NBER Digitization Tutorial Application

Contact Information

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Graduate Work and Studies

I am a 4th year PhD student at the University of Pennsylvania and I have taken courses in empirical microeconomics and industrial organization. Given the importance of big data in economics, I have taken courses in computational methods in economics and big data econometrics (taught by Frank Diebold). I am proficient in R and regularly analyze gigabytes of data in my own research.

Research Projects and Interests

I am broadly interested in online shopping and its impact across many sectors of the economy, including consumer behavior, employment, and competitive effects.

Working Paper

I have a working paper analyzing how consumer spending changed in response to the online collection of sales taxes and how consumers switch between online and offline spending channels. For this paper, I analyzed two large datasets: (1) comScore's Web Behavior Database which has over 300 gigabytes of online transaction and browsing data and (2) Nielsen's Homescan Consumer Panel which is a longitudinal, representative panel of 40,000-60,000 U.S. households that use in-home scanners to record all of their purchases from any outlet, intended for personal, in-home use.

A World Without Borders Revisited: The Impact of Online Sales Tax Collection on Shopping and Search

Since 2000, online shopping has grown dramatically as a share of total expenditures and, until recently, it was an easy way to avoid sales taxes. Using household-level shopping data, sales tax data, and staggered online sales tax collection, I identify tax elasticities for households. I find household elasticities are -0.3 to -0.5 with respect to tax rates on Amazon. This is much lower than previously found in the literature. Additionally, households spend more time searching Amazon's untaxed competitors after Amazon begins collecting sales tax. Finally, when looking at total household expenditures, including offline spending, households increase expenditures after Amazon collects sales tax, but not through online channels, indicating that households shift spending to offline channels after the policy change. This is the first paper to estimate how much individuals shift their online spending offline in response to sales taxes. Enforcing sales tax online may help recapture lost tax revenue, but it will likely not provide the local economic boost state and local governments desire.

RA Work

I was an RA for *Economies of Density in E-Commerce: A Study of Amazon's Fulfillment Center Network* by Jean-Francois Houde, Peter Newberry, and Katja Seim (NBER WP23361). I was responsible for querying, cleaning, and analyzing over 300 gigabytes of online transaction and browsing data from the comScore Web Behavior Database. This data covers over 50,000 households between 2002 and 2016.

Works in Progress

I am currently working on two other projects related to online shopping:

1. Using restricted Census microdata, I am working to improve current measurements of job creation and destruction attributable to the growth of online retail. The microdata enables me to pinpoint the number of jobs being affected and to identify which sectors are most affected whether they are in retail, transportation, warehousing, information services, or other sectors.

2. I am developing a model of firm entry and exit in a world where firms have the ability to create websites. In particular, we might expect that having a website would make it less costly to exit a market because the firm can still make sales from customers even

without a brick-and-mortar presence, which was not possible previously. The same logic implies that entry may become more costly because a physical presence would have to be justified beyond the revenues already being earned by the website in that market.