

Title: Predicting the effects of microcredit on women's empowerment in rural Bangladesh: using machine learning algorithms

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Abstract: This study aimed to predict the impact of microcredit on women's empowerment in Bangladesh using machine learning (ML) algorithms. In rural Bangladesh, where microcredit programs are not significantly employed, data for the study was gathered through a survey. The study gathered data on a range of socioeconomic, demographic, and women's empowerment indicators. The Naive Bayes (NB), sequential minimal optimization (SMO), k-nearest neighbor (k-NN), decision tree (DT), and random forest (RF) ML techniques were used in the investigation. In terms of the prediction of women's empowerment, the findings indicated that all five algorithms performed well, with the DT having the highest level of accuracy (83.72%). The results of this study have significant consequences for Bangladesh's microcredit programs and those in nations that are developing. Microcredit programs can focus their efforts on women who, based on their socioeconomic and demographic features, are most likely to benefit from the program by employing ML algorithms. This may result in more successful microcredit projects that support the empowerment of women and general socioeconomic growth.

Key words: Empowerment; Machine learning; Microcredit; Socio economy; Underprivileged

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