Quantifying Welfare Effects of a Conditional Subsidy in the Presence of Social Interactions: An Ex-Ante Policy Evaluation of a Healthcare Intervention[*]

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Abstract

In this paper, I study the impact of peer effects on the demand for a healthcare good and the subsequent welfare effects of a subsidy program towards its provision. Households face a choice of whether or not to adopt/buy a preventive healthcare good. An interesting characteristic, is that the take-up/consumption of such goods generate positive externalities. In this case, the outcome is such that the privately optimal adoption level is much lower than what the society as a whole would regard as optimal.

The application considers the adoption choice of Indian households with respect to a healthcare good. The data comes from the baseline survey of a RCT in India that provides microfinance credit and subsides to rural households for adoption of a sanitation facility for their home. The data is used to estimate a static interaction model (Brock & Durlauf 2001) of household choice. A pervasive feature of such models is the existence of multiple equilibria which makes the estimation process computationally burdensome. The estimation method is discussed, which includes a two-step estimator with a correction for the presence of measurement error in the data, in the first step.

In addition to counterfactual policy simulations, the focus lies in quantifying the compensated choice probability and corresponding price elasticities. For a random utility model, the slutsky equation per se does not exist and hence the compensated choice probability is derived through the random expenditure function. In the presence of social interactions, the compensated price effect comprises of a direct effect of price as well as an indirect effect propagated through the interactions. Using the analytical expressions for compensated choice probability price subsidy simulations are undertaken. The results indicate that a significant amount of the price effect is mediated through the indirect channel. Furthermore, the compensated choice probability function is used to calculate welfare measures such as compensating and equivalent variation. The inclusion of peer effect implies that the deadweight loss generated by the subsidy intervention is realised as a net gain, as the society shifts towards a socially optimal level of adoption.

Keywords: *Compensated Choice, Conditional Price Subsidies, Compensating Variation, Externalities, Multiple Equilibria, Random Utility Model, Social Interactions*