

Essays on Innovation, Competition and Welfare

Wei Xiao

1 The Competitive and Welfare Effects of New Product Introduction: The Case of Crystal Pepsi (*job market paper*)

The introduction of new products is an important method of competition in many markets. Towards understanding its impact on competition and welfare, this paper estimates the effects of Crystal Pepsi being introduced by PepsiCo.

Estimating a structural model of the soft drink market, the introduction of Crystal Pepsi is used as an experiment to test the competitiveness of the soft drink market. Evidence of price collusion is found. Under the collusion model, the competitive effect is decomposed into two parts: the effect on the prices of existing products from increased competition, and the effect of having additional product variety. I find that firms' profit and consumer welfare both increased in response to the introduction of Crystal Pepsi, with the price effect accounting for nearly 90% of the gain in consumer surplus, while the introducer PepsiCo take most of the profit gain.

The commonly assumed price oligopoly leads to different and even opposite welfare implications. This finding suggests that examining the market structure is important to investigate the effects of new product introduction.

2 A Dynamic Pricing Model of Durable Goods with Resale Markets (with Viplav Saini and Haomiao Yu) (*in progress*)

Conventional wisdom suggests that the profit maximizing strategy for the producers of a durable good is to intertemporally price discriminate according to consumers' heterogeneous valuations of the product. However, in recent years, online auction sites like eBay and Amazon have created a well-functioning resale market. This raises the question: Is a skimming policy still optimal for producers when a perfect resale market exists?

Motivated by the Wii phenomenon and its superior performance in the game console market, this paper presents a dynamic pricing model of durable goods with a resale market in which the brokers can enter freely. We show that when a resale market exists, "skimming" is no longer the optimal pricing policy for producers. Instead, setting a relatively low and constant price leads to higher profit. Also, the presence of a resale market enhances the manufacturer's profit.

3 The Effectiveness of Obesity Taxation (*in progress*)

The obesity costs U.S. business billions of dollars per year in medical expenses and lost productivity. Many policy solutions are proposed and under debate to battle America's obesity epidemic, including the taxation on soft drink.

Different from the market level demand models, this paper studies both the soft drink purchase timing and quantity decision of individual households. From the scientific findings of the link between the soft drink consumption and obesity, I simulate the effectiveness of various tax schemes on weight reduction.