Application for NBER winter digitization tutorial 2017

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Course of Study:

I am a 3rd year PhD student in Information Technology at MIT Sloan School of Management. My area of study is the economics of digitization and my advisors are Erik Brynjolfsson and Catherine Tucker (feel free to contact them for references).

Selected Coursework:

- PhD Microeconomics sequence
- PhD Econometrics sequence
- Applied Econometrics (Joshua Angrist)
- Economics of IT (Erik Brynjolfsson)
- Economics of innovation (Scott Stern)
- Industrial Organization (Glen Ellison)

Research Interests:

I have passed my PhD qualifying exams and am finalizing ideas for my dissertation. I am currently working on two main projects (working paper drafts available on request):

Project 1: Using Massive Online Choice Experiments to Measure Changes in Well-being

(with Erik Brynjolfsson)

Digital technologies have transformed the nature of production and the types of goods and services consumed in modern economies. Yet our measurement framework for economic growth has not fundamentally changed since the 1930s. In principle, a better approach is now feasible. Specifically, changes in consumer surplus (compensating expenditure) are superior to changes in GDP as a measure of changes in consumer well-being, especially for digital goods. In practice, consumer surplus has been difficult to measure. We explore the potential for massively scalable online choice experiments to measure changes in consumer surplus for digital goods. Through these experiments we seek to measure consumers' willingness to accept compensation for losing access to various digital goods and thereby estimate the changes in consumer surplus from these goods. Because very large numbers of Americans can now be reached electronically, changes in consumer surplus and other new measures of well-being derived from online choice experiments have the potential for providing cost-effective supplements to existing national income and product accounts. Our results indicate that digital goods have created enormous gains in well-being which

are largely missed by conventional measure of GDP and productivity, and suggest that our approach can be scaled up to a broader set of goods and services. A limitation of our method is that it suffers from hypothetical bias. We estimate how much of an improvement in precision can be achieved with a larger sample size and various demographic controls and we document the direction and magnitude of bias present in our approach by conducting several incentive compatible studies for social media, messaging and mapping services (subjects in these studies were rewarded only if they actually gave up access to these digital goods). By periodically querying a large, representative sample of goods and services, including those which are not priced in existing markets, these methods could provide an estimate of annual changes in consumer well-being.

- Research featured in MIT Sloan Management Review (http://sloanreview.mit.edu/article/why-we-need-new-measures-of-the-u-s-economy/)
- Presented by Erik at the CRIW workshop, NBER Summer Institute 2016 and at the BEA (to the chief economist and other economists involved in GDP measurement) on 17 Nov 2016.
- I am going to present it at the Workshop on Information Systems and Economics (WISE) on 14 Dec 2016 in Dublin (paper has been nominated for the best paper award).

Project 2: The Dark Side of Targeted Advertising: The Case of For-Profit College Ads

(with Catherine Tucker)

In this research agenda, we are interested in the broad question of whether technological advances related to "Big Data" have enabled/ magnified "bad" business models in certain sectors. In our first paper, we consider the case of for-profit colleges and their online advertising strategies. For-profit colleges have come under increased scrutiny recently for misleading students through aggressive deceptive marketing campaigns and many of their graduates end up with poor returns on investment spent on their education. Most of the students come from low income households and rely on federal grants to pursue their education. Location based targeting lets for-profit colleges to target poor neighborhoods. We ran several studies exploring the mechanism behind why data based discrimination might take place in this context. In the first study, we collected the ads seen by people located in different parts of US when they search for the same keywords related to colleges on Google and find that people living in poorer areas are much more likely to see these for-profit college ads. In the second study, we ran field experiments on Facebook where we ran ads similar to the ones used by these for-profit colleges and find that people living in poorer areas are much more likely to click on these for-profit ads. Finally, in our third study we ran field experiments on Google search ads and find no evidence for algorithmic discrimination. Instead, for-profit colleges intentionally target poorer communities and end up getting more clicks due to the wording of the ads.

- I presented results of this paper at the Conference on Digital Experimentation (CODE) @ MIT in August 2016.