

Empirical Study of Issues Leading to Women Empowerment using Data Analytics

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Abstract

The paper calls for adopting a multi-dimensional endeavour. An empirical study on the data as obtained from the Open Government Data Platform of India (data.gov.in) of Ministry of Women and Child Development has been exhaustively dealt using data analytics tools. Correlation between the following vital parameters leading to women empowerment and corresponding trends have been comprehensively dealt in the said study¹⁰.

Keyword: Education, mission, women, empowerment, literacy

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1. Introduction

Democracy in 21st century is moving towards equality and inclusion. Today, women empowerment has remained one of the major developmental agenda in all the policy decisions of India. India has exemplified a promising model in the field of women's empowerment at the grass roots. The present educational policies implemented with the objective of enhancing overall improved female literacy rate is yielding results².

Various government schemes such as National Literacy Mission, Adolescence Education Programme etc. have contributed immensely to the development and empowerment of women through education. Female literacy rate as per Census 2011 is 65.46% which is low compared to male literacy rate of 82.14%, but it has improved over the time due to informed society. The state of Kerala is the leader in female literacy with the rate of 91.98 whereas the state of Rajasthan is lowest with the female literacy rate of 52.66.

Further, the presence of women in the workforce have contributed a lot towards the increase in GDP of the country adding to economic development as a whole⁶.

Women education plays a crucial role in the social and economic development of the country. There is a strong empirical evidence to suggest that money in the hands of the mother increases expenditure on children. There is a strong positive correlation between women's status and economic/social development. Hence the study of impact of female literacy become all the more important.

2. Research Objective⁹

The objective for choosing this particular data set was to find out as to how female literacy has affected the lives of women in recent times. Data analytics tool has been used to establish the co-relation between various vital parameters in the data set.

The main objectives of the study is to analyse the following using analytical tools:

- i. Correlation between Women Literacy Rate and Mean Marriage age of Women
- ii. Correlation between Literacy Rate and Total Fertility Rate
- iii. Correlation between Literacy Rate and Crude Birth Rate

3. Research Methodology³

The data has been taken from India Census 2011 and the Open Government Data Platform of India (data.gov.in) to understand and study the relationship between various parameters like the female literacy rate, mean age of female marriage, fertility rate. The state wise literacy rate of India has been also studied and taken into account.

The data thus obtained has been analysed and the results have been displayed in the pictorial form as Scatterplots. In fact, a scatterplot is a type of mathematical diagram that displays the effect of one variable on other variable. The relationship between two variables is called their correlation.

In a scatter plot, the data is displayed as a collection of points, each having the value of one variable determining the position on the horizontal axis and the value of the other variable determining the position on the vertical axis. The trend is represented by a trend line¹¹.

4. Data Analytics and Observations^{1,4,7,12}

The analysis of the data as obtained from the authentic sources¹² has shown very interesting results as discussed below:

- As per data of Census 2011 for 21 states, it is observed that there is a positive correlation of 0.522 between female literacy rate and mean age of marriage.
- Further, the trend line shows a positive linear relationship between the female literacy rate and mean age of marriage.
- However, the state of Jammu and Kashmir shows a diversion from the normal trend, thereby implying that there are some cultural differences.

4.1 Correlation between Female Literacy Rate and Mean Age of Marriage

It is evident from the graph that literacy rate has positive effects on the mean age of marriage in case of girls. There has been a considerable shift in the marriage age of girls. Earlier women used to get married at a younger age probably due to lack of education and exposure.

- But with increase in the female literacy, more and more girls are getting educated and are becoming confident. The girl's preference is shifting towards higher education rather than

marriage. This trend shift is towards the positive direction and is quite visible in in the Figure 1 above.

4.2 Correlation between Female Literacy Rate and Total Fertility Rate

As per the data available on literacy rate of female and total fertility rate, it is observed that there is a negative correlation of 0.663 between the two variables.

- The negative correlation implies that as the literacy rate of women increases, more women adopt for family planning techniques, which has resulted in reduced rate of Total Fertility.
- Further, this strongly reflects women empowerment wherein the women has started playing significant role in family planning and can decide for themselves without being forced to bear any kind of burden.

4.3 Correlation between Female Literacy Rate and Crude Birth Rate

After exhaustive analysis of the available data, it is observed that there is a negative correlation of 0.726 between the female literacy rate and crude birth rate.

- The negative correlation between the above two parameters imply that as the literacy rate of women increases, more women adopt for family planning techniques, which has resulted in reduced crude birth rate.
- However, there are a few outliers such as Andhra Pradesh and Arunachal Pradesh, where the literacy rate is low as well as the Crude Birth Rate. This may probably be attributed to the reasons such as lack of medical facilities, poverty and cultural differences.

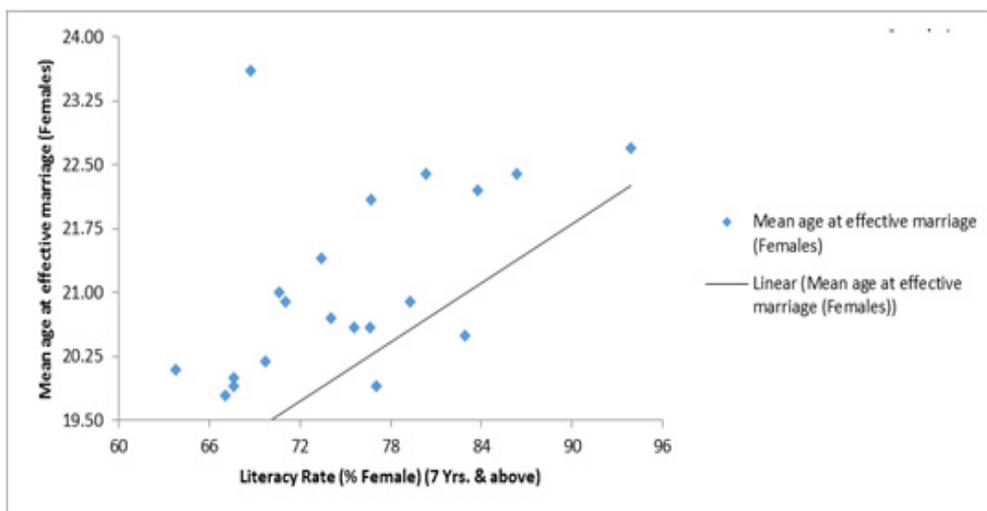


Figure 1. Literacy Rate of Female from Angle-1.

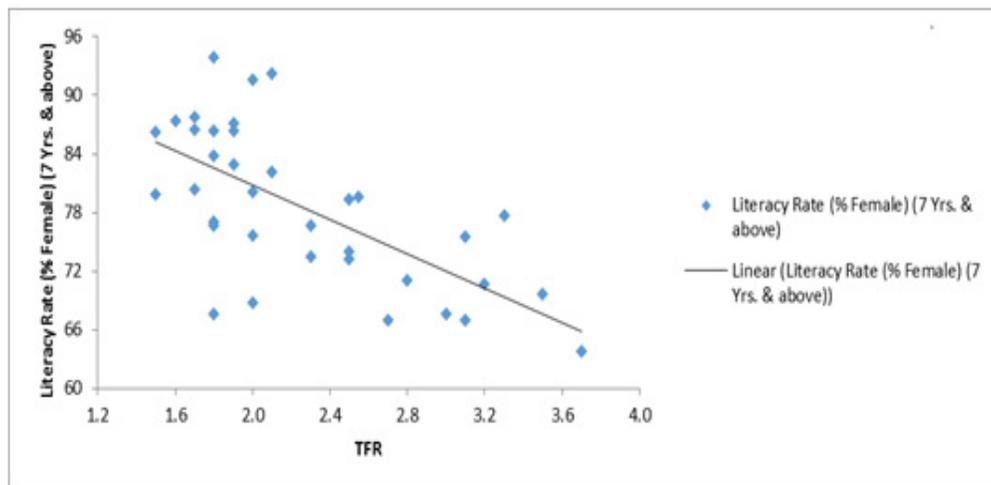


Figure 2. Literacy Rate of Female from Angle-2.

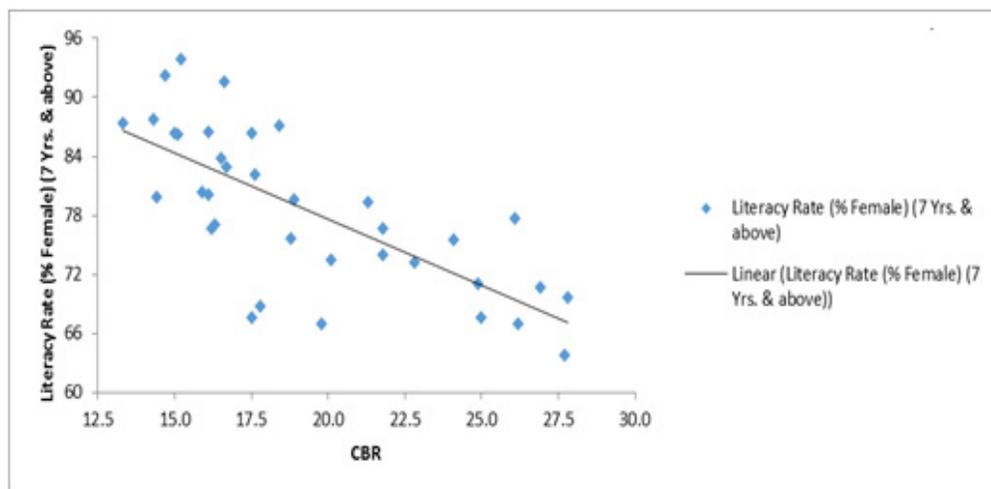


Figure 3. Literacy Rate of Female from Angle-3.

- Reduction in crude birth rate has also led to improvement in the health condition of women and that of the children as well. The infants are born healthy which also ensures that they would have better mental and physical conditions. Further, this would reduce the problem of malnutrition. In fact, reasonable and acceptable health statistics of the population bode well for the development of the country as a whole.

5. Conclusion

Through various studies, it has been found that the females can maintain a good balance between the workplace and the family. Effective inclusion of the females in the workforce of the country would contribute in increased GDP of the nation⁶.

Further, the above study has impressed upon the fact that there is a positive correlation between the female literacy rate and improved quality of their live. The rising trend line between the female literacy rate and mean marriage age clearly depicts women empowerment with positive shift on the marriageable age of the literate females.

The reduction in the total fertility rate and crude birth rate definitely provide an impetus to the better informed and educated females to take their own decisions leading to women empowerment.

6. Recommendations

- Based on the data analysis and the observations made therein, it can be recommended that the emphasis on women literacy

should continue and should be further accelerated to improve upon the various indicators of the nation⁶.

- There are still few states such as Bihar, Andhra Pradesh, Arunachal Pradesh, Rajasthan, Jharkhand where the female literacy rate is quite less as compared to the rest of the country. As reflected above, low female literacy rate adversely impacts the women empowerment. Less literate females are more subjugated to household work as they find themselves less informed/competent to compete with more informed work force. Further, this adversely impacts their decision making capabilities and self-dependence and vital decision on marriage¹³.
- The results of the analysis and study demonstrates that there is a significant inequality in female literacy rate among the various states of India. Hence emphasis should be laid on enhancing female education including equal opportunities to all the females of the country.
- A whole sum education should be imparted so that they are able to efficiently apply their knowledge in the various practical spheres of live. Effective regulatory mechanisms may be used to regularly monitor the quality of education⁵.
- Programmes like National Literacy Mission which aims at educating adults in the age group of 15-35 should be implemented appropriately and efficiently. Efforts may be made to enhance female participation in literacy programmes.

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