Research Proposal to the Innovation Policy and the Economy Group

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This proposal for the Innovation Policy Grant is intended to support my work on how intellectual property rights (IPR) policies in different countries around the world affect international trade to those countries as well as other ongoing work that I have using firm-level data from the US Census. The primary use of the funds will be to pay for Census data user fees that are required of all researchers not associated with a university or organization that is a Census research data consortium member. These fees are required to be paid in order to complete my intended research. In what follows, I describe initial work that I have done on these topics using the Census data as well as the data itself and how the research funds would be used.

The primary work that would be done using these funds is on a project that I am currently working on with a graduate student at the University of Michigan, Jenny Lin. We have already developed a model with two main predictions (i) intellectual property rights policies in a country should affect the range of goods exported to it and (ii) these policies should affect newly developed products more strongly than other products. We have further begun preliminary work with the Census data that has so far supported the predictions of the theory. The Census data will allow us to examine entirely new questions and to account for a much larger amount of heterogeneity than prior work on the topic. This previous research has yielded conflicting results and suffers from serious econometric concerns that can be overcome with the Census data. Our empirical analyses still have significant work to be accomplished, however.

This work is intended to inform debates surrounding the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) that is administered by the World Trade Organization (WTO). This agreement is one of the most controversial issues in innovation policy and was a central concern of protestors at the 1999 Seattle WTO ministerial conference. If consumers have a love of variety, the predictions of the model also suggest that intellectual property rights should significantly affect welfare in a country through international trade. Recent research by Goldberg, Khandelwal, Pavcnik, and Topalova (*Quarterly Journal of Economics*, 2010) and others has further suggested that access to a larger range of imported intermediate inputs can promote the development of new products, indicating that trade is an important channel through which IPR policies can affect innovation.

The Census data provide a unique and powerful platform for empirical work relating to these and related issues. We have merged the universe of patents granted by the US Patent and Trademark Office with data on the operations of all firms operating in the US, including destination-specific information on where they exported over time. The data covers the years 1992-2006 and contains information from the Longitudinal Business Database and the Linked-Longitudinal Firm Trade Transactions Database. This bridge between the patent and Census data has been developed only recently and, although it has not been used in the context of studying international trade, it has been used for important work on the effects of innovation and reallocation (see for example Balasubramanian and Sivadasan, *Review of Economics and Statistics* 2011, and Acemoglu, Akcigit, Bloom, and Kerr, NBER Working Paper No. 18993 2013). In our preliminary work, we have already used it to document a number of new stylized facts on trade and innovation. Notably, while only 9% of manufacturing firms hold a patent, they account for 89% of total industry exports. We think that this fact helps explain why trade related intellectual property rights policies have been a major priority for the Office of the US Trade Representative.

It is this data platform that we intend to use to complete this project along with other projects. Future work intends to use this platform to better study the relationship between trade and innovation policy. In particular, I am interested in exploring how trade policy affects innovation through technological spillovers from imports. With the data, I can examine what technologies firms cite in their patents over time and relate this to the level of import competition that they face from different countries. I am also interested in studying how IPR policy reforms in different countries affect the incentives to innovate for US firms exporting to those countries.

While the Census data provide a powerful platform for studying the relationship between IPR policies and international trade, they are difficult to get access to and require significant financial resources to use. I am currently working on a project that is based out of the University of Michigan, which is where I received my Ph.D. Due to the fact that I am now working on it from a different location in Suitland, Maryland, they have required me to pay a remote access fee of $5,000 per year. My current project expires in the spring of 2015 and I plan to submit another project that will also be based at the research data center at the University of Michigan with researchers there. This will extend my access to the data for another 5 years. The Census data user fees during these years are also expected to be $5,000 per year. If I were to submit a project of my own based out of another research data center site, the costs would actually be larger. The funds from the grant program would thus be used to pay for these fees through the end of my current project and the first few years of my next project. Paying these fees is required for access and thus required for completing this research.

Financial support for this project would be much appreciated. This work will provide several benefits to the IPE group. First, it will provide the first firm-level evidence on one of the most hotly contested issues in innovation policy. Second, the work on this project will improve the existing bridge between the Longitudinal Business Database and the US Patent and Trademark Office data set. This bridge has been used and is being used by a number of members of the group and thus would represent a significant benefit to these researchers and potentially others in the future. Finally, we intend to make our results available for presentations to the IPE group as well as for publication in conference volumes.

*References*

1. Acemoglu, Daron, Ufuk Akcigit, Nicholas Bloom, and William R. Kerr. "Innovation, Reallocation

and Growth." NBER Working Paper Series, No. 18993, April 2013.

2. Balasubramanian, Natarajan, and Jagadeesh Sivadasan. "What Happens When Firms Patent? New

Evidence from US Economic Census Data." *The Review of Economics and Statistics* 93.1 (2011): 126-146.

3. Goldberg, Pinelopi Koujianou, Amit Kumar Khandelwal, Nina Pavcnik, and Petia Topalova.

"Imported Intermediate Inputs and Domestic Product Growth: Evidence from India." *The Quarterly*

*Journal of Economics* 125, no. 4 (2010): 1727-1767.