Neo Geographia (ISSN-2319 – 5118) Vol. IV, Issue. II, April 2015 Impact factor 1.092 (IIFS)

# INFLUENCE OF WOMEN'S EDUCATIONAL ATTAINMENT ON FERTILITY: A CASE STUDY OF VILLAGE MALEGAON IN SOLAPUR DISTRICT

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**Abstract:**

*According to US Census Bureau Glossary (2006) Educational Attainment is a term commonly used by statisticians to refer to the highest degree of education an individual has completed. Fertility means the level of childbearing; in an individual, but more often in a society or nation. In the developing countries mortality has declined considerably, and is expected to decline correspondingly, with the result that these countries are experiencing an extremely rapid population growth which, in the opinion of development experts, is a threat to programmes of social and economic development. According to Ruth Dixon Mueller (1993), education of women can indirectly decrease fertility. Therefore an effort is made here to examine impact of educational attainment of women on Fertility. The paper is based mainly on primary data sources. To examine the impact of female educational attainment on fertility the coefficient of correlation, Coefficient of determination and regression equation technique has been employed. The study reveals that increase of education of women by one standard causes for decrease of fertility 0.21 in village Malegaon.*

**Key wards:** Female literacy, fertility, Correlation, regression.

## Introduction:

According to US Census Bereu Glossary (2006) Educational Attainment is a term commonly used by statisticians to refer to the highest degree of education an individual has completed. According to the international standard classification of education (ISCED, 2014) Educational Attainment is expressed by the highest completed level of education. Educational Attainment refers to the highest level of schooling that a person has reached at primary and secondary school level. Educational Attainment refers to the number of grades completed at post secondary level; it refers to institutions attended and certificates, degrees or diplomas obtained (Statistics Canada, www.statcan.gc.ca.) Literacy influences attributes of population as marriage, fertility, mortality, mobility, occupation, etc. A certain level of literacy is, therefore, a basic requirement for people to get out of ignorance and backwardness (Gosal and Chandna, 1972).

Fertility is an important part of demography. Fertility means the level of childbearing; in an individual, but more

often in a society or nation (Susan Mayhew, 2004). Fertility means the number of live births within a given period and area. (JaKie Smith, 1984). The term Fertility indicates the actual level of reproductive performance determined by social, cultural, psychological as well as economic factors (Bhede & Kanitkar, 2006). The growth of population and replenishment of human society depends on human fertility. Very low fertility, particularly below the replacement level may threaten the society by extinction as the question raised by Morgan (2003).

In the developing countries mortality has declined considerably, and is expected to decline correspondingly, with the result that these countries are experiencing an extremely rapid population growth which, in the opinion of development experts, is a threat to programmes of social and economic development. Though the rate of population growth could be brought down through declines in birth rates and women's educational attainment is the ways to decline fertility.

Female literacy is one of the important determinants of fertility. If there is widespread literacy among women and their educational attainment is also very high the norms about these intermediate variables are quite different from those which obtain when a high proportion of the women are illiterate and their educational attainment is low. In society, in which women are educated, child-bearing and have planned families. On the other hand, in a society in which women are illiterate, child marriages are common, women have no other roles to play than those of wives and mothers; only these two biological functions are open to them as avenues of self-expression and self development. No wonder that, in such society, the intermediate variables are favorable to high fertility (Bhede & Kanitkar, 2006).

According to Ruth Dixon Mueller (1993), education of women can indirectly decrease fertility in three ways i.e. increasing the number of years that women are in school delays marriage and reduces the time duration that women are exposed to the possibility of conception. Education creates aspiration for higher standard of living, thereby decreasing the desired number of children in a family. Education

exposes women to knowledge, attitudes and practices favorable to birth control that would enable women to have their desired number of children (Dixon-Muller, 1993). Therefore an effort is made here to examine impact of educational attainment of women on Fertility.

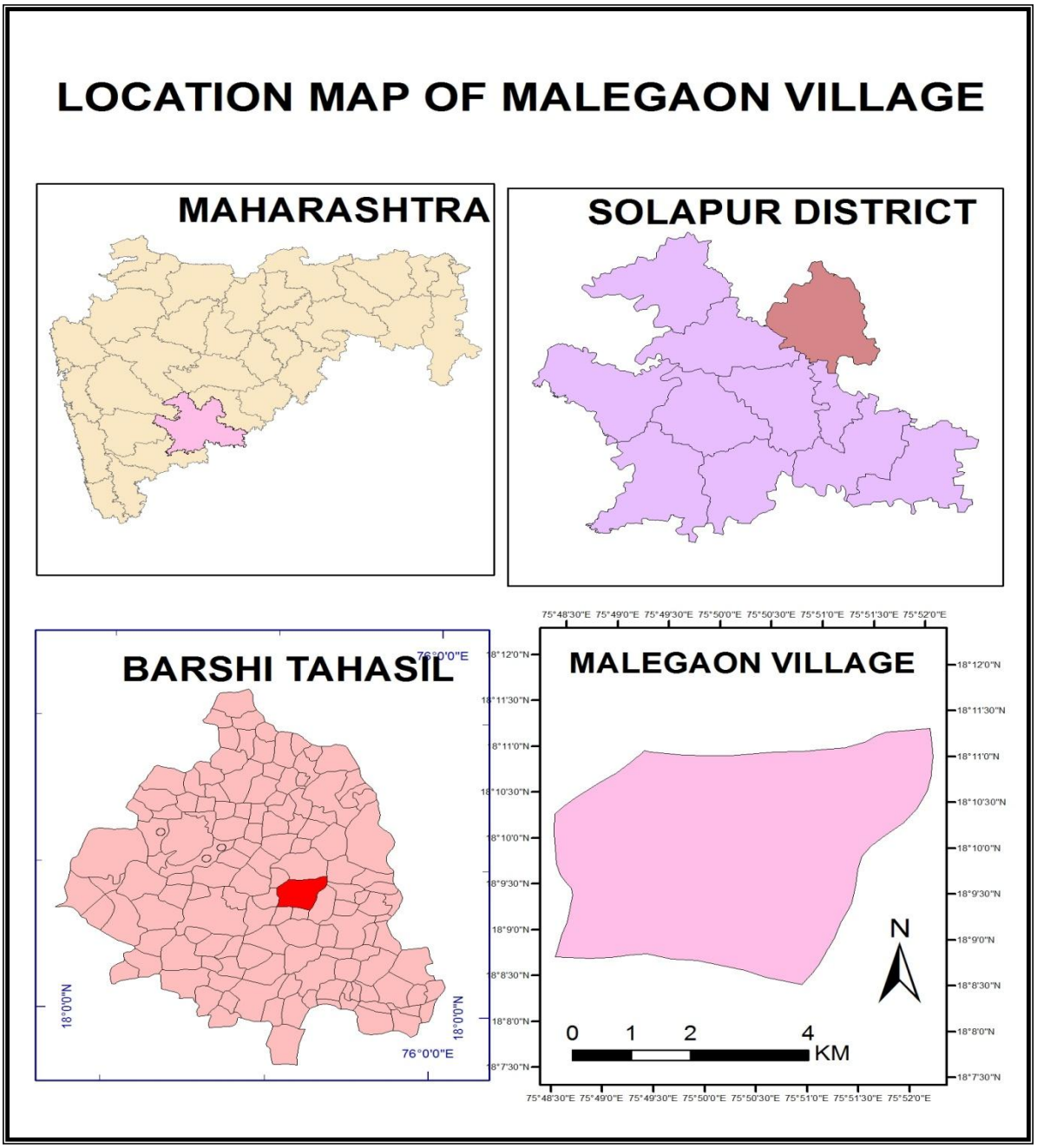


Figure-1

## The Study Area:

The village Malegaon is located $18^0$ 10' 34.3" North latitude and $75^0$ 49' 54.3" East longitudes. It lies in Eastern part of Barshi Tahsil on Barshi- Tuljapur State highway number 153. The village is just 18 km away from Barshi Tahsil head quarter. The geographical area of village is 2178.15 hectares. The average height of village is 510 meters from mean sea level. The village has hot and dry climate. The annual average rainfall of village is 667.93MM. The village has mean monthly maximum and minimum temperature $41^0$ and $24^0$ Celsius respectively in month of May, that of in December is $31^0$ and $13^0$ Celsius. The population of village is 2615 as per census of 2011. The percentage of cultivators and agricultural labours is 41.9 and 43.1 respectively, indicates that agriculture is main occupation of village.

## Objectives:

The main objective of this paper is to examine the influence of Women's educational attainment on the fertility and to estimate the rate of change in fertility in relation to female educational attainment.

## Data collection and Methodology:

In order to meet these objectives the relevant information and data regarding female educational attainment and fertility are collected and used for the year of 2014-15 are mainly based on primary sources. The primary data is the first hand data collected through different sources for which special questionnaires (schedule) were designed and field survey have been made in February 2015.

During field survey 180 families out of 675 Families are assessed, which constitute 26.66 percent of total households. Systematic sampling method is applied for the collection of primary data, every third women is considered for village Malegaon. It has helped to understand the female educational attainment and fertility of women. Information also collected from Talathi office. The information regarding physiography and drainage system also been obtained from Toposheet.

After the collection of data different statistical techniques have been employed. To examine the impact of female educational attainment on fertility the Karl Pearson coefficient of correlation technique of has been employed.

The functional form of linear relationship has been measured by using regression equation 'Y' on 'X' i.e. Y = a + bx. The rate of change in dependant variable has been estimated with the help of 'b' coefficient, which is the line of best fit. The 'T' test is used with the view to understand the confidence level. The analysis of the study has been made with the help of the statistical techniques and on the basis of this techniques result and conclusions are drawn.

## Discussion:

### Educational Attainment of Women and their fertility in the village:

The table-1 indicates that illiterate women and the women who has educational attainment up to 4th class has 2 to 6 fertility rate in the village Malegaon.

**Table 1 Educational Attainment of Women and their fertility in village Malegaon.**

| Sr. No | Educational Attainment of Women | Fertility | Sr. No | Educational Attainment of Women | Fertility |
|---|---|---|---|---|---|
| 1 | 0 | 5 | 21 | 6 | 2 |
| 2 | 0 | 4 | 22 | 7 | 4 |
| 3 | 0 | 6 | 23 | 7 | 1 |
| 4 | 0 | 4 | 24 | 7 | 2 |
| 5 | 0 | 5 | 25 | 7 | 3 |
| 6 | 0 | 6 | 26 | 8 | 3 |
| 7 | 2 | 3 | 27 | 8 | 2 |
| 8 | 2 | 4 | 28 | 8 | 4 |
| 9 | 3 | 4 | 29 | 9 | 2 |
| 10 | 3 | 4 | 30 | 9 | 3 |
| 11 | 3 | 2 | 31 | 9 | 1 |
| 12 | 4 | 6 | 32 | 9 | 5 |
| 13 | 4 | 2 | 33 | 10 | 2 |
| 14 | 4 | 4 | 34 | 10 | 3 |
| 15 | 4 | 5 | 35 | 10 | 2 |
| 16 | 4 | 3 | 36 | 10 | 1 |
| 17 | 4 | 1 | 37 | 10 | 3 |
| 18 | 5 | 2 | 38 | 12 | 2 |
| 19 | 5 | 6 | 39 | 14 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| 20 | 5 | 3 | 40 | 15 | 2 |

Source: Compiled by Authors based on Field Survey February 2015

The women which has educational attainment up to 7th class has 1 to 6 fertility rate in the village. The women which are educated up to 10th class has 01 to 5 fertility rate. The table also indicates that the woman those are educated up to 12th class has 2 fertility rate, while the woman those are educated above 12th class also has 2 fertility rate. On an average higher the educational attainment lower is the fertility, but there are some exceptions in some cases that the women have higher educational attainment and high fertility rate in the village Malegaon.

**In the context of objective the following findings have come to light.**

**1)** The negative relationship between the educational attainment of women (X) and fertility (Y) has been observed in the village. The coefficient of correlation in this regard is at r = -0.5658. It indicates that a moderate negative relationship between the variables 'X' and 'Y'. The degree of linear association between these two variables obtained by using the coefficient of determination ($r^2$) is found to be at 0.320129, which reveals that the independent variable (X) i. e, the educational attainment of women are explaining 32.02 percent of the total variations in dependent variable (Y) i.e. fertility rate of women in the village. It is a good explanation because 32.02 percent of the variations in (Y) fertility to be influenced by the variable (X) i.e. educational attainment of women and about 67.98 per cent of the variation is left to be influenced by other variables i.e. Social traditions, Pressure of family members or husbands.

**2)** The functional form of linear relationship computed through the regression equation of Y on X found to be at Y = 4.456+ -0.212 x. The line of best fit is shown in the figure-2. The regression coefficient indicates that increase of education of woman by one standard causes for decrease of fertility by 0.21. By testing the significance of regression coefficient (a test of significance), the validity of this causal relationship has been confirmed,

The equation used $t = (b-\beta)\sqrt{(n-2)\Sigma(Xi-\bar{X})^2 \div \Sigma (Yi-yi)^2}$

The calculated value of 't' in this exercise is found at 4.23 It is observed that this calculated value is higher than the tabulated value of 't' (2.70) at the 38 degree of freedom (df = n –2, where 'n' is 40) even at 1 per cent level of significance.

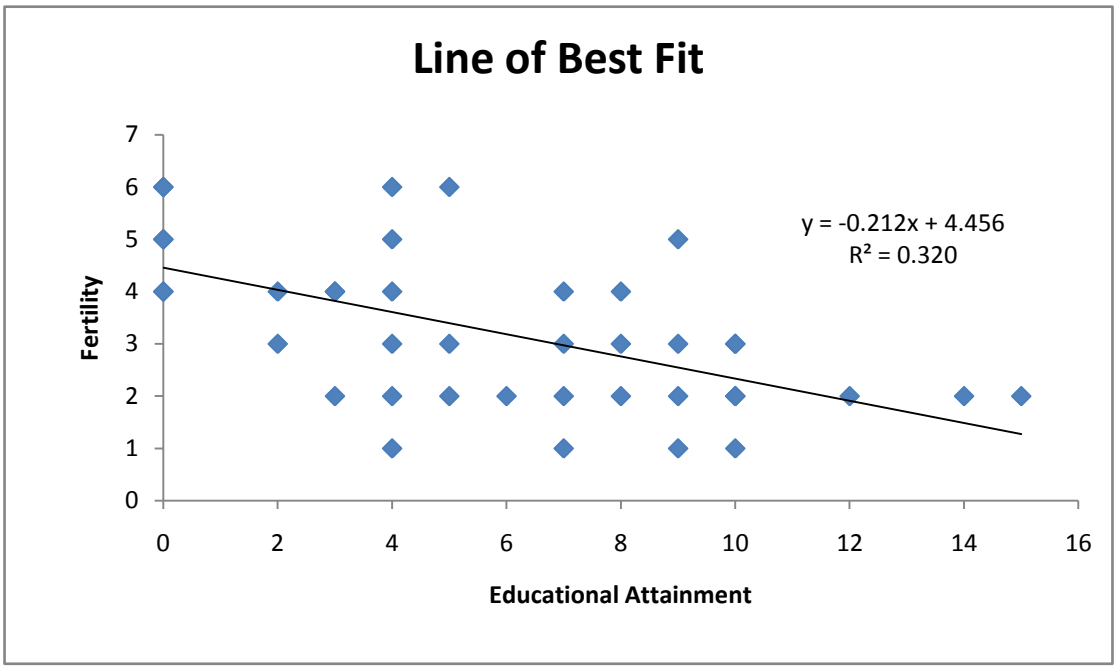


Figure-2

**3)** In order to understand the degree of fit of regression equation and the accuracy level of predicted values (y) for the fertility of women of Malegaon the standard error (SE) of estimate is being done with the equation $SE(Y) = SY\sqrt{1-r^2}$, where SE (Y) is the standard deviation of residuals (Y-y); and 'SY' is the standard deviation of 'Y'.

The confidence interval of the predicted values are worked out at $Y = Y \pm SE(Y)$ (The SE (Y) for the present exercise is 1.23 and SY is the 1.49). Thus it is assumed that if the values of 'Y' (Y-y) lie within the range of Zero to ± SE, the prediction could be expected to be accurate. In other words, the role of independent variables in explaining the

change in dependent variable can be accepted as correct. In this context it has been observed that the predicted values (given in table- 2) of 27 out of 40 women in the present study lie within the range of ± SE, 11 within ± SE to ± 2 SE and 2 above ± 2 SE. Now the obvious inference is that the 67.5 per cent of the total number of observation (n is 40) the regression is a good indicator meaning thereby that the variations of fertility in village Malegaon is the function of the variations in educational attainment of women. In the case of other women with residuals between > ± SE to ± 3 SE the situation is different because here the regression is a poor indicator.

**Table -2 Residuals from regression of Fertility.**

| Sr. No. | yi | Yi-yi | Sr. No. | yi | Yi-yi |
|---|---|---|---|---|---|
| 1 | 4.46 | 0.54 | 21 | 3.18 | -1.18 |
| 2 | 4.46 | -0.46 | 22 | 2.97 | 1.03 |
| 3 | 4.46 | 1.54 | 23 | 2.97 | -1.97 |
| 4 | 4.46 | -0.46 | 24 | 2.97 | -0.97 |
| 5 | 4.46 | 0.54 | 25 | 2.97 | 0.03 |
| 6 | 4.46 | 1.54 | 26 | 2.76 | 0.24 |
| 7 | 4.03 | -1.03 | 27 | 2.76 | -0.76 |
| 8 | 4.03 | -0.03 | 28 | 2.76 | 1.24 |
| 9 | 3.82 | 0.18 | 29 | 2.55 | -0.55 |
| 10 | 3.82 | 0.18 | 30 | 2.55 | 0.45 |
| 11 | 3.82 | -1.82 | 31 | 2.55 | -1.55 |
| 12 | 3.61 | 2.39 | 32 | 2.55 | 2.45 |
| 13 | 3.61 | -1.61 | 33 | 2.34 | -0.34 |
| 14 | 3.61 | 0.39 | 34 | 2.34 | 0.66 |
| 15 | 3.61 | 1.39 | 35 | 2.34 | -0.34 |
| 16 | 3.61 | -0.61 | 36 | 2.34 | -1.34 |
| 17 | 3.61 | -2.61 | 37 | 2.34 | 0.66 |
| 18 | 3.40 | -1.40 | 38 | 1.91 | 0.09 |
| 19 | 3.40 | 2.60 | 39 | 1.49 | 0.51 |
| 20 | 3.40 | -0.40 | 40 | 1.28 | 0.72 |

Source: Compiled by Researcher on the basis of field survey

It clearly indicates that these are the women whom the influence of variables other than the independent one. The variations of fertility of woman in the latter case may be due to the variation in

impact of social tradition, variation in pressure of family member or husband.

## Conclusions:

The study reveals that there is moderate negative correlation between educational attainment of women and fertility in village Malegaon. The coefficient of determination reveals that the independent variable (X) i.e, the educational attainment of women are explaining 32.02 per cent of the total variations in dependent variable (Y) i.e. fertility of woman in the village. It is a good explanation because 32.02 per cent of the variations in (Y) fertility to be influenced by the variable (X) educational attainment of women and about 67.98 percent of the variation is left to be influenced by other variables i.e impact of social tradition, variation in pressure of family member or husband. The educational attainment of women is found to be more effective than the other variables considering fertility. It is found that increase of education of woman by one standard causes for decrease of 0.21 fertility in village Malegaon. Therefore it is to be stated that the high educational attainment is helpful to control birthrate. Public awareness should make regarding women education to reduce birth rate and to increase per capita income as well as standard of living.

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