



# LIST OF ABSTRACTS



## **Daron Acemoglu (MIT)**

### **Automation, new tasks and the future of work: implications of the task content of technological change (joint with Pascual Restrepo)**

We present a framework for understanding the effects of automation and other types of technological changes on labor demand, and use it for interpreting changes in US employment over the recent past. Automation enables capital to replace labor in tasks it was previously engaged in. Because of the displacement effect it generates, automation is qualitatively different from factor-augmenting technological changes; it always reduces the labor share in value added (of an industry or economy) and may also reduce employment and wages even as it raises productivity. The effects of automation are counterbalanced by the creation of new tasks in which labor has a comparative advantage, which generates a reinstatement effect raising the labor share and labor demand by expanding the set of tasks allocated to labor. We show how the role of changes in the task content of production---due to automation and new tasks---can be inferred from industry-level data. Our empirical exercise suggests that the slower growth of employment over the last three decades is accounted for by a relative absence of the reinstatement effect and weaker than usual growth of productivity. These patterns have important implications for the future of work.

## **Susan Athey (Stanford)**

### **Using Artificial Intelligence and Cloud Platforms for Public Good**

Much Artificial Intelligence (AI) innovation to date has been focused on commercial applications. Yet there is a large potential for using AI for public good. Examples of problems that might be particularly amenable to AI-based products include worker retraining, adult literacy, early childhood education for the poor, and nudges for good behavior (health, savings, etc.) AI has characteristics that make it amenable for philanthropic and social applications: it requires initial R&D, but using cloud-based AI methods and deployment, AI-based applications can be delivered with very low marginal cost. An impediment remains, which is finding the best possible interventions that are targeted or personalized to individuals. In this research, we propose new methods for automating the search for personalized, effective interventions, and we describe their application to several social problems. In one application, we show that targeted worker retraining programs are substantially more effective than uniformly provided services.

## **Nicholas Bloom (Stanford)**

### **“Business forecasting” by Nick Bloom, Steve Davis, Lucia Foster, Brian Lucking and Scott Ohlmacher**

Recently many firms have embraced using big data on current and past business conditions. But there appears to be much less use of systematic forecasting of future business conditions. To investigate this with the US Census Bureau we collected innovative 5-bin data on own future outcomes and probabilities for shipments, employment, capital and materials expenditures at 35,000 manufacturing plants. We find that, first, 85% of firms can provide credible predictions for future outcomes which align both in the average and uncertainty of forecasts. Second, forecast accuracy is strongly correlated with firm and industry level volatility – uncertain business conditions make it harder for firms to forecast. Finally, we find firms adopting predictive analytics and computing, alongside more structured management practices have substantially better forecast performance. This suggests investment in information, computing and organizational practices can help firms better deal with business uncertainty.

## **Matthew Gentzkow (Stanford)**

### **1) Trust, Truth, and Selective Exposure to Partisan News" (joint w/ Hunt Allcott and David Yang)**

A large body of evidence shows that consumers consistently demand news and information that agrees with their own political views. Less is known about the mechanisms that drive such selective exposure, or the interventions that would be most effective in mitigating it. I will discuss the background to this question, including the biases and rational forces that could potentially be at play, and the reasons why understanding their relative importance is a critical input to both platform design and policy. I will then present preliminary results from new research looking at one piece of the question: how the magnitude of selective exposure would change consumers had stronger incentives to learn the truth.

### **2) Artificial Intelligence, Media and Misinformation**

Digital technologies have upended media markets, causing a cascade of social effects both positive and negative. Rapidly advancing machine learning and AI now seem poised to usher in a new set of changes that could be equally profound. I will discuss what past and recent research in economics has to say about the likely impact of AI on media markets, with particular emphasis on the extent to which media can stem the flow of misinformation and support democracy.

## **Joshua Lerner (Harvard)**

### **The Creation and Evolution of Entrepreneurial Public Markets (joint w/ Shai Bernstein, Abhishek Dev,)**

In this paper we explore the creation and evolution of new stock exchanges around the world that attempt to attract entrepreneurial and fast growing companies, defined as second-tier exchanges. Using a hand-collected novel data, we find that since 1990, most of the newly created exchanges were second-tier exchanges, and these exchanges attracted a significant proportion of the global IPO market activity. Countries with stronger shareholder protection were more likely to establish second-tier exchanges, and once established, they were more likely to succeed, measured based on exchange survival, IPO volume and total proceeds. Within countries with similar levels of shareholder protection, higher venture capital investments and patenting activity are strongly associated with the creation and success of second-tier exchanges. We find that in countries with better shareholder protection, second-tier exchanges are able to attract younger and less profitable companies, that are able to raise more capital and grow faster around the IPO event. These findings highlight the importance of country-specific institutions to allow establishing stock exchanges dedicated for entrepreneurial and fast growing companies.

**Heidi Williams (MIT)**

**"Missing markets for innovation: Evidence from New Uses of Old Drugs"**

Pharmaceutical innovations are approved to treat a specific disease (say, diabetes), but in many cases evidence accumulates that any given drug can also effectively treat other diseases (say, cancer). However, once the original patent expires on a drug compound, discoveries of new uses of that compound receive little or no effective patent protection: because pharmaceutical firms lack a technology for monitoring the diseases for which physicians prescribe drugs, there is no way for the potential developer of a new use of an old drug to charge a price above marginal cost once generic entry has occurred. We use a simple theoretical model to formalize this distortion and analyze potential policy and market design responses. Our empirical work quantifies the magnitude of this distortion, which effectively creates variation in the patent terms provided to different potential discoveries. We use this quantification exercise to provide causal evidence on how patent term length affects research investments.