The Binarized Scoring Rule of Belief Elicitation*

Tanjim Hossain
University of Toronto

Ryo Okui
Kyoto University

December 2009

Abstract

We introduce a simple method to construct an incentive compatible scoring rule to elicit an agent's subjective belief about a random variable. The method does not depend on the exact form of the agent's utility function. Independent of her risk-preference, it is optimal for her to report the value that minimizes the expected value of a loss function specified in the incentive scheme. Under this incentive scheme, the agent receives a fixed prize when her prediction error, defined by the relevant loss function, is smaller than a randomly generated value and earns nothing otherwise. Adjusting the loss function according to our goal for eliciting the agent's beliefs, the scoring rule can be used in a rich assortment of situations. We run experiments using our scoring rule and the quadratic scoring rule and find that our scoring rule performs as well as the quadratic scoring rule. In fact, our scoring rule's performance seems to improve as subjects become more familiar with it.

Keywords: Scoring rule, randomization, laboratory experiment, subjective belief, prediction.

JEL classification: C91, D81, D83, D84.

*We thank Robin Chark and Eric Set for their excellent research assistance, Sachar Kariv for helpful comments and Sudipto Dasgupta for initially getting us interested in the problem. We gratefully acknowledge the financial support of HKUST under Project No. RPC06/07.BM04. Please direct all correspondence to Tanjim Hossain at tanjim.hossain@utoronto.ca.