

Predicting the Prediction Market: Would Smart Agents Help?

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When market works and when it fails has been an issue long pursued by economists. While to an extreme extent the view, as characterized by the “invisible hand” or “market mechanism”, has been so dominant in economics education and public policy debates, it is generally acceptable that markets are not out there and have to be designed properly so as to work (McMillan, 2004). The significance of designs has been further illustrated by experimental economics. As opposed to designs, what, however, has been drawn less attention is the role of traders, their characteristics and behavior. To one extreme, one may consider that a good design is so dominant that there leaves little room for individual traders to play a role. The literature inspired by the zero-intelligence agent (Gode and Sunder, 1993) provides a good background of this issue, and many later studies do cast doubt on the sufficiency of this minimal intelligence and propose different versions of additional intelligence.

The issue can be better proposed in the context of swarm intelligence or collective intelligence. In this case, we are asking whether a market entirely composed of zero-intelligence agents would perform the same as the market composed of agents with higher intelligence. Or, more generally, would smart agents help promote the market performance?

The observations from a prediction market in Taiwan, called the XFuture, provide us a rare opportunity to address this issue. The XFuture dataset allows us to identify who are the smart agents.

This can be done by ranking the agents who have registered and participated to XFuture based on their life-long trading performance. These smart traders are those who are top-ranked, for example, the top $x\%$. We then study the correlation between the prediction performance of a specific future and the activeness of these smart agents in this specific market.

Our null hypothesis is that the more active of these smart agents in a specific prediction market, the better the market can predict the respective future event. By properly considering various measures of smart agents and their activeness, we find that the activeness of smart agents can have an effect on market performance. This positive association relation is found through the use of both logit regression and the decision trees.