Toulouse Network for Information Technology

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Lists of abstracts

Daron Acemoglu (MIT)
Demographics, Automation and Productivity

Abstract
Several recent theories emphasize the negative effects of an aging population on economic growth, either because of the lower labor force participation and productivity of older workers or because aging will create an excess of savings over desired investment, leading to secular stagnation. Theories of directed technological change, on the other hand, suggest that large changes in the composition of the labor force should also impact the development and adoption of new technologies, sometimes in ways that may partially or fully offset the negative consequences of these compositional changes. In the context of aging, we show that an extended version of the baseline directed technological change models predict that the relative shortage of younger and middle-aged labor caused by rapid demographic changes should lead to greater adoption (and development) of automation technologies, and in particular, robotics.
We provide extensive evidence that, in a panel of countries spanning the last 20 years, those aging more rapidly tend to adopt more robots per worker. This relationship is very pronounced and highly robust, and appears more strongly associated with future anticipated demographic dynamics than current or past ones. Moreover, relevant for the directed technological change models, we also show that the trend towards more robots is driven by industries that tend to employ more younger and middle-aged workers. We then investigate the productivity effects of these demography-induced automation decisions.
The aggregate consequences of these changes could be major. We also show that, in contrast to many theories and expectations, there is no negative relationship between more rapid aging and slowdown in country growth or productivity. If anything, countries experiencing more rapid aging have grown more in recent decades. We explain how this country into the finding can follow from the effects of the demography-induced automation decisions.

Susan Athey (Stanford)
Marketplaces and Quality on the Digital Economy

Abstract
The digital transformation of the economy has a large effect on the structure of work and the way in which quality is ensured. I analyze this in the context of Uber, where pre-screening and specialization is replaced by a system where reviews and reputation are used to ensure quality. A key aspect of marketplaces and the gig economy is that it allows worker flexibility and easy entry of new workers; the question is whether this benefit for workers comes at a cost to consumers. My preliminary results (using data from taxi's dispatched using the Uber app) that Uber drivers are substantially safer drivers than taxis, controlling for all observables of the ride (using either matching or machine learning-based methods). The research will analyze whether safety warnings from Uber (currently running as a randomized experiment) improve driver safety, and also it will explore how rider preferences and ratings serve as a channel for changing driver behavior. We can study how drivers respond to both user preferences and safety nudges. We will explore heterogeneity in the effects of these difference incentives and nudges on drivers, as a function of driver experience, driver ratings, and other observables. The results of this study have broader implications, since an increasing number of services are provided through digital marketplaces; if ratings and nudges have a large impact on quality, it has implications for how this trend will change consumer welfare in a variety of industries.

Nicholas Bloom (Stanford)
The great micro moderation

Abstract
This paper documents that individual income volatility in the United States has declined in an almost secular fashion since 1980—a phenomenon that we call the "Great Micro Moderation." This finding contrasts with the conventional wisdom, based on studies using survey data, that income volatility—a simple measure of uncertainty—has increased substantially during the same period. The finding of declining volatility is consistent with a handful of recent papers that use adminis- trative data. We substantially extend the existing empirical findings of declining volatility using data from both administrative and survey-based data sets. A key contribution of our paper is to link patterns of income volatility on the worker side to outcomes (and volatility) on the firm/employer side. With the information revealed by these linkages, we investigate several potential drivers of this trend to under- stand if declining volatility represents a broadly positive development—declining income risk and uncertainty—or a negative one, i.e., declining business dynamism.

Matthew Gentzkow (Stanford)
The effect of the internet on political polarization: Evidence from demographics.

Abstract
We combine eight previously proposed measures to construct an index of political polarization among US adults. We find that polarization has increased as much or more for the demographic groups least likely to use the internet and social media. Our overall index and all but one of the individual measures show greater increases for those older than 65 than for those aged 18–39. A linear model estimated at the age-group level implies that the internet explains a small share of the recent growth in polarization.

Josh Lerner (Harvard)
Innovation policy in China

Abstract
Using a difference-in-difference approach, we study how intellectual property right (IPR) protection affects innovation in China in the years around the privatizations of state-owned enterprises (SOEs). Innovation increases after SOE privatizations, and this increase is larger in cities with strong IPR protection. Our results support theoretical arguments that IPR protection strengthens firms' incentives to innovate and that private sector firms are more sensitive to IPR protection than SOEs.
25% of Chinese firms' R&D expenditures comes from government subsidy. This paper studies the relation between innovation, corruption and government subsidies in China. We have two key findings. First, the government's anti-corruption campaign and departures of local government officials increase the extent to which innovative ability drives the award of subsidies: in other words, corruption blunts the relationship between innovative ability and the award of s subsidies.. Secondly, subsidies positively contributes to future innovation, especially after the anti-corruption campaign and government official movements. We conclude that subsidies relax firms' resource constraints, but corruption leads to allocative inefficiencies. Anti-corruption efforts thus improve the allocation efficiency of resources.

Andrew Rhodes (TSE)
Multiproduct intermediaries and optimal product range

Abstract
The development of e-commerce raises many questions about the future of retailing, some of them with major policy implications. In particular, given the rapid development of some generalist platforms, one might wonder whether the dominance of huge generalist platforms is ineluctable, or if, one the other hand, manufacturers of consumer goods will prefer to market their products through more specialized outlets. To study such questions one needs a theory of multiproduct intermediaries that the economic literature currently does not provide. In this paper, we provide a framework for the study of the product range choice offered by a multiproduct intermediary, in an environment where consumers demand multiple products and face search frictions. We first demonstrate that the intermediary earns positive profit even if it is no more efficient than small firms at selling products. We then characterize its optimal stocking policy. The intermediary uses exclusively stocked high-value products as loss leaders to increase store traffic, and at the same time earns profit from non-exclusively

stocked products which are relatively cheap to buy from manufacturers. We also show that relative to the social optimum, the intermediary tends to be too big and stock too many products exclusively, which confirms some of the fears of excessive concentration.

Heidi Williams (MIT)
Who Profits from Patents? Rent-Sharing at Innovative Firms

Abstract
This paper analyzes how patent-induced shocks to labor productivity propagate into worker compensation using a new linkage of US patent applications to US business and worker tax records. We infer the causal effects of patent allowances by comparing firms whose patent applications were initially allowed to those whose patent applications were initially rejected. To identify patents that are ex-ante valuable, we extrapolate the excess stock return estimates of Kogan et al. (2017) to the full set of accepted and rejected patent applications based on predetermined firm and patent application characteristics. An initial allowance of an ex-ante valuable patent generates substantial increases in firm productivity and worker compensation. By contrast, initial allowances of lower ex-ante value patents yield no detectable effects on firm outcomes. On average, workers capture 29 cents of every dollar of patent-induced operating surplus. This share is larger for men, employees who are listed as inventors, and firm stayers present since the year of application. Patent allowances lead firms to increase employment, but we find minimal evidence of quality upgrading or selection bias in workforce composition. Surprisingly, entry wages are insensitive to patent decisions, suggesting that the large earnings responses of incumbent workers may reflect performance pay.