

Digitization Tutorial Application

To Whom It May Concern:

My name is Matthew Shapiro, a Ph.D. candidate in the economics program at the University of Minnesota; I am submitting this letter as my application to the NBER Digitization Tutorial in March 2017. As a candidate I already have formed a dissertation committee – currently composed of Thomas Holmes, Joel Waldfogel, and Naoki Aizawa – and expect to graduate in August 2018 and will be on the market in the winter of 2017-2018.

My primary research interests broadly fall under the categories of industrial organization, applied microeconomics, and urban economics. My coursework at the university exhausted the department's offerings in these areas, and I have since occasionally taken supplemental courses to familiarize myself with estimation techniques outside our standard classes, primarily Bayesian estimation and machine learning.

The projects I have pursued, while varying in industry of study, also fit under this umbrella of subjects. One work in progress with my principle advisor Tom Holmes and colleague Boyoung Seo, now at the University of Indiana, models land competition among oil developers in the Bakken region. A particular challenge has been in cataloguing and incorporating the complicated web of lease holdings that govern the mineral rights in North Dakota. We ask how this lease fragmentation impacts operators' spatial concentration and drill timing.

A second project with Boyoung Seo studies the expansion of electric vehicle usage in California in response to several incentive programs sponsored by state and federal governments, in particular subsidies and investments into a public charging infrastructure. In particular, we estimate a structural model of demand for these vehicles and the supply of charging stations to assess the most efficient use of federal funds in the goal of promoting electric vehicle adoption. One important data innovation was better studying actual charging station usage by collecting semi-real-time charging station usage information from a collection of sites online.

In contrast to those projects, my dissertation work has drawn me closer to the urban and digitization literatures. Using a critical sequence of developments in the New York City taxi industry over the past three years, I study the efficiency of place-based policies versus untargeted, cost-reductive efforts. Because of a perceived “under service” of taxi cabs outside of Manhattan, NYC introduced green cabs in 2013 specifically restricted to picking up customers in these areas rather than loosening the restrictive supply of Manhattan yellow cabs. In less than two years, Uber had already become major competition to this existing industry and a competitor unbound by any spatial restrictions. Nonetheless, by mid 2015 Uber already proved a more viable transport choice for areas targeted by the green cab initiative.

Using generous taxi data from New York City supplemented with data scraped from the Uber phone application and traffic cameras, I model the supply of and demand for these alternative transport choices. I use this model to evaluate the welfare gains from the zoned (green) policy versus the unrestricted (Uber) supply in the “under serviced” areas targeted by the green-cab policy.

As I look forward to future research questions after completing my graduate program, I wish to direct myself more toward urban and digitization economics. I view this NBER tutorial as an opportunity for more exposure to the questions of interest in the latter field and how they might intersect with questions in the urban economics beyond transportation.

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