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Citizenship: China, F-1 Visa

Fields of Concentration:
International Trade

Desired Teaching:
International Trade, Macroeconomics, Industrial Organization

Comprehensive Examinations Completed:
2016 (Oral): International Trade, Industrial Organization
2015 (Written): Microeconomics, Macroeconomics

Dissertation Title: *Essays on Firm Responses to Trade Liberalization*

Committee:
Professor Samuel Kortum (Chair)
Professor Peter Schott
Professor Rafael Dix-Carneiro
Professor Michael Peters

Expected Completion Date: May 2020

Degrees:
Ph.D., Economics, Yale University, 2020 (expected)
M.Phil., Economics, Yale University, 2017
M.A., Economics, Yale University, 2016
B.A., *magna cum laude*, Mathematics & Economics, Carleton College, 2011

Fellowships, Honors and Awards:

Best Graduate Student Paper Award, FREIT Empirical Investigations in International Trade, 2018 (with Rui Zhang)
University Dissertation Fellowship, 2019, Cowles Foundation Fellowship, Yale University, 2014-2018
Samuel K. Bushnell Fellow, 2018-2019
Frazier Jelke Fellow in International Studies, 2016-2018
Malcolm Urban Fellow, 2015-2016
Distinction in undergraduate thesis, Carleton College, 2011
A.M. Harrison Prize in Economics, Carleton College, 2011
Dean's Honors List, Carleton College, 2008-2011
QuIRK Statistics Research Fellowship, Carleton College, 2010
Shuping Scholarship, Shuping Foundation, 2006-2010

Teaching Experience:

Yale University

Introduction to Microeconomics	Instructor: Steve Berry	Fall 2016
International Trade	Instructor: Peter Schott	Spring 2018
Introduction to Macroeconomics	Instructor: Samuel Kortum	Fall 2018
Intermediate Macroeconomics	Instructor: Michael Peters	Spring 2019
Introduction to Macroeconomics	Instructor: Marnix Amand	Summer 2019

Carleton College

Math Tutor, Math Teaching Center, 2009-2010

Research and Work Experience:

Research Assistant, Joseph Shapiro, Yale University, 2015-2017
Research Assistant, Joshua Angrist and Parag Pathak, MIT, 2012-2014
Research Assistant, Justine Hastings, Brown University, Fall 2012
Associate Economist, Micro Group, Federal Reserve Bank of Chicago, 2011-2012

Publications (Pre-Ph.D.):

“Knotted and Linked Products of Recombination on $T(2;n) \# T(2;m)$ Substrates”, *Journal of Korean Mathematical Society*, 2014, 51(4), 817-836, with Erica Flapan, Helen Wong, Jeremy Grevet, and Qi Li.

Working Papers:

“Trading Up: On the Growth of Chinese Textile and Apparel Exporters”, (November 2019), *Job Market Paper*.

“Market Interdependence Through Shared Suppliers: Theory and Evidence from Termination of the Multifiber Arrangement”, with Rui Zhang, (October 2018).
- *Best Graduate Student Paper Award*, 2018 FREIT Empirical Investigation in International Trade (EIIT) Conference

Work in Progress:

“What to Invest? R&D or High-tech Imports”, with Yu Shi and Monica Morlacco, (July 2018)

-Data collection from annual reports of Chinese listed firms in high-tech industries

Seminar and Conference Presentations:

- “Market Interdependence Through Shared Suppliers”: Empirical Investigations in International Trade, Purdue University (2018)

- “Trading Up: On the Growth of Chinese Textile and Apparel Exporters”: Duke University (2019)

Referee Service:

Journal of International Economics

Data Clearances:

US Census Bureau Special Sworn Status

Languages:

Chinese (native), English (fluent), French (basic)

References:

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Dissertation Abstract: *Essays on Firm Responses to Trade Liberalization*

Chapter 1: “Trading Up: On the Growth of Chinese Textile and Apparel Exporters” (*Job Market Paper*)

China’s exports boomed in the 2000s. While a substantial literature explains export success through changes in productivity and labor costs, little research examines firms’ investment in machine upgrades. In this paper, I quantify the contribution of advanced foreign machinery in explaining China’s export success to high-income markets, combining a particular setting, micro-level data, and a quantitative model. I then assess the consequences of large and widely anticipated trade liberalizations.

I study the Chinese textile and apparel sectors from 1998 to 2006. Industry knowledge enables me to categorize investment into low-end and high-end machinery at the firm level. New market access to the US, the EU, and Canada following termination of the Multifiber Arrangement (MFA) in 2002 and 2005 increased demand for high-quality textiles and apparel and high-tech textile machinery. I merge the data of the Chinese Annual Survey of Manufacturers and the Customs Database and document several findings. In the eight years following 1999, Chinese producers’ imports of high-end textile machinery boomed and started trending up three years before China joined the WTO. Owning high-end machines is associated with a higher likelihood of exporting to OECD countries, larger export sales to OECD countries, and a higher share of exports to OECD countries. Using the product-country level price and quantity data, I find that the proportion of high-end to low-end machines is positively correlated with output quality.

I highlight the mechanism of higher output quality arising from high-end machinery in a quantitative model, which incorporates the anticipatory nature of investment decisions and firms’ choices of product quantity, quality, and export destinations. The model generates two new mechanisms linking investment and export decisions through a quality choice. First, the model predicts that firms with a higher proportion of high-end to low-end machinery produce higher quality. However, firms face frictions in upgrading output quality due to the existence of adjustment frictions in building high-end machine stocks. Second, higher quality increases firms’ dynamic returns to machine upgrades, driving greater demand for imported high-end machines.

I estimate model parameters using the method of simulated moments. High-end machines are significantly more productive in making export quality in the simulated sample of firms. The elasticity of substitution between high and low-end machines, estimated to be about 3, indicates that a lack of high-end machines is perhaps not an absolute barrier to exporting. Counterfactual results show that without access to high-end machines, China’s export sales to OECD markets in the last year of the sample would have decreased by 5 percent, with export quality falling by 6 percent. The mechanism explains about 7 percent of the export sales reduction had the MFA quotas remained in place in 2005.

Chapter 2: “Market Interdependence Through Shared Suppliers: Theory and Evidence from Termination of the Multifiber Arrangement” (with Rui Zhang)

Leveraging the event of quota lifting by members of Multifiber Arrangement in 2005, we use a difference-in-differences design that compares firm-level Chinese exports of the previously-capped and uncapped products to the countries outside of the MFA. We find strong evidence of market interdependence empirically. The quota removal led to a significant decrease in the exports of MFA-capped products. The suppliers with dampened sales either increased sales in the liberalizing markets or entered them for the first time. We interpret these findings in a multi-

country trade model with increasing marginal cost of production. In the model, the marginal cost rises when firms begin to serve markets with growing demand, resulting in a fall in sales in, or even exit, from the countries outside of the MFA. Quantitative results suggest that significant inflexibility of production at the product-level is needed to justify a negative and nearly one-to-one co-movement in trade flows across markets. Counterfactual exercises show that the quota removal increases the price index aggregated over Chinese producers in the non-participating markets and the domestic markets by 1.73 percent and 1.38 percent, respectively. We derive welfare changes in the exporter country, accounting for changes in marginal costs. Our analysis suggests that gains from trade liberalization in the participating countries may come at the expense of the others.