

An Experimental Study of Belief Learning Using Real Beliefs

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Abstract

This paper investigates belief learning. Unlike other investigators who have been forced to use observable proxies to approximate unobserved beliefs, we have, using a belief elicitation procedure (proper scoring rule), elicited subject beliefs directly. As a result we were able to perform a more direct test of the proposition that people behave in a manner consistent with belief learning. What we find is interesting. First to the extent that subjects tend to "belief learn" the beliefs they use are the stated beliefs we elicit from them and not the "empirical beliefs" posited by fictitious play or Cournot models. Second, we present evidence that the stated beliefs of our subjects differ dramatically, both quantitatively and qualitatively, from the type of empirical or historical beliefs usually used as proxies for them. Third, our belief elicitation procedures allow us to examine how far we can be led astray when we are forced to infer the value of parameters using observable proxies for variables previously thought to be unobservable. By transforming a heretofore unobservable into an observable we can see directly how parameter estimates change when this new information is introduced. Again, we demonstrate that such differences can be dramatic.

Key Words: Belief Learning, Game Theory, Experimental Economics

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