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Factors in Female Age at Marriage in India with Special Reference to Literacy Status : Inter-State Analysis for 1981

THThe 1981 Census of India has estimated female mean age at marriage at 18.32 years for the country. There'is a large variation in this mean among the major states, with Kerala recording the highest mean age of 21.85 years and Rajasthan, the lowest of 16.09 years. Among the States with means below the legal minimum age of 18 years fixed by the 1978 enactment of the Child Marriage Restraint Amendment Act, Rajasthan is preceded by Madhya Pradesh (16.52 years), Bihar (16.53 years), Andhra Pradesh (17.25), Uttar Pradesh (17.77 years) and Haryana (17.87 years). By the very nature of mean age, quite a good proportion of female marriages in the states with somewhat higher means, like Maharashtra (18.76 years), Orissa (19.04 years), Karnataka (19.20 years), West Bengal (19.26 years) and Gujarat (19.51 years), might be taking place below the age of 18 years. These low female marriage age for bulk of the Indian population provide larger reproductive span and in the absence of any significant use of family planning methods, this fact becomes an important cause of baby boom in the country. Raising female marriage age, therefore, finds an important place in the India's Population Policy Statements. But for doing it, simply legislative enactments are not enough as shown by the past experience. It requires the development of an appropriate more effective policy interventions that may create social consciousness favouring delayed marriages. This, in turn, necessitates an understanding of the factors influencing female marriage ages in the country.

Primary purpose of the present investigation is to identify factors influencing female marriage age in India's population. Past investigations have invariably

shown a significant role of literacy in this respect; this is attributed both to the marital postponement necessitated by female schooling coupled with their changed perception about desirable age of marriage, and to the impact of literacy on perception of their guardians in this regard. Therefore, the study would try to identify whether it is the literacy status of the females and their grooms or that of their parents or guardians, that plays more important role in this matter.

Analytical Framework. Data and Methodology

The present investigation has been conducted primarily within the analytical framework of cost-benefit analysis. Accordingly, the factors thought to be increasing cost of early marriage and benefits of marital postponement are taken to be promoting high marriage ages while the opposite ones are considered to be perpetuating low marriage ages. The selection of important socio-economic and demographic factors for the study in the light of these considerations has been made on intuitive grounds and also through a scrutiny of the past investigations on the problem by Dixon (1971), Becker (1973, 1974), Fawcett (1974), Malakar (1975i, Duza and Baldwin (1977) and Srivastava (1982, 1983. 1984). The methodology of (he study consists of testing the hypotheses with the help of linear multiple regression analysis of the cross-sectional data on female mean ages at marriage for fourteen major states of India, estimated by the 1931 Census, as the dependent variable and selected socio-economic and demographic variables for these States as explanatory variables. The selected variables together with the hypotheses formulated about their role and the data used for testing them are given below.

Variables

Selected variables are as follows ;

Depedent

y Ferrnle mean age at marriage.

EXPLANATORY

X_1 Percentage male literates to total population,
X_2 Percentage female literates to total population,
X_3 Percentage male literates aged 15 years and above;
X_4 Percentage female literates ages 15 years and above;
X_5 Percentage male literates aged 35 years and above;
X_6 Percentage female literates aged 35 years and above;
X_7 Percentage population living in urban areas;

X_8 Per capita income;

X_9 Percentage of population below poverty line (Poverty ratio);

X_{10} Percentage of female population engaged in agricultural activities;

X_{11} Percentage of total population engaged in non-agricultural activities;

X_{12} Daily newspaper circulation rate per 1000 population:

X_{13} Proportion single males in 15-44 age group to single females in 10-39 age group.

Hypotheses and Data

The data on the dependent variable *y* have been taken from the 1981 *Census-Series I—India, Part II - Special Reports and Tables* based on 5% sample data.

The explanatory variables X_1 to X_6 give literacy status of males and females in different age groups and are hypothesized to influence female marriage ages positively by increasing necessity and desirability for female marital postponement. While the influence of variables X_1 to X_4 represents a mixed effect of the perception of marriage partners and their guardians, the influence of X_5 and X_6 represents purely the impact of guardians' perceptions. The data on these variables have also been taken the *1981 Census* publication *Special Reports and Tables* based on 5% sample data noted earlier.

Trie variable X_7 represents urbanisation level of different States and is hypothesized to influence female marriage ages positively through its modernising influences, which turn the cost-benefit scale against early marriage. The data for the variable have been taken from the 1981 Census.

The variable X_8 represents economic prosperity of the State population and is hypothesized to influence marriage ages positively by raising people's aspirations, desires and motivations in such a way that cost-benefit scale tends to turn against early marriage. The data for this variable have been computed as a three year-annual average from the C.S.O. estimates of state income for the years 1978-79 to 1980-81.

The variable X_9 is an opposite version of the variable X_8 except that it takes into account only a section of population, which depends on income distribution; it represents the incidence of poverty. It is hypothesized to influence marriage ages negatively. The data for the variable have been taken from the Sixth Plan document.

The variable X_{10} gives the extent of female participation in agricultural activities and is hypothesized to influence marriage ages negatively by turning the cost-benefit scale in favour of early marriage due to traditional and considerations of safety of female honour, while working on agricultural farms far off from home (Srivastava, 1984). In view of the fact that the 1981 Census gives industrial classification of main workers only, data for this variable have been taken from the 1971 census.

The variable X_{11} represents development of non-agricultural sector which

implies a shift of the labour force from traditional to non-traditional sectors. It presupposes acquisition of certain level of knowledge and skills, which increases cost of early marriage and benefits of marital postponement. *In view* of these considerations, this variable is hypothesized to influence marriage age positively. The data for the variable have been taken from the 1971 Census for similar considerations as mentioned above.

The variable X_{12} represents reach of an effective medium of mass communication and is hypothesized to influence marriage ages positively by increasing cost of early marriage and benefits of marital postponement through its modernising effect on people's attitude, motivation and perception. The data for the variable have been taken for the latest available year *(1978) from the Statistical Outline of India, 1982,* published by the Tata Services Ltd., Bombay.

The variable X_{13} represents the ratio of marriageable males to marriageble females or the availability of marriage partners and is hypothesized to influence female marriage ages negatively. On account of non-availability of State-level age group-wise marital status data for 1981 census, the required information has been taken from the 1971 Census.

Table 1 presents data on inter-State variation in the dependent and explanatory variables.

Formulation and Testing of the Models

In order to test the above hypotheses, appropriate alternative linear multiple regression models have been formulated. While formulating these models, care has been taken to avoid problem of serious multicollinearity, which arises due to high inter-relationships among the explanatory variables. With this view, alternative regression models have been formulated after scrutinising zero order correlation coefficient matrix pertaining to explanatory variables in such a way that two explanatory variables with high inter-correlation may not occur simultaneously in the same model. Table 2 presents correlation matrix.

Results and Discussion

The results of fitting of the alternative regression models, selected to test the above hypotheses after scrutiny of the correlation matrix are given and discussed below,

Literacy Level

For testing the hypothesis regarding the influence of literacy level by sex in three age groups and their relative influence, the following six alternative regression models were fitted. They were formulated in such a way that only one explanatory variable representing literacy occurs in each model besides

TABLE 1—INTER-STATE VARIATION IN DEPENDENT AND EXPLANATORY VARIABLES : INTER-STATE ANALYSIS 1981 ($N = 14$)

Variables	*Mean*	*Standard Deviation*	*Coefficient of Variation %*
Dependent			
y Female mean age at marriage	18.636	1.667	8.95
Explanatory			
X_1 % male literates	48.282	10 079	20.87
X_2 % female literates	26.932	13.163	48.87
X_3 % male literates 15+	56.192	11.493	20.45
X_4 % female literates 15+	27.488	14.541	52.90
X_5 % male literates 35+	45.946	12.566	27.35
X_6 % female literates 35+	15.446	11.105	71.89
X_7 % urban population	23.544	6.900	29.31
X_8 Annual average per capita income	1396.294	489.000	35.02
X_9 % population below poverty line	45.309	13.090	28.89
X_{10} % female population in agriculture	8.868	5.722	64.52
X_{11} % total population in non-agricultural activities	9.423	2.435	25.84
X_{12} Daily newspaper circulation per 1000 population	17.114	12.258	71.63
X_{13} Proportion single males to females	0.889	0.096	10.75

per capita income, female participation in agriculture and sex ratio in unmarried male to female population in unmarriageable age groups. The results are arrived at by comparing the relative explanatory power (R^2) of the models and "t" values of the variables under analysis, given in parenthesis under each variable.

$$\underset{(3.943)}{I\ y = 10.8185} + \underset{(4.965)}{0.1300\ X_1} + \underset{(0.698)}{0.0004\ X_8} - \underset{(-1.652)}{0.0860\ X_{10}} + \underset{(0.669)}{1.9636\ X_{13}}$$

$$R^2 = 0.791,\ S.E.E. = 0.951,\ F = 8.506 \text{ (df. 4, 9)}$$

II $y = 14.6195 + 0.1064\ X_2 + 0.0002\ X_8 - 0.0805\ X_{10} + 1.7273\ X_{13}$
(6.837) (6.279) (0.489) (−1.858) (0.706)
$R^2 = 0.855$, $S.E.E. = 0.793$, $F = 13.227$ (df. 4, 9)

III $y = 10.7661 + 0.1081\ X_3 + 0.0007\ X_8 - 0.0782\ X_{10} + 1.7107\ X_{13}$
(3.608) (4.448) (1.141) (−1.391) (0.539)
$R^2 = 0.755$; $S.E.E. = 1.028$; $F = 6.950$ (d.f. 4, 9)

IV $y = 14.6162 + 0.0921\ X_4 + 0.0005\ X_8 - 0.0733\ X_{10} + 1.6455\ X_{13}$
(6.220) (5.578) (0.927) (−1.539) (0.612)
$R^2 = 0.825$; $S.E.E. = 0.871$; $F = 10.573$ (d.f. 4, 9)

V $y = 12.7524 + 0.1005\ X_5 + 0.0011\ X_8 - 0.0728\ X_{10} + 0.3518\ X_{13}$
(4.745) (4.815) (2.017) (−1.3696) (0.1164)
$R^2 = 0.781$; $S.E.E. = 0.973$; $F = 8.037$ (d.f. 4, 9)

VI $y = 14.3912 + 0.1079\ X_6 + 0.0010\ X_8 - 0.0759\ X_{10} + 2.131\ X_{13}$
(4.936) (4.147) (1.542) (−1.288) (0.641)
$R^2 = 0.731$; $S.E.E. = 1.078$; $F = 6.124$ (d.f. 4, 9)

1. The results show that, in conformity with the hypotheses, literacy level of both sexes in all age groups considered, represented by variables X_1 to X_6, has highly significant positive influence on female marriage ages. It brings out independent influence of literacy level of guardians as well as that of guardians and marriage partners combined.

2. A comparison of the influence of literacy level, pertaining to three age groups considered, reveals that literacy level by sex for all ages combined (X_1 and X_2) has the highest influence among the three age groups in case of both sexes. The finding suggests that although important, literacy level of the guardians alone (X_5 and X_6) does not have the dominant influence in decision making about marital age. It is primarily the marriage partners' role combined with guardians' role, represented by variables X_1 and X_2, which has the highest explanatory power keeping the other variables of the model constant for each sex separately

3. Regarding comparative influence of male and female literacy in the different age groups, female literacy (X_2 and X_4) is seen to have a relatively higher influence than male literacy (X_1 and X_3) in regard to all age groups combined as well as age group 15 years and over. It is only in case of age group 35 and over that male literacy is seen to be relatively somewhat more important than female literacy. The finding indicates that if literacy level for age group 35 and over alone is considered, which represents literacy status of guardians, literacy level of male guardians matters more than that of female guardians in decision making about female marriage age, implying relative

TABLE 2-ZERO ORDER CORRELATION COEFFICIENT MATRIX : FEMALE AGE AT MARRIAGE AND SCOIO-ECONOMIC AND DEMOGRAPHIC VARIABLES. 1981—INTER-STATE ANALYSIS (N = 14)

Variables	*Female Mean Age at Marriage y*	*% Male Literate X_1*	*% Female Literate X_2*	*% Male Literate 15+ X_t*	*% Female Literate 75+ X_4*	*% Male Literate 35+ X_6*	*% Female Literate 35+ *6*
(1)	(2)	(3)	(4)	<5>	(6)	(7)	(8)
y Female mean age at marriage	1.0000						
X1 % Male literate	0.8271	1.0000					
X_2%Femaleliterate	0.8806	0.9529	1.OOO				
X_t % Male literate 15+	0.7880	0.9921	0.9306	1.0000			
X_t % Female literate 15+	0.8554	0.9497	0.9956	0.9373	1.0000		
X_5 % Male literate 35 +1	0.7442	0.9393	0,8824	0.9664	0.9006	1.0000	
X % Female literate 35+	0.7399	0.9021	0.9481	0.9092	0.9711	0.9016	1,0000
X_7 % Urban population	0.3757	0.3889	0.3440	0.3428	0.3000	0.2839	0.1653
X_8 Per capita income	0.4158	0.2599	0.3O74	0.1697	0.2413	-0.0048	0.0684
X_9 Poverty Ratio	-0.1753	0.0151	-0.1 175	0.1092	-0.0742	0.2899	0.0363
X_{10} % Female in agriculture	-0.3116	-0.0289	-0.0624	-0.0193	-0.0632	0.0578	-0.0066
X_{11} % Population in non-agricultural sector	0.7106	0.7699	0.7978	0.7273	0.7744	0.6918	0.6797
X_{12} Newspaper circulation rate	0.7708	0.8718	0,9270	0.8607	0.9270	0.8459	0.8984
X_{13} Proportion single males 15-44 to single females 10-39	0.0003	0.0205	0.0228	0.0329	0.0220	0.1349	0,0024

	% Urban Population X_7	Average per capita income 1978-81 X_8	Poverty Ratio X_9	% Female in agriculture X_{10}	% Population in non-agricultural sector X_{11}	News-Paper circulation Rate X_{12}	Proportion single male 15-44 to single female 10-39 X_{13}
	(9)	(10)	(11)	(12)	(13)	(14)	(15)
y Female mean age at marriage							
X_1 % Male literate							
X_2 % Female literate							
X_3 % Male literate 15+							
X_4 % Female literate 15+							
X_5 % Male literate 35+							
X_6 % Femele literate 35+							
X_7 % Urban population	1.0000						
X_8 Per capita income	0.5574	1.0000					
X_9 Poverty Ratio	−0.3460	−0.7882	1.0000				
X_{10} % Female in agriculture	0.2444	−0.3391	0.3738	1.0000			
X_{11} % Population in non-agricultural sector	0.7464	0.4309	−0.2620	0.2092	1.0000		
X_{12} Newspaper circulation rate	0.4789	0.2622	−0.0592	0.0989	0.8121	1.0000	
X_{13} Proportion single males 15-44 to single females 10-39	0.5449	−0.0569	0.1359	0.4116	0.4673	0.2530	1.0000

role of the two sexes. However, comparison of results on six literacy variables (X_1 to X_6) considered clearly brings out that it is the female literacy level considered for all age-groups combined (X_2) that has got the highest influence in determination of female marriage ages.

In order to test the hypotheses regarding other explanatory variables, the following regression models were tested besides the six models given above.

VII $y = 14.9940 + 0.0994\ X_2 + 0.0641\ X_7 + 0.0193\ X_9 - 0.1084\ X_{10}$
(7.009) (5.784) (1.380) (+0.947) (−2.477)
$-0.5146\ X_{13}$; $R^2 = 0.880$, $S.E.E. = 0.764$; $F = 11.735$ (d.f. 5, 8)
(0.177)

VIII $y = 15.5059 + 0.0857\ X_4 + 0.0775\ X_7 + 0.0175\ X_9 - 0.1080\ X_{10}$
(6.553) (5.041) (1.322) (0.767) (−2.213)
$-0.9941\ X_{13}$; $R^2 = 0.851$; $S.E.E. = 0.851$; $F = 9.146$ (d.f. 5, 8)
(−0.309)

IX $y = 18.8517 - 0.007\ X_8 - 0.1392\ X_{10} + 0.7150\ X_{11} - 5.2913\ X_{13}$
(7.375) (−1.116) (−2.665) (5.154) (−1.656)
$R^2 = 0.802$; $S.E.E. = 0.925$; $F = 9.117$ (d.f. 4, 9)

X $y = 18.1143 + 0.0003\ X_8 - 0.0979\ X_{10} + 0.1081\ X_{12} - 1.000\ X_{13}$
(6.435) (0.487) (−1.732) (4.442) (−0.308)
$R^2 = 0.755$; $S.E.E. = 1.029$; $F = 6.933$ (d.f. 4, 9)

Urbanization

In conformity with the hypothesis, urbanisation is seen to have a positive influence on female age at marriage (functions VII and VIII). However, the influence is found to be relatively weak as it is significant at 10% level and not at 5% level.

Per Capita Income

In accordance with the hypothesis, per capita income (X_8) is found to have a positive influence on female age at marriage. It is brought out by a consistent presence of positive relation in seven out of eight regression models (I to VI and IX), tested with this variable. However, the influence appears to be relatively weak as it is significant at 5% level only in one model (V).

Poverty Ratio

Contrary to hypothesis, poverty ratio (X_9) is not seen to have a significant

influence on female marriage age. The positive relation observed in the two models in which this variable occurs (VII and VIII) is insignificant,

***Female Par**ticipation in Agriculture*

In conformity with the hypothesis, female participation in agriculture *(X_{10})* is found to have a negative influence on female marriage ages. It is seen from the consistent presence of negative relation in all the ten models, Which is significant at 5% level in four out of ten models (II, VII, VIII, IX) and at 10% level in the remaining models.

Non-agricultural Employment

In accordance with the hypothesis this variable (X_{11}) has a positive influence on female marriage age. Due to presence of serious multicollinearlty with some other explanatory variables it could be tested only in one model (IX), but its influence observed from the model is highly significant.

Newspaper Circulation

In conformity with the hypothesis, this variable *(X_{12})* is seen to have a highly significant positive impact on female age at marriage (model X). It brings out a strong influence of mass media on female marriage age.

Sex-ratio among Unmarried Males to Unmarried Females

This variable (X''_{13}) is not found to have a significant influence on female marriage ages either way. Contrary to hypothesis, this relation is seen to be positive in six models (I to VI), but this positive influence is highly insignificant. In other four models (VII to X), the relation is seen to be negative as hypothesized, but this negative relation is also highly insignificant in three out of four models and only in one model (IX), it is significant at 10% level.

Conclusion

The testing of various hypothesis pertaining to thirteen socio-economic and demographic variables selected for understanding the factors influencing female ages at marriage in India brings out hypothesized influences in case of eleven variables. Literacy level of males and females in three selected age groups, representing primarily the literacy status of marriage partners and their guardians, is observed to exercise a highly significant positive influence in all cases. As between males and females literacy, the latter is found to be having higher influence than the former. As compared to the literacy status of guardians,

the literacy status of marriage partners appears to play more important role in the matter. Non-agricultural employment and newspaper circulation rate, representing reach of mass media, are also seen to have highly significant positive influence in this respect. Besides these, urbanization and per capita income are found to have a positive influence on female marriage ages, although their influences are seen to be relatively weak. Female participation in agricultural activities, on the other hand, is seen to have a significant negative influence on these ages. The findings of the study have important policy implications.

References

1. Becker, G. 1973 and *1974.* A theory of marriage, *Journal of Political Economy,* 81 (4) : *813-46 and 82 (2), 57-72.*
2. Dixon, R. B., 1971, Explaining cross-cultural variation in age at marriage and proportion never marrying. *Population Studies, 25* (2) : 215-233.
3. Duza, M. B. and Baldwin, C. S. 1977, *Nuptiality and Population Policy,* Population Council, New York, pp. 83.
4. Fawcett, J. T., 1974, Psychological determinants of nuptiality. In : *Proceedings of the International Population Conference,* Liege, 1973, Vol. II Pp. 19-30.
5. Malakar, C. R., 1975, Socio-economic and demographic correlates of marriage patterns in India. *Demography India,* **IV** (2) : 323-335.
6. Srivastava, J. N., 1982, *Determinants of Age at Marriage in Uttar Pradesh.* Population Reserach Centre, Department of Economics, Lucknow University, Lucknow, pp. 74.
7. Srivastava, J. N., 1983, Socio-economic determinants of child marriage in Uttar Pradesh. *Demography-India,* **12** (I) : 59-73.
8. Srivastava, J. N., 1984, Determinants of female age at marriage in rural Uttar Pradesh. *Indian Journal of Economics, 64* Part III, *(254), 327-344.*