Contact Information:

Name: Mehdi Akhbari

PhD Candidate in Economics, the University of Texas at Austin

Email: Akhbari@utexas.edu

Phone: (512)9703477

Research Interests: Industrial Organization, Causal Machine Learning, Econometrics, Online Platforms, Market Design

Dissertation title: Should We Share our Cookies? The Effect of Data on Match Quality in Online Advertising (abstract provided on page 3)

Committee members: Daniel Ackerberg, Robert Town, Jackson Dorsey, Andrey Ordin

Dear Organizers,

I am writing to express my strong interest in attending the NBER Digital Economics and AI Tutorial. I am Mehdi Akhbari, a PhD candidate in Economics at the University of Texas at Austin, and my research focuses on digital economics, specifically the impact of data on online advertising markets. I am very interested in learning more about the latest advances in this field and believe this tutorial would be an invaluable opportunity.

During the PhD program, I took Industrial Organization, Econometrics, and Game Theory as my field courses. I also self-studied machine learning methods for causal inference by reading works by prominent researchers at Stanford University such as Susan Athey, Guido Imbens, and Stefan Wager. In my dissertation, I am using causal machine learning to analyze how data affects the efficiency of online advertising. I believe that this research is relevant to the topics that will be covered in the tutorial, and I am eager to discuss my findings with other researchers in the field.

I am also keen to learn from the distinguished economists who will be leading the tutorial. I am confident that their expertise will be of great benefit to my research and career development.

Thank you for considering my application,

Mehdi Akhbari

Should We Share Our Cookies?

The Effect of Data on Match Quality in Online Advertising

Mehdi Akhbari*

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Abstract

User data is extensively used for ad targeting on online platforms, and a higher volume of data allows platforms to improve targeting and may incentivize mergers. This research quantifies the impact of data on match quality (measured by average user click rates) in the online advertising industry, examining how mergers between platforms with complementary data could affect market outcomes. Such a merger improves the match quality through two different mechanisms: First, increasing the number of observations the merged entity has access to allows it to predict expected click rates more accurately. Second, the merged entity can observe user browsing history and ad exposures across more websites, allowing it to target ads more effectively. The analysis utilizes the conditionally random allocation of ads in the data provided by Iran's largest online advertising platform and employs Causal Forest, a novel causal machine learning method, to estimate heterogeneous user click rates based on extensive browsing and ad exposure data from more than 1.6 million internet users. Simulations of user and platform behavior reveal that hypothetical mergers could boost match quality by 14-25%. In addition, this research finds that the majority of gains arise from an increase in the number of observations, and observing more browsing and ad exposure history has minimal gains.

*The University of Texas at Austin. email: akhbari@utexas.edu