

Machine Learning for Targeting of Conditional Cash Transfers: Improving the Effectiveness of Proxy Means Tests to Identify Future School Dropouts and the Poor

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Abstract : Conditional cash transfers (CCTs) have been targeted towards the poor. Thus, their targeting assessments check whether these schemes have been allocated to low-income households or individuals. However, CCTs have more than one goal and target group. An additional goal of CCTs is to increase school enrolment. Hence, students at risk of dropping out of school also are a target group. This paper analyses whether one of the most common targeting mechanisms of CCTs, a proxy means test (PMT), is suitable to identify the poor and future school dropouts. The PMT is compared with alternative approaches that use the outputs of a predictive model of school dropout. This model was built using machine learning algorithms and rich administrative datasets from Chile. The paper shows that using machine learning outputs in conjunction with the PMT increases targeting effectiveness by identifying more students who are either poor or future dropouts. This joint targeting approach increases effectiveness in different scenarios except when the social valuation of the two target groups largely differs. In these cases, the most likely optimal approach is to solely adopt the targeting mechanism designed to find the highly valued group.

Keywords : conditional cash transfers, machine learning, poverty, proxy means tests, school dropout prediction, targeting

Conference Title : ICPPSS 2018 : International Conference on Public Policy and Social Sciences

Conference Location : Paris, France

Conference Dates : June 25-26, 2018