Yanchi Yu, University of Virginia

Market Structure and Product Pricing Dynamics: Evidence from the U.S. Brewing Industry
(Dissertation)

I analyze the relationship between market structure and inter-temporal price discounts in the U.S. brewing industry. Most studies assume that consumers face constant product prices within a month or a quarter. However, consumers can respond to price discounts and strategically adjust their shopping behavior. Firms exploit consumers' responses to temporary price discounts to inter-temporally price discriminate across consumers. A change of market structure may affect firms' price-discount strategies. I use the case of 2008 Miller/Coors joint venture to investigate how the change in market structure affects the dynamics of price-discount strategies of firms, and quantify its welfare effects.

I begin by documenting an empirical pattern that competing firms provide simultaneous promotions at stores in the pre-merger periods, while the merged firm alternates promotions after the merger. I then use autoregressive regressions to verify statistically this empirical pattern. To quantify the welfare effects from the change in price-discount strategies, I develop a structural model to characterize heterogeneous demand functions of consumers who stockpile (storers) and consumers who lack storage capacities (non-storers). I infer that a substantial number of consumers stockpile at the promotional prices. The percentages of sales to storers differ by brands and range from 13 percent to 26 percent. Storers are more price-sensitive and more likely to switch between brands.

On the supply side, I model firms' price-discount strategies using a two-stage game: in the first stage, firms consider whether to use an inter-temporal price discrimination strategy, and in the second stage, firms simultaneously determine the product prices. If competitors used constant price strategies, firms can increase their profits by at least 8 percent when switching to an inter-temporal price discrimination strategy. Likewise, if competitors used inter-temporal price discrimination strategies, firms can increase their profits by at least 6 percent when switching to inter-temporal price discrimination. In equilibrium, firms therefore choose inter-temporal price discrimination. After the market-structure change, the merged firm (with two close-substitute products) can and does increase its profit by 9 percent by staggering products on sale. I simulate the post-merger product prices and determine the difference of welfare effects with/without considering the promotion-strategy adjustment. Static models of competition ignore this effect which leads to a substantial under-estimation of the welfare impact of market mergers.

JEL Classifications: D12, D22, L41, M31, L81, L66
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