

## **SRO 2013 Summary: The Dynamics of Big Exporters**

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Previous models of international trade have modelled individual firms as points on a continuum. While it is often appropriate to approximate the number of firms as infinite, it is not accurate for every situation. For example, the assumption ensures that individual firms cannot have an effect on the economy as a whole, but recent examination of data has shown that the largest firms in a given country do tend to exert an influence. These models also imply that as long as exporting to a given country is possible, firms will export, whether or not exporting is worthwhile. In addition, firm sizes tend to be much more skewed than the continuum model allows. Consequently, new models have been developed, which allow for a finite number of firms, eliminating these issues. This project sought to use recently compiled data on exports to evaluate and extend the model described by Eaton, Kortum, and Sotelo in their working paper, “International Trade: Linking Micro and Macro” and to more closely examine large, influential exporters behave.

Comparison to the data showed that the model tends to predict too few exporters for developing countries, suggesting that firms from these countries may be more willing to enter less advantageous markets. In addition, as the model was also based on relatively old trade data, the predictions might benefit from more recent trade data, which will be acquired. While the model made very accurate predictions of some figures, it seems that it could still be improved on other fronts.

As a research assistant, my responsibilities primarily involved dealing with the Matlab programs used for the simulations. I tested and modified the existing programs to predict the quantities listed in the available data and wrote new programs that calculated the same quantities using different methods to check our work. I also used STATA to organize and format some older data.

I gained extensive experience with Matlab this summer and learned the basics of STATA, both ubiquitous pieces of software in the academic world that I will undoubtedly use again. More importantly, this research opportunity gave me a glimpse of the nature of economics research—the kinds of questions that are asked and the way solutions are researched. The work taught me how real world situations are described by and modelled with mathematical concepts, in this case probability distributions. The insight I gained was invaluable and helped me to appreciate how rich and exciting the field of economics is. It also gave me a deeper understanding of the power and applicability of mathematical concepts that I had previously only encountered in the classroom from a theoretical standpoint. Although the results I found were not always positive, negative results only made me more eager and curious to discover how the model could be modified.

I found SRO to be both enjoyable and educational. Learning hands on about international trade by working one on one with a professor made the field far easier to understand than simply learning about concepts in a classroom would have. The experience solidified my interest in pursuing a career economics research. I am grateful both to the Yale Economics Department and to Professor Kortum to have been given this opportunity.