

## Research Statement: Innovation

I am interested in two research objectives. The first objective is the investigation of the economic mechanisms leading to agglomeration economies. The second objective is a quantitative analysis of the links between firm dynamics, worker mobility and innovation.

The first objective is best represented by my Job Market Paper. The paper focuses on quantifying the possible sources of agglomeration economies. I investigate sources of agglomeration economies related to thick labor markets. Using a rich linked data set of German social security records, I reveal new facts about mobility and wage patterns of workers in thick and thin labor markets. The use of micro data enables me to distinguish between explanations that yield otherwise similar macro patterns in more aggregated data. My analysis suggests that better match opportunities and better meeting technologies are at the heart of the observed differences. I intend to submit this paper for publication in Fall 2015.

My findings lead to new questions for future research. In order to address questions concerning policy, it is crucial to understand why the model parameters differ in the observed way. I am interested in understanding why the meeting technology is superior in thicker labor markets and how this is related to information flowing between firms. I intend to investigate the importance of co-worker networks to find a new job, by looking at the likelihood of working for an establishment in the future, given that a current co-worker has worked for the establishment in the past. I am interested to find out if the network of co-workers “densifies” as more people are added: does adding nodes leads to a more than linear increase in connections between nodes? If so, this should lead to easier information flow about jobs and be reflected in the likelihood of co-worker connections in future employments. In case information travels more easily in denser markets, one should observe selection of entrepreneurs in need of more specialized labor. The data I am currently using, is detailed enough to address the question quantitatively.

For the second research objective I am in the process of obtaining access to a new micro dataset that links patents to labor market biographies of the innovators, as well as to the firms the innovator works for. In particular, the dataset indicates exporting firms, contains data on firm revenues, and is linked to my currently used data on workers. There are a host

of open questions that can be addressed using this dataset. Together with Sebastian Sotelo from the University of Michigan, we are in the process of acquiring this dataset and are preparing two projects. One of the seminal theoretical papers linking innovation and growth is Klette and Kortum (2002). It is still one of the main contributions cited in the Innovation literature, yet little empirical work is available on the topic. Our dataset enables us to look more deeply into the relationship between firm dynamics and innovation decisions. The added benefit of our dataset is the link it provides to the labor market histories of innovators.

In a first stage of the project, we intend to document descriptive patterns. Questions we are interested in are:

- How frequently do innovators move between firms?
- Does the frequent exchange of innovators between establishments further the invention rate?
- Is there relationship between establishment growth and the innovation rate?
- How do macroeconomic variables affect the labor market outcome of innovators and the innovation rate?

As the second stage of the project, we will suggest a structural model, guided by our reduced form findings. Our interest is in uncovering economic mechanisms yielding the observed descriptive patterns..

Since the dataset contains information on the export decisions of establishments, we would like to work on a separate project, investigating the often suggested link between trade and innovation. We would like to empirically assess the claim that trading firms are pushing out the production possibility frontier more than non-exporting firms. It is well known that exporting firms are more productive than non-exporters. Can this be linked to innovation decisions by exporting firms? Similar to the project outlined previously, we would like to conduct a thorough descriptive analysis before investigating economic mechanisms.

The Post-Doctoral Fellowship at the NBER is particularly well suited for the research I am planning. The datasets I will use are provided by the German Institute for Employment

Research (IAB). Access to the data is only possible at designated Research Data Centers. Recently, the IAB opened a Research Data Center in Cambridge, at Harvard University. This would greatly facilitate my research agenda. I believe the topics I am working on are of interest for a greater audience of economists; the use of the described data has the potential to greatly illuminate the discussion on productivity, innovation and growth. Since I am already familiar with the data, through the work on my Job Market Paper, I am positive that I will be able to quick progress in the duration of the Post-Doctoral Fellowship.