

Summary of Research

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The major direction of my research has been in describing value discovery within markets of limited private and public information.

In two papers on search and herding, I examine discrete-time market models where short-lived, risk-neutral buyers encounter non-strategic infinite-lived sellers of fixed types. Public information in these markets is the number of trades at each seller in the prior period. Buyers acquire private information about a single seller by sampling the quality of the seller's goods. Many markets have this type of dynamic information structure: travelers searching for a good restaurant in an unfamiliar town, patients searching for a good doctor, traders in asset markets where value is unknown, and others. The main intuition is that when a buyer has limited information about payoffs, seeing what other buyers did provides additional information that he should consider. In these theory papers, I find the standard herding result of information loss when payoffs are independent of others' actions, but I also find opposite result when payoffs decrease in the number of buyers—public information actually grows through time.

When the good sold is a rival good, buyers' surplus depends on the number of other buyers at the seller and the quality of the sold good. I describe the evolution of public information in a new market where initially buyers have no information about the quality of individual sellers. As time goes on, the search and trading of past buyers gives current buyers increasingly more refined information about the quality of sellers. Since search is costly, the presence of searchers reduces total welfare. As the market evolves, fewer and fewer buyers search. Eventually, search stops, purchase decisions come from public information alone, and the market becomes efficient.

In each period, the market segments into areas of publicly known quality and unknown quality. With each period of search, the regions of unknown quality get smaller. The known quality sellers get "too many" buyers; that is, relative to the average number of buyers at an unknown quality seller and

relative to the number of buyers at known quality sellers at the time search ends. This effect superficially resembles risk-averse behavior because it looks like uninformed buyers choose to get a lower known payoff rather than buy from a region with a known range of qualities and a smaller number of buyers. The actual cause of this “flight to safety” is that the presence of informed traders drives out uninformed traders from that market segment.

When the good sold is a non-rival good, the buyer’s problem is purely one of value discovery since the actions of other current buyers do not affect payoff. In similarity to the rival goods model, buyers find themselves in a new market with no initial information. Unlike the rival case, buyers do not use all public information; rather, they herd on what is perceived to be the highest quality seller, abandoning others. Because of this effect, socially valuable information is lost forever. Eventually, herding behavior becomes strong enough to overwhelm any private information acquired by the buyers and the market settles on one seller. With positive probability, this seller is not the very best quality seller and the market never becomes efficient.

I am presently exploring several projects along the same topic. One is an attempt to describe price volatility due to herding in a model of an asset market. Another is an empirical study of asset market price volatility based on a simple herding model as the market microstructure. Other areas of research interest include: life-cycle models of savings, models of money, and asset markets.