**ACME Memo**

ACME corporation is currently debating whether or not to expand its agricultural inputs in Ghana. It is the duty of the data analytics team to determine the influence of certain variables on profit, specifically related to household educational attainment data as well as defining features of the local area. Based on this information, ACME will be better prepared to make a decision as to how they want to expand their operations, if at all.

The data analysis began with a series of cleaning steps in order to aggregate all of the necessary data. Once the cleaning was complete, the next step in analyzing the data was to construct a linear model that could inform us how educational attainment data and local features, our independent variables, could influence profit margins, or the dependent variable. The other aspect of the model which is useful for the purposes of the analysis is that the strength of the relationship can be measured.

The independent variables included in the linear model include the crop, land, livestock, and total export sums, the cluster associated with a particular household, the id holder, the deprecation of the farm equipment, whether person 1 was interviewed, and finally whether the household currently owns land or has owned land in the last 12 months. The dependent variable was the household agricultural income.

Upon creating the model, we realized that our model was relatively weak, because our R2 value which measures the strength of the predictive value of the independent variables together, is only about 0.074. As such, we cannot say that there is a reliable mode of factors that can be associated with agricultural profits on the household level in Ghana. Given this information, it would be recommended that ACME not move forward with expanding its operations in Ghana, because as a business, there is no guarantee that the agricultural outputs will be profitable. We simply do not know what contributes to higher income based on these data points, and require additional information in order to make a more informed decision. Potentially compiling data from additional regions or time frames would aid in improving the analysis at large.

However, based on the data available, it would not be advisable for ACME corporation to continue expanding its business in Ghana, simply due to the uncertainty of success in the region.

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