

RESEARCH STATEMENT

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My primary academic interests involve developing and applying large geographic datasets and modeling migration patterns, the urbanization process, and demographic relationships in both developing and developed countries. My work falls into the fields of applied microeconomics, urban economics, and demographics.

Specifically, I have studied the migration patterns and urbanization process in China. The 2010 China census lacked the *de facto* (though not the *de jure*) population data for the city-proper of each city. To remedy this, in the first chapter of my thesis, I build new census dataset (China Spatial Administrative Unit Coding System, CN-SAUCS) that include information on village-level administrative units, which yield a link to cities, towns, and rural partitions in addition to the urban and rural divisions of local populations in China. Using web crawler techniques, I procured yearly village-level administrative datasets on China representing the years 2009 through 2016. In tracking the changes taking place in these administrative units over the years, I relied on Google/Baidu/Tencent/Gaode Maps API Webservices for geographic data on each village-level unit and Zip Codes for each township-level location in China. Notably, I combined GIS administrative unit data with the 2010 census data to generate approximate city-proper (central part of each city) population measures that were not previously available from China's statistics bureau. The absence of this type of population data has been a barrier to past research. Previous researchers may have avoided generating the sort of geographic resources that I have built here owing to the challenge of correcting and matching Chinese place names in large datasets of the sort that this project has involved. My innovation is to combine administrative unit information, census data, and commercial GIS data from Webservices Maps API, supplied by various companies, to generate a comprehensive geographic dataset on population location and demographics, thereby resolving one of the existing primary barriers to population research in China.

My job market paper uses these new data to analyze *hukou* reform. In China, the availability of government services has historically been tied to residence in an assigned geographic region, or *hukou*. *Hukou* reform will break up the restrictions across regions and between rural and urban areas. Experimental *hukou* reforms were carried out in some provinces before 2014, and in 2014 China implemented a nation-wide *hukou* reform. My new comprehensive dataset (CN-SAUCS) on the population geographies of China allows me to estimate the impact of *hukou* policy on the residential choices of (potential) migrants. Therefore, I combine the 2010 Chinese General Social Survey with CN-SAUCS to study how *hukou* reform affects location choices on various levels of regions in China.

My first short-term research goal is to simulate a productivity-maximizing geographic population distribution, and to compare it to both the population distribution observed now and the population distribution predicted to arise following *hukou* reform. Meanwhile, I will maintain CN-SAUCS, and extend it in two directions. First, I would like to develop crosswalks between the spatial datasets and the 1990 and 2000 cross-sectional censuses. Second, given China's current environmental and policy interests, the addition of climate change and air pollution datasets to the CN-SAUCS is of obvious potential value. My long-term research objective is to generalize my research methods and results for China to other developing or developed countries. I also expect to apply my findings and expertise to commercial applications with Maps API, such as Google Maps and Google Earth. I believe that richer information on population migration patterns is of potential value in guiding the choices of private firms, government agencies and intergovernmental organizations alike.