

The Offshoring of Innovative R&D to the Developing World

My dissertation focuses on the innovative R&D offshoring and outsourcing to the developing world. Offshoring R&D to these emerging economies provides employment for high skilled workers. Increased employment opportunities prevent high skilled workers from moving to developed countries in search of jobs. R&D offshoring then has an effect on the development of emerging countries. Multinational companies largely conduct adaptive R&D, or research for the purposes of adapting an already existing product to a new market, in developing countries instead of innovative R&D, or research for creating a new product for the sale in the global market. While the practice of offshoring innovative R&D to developing countries has been growing in recent years, there is still a lack of investment into R&D labs in these emerging areas. I seek to explain why multinational firms are reluctant to locate research in developing countries. Furthermore, I examine factors that increase innovative R&D offshoring and the effect this increase in innovative R&D offshoring has on both developed and developing countries.

The dissertation is segmented into three chapters dealing with R&D offshoring and outsourcing. The first chapter of my dissertation outlined a partial equilibrium model to explain the lack of innovative R&D research in the developing world. To do this, I assume that firms using researchers from developing countries expose their product to the possibility of imitation. These researchers may leave the firm and join a competing firm after internalizing vital information concerning a new product. This employee mobility acts as a channel of imitation. Using the probability of imitation, the wage differential between the developed country and the developing country, and IPR-protection, I show that the market structure largely determines whether a firm chooses to do research in a developing country. I also show that strengthening IPR-protection in a developing country may deter multinational firms from investing in that country.

The second chapter of my dissertation used the probability measured developed earlier to create a general equilibrium North-South model. Northern firms use both Northern and Southern researchers to create a new product; however, the use of Southern labor exposes Northern firms to imitation by Southern firms. I explore the effects of changes to market size, wages, IPR-protection, tariffs, and technology on the welfare and employment of both countries. For example, stronger Southern IPR-protection unambiguously hurts the South while benefiting the North.

The final chapter of my dissertation uses US patent data to examine previously unexplored aspects of R&D offshoring. By using the number of inventors in a developed country working on one patent, I capture the research intensity that firms are willing to have in developing regions. The study uses the NBER database along with WDI and NBER data to explore firm-level and industry-level offshoring. I

use OLS and Tobit regression models in the study. In order to test the sensitivity of the results and address endogeneity concerns, I also use a diff-in-diff and IV estimation models. A main result of the regression analysis includes high-tech firms offshoring more research than low-tech firms as IPR-protection strengthens.

My job market paper combines the general equilibrium model with the empirical analysis. I refocus the theoretical model to predict the firm-level and industry-level innovative R&D offshoring to the developing world. This paper is currently submitted to the Journal of International Economics.