Research Statement

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My research interests lie in the field of industrial organization and agricultural economics. My current researches focus on estimating the demand for caffeinated beverages, and the market effects of cooperation across caffeinated beverage industries using the discrete choice framework. I'm also investigating what's the impact of disease outbreaks on the animal production industry.

This research statement is organized as follows. In the first two sections, I discuss my current work on the caffeinated beverage industries. In the third section, I describe my publication and on-going research on agricultural economics. I end with a brief description of my future research plans.

On the Importance of Modelling Dynamic Demand for Competition Analysis: The Case of Caffeinated Beverages (joint with Philip Gayle) [Job Market Paper]

In my job market paper, we emphasize that a dynamic discrete choice demand model can capture "complementary" type consumer choice behavior among pairs of differentiated products, while a static discrete choice demand model cannot. Measuring the competitive impacts of mergers and cooperation between firms crucially depend on both the type and strength of the relationship between rival firms' products, where sufficiently strong complementarity between products of the merging firms can result in lower price-cost markups post-merger, an unattainable outcome when relevant products are substitutes. Accordingly, we conduct hypothetical merger simulations between leading caffeinated beverage firms selling several complementary products, and find that the simulation does predict lower price-cost markups on many products post-merger.

Market effects of Cooperation between Caffeinated Beverage firms (joint with Philip Gayle)

The market impact of mergers and cooperation across categories is generally less concerned with antitrust issues than mergers and partnerships within categories. However, A merger between leading firms in each category can incentivize the merged firm to exercise its market power, which may substantially increase price-cost margins of the merged firm's products. Whether the mergers would be of antitrust concern greatly depends on how consumers perceive the relationship between products across beverage categories. This study empirically investigates the market effects of mergers and cooperation between caffeinated beverage firms using a discrete choice model.

Work on seasonal growth patterns and the effect of diseases outbreak on the pig production industry

Aside from my research work in the doctoral program of economics, I co-authored a study with the department of animal science in the college of agriculture and published a paper on investigating the seasonal growth pattern in commercial pig production. It is widely documented that, in pig production, extreme temperatures cause increased reproductive difficulties, reduced growth performance, and elevated mortality. Seasonal heat stress loss estimates indicate a nearly $300 million annual cost to the US pig industry. Thus, an accurate estimate of seasonal variability in feed consumption and growth rate is essential for producers to estimate feed usage and marketing projections. We conduct a retrospective analysis to quantify seasonal patterns for pigs in 3 commercial US production systems. We find that seasonality effects

on finisher pigs' performance were system dependent, while nursery pigs seasonality shared more similarity among investigated systems.

In another project, we focus on whether disease outbreaks alter the marketing strategies of pig producers. The marketing strategies shifted from the traditional spot or cash market to long-term arrangements in the past decades. It standardizes the quantity and quality of the subject in settlement of the contract. However, when a disease outbreak such as PEDV(Porcine Epidemic Diarrhea Virus) hits the production, it greatly influences both the quantity and quality of pigs. Thus producers may change marketing strategy to the more flexible spot market. This study quantifies the effect of the outbreak of PEDV on the market share of long-term agreements.

Future work

Moving forward, I plan to study the effectiveness of the sugar tax that aims to reduce soda consumption. With the estimates of the relationship between caffeinated beverages from the dynamic discrete choice model, we can access the effect of the sugar tax on demand and the pass-through rate of a sugar tax by conducting a counterfactual experiment. Also, I'd like to extend my research focus to the market structure of the Chinese animal production industry, which is experiencing a rapid growth and change.