

## **"ENTREPRENEURSHIP AND INNOVATION IN A GLOBAL ECONOMY"**

### **BACKGROUND AND MOTIVATION**

Globalization importantly shapes entrepreneurship and innovation in developing countries today. Access to foreign markets allows firms to expand operations and increase profits. Given the large fixed costs of research and development and the credit constraints entrepreneurs often face, export opportunities can thus stimulate investments in productivity and product quality. Such innovation activities may be further facilitated by the use of sophisticated imported inputs and equipment that are not available domestically, as well as by knowledge spillovers from interactions with foreign buyers and suppliers. Finally, global value chains can enable more firms to share in the gains from trade by conducting only certain stages of the production process that they are competitive in. If firms can profitably move along the value chain over time, this could create more incentives for and paths to entrepreneurship and innovation in emerging economies.

This proposal sets to inform these questions by pursuing new projects that build on already completed work. It will exploit rich proprietary data for China and the US that cover all firms' export and import transactions matched to the census of manufacturers. These datasets make it possible to study a range of questions at the heart of current policy debates and academic research on the links between entrepreneurship, innovation and globalization.

### **RESEARCH OBJECTIVES AND FIT WITH PIE'S MISSION: PROJECT 1**

A key trend over the last two decades has been the rising fragmentation of production across countries. In prior work [1,4], I have found that global supply chains allow more (Chinese) firms to participate in international trade by processing foreign inputs for re-exporting on behalf of a foreign buyer. However, processing trade is associated with systematically lower value added and profits than ordinary trade. What precludes some firms from pursuing the more profitable strategy is credit constraints, as liquidity needs are substantially higher for ordinary trade.

In a first new project (joint with Davin Chor and Zhihong Yu), I propose to use the detailed Chinese customs and balance-sheet data, along with Chinese Input-Output Tables, to better understand where and why Chinese firms operate along the global value chain. The focus will be not simply on a company's value added, but on whether it is performed more upstream (i.e. closer

to raw, homogeneous inputs) or more downstream (i.e. closer to final products). In particular, the analysis will characterize firms' global production line position (GPLP) with the upstreamness of their imported inputs and exported products, using a measure of upstreamness that reflects the number of production stages between a product and final uses based on Input-Output tables

This approach will allow me to study a number of important and novel questions. First, are Chinese firms concentrated in relatively upstream or downstream segments of global supply networks? How has their position evolved over the 1992-2011 period, and in response to China's WTO accession? Second, what characteristics (productivity, size, foreign vs. private domestic vs. state ownership) determine firms' GPLP? Third, how does the variation in institutional conditions (rule of law; financial development) across Chinese provinces affect individual firms' production stage decisions? Finally, how does GPLP affect firms' performance as measured by profitability, value added, and export revenues? Do successful firms grow over time by scaling up their activity at the same point along the value chain and/or by moving further upstream or downstream?

This project will directly inform policy debates about the role of global supply chains for firm growth and aggregate prosperity in developing nations. For example, it could imply that trade liberalization can significantly benefit entrepreneurship and innovation. It could mean that encouraging entry into smaller, lower value-added segments of the production chain can be a stepping stone to expansion into higher value-added activities such as R&D and longer, more complex manufacturing processes. Given the current interest in these topics, the study also has the promise to uncover new empirical regularities that will shape future academic research.

## **RESEARCH OBJECTIVES AND FIT WITH PIE'S MISSION: PROJECT 2**

A central question in the entrepreneurship and international trade literatures is what drives the large heterogeneity in performance across firms. Current work-horse trade models focus on firm productivity as the key determinant, and empirical evidence strongly supports that claim. The next step is to unpack the factors that shape firm productivity, especially given practical challenges in measuring it in the data. In prior work [3,5,6], I have also found that more successful exporters use higher-quality inputs to deliver higher-quality goods. Moreover, they adjust their product range and quality across markets with different taste preferences and competitive environments.

In a second new project (joint with Nick Bloom, John Van Reenan, and Zhihong Yu), I plan to examine the role of managerial practices for companies' international trade activity. This dimension of firm productivity has never been examined before in the trade context due to the lack

of direct data on managerial competence. For the first time, studying it is possible by merging my Chinese customs and census data with unique management survey data that Nick Bloom and John Van Reenan have collected for 500 Chinese firms. We have recently begun expanding the analysis to 10,000 US firms using new management surveys collected as part of the US Census.

I intend to explore a series of questions with these data. First, preliminary results suggest that better managerial practices are associated with superior export performance. Moreover, exporting appears disproportionately more sensitive to managerial talent than overall output. Second, I will study how managerial competence affects different margins of export activity such as: establishing trade contacts; marketing a range of different products; and offering high-quality or technologically sophisticated products. Third, I will assess how individual management components (inventory operations, quality control, target setting, monitoring and incentivizing workers, etc.) affect various dimensions of firm activity. Forth, I will analyze whether better managed companies respond differently to unexpected shocks such as the 2008-2009 global financial crisis, the SARS episode of the mid 2000s, and exchange rate fluctuations.

This project will uncover the mechanisms through which managerial practices affect trade entrepreneurship and innovation, and compare how they operate in developing and developed economies. The results could suggest that trade reforms can boost growth and product innovation more if local firms have greater managerial know-how. One implication is that packaging trade reforms with incentives for management consulting services could prove worthwhile. Separately, different management aspects (e.g. process vs. people management) may prove essential for domestic operations vs. exporting, or for ordinary vs. processing trade. This could mean that firms will have to develop competence in other spheres of management if they choose to grow by changing their position along the global value chain.

#### **PROJECT IMPLEMENTATION AND USE OF PIE FUNDING**

I would use the NBER PIE grant to support travel related to working with co-authors; travel related to conference participation; research assistants; and/or summer salary.

- I plan to take multiple trips to work with my co-authors Nick Bloom (Stanford University, US), Davin Chor (National University of Singapore, Singapore), John Van Reenan (LSE, UK), and Zhihong Yu (Nottingham University, UK).

- Part of the data analysis will be performed with the help of a graduate research assistant. Given the complexity of the different datasets and the variety of estimation techniques, such RA support would be instrumental to the project.
- I plan to attend academic and policy conferences in order to publicize my work, receive valuable feedback, and stay abreast of current developments in the literature.

## **RELATED WORK**

This project will extend my broader research agenda. Completed papers include:

- [1] Manova, Wei and Zhang (forthcoming). “Firm Exports and MNC Activity under Credit Constraints.” *Review of Economics and Statistics*.
- [2] Bilir, Chor and Manova (2013). “Host-Country Financial Development and US Multinational Activity.” NBER Working Paper 20046. Under review.
- [3] Manova and Zhang (2012). “Price Heterogeneity across Firms and Export Destinations.” *Quarterly Journal of Economics* 127 (2012), p.379-436.
- [4] Manova and Yu (2011). “Firms and Credit Constraints along the Value Chain: Processing Trade in China.” NBER Working Paper 18561. Revision requested by the *Journal of International Economics*.
- [5] Manova and Zhang (2011). “Multi-Product Firms and Product Quality.” NBER Working Paper 18637. Under review.
- [6] Manova and Zhang (2008). “China’s Exporters and Importers: Firms, Products and Trade Partners.” NBER Working Paper 15249. Revision requested by the *Journal of International Economics*.