by Nuna (1985), Mathur (1988), Singh (1997). Some of the studies have been attempted on female educational status with reference to levels of literacy in general and literacy by sex, caste and community in particular (Tripathi, 1989; Mishra 1997; Aruna, 1999).

Exposure to female high school faculty and professional staff have a positive impact on the educational attainment of young women who were enquired by Nixan, Lucia and Rolunson (1999). Subbarao and Raney (1995) show that female secondary education and that the effects of female secondary education appear to be very strong. The results suggest that family planning will reduce fertility more when combined with female education, especially in
countries that have small number of female enrolment at secondary school level. In the same way Islam and Abedin (2001) and Kravdal (2002) investigate the effects of women’s education on age at marriage of the females and on fertility. The relationship between women’s educational attainment and the timings of first marriage in Japan is examined by Raymo (2003). The results indicate that late marriage for highly educated women primarily reflects longer enrolment in school and university education which is increasingly associated with late and lesser marriage and that the trend towards late and lesser marriage is occurring at all levels of educational attainment. In some of the studies gender specific trends in the value of education have been analysed. Women returning to higher education appear to have risen faster than those of men is examined by Musa (2005), and Thomos and Buchmann (2006). Female literacy in India and the regional imbalances, its causes and the measures have been systematically examined by Jayati (1997), and Debesh Ray (1995). In the same way the disparity in the distribution of educational institutions among the blocks of Bankura districts is assessed by Ghosh and Bhandra (2006). The study reveals the surplus or deficit in the availability of different levels of educational institutions over the districts. Different social scientists have carried out several studies on tribal education in India to find out the loopholes and they have identified many problems. As Doury (2006) deals with gender related problems in education among the tribal females in India. On the other hand, Mohisini (1991) has done an important work in a systematic way, about the educational problems of girl child and suggested the strategy for solving the emerged problems. Nambissan (1996) draws attention to the effect of the learning environment within the formal educational system. The author argues that besides poor infrastructure facilities lack of effective pedagogic supports to acquire linguistic, numerical and cognitive competencies adversely affect the schooling of dalit children. Some implications of education on the social structural level have been presented by Irsi Clemens (2004). Some of the studies on educational development to show the relative interstate change in
status of educational development and on income growth and financial resource provision have been attempted by O Niell (1995), Anthony and Steves (1999) and Hemlata (2002).

Studies on female participation have gained much attention in recent years. Some of the studies on impact of female education on employment and their interrelationships have been analyzed by Varshney (1990), and Madhumita and Debendra (2001). Kapoor (2006) focuses on understanding the factors influencing female work participation decisions measured in different ways. It varies with the educational level of the females, levels of family income, the nature of works and also on caste and family. Saha and Mathur (2001) examined that socio-cultural factors did not play much important role in the level of education of women and the impact of education on occupational structure is negligible as agriculture and livestock activities are largely done by the majority of women. On the other hand, Jayanthi (2003) examined that despite being socially and economically disadvantaged, female literacy rates and their participation in the job/labour market are increasing. The rapid rise in females and mother work participation and their concerned role in balancing employment, domestic responsibilities and child care have been analysed by Bowlby (1990), Bianachi (2000), and Beatrizmanz and Paulspoonley (2001). The study on female work participation and division of labour, and the greater range of responsibilities from domestic work within and outside the homestead to various agricultural activities have been examined by Vansanthal (1992) and Shimaray (2004). Some valuable works on employment and occupational structure have been done in India in recent years especially on females (Raju, 1987, and Sudhana Kothari, 2003). Some changes in the degree of occupational segregation in Malaysia and occupational migration in the U.S. suggest that opportunities for highly educated and skilled may be clustering in relatively few areas that are in close proximity (Babar, 2002; and Reisinger, 2003). On the other hand, Devadason (2007) analyses the change in employment of semi-skilled which is larger than high skilled for both overall and the sub-periods
implying a prominent role for semi-skilled in the Malaysian economy. Study on better spatial and social accessibility to jobs is associated with lower unemployment among women in Los Angeles (Parks, 2004). The pace and pattern of employment growth and the challenges and threats that lie ahead for rural worker, have been enquired by Lalitha (2002), Chandna and Sahu (2002), and Surjeet (2004). Hossain, Bashar, Siddiqui and Shahrrior (1999), Mccall (2002) focused on the determinants of work efforts of female workers and explained the levels of wage inequality among women in the U.S. labour market. Work values implementation through the organizational activities contributes to informal training of human resources development which is examined by Noorasiah (2005). Many studies on working conditions of females, low status, and insecurity in employment and inequality in wages have also been studied (Ramesh and Dayal 1993; Kuar, 1994; and Nirmala, 1999). Sandhya and Rao (2004) analysed the policy initiatives which are needed creating a conductive environment for the women workers in India. Lisa et al. (2008) have examined how changes in maternal work hours affect adolescent children’s school participation and performance outcomes. They found unfavorable effects of increased maternal work hours on three of six out come: skipping school, performing above average, and parental contact about behavior problems. Adolescent-aged sons seem to be particularly sensitive to changes in mothers’ hours of work.

**METHODOLOGY**

The present doctoral work is entirely based on secondary source of data on district obtained from the Census of India publications, reports, memoirs, gazetteers, records of various offices. Apart from the demographic data for the year 2001, the data pertaining to economic and social sectors have been obtained from the publications of the State Planning Institute of Bihar, Patna, Census library of Ministry of Human Affairs, Government of India, New Delhi.
In adopting the methodology for the present analysis the basic nature of geography as science of areal differentiation and that of population geography as the study of 'the spatial aspects of populations in the context of the aggregate nature of place' has been kept in mind. For understanding and explaining the regional pattern of occurrence of a geographic fact and its trends of regional readjustments a reference to the past therefore becomes not only relevant but quite essential. In fact the entire study has taken the form of an interpretation of what have emerged on the maps and arranged in tables. For showing the female literacy rate, educational levels, employment rate and female occupational structure simple percentage have been calculated. Subsequently choropleth maps have been prepared to bring out the real contrast more effectively. A careful selection of the class intervals to decide the categories drawn on the maps are based on the mean and standard deviations technique.

In order to reach on standardization, the raw data for each indicator have been computed into standard scores. It is commonly known as z-score or standard score. In the first step districtwise z-score for each indicator is calculated (Smith, 1973; p.85 and Siddiqui, 2003; p.174). The values so obtained are added districtwise and the average is taken out for these indicators which may be known as composite score (CS) for each district and each set of indicators like female literacy rate, educational status, employment rate and then for over all structure of female employment.

**Selection of Indicators**

In statistical literature the term 'indicators' has been very much in use. The standard describes an indicator as one that indicates shows or points out (Rao, 1977; p.162). Use of indicator is highly common and important in statistical analysis of problems of almost all the major disciplines of knowledge (Chamber’s, 1972). The basic function of an indicator is, therefore, to show or point out something or some attributes intended to be projected or emphasized.
by the analysts. Thus, the indicators are not merely statistics, pure and simple, but in fact, the information both statistical and non statistical which are also transformed into indices for measuring relationship between two and more sets of facts under adopted assumption. The use of indicators for measurement of level of living has also been suggested by United Nations Committee of exports in its report in international collection of data. These indicators can be compiled at various intervals. Some of them are collected only at decennial intervals such as data on population and other economic tables published by Census of India. While some are at quinquennial intervals and others at annual intervals such as statistical bulletins of agriculture and industry. Therefore, an attempt has been made to select two sets of independent variables suitable for the study of regional dimensions of female education, employment and its structure. First set of variables refers to those independent variables which influence or may influence education status of females as shown in Table 2.1. Second set of variables refers to only those variables of female education levels which probably influence or may influence in shaping the structure of female employment in the study area i.e. Bihar as listed in Table 2.2

**Table 2.1. Selected Independent Variables, 2001**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>X₁</td>
<td>Primary school per lakh population</td>
</tr>
<tr>
<td>X₂</td>
<td>Middle school per lakh population</td>
</tr>
<tr>
<td>X₃</td>
<td>Secondary school per lakh population</td>
</tr>
<tr>
<td>X₄</td>
<td>Senior secondary school per lakh population</td>
</tr>
<tr>
<td>X₅</td>
<td>Literacy rate</td>
</tr>
<tr>
<td>X₆</td>
<td>Female literacy rate</td>
</tr>
<tr>
<td>X₇</td>
<td>Gender gap in literacy rate</td>
</tr>
<tr>
<td>X₈</td>
<td>Percentage of girls upto middle</td>
</tr>
<tr>
<td>X₉</td>
<td>Pupil teacher ratio upto middle</td>
</tr>
<tr>
<td>X₁₀</td>
<td>Female teacher upto middle</td>
</tr>
</tbody>
</table>

Contd...
Table 2.1 (continued)

<table>
<thead>
<tr>
<th>$X_i$</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_{11}$</td>
<td>Number of hospitals/dispensaries per lakh population</td>
</tr>
<tr>
<td>$X_{12}$</td>
<td>Number of medical practitioner per lakh population</td>
</tr>
<tr>
<td>$X_{13}$</td>
<td>Number of family welfare centre per lakh population</td>
</tr>
<tr>
<td>$X_{14}$</td>
<td>Number of registered factories per lakh population</td>
</tr>
<tr>
<td>$X_{15}$</td>
<td>Per capita income DDP in Rs.</td>
</tr>
<tr>
<td>$X_{16}$</td>
<td>Percentage of urban female population</td>
</tr>
<tr>
<td>$X_{17}$</td>
<td>Percentage of urban population</td>
</tr>
<tr>
<td>$X_{18}$</td>
<td>Percentage of SC and ST population</td>
</tr>
<tr>
<td>$X_{19}$</td>
<td>Population density</td>
</tr>
<tr>
<td>$X_{20}$</td>
<td>Household size</td>
</tr>
<tr>
<td>$X_{21}$</td>
<td>Sex ratio</td>
</tr>
<tr>
<td>$X_{22}$</td>
<td>Sex ratio of 0-6 years population</td>
</tr>
<tr>
<td>$X_{23}$</td>
<td>Percentage of hindu population</td>
</tr>
<tr>
<td>$X_{24}$</td>
<td>Percentage of muslim population</td>
</tr>
<tr>
<td>$X_{25}$</td>
<td>Employment rate</td>
</tr>
<tr>
<td>$X_{26}$</td>
<td>Female employment rate</td>
</tr>
<tr>
<td>$X_{27}$</td>
<td>Female employment in primary occupations</td>
</tr>
<tr>
<td>$X_{28}$</td>
<td>Female employment in secondary occupations</td>
</tr>
<tr>
<td>$X_{29}$</td>
<td>Female employment in tertiary occupations</td>
</tr>
<tr>
<td>$X_{30}$</td>
<td>Bus services per lakh population in rural areas</td>
</tr>
</tbody>
</table>

Table 2.2. The Independent Variables, 2001

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_1$</td>
<td>Female literacy rate</td>
</tr>
<tr>
<td>$X_2$</td>
<td>Female percentage of primary education</td>
</tr>
<tr>
<td>$X_3$</td>
<td>Female percentage of middle education</td>
</tr>
<tr>
<td>$X_4$</td>
<td>Female percentage of high school and intermediate education</td>
</tr>
<tr>
<td>$X_5$</td>
<td>Female percentage of technical and non-technical education</td>
</tr>
<tr>
<td>$X_6$</td>
<td>Female percentage of graduates and above education</td>
</tr>
</tbody>
</table>
Statistical Method Applied

Here correlation matrix has been made to assess the relationship between explanatory variables and female educational levels based on 30x37 data matrix. After that simple correlation coefficients have been calculated between independent variables and female educational levels. In the same way inter-relationship of independent variables of female educational levels selected and the structure of employment is calculated and t-test is applied to find out the significant relationship between female educational status and structure of female employment at 1 per cent and 5 per cent level. In female education vis-à-vis employment regions have been worked out on z-score method.

In order to reach standardization, the raw data for each variable has to be computed into standard scores. It is commonly known as z value of z score. The score measures the departure of individual observation from the arithmetic mean of all observations, expressed in a comparable form. This means it becomes a linear transformation of the original data. This method was first used by Smith in 1968 in his study on inequality in Peru followed by Smith (1973) and Slater (1975). The formula involved is:

\[ z_i = \frac{X_i - \bar{X}}{SD} \]

where \( z_i \) is the standard score

\( X_i \) is the original or individual values for observation \( i \),

\( \bar{X} \) is the mean for the variable, and \( SD \) is the standard deviation (\( \delta \)).

The standard score additive model has been used to develop a composite economic and social indicator for each set of variables, and a general indicator including all criteria and variables. Six educational indicators and three of employment indicators require the addition of z-score for the individual variables taken to measure them.
The model is thus:

\[ I_j = \sum_{i=1}^{k} Z_{ij} \]

where \( I_j \) is the magnitude of indicators for districts \( j \), \( Z_{ij} \) is the standard score on variable \( i \) in the district \( j \), \( k \) is the number of variables measuring the criteria in question (Smith, 1973; pp. 85-86).

District scores on different indicators can thus be directly compared, irrespective of the number of variables contributing to them. The overall general indicators of educational and employment inequality (EEI) for any district will be

\[ \text{EEI}_j = \sum_{i=1}^{m} Z_{ij} \]

or in this case

\[ \text{EEI}_j = \sum_{i=1}^{30} Z_{ij} \]

Again these results can be transformed back into z-score, so that ‘zero’ indicates average performance and unity (+ or -) represents one standard deviation in either direction. Plus (+) and minus (-) indicate high and low values respectively.
References


Chamber’s (1972) Twentieth Century Dictionary.


