

Jiayao Ni

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SUMMARY OF QUALIFICATIONS

- Multi-disciplinary economics research experience in industrial organization, business strategy, innovation, patenting, applied microeconomics, and econometrics and statistical methods
- Expertise in empirical research with 5 years of academic research experience. Looking for a position to solve unique and challenging economic problems

EDUCATION

- **Georgia Institute of Technology, Atlanta, GA** Expected: Aug. 2016
Doctor of philosophy in Economics (GPA: 3.8/4.0)
Dissertation Topic: “Competition and Innovation in Automobile Markets.”
Advisor: Professor Vivek Ghosal (Richard and Mary Inman Professor, and Director of Graduate Programs)
Committee members: Professor Marco Ceccagnoli (Strategic Management), Professor Byung-Cheol Kim (Economics), Professor Haizheng Li (Economics), and Professor John Walsh (Public Policy).
- **Tsinghua University, Beijing, China** July 2011
Bachelor of Economics and Finance (GPA: 3.7/4.0)

RESEARCH PAPERS

- **Ghosal, V., and Ni, J.**, “Competition and Innovation in Automobile Markets” (Job Market Paper)
Abstract: Using data from the U.S. automobile market, we empirically examine the link between competition and innovation. Consistent with a large literature, we use patent counts as a measure of innovation. The combination of the U.S. market’s economic importance, market dynamics, and the significant intertemporal fluctuations in firms’ market shares and patents make this an interesting market to examine the link between competition and innovation. We use firm-level time-series data over a long horizon (1969-2012) for nine well established firms selling in the U.S. market (GM, Ford, Chrysler, Toyota, Honda, Nissan, Volkswagen, BMW, and Daimler). Some of our key findings are: (1) increase in firms’ market shares result in higher patenting, and the relationship is reasonably non-linear; (2) higher market-wide competition results in an increase in patenting, and the relationship is weakly non-linear; (3) the (absolute) quantitative impact on patents is larger for firms’ market share effect as compared to market-wide competition; (4) there is relatively strong path-dependence in firms’ patenting behavior; and (5) we find interesting results linking patents to GM’s bankruptcy, the Daimler-Chrysler merger, environmental regulations, voluntary export restraints, and firms’ patenting over business cycles.
- **Ghosal, V., and Ni, J.**, “Knowledge Gap and Patent Rivalry in the Automobile Industry.”
In an oligopolistic market, if a firm has a knowledge/technology gap with the leader, does it try to catch up and close the gap or cede ground? There is an influential theoretical (e.g., Reinganum, 1983, 1984, 1989; and Doraszelski, 2003) and empirical (e.g., Khanna, 1995; Lerner, 1997) literature that attempts to shed light on this issue, but the evidence is both sparse and inconclusive. In this paper we use data on the major automobile producers operating in the U.S. market to examine innovation rivalry. In particular, we examine how a firm’s current patenting behavior is influenced by the firm’s accumulated knowledge stocks, the knowledge gap between the leader and the firm, and the total amount of innovation in the market. Our key findings are: (1) firms’ accumulated stocks of patents do not have a statistically significant effect on their current patenting. This appears to provide evidence against models that predict diminishing returns to innovation activities; (2) an increase in the knowledge gap between the leader and a follower firm results in lower current patenting, and that this effect is primarily being driven by firms that are relatively closer to the leader. This implies that we see little in terms of “catching up” with the leader; and (3) an increase in the total number of patents in the market results in an increase in firms’ current patenting.

- **Ghosal, V., and Ni, J.**, “Market Dynamics and Changing Composition of Patents.” (work in progress)

Over time, the dynamics in a market can change substantially due to competition in the product market, shifting positions of firms from an innovation standpoint, fundamental shifts in technology, changes in regulatory constraints, among other factors. In this paper we study the intertemporal shifts in the composition of innovation among the leading automobile firms operating in the U.S. automobile market. To study this, we compile detailed microdata on patents by categories/sub-categories. The objective is to examine the changing composition (by category) of patents, and the potential roles played by, for example, product market competition, inter-firm innovation rivalry, environmental regulations, and mergers and acquisitions, for these shifting dynamics. Aside from shedding light on the drivers of patent compositional shifts, the paper will also develop a set of stylized facts and patterns of patent composition in this industry.

PRESENTATIONS

- **Ni, J.**, “Competition and Patenting in the Automobile Industry,” Industry Studies Conference organized by the Kauffman Foundation, Kansas City, Missouri, May 27, 2015.
- **Ni, J.**, “Competition and Patenting in the Automobile Industry,” Southern Economic Association, Atlanta, Georgia, November 24, 2014.

RESEARCH AND PROFESSIONAL EXPERIENCE

Georgia Institute of Technology, Atlanta, Georgia

Research Assistant

May 2013 to present

Research Project: *Competition, Patenting, and Innovation in the Automobile Industry*

- Developing a model of intertemporal dynamics of innovation in the automobile industry
- Developing a model of innovation rivalry in the automobile industry
- Developed a model for dynamic competition in the automobile industry taking into account market shares, patenting motivation, and strategic patenting behaviors; analyzed how firms make patenting decisions based on market shares and competitive strategies
- Established a patent database in the automobile industry in the United States
- Significant experience in working with firm-level datasets (cross section, panel, and time series) and using advanced econometric methods (dynamic panel-data models with Generalized Method of Moments, fixed effects, instrumental variables estimation, structural breaks estimation, vector auto-regression, seemingly unrelated regressions).

Georgia Institute of Technology, Atlanta, Georgia

Instructor, Econ 2106: Principles of Microeconomics

May 2014 to Aug. 2015

- Full responsibility for teaching, including lecturing and grading
- Encouraged students to “think like an Economist” and guided them to use class materials to solve real life problems.
- Student evaluation rating: 4.5/5 in Summer 2015 and 3.8/5 in Spring 2015

Georgia Institute of Technology, Atlanta, Georgia

Teaching Assistant

Aug. 2011 to May 2014, Aug. 2015 to present

- Courses: Principles of Microeconomics, Principles of Macroeconomics, Econometric Analysis, Economics and Policy; Discrete Choice Econ, Math for Economists, Microeconomic Theory I.

AEGON-CNOOC Life Insurance Co., Ltd, Beijing, China

Summer Internship

June 2010 to Aug. 2010

- Rated plan development and implementation
- Collaborated in producing annual product reports and a major product sales data analysis

Central China Grid Company Limited, State Grid Corporation, Wuhan, China

Summer Internship

July 2009 to Aug. 2009

- Collaborated in valuing the risk management of power stations
- Collaborated in authoring a report of risk control and management

Tsinghua University, Beijing, China

Undergraduate Research Assistant

June 2009 to July 2011

Research project: *Establishing an Insurance System and Market Structure as Part of the 12th National Five-Year Plan for China*, funded by the National Development and Reform Commission, China

- Examined the current insurance system and the market structure in China
- Participated in re-designing the insurance system and the market structure in China

Research project: *Macro-prudential Regulations for the Insurance Market in China*, funded by the China Insurance Regulatory Commission

- Compared the macro-prudential regulations of financial markets in various countries
- Participated in re-designing macro-prudential regulations for the domestic insurance market

Research project: *Effects of the New Rural Co-operative Medical System*, funded by the School of Economics and Management, Tsinghua University

- Participated in a surveyed of the effects of the New Rural Co-operative Medical System in six towns and eighteen villages in China
- Estimated the effects and collaborated in authoring a report based on the survey

RELEVANT PROFESSIONAL SKILLS AND CERTIFICATIONS

Software: STATA, Eviews, SAS, MS Office, LaTeX; programming with C Language, SQL, Python

Certifications: Society of Actuaries

- Actuarial exams passed: Exam P (10/10); Exam FM (9/10); Exam MLC (10/10); Exam MFE (9/10); Exam C (10/10)
- VEE courses passed: Applied statistics, corporate finance, and economics

PROFESSIONAL AFFILIATIONS

- American Economic Association
- Industry Studies Association
- Southern Economic Association
- Georgia Institute of Technology, Ivan Allen College Graduate Student Advisory Board
- Georgia Institute of Technology, Library Graduate Student Advisory Board

ACHIEVEMENTS AND HONORS

- “Economics Outstanding Graduate Student,” Georgia Institute of Technology, 2015
- Scholarship for “Honors Program for Academic Research,” Tsinghua University, 2010
- Scholarship for Academic Excellence, Tsinghua University, 2010
- “Top Academic Researcher” in an Academic Competition, Tsinghua University, 2010
- Scholarship for Academic Excellence, Tsinghua University, 2009
- Champion of investigation for New Rural Co-operative Medical System, Tsinghua University, 2009