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### Optimal Targeting for Poverty Reduction

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Predicting poverty for the purpose of targeting the poor is essential to contain the cost of poverty reduction programs. However, there is no consensus on what is an optimal approach to predicting household poverty. This paper considers normative and positive criteria in the search for optimal targeting methods and criteria comparing the performance of dependent variable continuous and discrete models and various forms of machine learning models. It provides the spectrum of trade-offs between coverage and leakage rates and the corresponding costs across models and under different poverty lines, budget constraints and various optimizing instruments such as ROC curves and loss functions. It is found that no model emerges as consistently superior to others and that what is optimal depends on the policy maker preferences, relative costs and the distribution of incomes in the data at hand. It is essential therefore to have some degree of knowledge of the policy maker preferences and compare multiple models when predicting poverty. A graphic device designed for policy makers illustrates these points by providing the choice set and the corresponding cost of each choice, thereby showing the existence of multiple optima.