

Toulouse Network for Information Technology

Annual Meeting October 4-5, 2019 - Microsoft, Redmond

Program

(a summary of the academic papers can be found at the end of this document)

Friday, October 4th (RedWest D. 1081)

8:30 - 9:00 Welcome

9:00 – 10:00 **Microsoft presentations**

Natasha Crampton on responsible AI
Stephanie Beers on future of work

10:00 - 10:15 Break

10:15 – 11:15 Academic presentations

Daron Acemoglu (MIT) 20'

Presentation on AI and Jobs: Evidence from Vacancies

Mike Webb (Stanford University) 20'

Presentation on How will AI affect jobs and wages?

Josh Lerner (Harvard University) and Nick Bloom (Stanford University) 25'

Presentation on AI as a Disruptive Technology

11:15- 11:30 Break

11:30 -12:00 Walk to RedWest E./Emerald Auditorium

12:00 - 1:00 LUNCH & **Susan Athey (Stanford University) 45'**

Presentation on Policy Challenges in Regulating AI Applications

- 1:00 - 1:30 Walk back to Redwest D
- 1:30 - 2:00 **Microsoft presentation 30'**
Jan Neutze on digital democracy
- 2:00 - 2:45 Academic presentation
Matthew Gentzkow (Stanford University) 45'
Presentation on *The Welfare Effects of Social Media*
- 2:45 - 3:00 Break
- 3:00 - 3:20 **Microsoft presentation 20'**
David Green on Open Data
- 3:20 - 4:00 Academic Presentation
Daron Acemoglu (MIT) 40'
Presentation on *Too Much Data: Prices and Inefficiencies in Data Markets*
- 4:00- 4:15 Break
- 4:15 – 4:35 **Microsoft presentation 20'**
Rima Alaily on Platform regulation
- 4:35 - 5:00 Academic Presentation
Jacques Crémer (TSE) 25'
Presentation on *Competition Policy for The Digital Economy*
- 5:00 – 5:30 Group photo
- 5:30 – 5:45 Shuttle to ProClub
- 5:45 – 8:00 Dinner (by invitation)

Saturday, October 5th (Lincoln Square: LS /15100 /15104 & 15200)

8:00 – 8:30 Arrival & Breakfast (meet at bottom of elevators in Lincoln Square- restricted access)

8:30 – 10:00 Academic presentations

Heidi Williams (Stanford University) 45'

Presentation on *Estimating the costs and benefits of disclosure*

Nick Bloom (Stanford University) 45'

Presentation on *The Impact of Chinese Trade on U.S. Employment: The Good, The Bad and The Debatable*

10:00 - 10:15 BREAK

10:15 - 11:00 Academic presentation

Susan Athey (Stanford University) 45'

Presentation on *The value of data for personalization in retail*

11:00 - 12:00 Lunch + Network meetings

Summaries

Friday October 4, 2019

Morning: AI

Daron Acemoglu (MIT)

AI and Jobs: Evidence from Vacancies

There is considerable uncertainty about how artificial intelligence (AI) is and will be affecting the labor market. In this paper, we present the first analysis of this question relying on Burning Glass (BG) data set of vacancy postings. BG collects vacancies from the near-universe of online job boards and company websites and collates detailed information on job type, required skills and occupational characteristics. Using these data we construct data on AI and non-AI vacancies classified into tasks that can be replaced by AI and those that cannot be. Using establishment-level variation in task content, we develop a Bartik-style measure of AI demand and then show that it has strong predictive power for AI postings. After verifying that these postings are not simple relabeling of previous IT jobs, we investigate how the demand for overall labor and different types of tasks changes at the establishment level with AI postings. Our results show a sizable decline in types of jobs that can be replaced by AI, with a modest increase in other types of postings. The overall labor demand of an establishment posting more AI vacancies appears to decline modestly.

Mike Webb (Stanford)

How will AI affect jobs and wages?

Recent breakthroughs in artificial intelligence have led to widespread anxiety about how its impact on jobs and wages. I use the overlap between the text of patents and the text of job description to construct a measure of the "exposure" of occupations to a technology and show that this measure robustly predicts the changes in employment and wages that occurred in previous episodes of technological change. Using this measure I find that, in contrast to prior technologies, AI is likely to reduce demand for high-skill occupations.

Josh Lerner (Harvard) and Nick Bloom (Stanford)

AI as a Disruptive Technology

Artificial intelligence will have profound impacts on firms but also on workers, affecting the earnings of the former and the employment of the latter. The aim of this research project is to take advantage of the fact that AI is part of an array of disruptive technologies that have been developed and are being implemented in recent years, some are at a more advanced stage and some at a less advanced stage, and to draw lessons from the experience of these other technologies to draw lessons for the societal and economic consequences of AI. In order to do this, the paper will track 10 disruptive technologies (driverless cars, drones, electric cars, and of course AI) over time in both newspaper sources and company earnings reports, and study their impact on stock-prices. The presentation will discuss what economists know about disruptive technologies and present some preliminary finding from our research.

Lunch talk:

Susan Athey (Stanford)

Policy challenges in regulating AI applications

Artificial Intelligence provides a vast array of impressively powerful prediction tools, but decision making requires more than prediction. As a consequence, businesses and governments find it challenging to harness AI's full power. They must at the same time grapple with pitfalls and unintended consequences as well as discern the most suitable applications. At the same time regulators must decide when the use of AI by private actors might require public intervention to prevent harm to society at large. This talk will provide a framework for analyzing these challenges. It will review recent developments and highlight open research questions since Professor Athey's influential 2017 Science article "Beyond prediction: Using big data for policy problems", <http://bit.ly/2KeCc8H>.

Afternoon: Platform: welfare impact of social media, data markets, competition policy

Matthew Gentzkow (Stanford)

The Welfare Effects of Social Media

The rise of social media has provoked both optimism about potential societal benefits and concern about harms such as addiction, depression, and political polarization. We present a randomized evaluation of the welfare effects of Facebook, focusing on US users in the runup to the 2018 midterm election. We measured the willingness-to-accept of 2,743 Facebook users to deactivate their Facebook accounts for four weeks, then randomly assigned a subset to actually do so in a way that we verified. Using a suite of outcomes from both surveys and direct measurement, we show that Facebook deactivation (i) reduced online activity, including other social media, while increasing offline activities such as watching TV alone and socializing with family and friends; (ii) reduced both factual news knowledge and political polarization; (iii) increased subjective well-being; and (iv) caused a large persistent reduction in Facebook use after the experiment. Deactivation reduced post-experiment valuations of Facebook, but valuations still imply that Facebook generates substantial consumer surplus.

Daron Acemoglu (MIT)

Too Much Data: Prices and Inefficiencies in Data Markets

When a user shares her data with an online platform, she typically reveals relevant information about other users. We model a data market in the presence of this type of externality in a setup where one or multiple platforms estimate a user's type with data they acquire from all users and (some) users value their privacy. We demonstrate that the data externalities depress the price of data because once a user's information is leaked by others, she has less reason to protect her data and privacy. These depressed prices lead to excessive data sharing. We characterize conditions under which shutting down data markets improves (utilitarian welfare). Competition between platforms does not redress the problem of excessively low price for data and too much data sharing, and may in fact reduce welfare. We propose a scheme based on mediated data-

sharing that improves efficiency.

Jacques Crémer (TSE)
Competition Policy for The Digital Economy

Along with Professors Yves-Alexandre de Montjoye of Imperial College and Heike Schweitzer from Humbolt University of Berlin, Jacques Crémer wrote a report for the European Commission on “Competition Policy for the Digital Era”. The presentation will focus on the reasons why the authors of the report felt that the characteristics of the digital economy requires a fundamental rethink of competition policy and on some of their policy proposals.

Saturday October 5, 2019

Heidi Williams (Stanford)
Estimating the costs and benefits of disclosure

The patent system provides inventors with a temporary period of market power, in exchange for requiring disclosure of their invention. Disclosure aims to increase the social value generated by the patent system, but does so at the cost of – at least in some markets – decreasing the private value of patenting. While these costs and benefits of disclosure are well understood at a conceptual level, little empirical evidence exists on the trade-offs which arise with designing disclosure requirements in practice. This project leverages a 1990 regulatory change in the disclosure requirements for US patent applications containing DNA sequences in order to provide some initial evidence on how variation in the strength of disclosure requirements affects private behavior.

Nick Bloom (Stanford)
The Impact of Chinese Trade on U.S. Employment: The Good, The Bad and The Debatable

Using confidential US Census micro data we find three results. First, there is no evidence that Chinese import competition generated net job losses. In low-human capital areas (for example, much of the South and mid-West) manufacturing saw large job losses, driven by plant shrinkage and closure. But in high-human capital areas (for example, much of the West Coast or New England) manufacturing job losses were limited, with much larger gains in service employment, particularly in research, management and wholesale. As such, Chinese competition reallocated employment from manufacturing to services, and from the US heartland to the coasts. Second, looking at the firm-level data we find almost all of the manufacturing job losses are in large, multinational firms that are simultaneously expanding in services. Hence, these large firms appear to have offshored manufacturing employment while creating US service sector jobs. Indeed, we show large publicly traded US firms do not seem to have been negatively impacted by the rise in Chinese imports. Finally, the impact of Chinese imports disappears after 2007 – we find strong employment impacts from 2000 to 2007, but nothing since from 2008 to 2015.

Susan Athey (Stanford), Pulak Ghosh, and Ayush Kanodia
The value of data for personalization in retail

The current policy debates assume that data is very valuable, but we have little evidence and measurement of its actual value. In this paper we compute the value of data in the special, but important, case of personalized offers. Using scanner data from a large retail chain, we examine how purchases in one category can inform predictions about purchases in other categories. We compute the value of these predictions when they are used to target coupons. We then compare the value of additional data across different types of data, in particular data from additional consumers, longer histories for each consumer, additional products that are very similar or very different from the target product, or additional stores. Implications for competition policy are considered