

Strategic interactions among rational, self-interested actors are commonly theorized in the behavioral, economic, and social sciences. The theorized strategic processes have traditionally been modeled with multi-stage structural estimators, which improve parameter estimates at one stage by using the information from other stages. Multi-stage approaches, however, impose rather strict demands on data availability: data must be available for the actions of each strategic actor at every stage of the interaction. Observational data in the behavioral, economic, and social sciences, however, are not always structured in a manner that is conducive to these approaches. Moreover, the theorized strategic process implies that these data are missing not at random. In this paper, I derive a strategic logistic regression model with partial observability that probabilistically estimates unobserved actor choices related to earlier stages of strategic interactions. I compare the estimator to traditional logit and split-population logit estimators using Monte Carlo simulations and a substantive example of the strategic firm–regulator interaction associated with pollution and environmental sanctions.