

Dissertation Abstract

Bargaining vs. Posted Prices – an analysis using the eBay Automobile Market

While bargaining has been extensively studied in theoretical literature, there have been few empirical studies of it. There exists an option on eBay in which sellers can list items with fixed posted prices and allow potential buyers to make their best offers. These “Best Offer” listings are different from standard auction listings, and allow for back-and-forth negotiation between a seller and his potential buyers. A newly emerging strand of literature uses eBay Best Offer listings for studying bargaining empirically. Chen et al (2016) studied the use of Best Offer listings (vs. regular fixed price listings) on eBay motors, using data that they collected from 2008-2009. They concluded that sellers with higher bargaining cost are more likely to adopt the posted-price format, that bargaining leads to a higher sale rate than the posted-price format, but there is no difference in the transaction price. In my dissertation, I extend the study of bargaining vs. fixed prices on eBay motors by using new data collected in 2013 and 2016, additional variables, and different estimation techniques. In Chapter 1, I review relevant previous literature that provides theoretical insights into how bargaining through Best Offer might operate and describe the data that I have collected.

In Chapter 2, I employ a reduced form approach (using a fractional logit model) to determine factors that incline a seller to adopt bargaining instead of posted prices. I focus on two factors, seller patience and competition. The results indicate that sellers with weaker bargaining power (i.e. lower patience, fewer outside options, and/or higher seller competition) are more likely to adopt bargaining. Using 2013 data, I find that the effect of sellers' individual-level patience varies with the level of competition in a seller's external environment. At high levels of competition, a patient seller chooses to bargain, while at low levels of competition, a patient seller chooses not to bargain. Seller patience, a form of higher bargaining power, is weakened substantially by higher seller competition (more outside options for buyers), causing even the more patient sellers to choose bargaining over fixed prices. This result can have strong implications for several other cases in economics in which individual-level patience is dominated by external competitive pressures, and therefore deserves further attention. Note that using different variables for bargaining power in this paper (i.e. patience) than in Chen et al. (2016), I corroborate their findings that sellers with lower bargaining power are more likely to use Best Offer (consistent with Bester (1993)). In addition, I find that sellers with lower experience, lower item-specific learning, and lower information in general are likely to choose bargaining over posted prices. Nevertheless, bargaining does not seem to decline over time on eBay Motors. This suggests that bargaining may be more likely to *persist* in markets that regularly witness new sellers/entrants and/or markets of used goods.

In Chapter 3, I discuss two possible channels through which bargaining might impact consumer surplus. On the one hand, sellers might use bargaining as a means for price discriminating, thereby improving consumer surplus if sellers negotiate downward from their existing high price/markup. On the other hand, sellers might raise their prices or charge a higher markup solely because of their choice to bargain. This channel implies a negative impact of the bargaining selling mechanism on consumers. While Chen et al. (2016) also implicitly test this latter channel of impact, they do so using an OLS approach. I address the simultaneity of a

seller's choice to bargain and his choice of markup by using an instrumental variable approach. The results with this approach suggest that using the OLS approach may produce misleading results. I find no evidence for the former channel's positive impact on consumers, but I rule out the negative impact of the latter-mentioned channel. That is, contrary to the results in Chen et al. (2016), I find that sellers who choose to allow bargaining do not charge higher markups than fixed-price sellers. Surprisingly, sellers that choose to bargain charge lower markups than fixed-price sellers. Finally, I discuss the quality uncertainty, or the "lemons problem" of the automobile market (Akerlof, 1995). Although the data does not allow for assessing the quality of the cars directly, some equilibria for sellers' behavior, in their use of the four primary signals due to a combination of markup and Best Offer, are discussed. The empirical evidence then helps rule out the equilibria in which eBay sellers might be trying to con consumers through their use of bargaining, suggesting that bargaining on eBay Motors is not impacting consumer surplus negatively through the suspected channels.

In Chapter 4, I examine the impact of a seller's choice of markup, choice of best offer, and the *interaction* of these two choices on the seller's profitability (measured by a car's likelihood of selling, wait time until it sells, and its final transaction price). The results emphasize that studying the impact of using best offer without considering its interaction with pricing/markup can be misleading. I find that using best offer increases the selling likelihood for cars with a sufficiently high markup (at least 10.8%) but *decreases* the selling likelihood for cars with lower markup. This can occur if the markup on a car serves as a signal for car quality. In addition, contrary to the findings of Chen et al. (2016), best offer also directly impacts the transaction price of a car. When a higher markup reduces the likelihood of selling (by 62.7% for fixed-price listings and by 33.7% for Best Offer listings), perhaps seeming to be an unprofitable strategy for sellers, it also yields a higher transaction price by 40.3%. This effect can be seen in my work because I consider the opposing impacts of best offer at varying levels of markup. I show that using best offer increases the transaction price for cars with markups higher than 13%, and *decreases* the transaction price for cars with lower markups. This helps explain an important *indirect* impact of using best offer on the transaction price (not evident in the approach used in Chen et al. (2016)): using best offer reduces the negative impact of a high markup on sales, by 29% (62.7 – 33.7%). Therefore, combining a high markup with the use of best offer allows sellers to reap the benefits of a high markup on transaction price, while mitigating its harmful impact on sales.