

## Shengyu Li

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CITIZENSHIP	China	
RESEARCH INTERESTS	Primary: Industrial Organization Secondary: Applied Microeconomics	
EMPLOYMENT	Lecturer (Assistant Professor) in Economics, Business School, Durham University, since 2014	
EDUCATION	Ph.D., Economics, the Pennsylvania State University, May 2014. M.A., Economics, Shanghai University of Finance and Economics, June 2009. B.A., Economics and Mathematics (with distinction), Wuhan University, June 2007.	
PH.D. THESIS	“Essays on Productivity, Uncertainty, and Firm Activities” Thesis Advisor: Mark Roberts.	
WORKING PAPERS	“A Structural Model of Productivity, Uncertain Demand, and Export Dynamics”, 2013. “Production Function Estimation with Unobserved Input Price Dispersion”, with Paul Grieco and Hongsong Zhang, 2013. <b>R&amp;R, International Economic Review</b> . “Technology Distance and FDI Spillovers with Factor-Biased Technology”, with Hongsong Zhang. Work in progress. “Trade Costs or Taste Differences? Evidence from the Global Car Industry”, with Kerem Cosar, Paul Grieco, and Felix Tintelnot. Work in progress.	
RESEARCH EXPERIENCE	RA, Prof. Mark Roberts, Penn State, Summer 2013 - Fall 2013. RA, Prof. Guoqian Tian, Shanghai University of Finance and Economics (China), Fall 2007 - Spring 2009.	
TEACHING EXPERIENCE	Instructor, Introduction to Econometrics, Penn State, Summer 2011. TA, Empirical Methods in Economics (Graduate Level), Penn State, Spring 2013. TA, Econometrics (Graduate Level), Penn State, Fall 2010 - Fall 2012. TA, Intermediate Macroeconomics, Penn State, Fall 2009 - Spring 2010.	
CONFERENCE PRESENTATIONS	The 12th Annual International Industrial Organization Conference, U.S., 2014. The Econometric Society North American Summer Meetings, U.S., 2013. The 11th Annual International Industrial Organization Conference, U.S., 2013. The 22nd Annual Meeting Of the Midwest Econometrics Group, U.S., 2012.	
HONORS AND AWARDS	Bao-steel Scholarship (merit-based), Bao-steel Education Fund, Shanghai, China, 2009. Second Prize of National Graduates Mathematical Contest in Modeling, China, 2008.	

Outstanding Graduates, Wuhan, China, 2007.  
First Class Award, Wuhan University, 2003-2007.

SKILLS

• English (fluent), Chinese (native). • Matlab, Stata.

REFERENCES

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THESIS SUMMARY

My research interests cover topics in Industrial Organization with a focus on applications in international trade participation, production function estimation, and factor-biased technology spillovers.

1. *“A Structural Model of Productivity, Uncertain Demand, and Export Dynamics”*, 2013  
**(Job Market Paper)**

Studies using firm-level trade data have found that firms’ export decisions are driven by unobservable firm heterogeneity in both productivity and foreign demand. However, some dynamic features of exporting, such as the high attrition after the first year of exporting and gradually stabilized export decisions, are not captured by this heterogeneity but are consistent with a model of uncertainty and Bayesian learning about foreign demand. Indeed, firms are likely to have uncertainty about the demand they will face when they enter into an unfamiliar foreign market. As a result, the option value of learning encourages firms to export to the new market as an experiment; moreover, firms’ expectations about foreign demand change based on the export outcomes they observe. Essentially, firms’ export decisions do not only depend on their productivity but also rely on their demand beliefs which endogenously evolve as firms export.

A novelty of this paper is that I identify and empirically quantify the roles of Bayesian learning about foreign demand and productivity evolution in determining firm-market-level export participation. I specify a dynamic structural model of exporting in which a firm’s export decision depends on both the demand belief evolution and productivity evolution. Neither of the evolutions is observable to researchers. In particular, the firm has uncertainty about the demand curve it faces in the foreign market and its belief about the demand curve endogenously evolves based on the prices and quantities it observes in its export transactions. I structurally estimate the dynamic model using both firm shipment-level exports and firm-level production data for a Chinese manufacturing industry. The identification strategy uses the fact that domestic revenue is only affected by productivity while export participation is influenced by both productivity and the demand belief. Thus, utilizing data on the domestic market and shipment-level exports enables me to recover the time-varying productivity and market-time specific belief for each firm and to identify the role of each process.

The empirical results indicate substantial firm heterogeneity in both the demand belief and productivity. The demand belief heterogeneity is the dominant difference between

potential entrants in export markets and experienced exporters. Experienced exporters have higher expectations and less uncertainty about foreign demand. I also find that for experienced exporters both the demand belief and productivity are driving forces of export participation but for potential entrants the former plays a more important role. A further counterfactual exercise shows that reducing the level of uncertainty of potential entrants to that of experienced exporters causes the number of exporters to fall by 11%.

2. *“Production Function Estimation with Unobserved Input Price Dispersion”*, with Paul Grieco and Hongsong Zhang, 2013. *R&R, International Economic Review*.

We propose a method to consistently estimate production functions in the presence of input price dispersion when intermediate input quantities are not observed. The traditional approach to dealing with unobserved input quantities—using deflated expenditure as a proxy—requires strong assumptions for consistency. Instead, we control for heterogeneous input prices by exploiting the first order conditions of the firm’s profit maximization problem. We show that the traditional approach tends to underestimate the elasticity of substitution and biases estimates of the distribution parameters. Our approach applies to a general class of production functions. It can accommodate both heterogeneity in input prices and a variety of heterogeneous intermediate input types. A Monte Carlo study illustrates that the omitted price bias is significant in the traditional approach, while our method consistently recovers the production function parameters. We apply our method to a firm-level data set from Colombian manufacturing industries. The empirical results are consistent with the predictions that the use of expenditure as a proxy for quantities biases the elasticity of substitution downward. Moreover, using our preferred method, we provide evidence of significant input price dispersion and even wider productivity dispersion than is estimated using proxy methods.

3. *“Technology Distance and FDI Spillovers with Factor-Biased Technology”*, with Hongsong Zhang. *Work in progress*.

This paper studies how technology distance between domestic and foreign direct investment (FDI) firms affects spillovers of technology from FDI firms to domestic firms in Chinese manufacturing industries. We add to the existing literature on technology spillovers between FDI and domestic firms in two aspects. First, we relax the assumption of Hick’s neutral productivity and allow technology to be factor-biased. In particular, FDI firms from developed countries are likely to use more capital-biased technology compared with domestic firms, while FDI firms from developing countries may excel in labor-biased technology. This will impact the kind of technology that is transmitted to domestic firms. Second, we recover firms’ factor-biased technologies from firm-level data and construct a measure of distance between technologies used by domestic and FDI firms. The distance determines how strong spillovers can be. We quantify the role of technology distance in explaining spillovers from FDI firms to domestic firms in China in which we do find biased technological dispersion across firms.