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Daniel Chen

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Personal Information

Born August 5th, 1995 in Germantown, Tennessee

Education

PhD in Economics, Graduate School of Business, Stanford University, 2023 (expected)
Dissertation: *Analysis of Modern Market Structures*

AB in Economics, *Summa Cum Laude*, Princeton University, 2017

Dissertation Committee

Prof. Yuliy Sannikov (co-primary)
Stanford GSB
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Prof. Andrzej Skrzypacz (co-primary)
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Stanford GSB
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Prof. Robert Wilson
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Research Fields

Primary: Theory and Finance
Secondary: Macroeconomics

Research Papers

1. The Market for Attention (**Job Market Paper**)

   This paper develops a dynamic general equilibrium model of the market for attention. Digital platforms compete for the attention of consumers by investing in the quality of their services which they provide for free. Platforms then sell the attention, in the form of advertisements, to firms in the product market via auctions that use consumer data for targeting. We characterize outcomes in the product market, ad revenue, and platform investment in the unique stationary equilibrium. When data is more informative for all platforms, typically product consumption improves but ad revenues and investment decline. When platforms are more interoperable, investment rises but product consumption worsens. Compared with first best, investment can be either too high or too low. The model predicts variation in ad prices, bid pacing, and delay in the matching of a firm to a consumer and relates these to platform market power. It also predicts that platforms that

are data-rich relative to their rivals will typically have higher market shares, ad prices, and investment.

2. Market Fragmentation (with Darrell Duffie). *American Economic Review*. 2021. 111(7): 2247-74

   We model a simple market setting in which fragmentation of trade of the same asset across multiple exchanges improves allocative efficiency. Fragmentation reduces the inhibiting effect of price-impact avoidance on order submission. Although fragmentation reduces market depth on each exchange, it also isolates cross-exchange price impacts, leading to more aggressive overall order submission and better rebalancing of unwanted positions across traders. Fragmentation also has implications for the extent to which prices reveal traders' private information. While a given exchange price is less informative in more fragmented markets, all exchange prices taken together are more informative.

3. Optimal Design of a Financial Exchange

   We consider the design of a market for a single asset where a finite number of risk averse traders may trade to share risk from asset endowments. We derive the direct mechanisms that maximize a linear combination of expected revenue and allocative efficiency. We find that the first best allocation is Bayesian-Nash implementable with ex-ante budget balance if and only if the expectations of traders' endowments are proportional to their risk capacities. We show that an optimal direct mechanism has an indirect implementation by a double auction with side payments. Thus there may be cause for regulation of side payments and potential to use them as effective policy tools.

4. Information Acquisition and Time-Risk Preference (with Weijie Zhong)

   [Preliminary draft available upon request]

   An agent aquires information dynamically until her posterior belief about an unknown binary state reaches either an upper or a lower threshold. The agent can choose any signal process subject to a constraint on the rate of "uncertainty reduction." We show that learning strategies can be ordered by *time risk*—the dispersiveness of the distribution of time that a threshold is reached. We construct a strategy that maximizes time risk and one that minimizes time risk. Under the time-risk maximizing strategy, posterior beliefs evolve according to a Poisson process. The posterior belief either jumps to the threshold that is closer in Bregman divergence or drifts towards the other threshold. Under the time-risk minimizing strategy, the posterior belief reaches a threshold at a deterministic time.

Honors and Awards

Bradley Research Fellow, SIEPR, 2022
7th Lindau Meeting for the Economic Sciences, 2020
Halbert White '72 Prize in Economics, Princeton, 2017
Burton G. Malkiel *64 Senior Thesis Prize in Finance, Princeton, 2017
Economics Junior Prize: First Prize, Princeton, 2017
Early Induction into Phi Beta Kappa, Princeton, 2016
Princeton Initiative: Money, Macro, and Finance, 2016
Valedictorian, Aurora High School, 2013

Teaching

MGTECON 203: MBA Accelerated Managerial Economics, Winter 2022
TA for Andrzej Skrzypacz

MGTECON 200: MBA Managerial Economics, Winter 2020, 2021
TA for Yuliy Sannikov (2020), Takuo Sugaya (2021)

MGTECON 601: PhD Game Theory, Winter 2017-2022
Invited by Robert Wilson for guest lectures on dynamic contracts

MGTECON 608: PhD Multi-Person Decision Theory, Spring 2020-2022
Invited by Robert Wilson to present my recent work