

Serdar Simsek

Estimating Willingness-to-Pay and Willingness-to-Sell Distributions from Incomplete Negotiation Data

(joint work with Bob Phillips and Garrett van Ryzin)

Abstract: We investigate the problem of demand estimation in the case where prices are determined by a negotiation between buyer and seller. We develop a structural estimation method using the Expectation-Maximization (EM) algorithm for estimating willingness-to-pay (WtP) and willingness-to-sell (WtS) distributions using only the data typically available in such settings; namely, whether or not trade takes place and the negotiated price when trade does take place. We use both synthetic and real data to test the proposed technique. The method is successful both in terms of the accuracy of estimated transaction prices as well as in predicting take-up. The method is also capable of measuring the sellers' price sensitivities for various types of customers, which provides valuable information to companies that interact with their end customers through sales staff or intermediaries.