Neural Network for Farm Household Output Prediction

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Abstract: In ensuring that food security is at an acceptable level, all of its range of indicators needs to be monitored and maintained. In this study, farm household behaviour such as the mode of labour, type of fertilizer being used; cost of each component for the farm and so forth can be used to predict the farm household output of crops. The crop output is one indicator of food security for household level. The dataset used is based on the Village Level study (VLS) by the International Crops Research Institute for Semi Arid Tropics (ICRISAT). This dataset consists of 37 features and 29 samples of households in 1975. For the prediction model, the Optimum Weight and Threshold Neural Network (OWTNN) is proposed on 37 inputs and one output of crops for each household and compared with the Artificial Neural Network (ANN) performance. The result of the proposed model shows that OWTNN gives a better performance than ANN, which is 99% compared to 86%. Hence, it proves that the proposed model can be offered as one of the best predictors for farm household output. The model also shows that farm household behaviour can affect farm crop output.