Toulouse Network for Information Technology

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List of Abstracts

Josh Lerner (with Haris Tabakovic, and Jean Tirole)
The Patent Pool-Standards Interface

Abstract
Patent pools in recent decades have largely been created to enable the development and diffusion of standards, but the relationship between these two institutions remains poorly understood. This paper seeks to explore the complex dynamics between these institutions, from both a theoretical and empirical perspective. Focusing on 21 pools and the standards associated with them, we seek to understand what drives the decision of firms to make specific or generic disclosures of patent holdings to standard setting bodies, and then the determinants of which of these patents are included with the associated pools.

Daron Acemoglu (with Ufuk Akcigitz & Murat Alp Celikx)
Young, Restless and Creative:Openness to Disruption and Creative Innovations

Abstract
This paper argues that openness to new, unconventional and disruptive ideas has a first- order impact on creative innovations that break new ground in terms of knowledge creation. After presenting a motivating model focusing on the choice between incremental and radical innovation, and on how managers of different ages and human capital are sorted across different types of firms, we provide cross-country, firm-level and patent-level evidence consistent with this pattern. Our measures of creative innovations proxy for innovation quality (average number of citations per patent) and creativity (fraction of superstar innovators, the likelihood of a very high number of citations, and generality of patents). Our main proxy for openness to disruption is manager age. This variable is based on the idea that only companies or societies open to such disruption will allow the young to rise up within the hierarchy. Using this proxy at the country, firm or patent level, we present robust evidence that openness to disruption is associated with more creative innovations.

Matthew Gentzkow
Bias and Trust in Social Networks

Abstract
Two key features robustly describe ideological differences in society: (i) individuals persistently disagree about objective facts; (ii) individuals also disagree about which sources can be trusted to provide reliable information about these facts. I develop a model in which these patterns arise endogenously as the result of small deviations from Bayesian information processing. Individuals receive relatively noisy information from direct observation, which is subject to a small ideological bias. They also receive information through social networks and media. This information is much more precise than direct observation in aggregate, but sources differ in their reliability and individuals must learn which sources they can trust. I show that individuals with different ideological biases may come to trust like-minded sources and distrust both objective sources and sources with opposite biases. As a result, beliefs persistently diverge, even when ideological biases become arbitrarily small and the aggregate information available becomes arbitrarily large. I discuss applications to Internet news and social media.

Michael Whinston (with G. Crawford, R. Lee and A. Yurukoglu)
The Welfare Effects of Vertical Integration

Abstract
We investigate the welfare effects of vertical integration with an application to regional sports networks (RSN's) in U.S. multichannel television markets. Vertical integration can enhance efficiency by aligning investment incentives and/or reducing double marginalization, but can also harm welfare due to foreclosure incentives (e.g., raising rivals' costs). We measure these competing effects in the carriage, channel placement, and pricing decisions of regional sports networks (RSN's) by affiliated and unaffiliated cable and satellite television distributors. We first carry out descriptive analyses that compare integrated and non-integrated RSN's and distributors' prices and carriage, investment levels, and viewership ratings. We then estimate a model of viewership, subscription, distributor pricing, bargaining, and investment in RSN quality. We use the estimated model to analyze the welfare effects of simulated vertical mergers and de-mergers and the closing of the "terrestrial loophole" by the U.S. Federal Communications Commission.

Andrei Hagiu (with Julian Wright)
Marketplace or reseller?

Abstract
Intermediaries can choose between functioning as a marketplace (on which suppliers sell their products directly to buyers) or as a reseller (purchasing products from suppliers and selling them to buyers). We model this as a decision between whether control rights over a non-contractible decision variable (the choice of some marketing activity) are better held by suppliers (the marketplace- mode) or by the intermediary (the reseller-mode). Whether the marketplace or the reseller mode is preferred depends on whether independent suppliers or the intermediary have more important information relevant to the optimal tailoring of marketing activities for each specific product. We show that this tradeoff is shifted towards the reseller-mode when marketing activities create spillovers across products and when network effects lead to unfavorable expectations about supplier participation. If the reseller has a variable cost advantage (respectively, disadvantage) relative to the marketplace then the tradeoff is shifted towards the marketplace for long-tail (respectively, short- tail) products. We thus provide a theory of which products an intermediary should offer in each mode. We also provide some empirical evidence that supports our main results.

Susan Athey
The Economics of Virtual Currency

Abstract
This paper develops a model of user adoption and use of virtual currency (such as Bitcoin), and specifically incorporates the frictions created by Bitcoin. Alternative market designs are considered that might alleviate the frictions. The theoretical model can be used to analyze how market fundamentals determine the exchange rate of fiat currency to virtual currency. Empirical evidence from Bitcoin consistent with the theory is presented. Further analysis of the history of all individual transactions on Bitcoin's public ledger establishes patterns of adoption and utilization across user types, transaction type, and geography.

Nicholas Bloom (with Scott Baker and Steve Davis)
Computers vs Humans: Measuring uncertainty from newspapers

Abstract
The recent crisis has focused attention on trying to measure economic uncertainty as a potential factor behind the deep recession and slow recovery. One approach to this is using detailed search of newspapers for word-terms associated with economic uncertainty. We have developed an approach for doing this for the US, Europe, China and India using computerized word-searches which seems to generate sensible data, and is now being actively used by financial institutions and researchers. One question is how accurate is this and could mass human readings of newspapers do better? To address this question we have also had two teams of undergraduates from Chicago and Stanford read 10,000 randomly drawn newspaper articles to code the relevant uncertainty fields, and then compared this to computerized valuations using a range of different approaches. We find two facts. Firstly, large sample values from humans and computers look similar, with the differences between then being close to white noise. The reason appears to be both make errors – humans misread articles, while computers make naïve mistakes. Computerized

strategies that also target more complicated searches – like word co-location, focusing on headlines, and iterative learning – tend to be more accurate but with the occasional large error.

Kiminori Matsuyama (with Iryna Sushko and Laura Gardini)
Globalization and Synchronization of Innovation Cycles

Abstract:
We propose and analyze a two-country model of endogenous innovation cycles. In autarky, innovation fluctuations in the two countries are decoupled. As trade cost falls, they become more synchronized. This is because globalization leads to the alignment of innovation incentives across firms based in different countries, as they operate in the increasingly global (hence common) market environment. Furthermore, synchronization occurs faster (i.e., with a smaller reduction in trade costs) when the country sizes are more unequal, and the bigger country sets the tempo of global innovation cycles with the smaller country adjusting its rhythm to the rhythm of the bigger country. These results suggest that adding endogenous sources of productivity fluctuations might help improve our understanding of why countries that trade more with each other have more synchronized business cycles.

Francesco Decarolis (with Maris Goldmanis & Antonio Penta)
Common Agency and Coordinated Bids in Sponsored Search Auctions

Abstract
As auctions are becoming the main mechanism for selling advertisement space on the web, marketing agencies specialized in bidding in online auctions are proliferating. We analyze theoretically how bidding delegation to a common marketing agency can undermine both revenues and efficiency of the generalized second price auction, the for- mat used by Google and Microsoft-Yahoo!. Our characterization allows us to quantify the revenue losses relative to both the case of full competition and the case of agency bidding under an alternative auction format (specifically, the VCG mechanism). We propose a simple algorithm that a search engine can use to reduce efficiency and revenue losses

Jonathan Levin (with Andrzej Skrzypaczy)
Are Dynamic Vickrey Auctions Practical? Properties of the Combinatorial Clock Auction

Abstract:
The combinatorial clock auction is becoming increasingly popular for large-scale spectrum awards and other uses, replacing more traditional ascending or clock auctions. We describe some surprising properties of the auction, including a wide range of ex post equilibria with demand expansion, demand reduction and predation. These outcomes arise because of the way the auction separates allocation and pricing, so that bidders are asked to make decisions that cannot possibly affect their own auction outcome. Our results obtain in a standard homogenous good setting where bidders have well-behaved linear demand curves, and suggest some practical difficulties with dynamic implementations of the Vickrey auction.