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Fields of Concentration:

Industrial Organization
Applied Microeconomics
Applied Econometrics

Desired Teaching:

Industrial Organization (Graduate/Undergraduate)
Microeconomics (Undergraduate)
Econometrics (Undergraduate)

Comprehensive Examinations Completed:

Nov 2005 (Oral)	Industrial Organization (<i>with distinction</i>)
May 2005 (Oral)	Econometrics
May 2004 (Written)	Macroeconomics (<i>with distinction</i>), Microeconomics (<i>with distinction</i>)

Dissertation Title: *Empirical Analysis of Strategic Entry and Product Choice*

Committee:

Professor Philip Haile (Chair)
Professor Steven Berry
Professor Hanming Fang

Expected Completion Date: May 2009

Degrees:

Ph.D.	Economics	Yale University	(expected May 2009)
M.Phil.	Economics	Yale University	2006
M.A.	Economics	Yale University	2005
M.A.	Economics	Peking University	2003
B.A.	Economics	Wuhan University	2001
B.S.	Mathematics	Wuhan University	2001

Fellowships, Honors and Awards:

Carl Arvid Anderson Prize Fellowship, Cowles Foundation, 2008
 Leylan Fellowship, Yale University, 2007
 Best paper published in China Economic Quarterly in the year of 2003-2004 for the article “Wage Contracts, Grey Income and Career Concerns” with Xinqiao Ping, 2005
 Cowles Summer Prize, Cowles Foundation, 2005
 Yale University Summer Fellowship, 2004-2006
 Cowles Foundation Prize, 2003-2006
 Yale University Fellowship, 2003-2006
 China Economic Research Fellowship, Peking University, 2002
 Renmin Fellowship, Wuhan University, 2000
 Huang Zhangren Fellowship, Wuhan University, 1999
 Tong Yi Fellowship, Wuhan University, 1998

Teaching Experience:*Instructor:*

Introductory Microeconomics	Yale University	Yale Summer School, 2006
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Teaching Assistant:

Intermediate Microeconomics	Yale University	Fall 2006
Intermediate Macroeconomics	Yale University	Spring 2006
Microeconomics (Graduate)	Yale University	Fall 2005
Intermediate Macroeconomics	Peking University	Fall 2002
Investment	Peking University	Spring 2002
Dynamic Programming	Wuhan University	Spring 2001

Research Experience:

Research Assistant to Professor Philip Haile, Yale University, 2005-2007
 Research Assistant to Professor Frank Song, University of Hong Kong, 2002-2003
 Research Assistant to Professor Xinqiao Ping, Peking University, 2002-2003

Papers:

“Market Structure and Product Quality in the U.S. Daily Newspaper Market” (Job Market Paper)

“Estimating the Costs of Market Entry and Exit for Video Rental Stores”, mimeo, Yale University, (2006)

Pre-Doctoral Publications:

“Wage Contracts, Grey Income and Career Concerns” (in Chinese), with Xinqiao Ping, *China Economic Quarterly* (2004), 3, 679-702.

“Estimating the Agency Costs of State-Owned Enterprises in China” (in Chinese), with Xinqiao Ping and Chaoyan Hao, *Economic Research Journal* (2003), 38, 42-53.

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Dissertation Abstract

Entry, exit and product choice are important elements in oligopoly competition. These choices determine the products available in a market as well as their prices and, thus, affect welfare. My dissertation investigates firms' strategic product choice and their entry and exit decision empirically, combining game-theoretic models with econometric analysis. In the first study, my job market paper, I formulate and estimate a model of endogenous product choice in the daily newspaper market and conduct counterfactual simulations to study how observable quality characteristics of newspapers change as a result of a change in market structure. The second study jointly estimates three important determinants of firms' entry and exit decisions – the profit function, the distribution of the entry costs and that of the sell-off values – in the video rental store market.

I. Market Structure and Product Quality in the U.S. Daily Newspaper Market (Job Market Paper)

The last century witnessed an ownership consolidation of daily newspapers in the United States. What are the consequences of such a change in market structure on newspaper quality? Specifically, will the newspaper publishers increase or decrease the space devoted to news? Will they enlarge or shrink the opinion-oriented section of a newspaper? Will they provide more staff-written stories or utilize more direct material from news agencies? How will, concomitantly, the newspaper price and the advertising rate change? These features directly affect economic welfare; in addition, newspapers play a role in the opinion formation process of a democratic society. However, economic theory only offers ambiguous answers to these questions. For instance, after a cross-market merger, a newspaper publisher on the one hand wants to differentiate its newspapers sufficiently to avoid indirect business stealing transmitted through common competitors, and on the other hand, wants to make them more similar to preempt entry into its product space.

This paper provides a framework to address these questions empirically. I set up a structural model to capture three key features of the U.S. daily newspaper market. First, a newspaper publisher's revenue comes from both selling newspapers and selling advertising space. The demand for advertising depends on the number of readers. Therefore, product choice and the newspaper price not only directly affect circulation revenue, but also indirectly affect advertising revenue. Second, a household may subscribe to more than one newspaper, which requires a multiple discrete choice model on the demand side. Third, since not only prices (i.e. the newspaper subscription price and the advertising rate), but also characteristics of newspapers are chosen by firms, I use a two-stage game, where newspaper publishers simultaneously choose characteristics in the first stage and prices in the second stage.

Methodologically, incorporating these features of the market into the empirical model requires several extensions to the existing estimation techniques. On the demand side, I set up a model of multiple discrete choice with diminishing marginal utility and show that the Berry, Levinsohn and Pakes (1995)

methodology can be generalized to this context. On the supply side, I allow for both prices and product quality to be endogenous, which introduces new computational challenges. In particular, in the two-stage game, players in the first-stage decision take into account the impact of product choice on the equilibrium price in the second stage. But computing equilibrium prices for each possible product choice is burdensome. I overcome this, using the observation that it is sufficient to know the gradient of the equilibrium price function at the data points to formulate the optimality conditions for the observed product characteristics. This gradient is obtained from the total derivative of the first order condition for prices.

I collect a large new data set of newspaper characteristics, subscription prices, advertising rates, circulation, and advertising lineage for all U.S. daily newspapers between 1997 and 2005. Based on the estimates of the model, I analyze the welfare implications of duopoly mergers and triopoly mergers, where the owner of the largest newspaper buys the second largest. The simulation results show that the median loss in readers' surplus in duopoly mergers is 48 dollars per household and in triopoly mergers 16 dollars. The existence of a competitor, who typically increases newspaper quality after a merger, mitigates the loss in readers' welfare. In 94% of the markets simulated, total welfare falls.

I also analyze a counterfactual merger of two newspapers in the Minneapolis market that was blocked by the Department of Justice. The simulation results show that under the merger on average readers' welfare in the market would have declined by 3 dollars per household and 15 dollars in the county that is affected the worst. This welfare loss is generated by a combination of increased subscription prices (by 10% on average) and reduced opinion section staff as well as reporters in the smaller party of the merger, by 5% and 6% respectively. Finally, the positive analysis shows that the aforementioned business stealing concern dominates, and thus the two parties of the merger choose to become more different in terms of the quality measures.

II. Estimating the Costs of Market Entry and Exit for Video Rental Stores

Firms' entry and exit decisions are determined by their profit functions, an entry cost and a sell-off value. Information on these determinants can be used to analyze the adjustment dynamics of the number of competitors after an exogenous shock, for instance after a demand shock. However, direct data on entry costs and sell-off values is very rare.

In this paper, I jointly estimate video rental stores' profits, entry costs and sell-off values based on the observable firms' entry and exit decisions. I set up a dynamic oligopoly model of entry and exit and follow the estimation strategy provided by Pakes, Ostrovsky and Berry (2005) (POB). The key idea of the estimation methodology is that since profits, entry costs and sell-off values determine firms' entry/exit decisions, these decisions "reveal" these underlying determinants.

The data used in this study is from the National Establishment Time-Series Database (California, 1990 – 2003). I find that entrants spend on average 2 to 7 times of the incumbents' profit to enter a market. The stores who exit the market on average get 4 to 16 times the profit they earn in the year when they sell off their stores.

In addition, I extend the model in POB and test whether potential entrants are short-run or long-run players. If a short-run player decides not to enter the market, it will never enter the market again. The value of not entering is therefore zero. However, if a potential entrant is a long-run player and thus the timing of entry is important, not entering the market has a positive option value. I find that the entry decision is a one-shot decision as the model with short-run players fits the data better.