

Essays on Asymmetric Pricing and NBA Refereeing

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1 An Empirical Investigation of the Determinants of Asymmetric Pricing, *Job Market Paper*

In this paper, I empirically test the leading theories of asymmetric price movements: the tendency for prices to respond in greater magnitude to cost increases than decreases. Recently developed theories (Tappata, 2008; Yang and Ye, 2008) have shown asymmetric pricing to be a consequence of oligopolistic competition and consumer search costs. After constructing a data set with more than 11,000 unique gasoline retailers over the course of a year, I test the prediction that asymmetric pricing is stronger when search costs are higher. Based upon independent evidence that consumers of premium gasoline have higher search costs, I compare the asymmetry of the price of premium gasoline to that of regular gasoline. The empirical investigation reveals that ten days following a 10¢ negative cost shock regular prices fall by 2¢ more than premium, but after a 10¢ positive cost change both prices rise by the same magnitude. This finding, in conjunction with additional testing, confirms that products whose consumers face higher search costs are priced with greater asymmetry. Additional testing rejects focal price collusion as a meaningful determinant of asymmetric price adjustments.

2 Market Structure, Firm Characteristics, and Asymmetric Price Movements, *in progress*

The second chapter of my dissertation studies the impact of market composition and firm traits on dynamic retail price adjustments. Of particular interest is the impact of firm branding on the degree of price asymmetry. The empirical results suggest the marginal effect of switching a firm's brand critically depends upon the brand of its closest competitor. If a firm switches its brand from major to independent (or vice versa) then the change in asymmetry is twice the size if its closest competitor is independently branded. Thus, in performing counterfactuals to measure the effect of switching a firm's brand the characteristics of the surrounding market must be accounted for. I also investigate how the degree of market penetration of a single brand effects the magnitude of asymmetry throughout the market. Results suggest that price asymmetry is not a consequence of major brands coordinating their actions across a given market.

3 Sub-Perfect Game: Profitable Biases of NBA Referees, (with Joseph Price and Daniel F. Stone)

This paper empirically investigates three hypotheses of biased refereeing by National Basketball Association (NBA) referees. Using a sample of 28,388 quarter-level observations from six seasons, we find that NBA referees make calls that favor home teams, teams losing during games, and teams losing in playoff series. All of these biases are likely to be profitable to the league. We identify these effects as caused by referee bias, as opposed to player behavior, by using play-by-play data that allows us to separately analyze turnovers over which referees have relatively high or low discretion to judge. We also find that the biases do not increase in situations where their direct financial benefit to the league would be greater, and conclude that the biases are likely of an implicit nature. These findings have been reported in, "Researchers' NBA officiating study detects biases, but not necessarily the ones fans suspect," an article published in *The Oregonian* (June 3rd, 2009).