

AN EXPERIMENTAL STUDY OF LEARNING IN ONE AND TWO-PERSON GAMES

Abstract

In the economic theory of learning, agents approach each learning task identically. If they are perfectly rational Bayesians, they update their priors given revealed information and maximize accordingly, while if they are boundedly rational they mechanically apply an exogenously given and fixed rule of thumb. In both of these approaches agents do not adapt their learning strategy to fit the circumstances they are faced with. In this paper, we view economic agents as boundedly rational. However, we view them as taking a more active and creative part in the learning that they do. This creativity is manifested in their choice of what to learn about depending on the situation they are faced with.

We conduct a series of one and two-person game experiments aimed at investigating how the learning strategy of laboratory subjects changes as they are presented with decision problems of varying complexity across environments with different learning costs. We find that learning is both institution and situation specific. More precisely, our findings show that as the complexity of the decision problem increases, subjects employ simpler learning rules. Such a shift is more pronounced in a payoff environment characterized by low learning costs. Further, holding the complexity of the decision problem constant and looking across different payoff environments, we find that subjects learn less well in a high learning cost environment despite the fact that they appear to sample identically over the domain of their strategy set as their cohorts in low learning cost experiments. In other words, the relatively better performance of subjects in an environment where learning is less costly is a function of how such subjects process the information they generate and not of the type of information they generate. These results are more pronounced in our one-person decision problem experiments than in our two-person game experiments.