Abstract:
Many firms apply “naive” methods of data analysis to drive decisions, while not fully considering subtle econometric issues such as causality and unobserved confounders. We analyze scenarios in which firms might benefit from such naive analysis with a focus on two common decisions: pricing and advertising. We show that in a competitive setting, commonly-used data analysis heuristics induce firms to underestimate price elasticities of demand, and to overestimate the effectiveness of advertising. Although employing more sophisticated analytics would remedy these measurement errors, we show that naive analysis that results in imprecise measurement of advertising and pricing response increases firm profits due to the indirect (strategic) impact of competition. Finally, we also show how an application of the model to team production games can explain the prevalence of overconfidence among teams of entrepreneurs and sales people.