

## DISSERTATION ABSTRACT OF NUNE HOVHANNISYAN

This dissertation examines issues regarding international technology transfer. The transfer of technology is at the heart of modern economics because of its implications for economic growth and long-run convergence of incomes. In this dissertation, I investigate various questions on channels and modes of technology transfer, analyzing cross-border flows of goods, ideas and people. Specifically, I look at the significance of technological distance for the mode of international knowledge transfer within multinationals and importance of cross-border movements of people for innovation.

In the first chapter, I study the relationship between the multinational affiliate's technology gap and the mode of technology transfer chosen by the multinational corporation. Multinational corporations have long been recognized as both major creators of technology and conduits of technology transfer. The technology transfer within multinationals can happen directly, when the affiliate licenses the technology from parent, or indirectly, when the affiliate imports intermediate goods with embodied technology. This paper estimates the effect of the affiliates' productivity relative to the frontier —the technology gap — on the choice of licensing the technology or importing it through intermediate goods. A novel measure of multinational technology transfer is employed using data on technology licensing payments versus imports from U.S. multinationals across many countries and industries. The main finding of this paper is a large technology gap of an affiliate favors indirect knowledge transfer through imports. On average, a 10% increase in the technology gap decreases the ratio of licensing to importing inputs embodying the technology by 3%. Given that the access to ideas and generation of new ones are crucial for long-run economic growth and convergence of a country, this study highlights the policy implications for countries to foster their productivity levels.

In the second chapter, we examine (with Wolfgang Keller) the role of international business travel for innovation. While it is well known that managers prefer in-person meetings for negotiating deals and selling their products, face-to-face communication may be particularly important for the transfer of technology because technology is best explained and demonstrated in person. This paper studies the role of short-term cross-border labor movements for innovation by estimating the recent impact of U.S. business travel to foreign countries on their patenting rates. Business travel is shown to have a significant effect up and beyond technology transfer through the channels of international trade and foreign direct investment. On average, a 10% increase in business travel leads to an increase in patenting by about 0.3%. We show that the technological knowledge of each business traveler matters by estimating a higher impact for travelers that originate in U.S. states with substantial innovation, such as California. Moreover, the business traveler effect on innovation also varies across industries. This study provides initial evidence that international air travel may be an important channel through which cross-country income differences can be reduced. We also discuss a number of policy issues in the context of short-term cross-border labor movements.

In the final chapter, I continue the analysis of the importance of international business travel for innovation. Specifically, I study whether foreign countries' outward business travel to a U.S. state affects that state's innovation. Business travelers coming from countries with high levels of innovation are estimated to matter more for the transfer of knowledge and exchange of ideas. The findings emphasize that country's business travel to the U.S. has a positive and significant effect on the latter's domestic innovation.