# 5.3 — Antitrust III: The Hipsters

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Ryan Safner

**Associate Professor of Economics** 

- safner@hood.edu
- ryansafner/ioS23
- ioS23.classes.ryansafner.com



## **Outline**



The Unique Economics of Platforms

The Paradox of Antitrust

<u>Historical Revisionism of the Gilded Age</u>

The Legislative History & Intent of Sherman Act

## **Antitrust III: Big Tech & Hipster Antitrust**





#### Today:

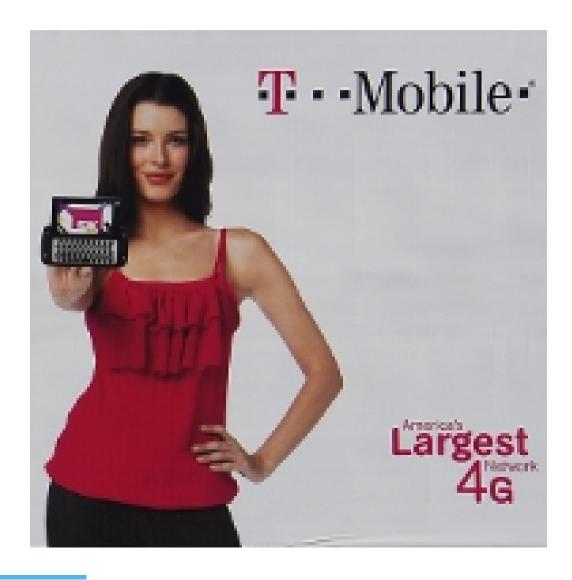
- Unique economics of platforms
  - Network effect
  - Multi-sided markets
- Hipster Antitrust
  - Kahn's critique of Amazon
  - Antitrust issues in Big Tech
  - Replacement of consumer welfare standard?



# The Unique Economics of Platforms

### **Network Effects**





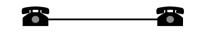
- Network Economies: the value of using a particular product increases with the number of people already using the product (or expected to join)
- A positive externality

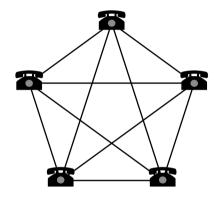
#### • Examples:

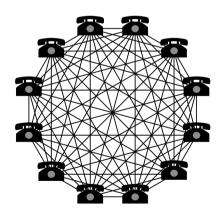
- Railroad track gauge
- Cellular networks (especially pre-2004)
- Bank & ATM networks
- Payment networks (Venmo, Square, etc.)
- Operating system (Android, Apple)

### **Network Effects**









 Metcalfe's Law: the number of connections on a network increases proportional to the square of the number of users

$$connections = rac{n(n-1)}{2}$$

- $\circ$   $n=2 \implies 1$  connection
- $\circ n = 5 \implies 10$  connections
- $\circ \ n=12 \implies 66$  connections
- ullet As  $\lim_{n o\infty} ext{connections} = n^2$

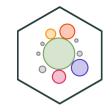
### **Path Dependence and Lock-In**



		Play	er 2
		Standard A	Standard B
	Standard A	2	1
Diavor 1		2	1
Player 1	Standard B	1	2
		1	2

- Often a battle of standards
- A Coordination Game
  - Two Nash equilibria (A, A) and (B, B)
  - Either just as good
  - Coordination is most important

### **Path Dependence and Lock-In**





- Path Dependence: early choices may affect later ability to choose or switch
- Lock-in: the switching cost of moving from one equilibrium to another becomes prohibitive

### **Inefficient Lock-In**



		Play	Player 2					
		Standard A	Standard B					
	Standard A	3	1					
Diavor 1		3	1					
Player 1	Standard B	1	2					
		1	2					

Suppose we are currently in equilibrium
 (B, B)

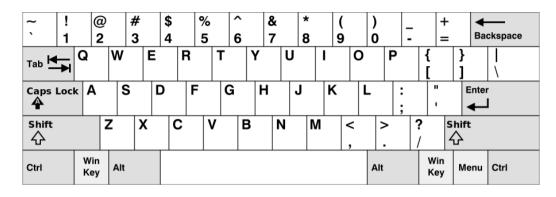
#### • Inefficient lock-in:

- Standard A is superior to B
- But too costly to switch from B to A

## **Alleged Example of Lock-In**



			Player 2					
			Dvorak		<b>QWERTY</b>			
	Dvorak	3		1				
Diavor 1			3		1			
Player 1	QWERTY	1		2				
			1		2			



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### Alleged Example of Lock-In



#### Clio and the Economics of OWERTY

By PAUL A. DAVID\*

Cicero demands of historians, first, that we tell true stories. I intend fully to perform my duty on this occasion, by giving you a homely piece of narrative economic history in which "one damn thing follows another." The main point of the story will become plain enough: it is sometimes not possible to uncover the logic (or illogic) of the world around us except by understanding how it got that way. A path-dependent sequence of economic changes is one of which important influences upon the eventual outcome can be exerted by temporally remote events, including happenings dominated by chance elements rather than systematic forces. Stochastic processes like that do not converge automatically to a fixed-point distribution of outcomes, and are called non-ergodic. In such circumstances "historical accidents" can neither be ignored, nor neatly quarantined for the purpose of economic analysis; the dynamic process itself takes on an essentially historical character. Standing alone, my story will be simply illustrative and does not establish how much of the world works this way. That is an open empirical issue and I would be presumptuous to claim to have settled it, or to instruct you in what to do about it. Let us just hope the tale proves mildly diverting for those waiting to be told if and why the study of economic history is a necessity in the making of economists.

#### I. The Story of OWERTY

Why does the topmost row of letters on your personal computer keyboard spell out OWERTYUIOP, rather than something else? We know that nothing in the engineering of computer terminals requires the awkward keyboard layout known today as "OWERTY," and we all are old enough to remember that QWERTY somehow has been handed down to us from the Age of Typewriters. Clearly nobody has been persuaded by the exhortations to discard QWERTY, which apostles of DSK (the Dvorak Simplified Keyboard) were issuing in trade publications such as Computers and Automation during the early 1970's. Why not? Devotees of the keyboard arrangement patented in 1932 by August Dvorak and W. L. Dealey have long held most of the world's records for speed typing. Moreover, during the 1940's U.S. Navy experiments had shown that the increased efficiency obtained with DSK would amortize the cost of retraining a group of typists within the first ten days of their subsequent full-time employment. Dvorak's death in 1975 released him from forty years of frustration with the world's stubborn rejection of his contribution; it came too soon for him to be solaced by the Apple IIC computer's built-in switch, which instantly converts its keyboard from OWERTY to virtual DSK, or to be further aggravated by doubts that the switch would not often be flicked.

#### THE FABLE OF THE KEYS\*

S. J. LIEBOWITZ and STEPHEN E. MARGOLIS
North Carolina State University

#### I. Introduction

THE term "standard" can refer to any social convention (standards of conduct, legal standards), but it most often refers to conventions that require exact uniformity (standards of measurement, computer-operating systems). Current efforts to control the development of high-resolution television, multitasking computer-operating systems, and videotaping formats have heightened interest in standards.

The economic literature on standards has focused recently on the possibility of market failure with respect to the choice of a standard. In its strongest form, the argument is essentially this: an established standard can persist over a challenger, even where all users prefer a world dominated by the challenger, if users are unable to coordinate their choices. For example, each of us might prefer to have Beta-format videocassette recorders as long as prerecorded Beta tapes continue to be produced, but individually we do not buy Beta machines because we don't think enough others will buy Beta machines to sustain the prerecorded tape supply. I don't buy a Beta format machine because I think that you won't; you don't buy one because you think that I won't. In the end, we both turn out to be correct, but we are both worse off than we might have been. This, of course, is a catch-22 that we might suppose to be common in the economy. There will be no cars until there are gas stations; there will be no gas stations until there are cars. Without some way out of this conundrum, joyriding can never become a favorite activity of teenagers.1

\* Earlier drafts benefited from seminars at Clemson University and North Carolina State

### **Types of Lock-In**



		Play	Player 2					
		Standard A	Standard B					
	Standard A	2	1					
Diavor 1		2	1					
Player 1	Standard B	1	2					
		1	2					

- "First-degree" path dependency:
  - Sensitivity to initial conditions
  - But no inefficiency

#### • Examples:

- language
- o driving on left vs. right side of road

Liebowitz, Stan J and Stephen E Margolis, 1990, "The Fable of the Keys," *Journal of Law and Economics*, 33(1):1-25

### **Types of Lock-In**





#### Later:

		Play	ver 2
		Standard A	Standard B
	Standard A	3	1
Diavor 1		3	1
Player 1	Standard B	1	2
		1	2

- "Second-degree" path dependency:
  - Sensitivity to initial conditions
  - Imperfect information at time of choice
  - Outcomes are regrettable ex post
- Not inefficient: no better decision could have been made at the time

## **Types of Lock-In**



		Play	er 2
		Standard A	Standard B
	Standard A	3	1
Diavor 1		3	1
Player 1	Standard B	1	2
		1	2

- "Third-degree" path dependency:
  - Sensitivity to initial conditions
  - Worse choice made (A, A)
  - Avoidable mistake at the time
- Inefficient lock-in (A, A)

Liebowitz, Stan J and Stephen E Margolis, 1990, "The Fable of the Keys," *Journal of Law and Economics*, 33(1):1-25

### **Technological Choice and Uncertainty**



Table 2
An Example: Adoption Payoffs for Homogeneous Agents

Number of previous adoptions	o	10	20	30	40	50	60	70	80	90	100
Technology A Technology B	10 4	11 7	10	13 13	14 16	15 19	16 22	17 25	18 28	19	20 34

- In the long-run, suppose, Technology **B** is superior
- But in the short-run, Technology A has higher payoffs
- Choosing A leads to inefficient lock-in
- But what about uncertainty?
  - What set of institutions will choose best under uncertainty?

### **Technological Choice and Uncertainty**





- Role for entrepreneurial judgment and "championing" a standard
  - Someone who "owns" a standard has strong incentive to ensure it becomes widely adopted
- Champions who forecast higher longterm payoffs can subsidize adoption in the short run

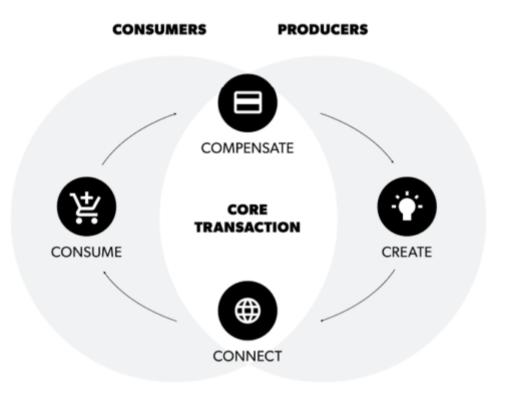
Arthur, W. Brian, 1989, "Competing Technologies, Increasing Returns, and Lock-In by Historical Events," Economic Journal 99(394): 116-131



# **Platforms**

### **Platforms**

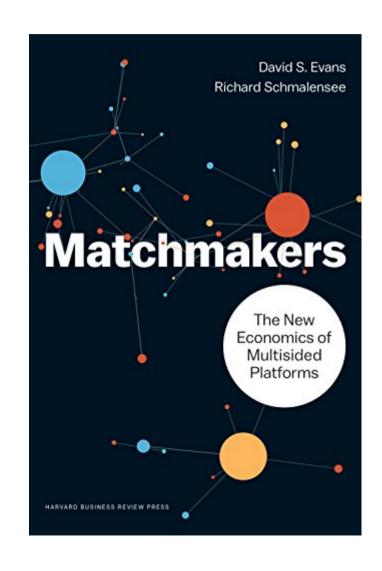


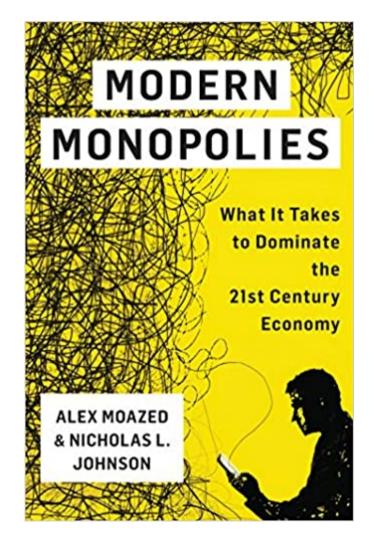


- A multi-sided market or a "platform" is a managed marketplace where an intermediary matches together two different groups of users to exchange
  - Platform itself is often a business, helping to match users together across groups for a fee
- Simple example: newspapers
  - Group A: readers
  - Group B: advertisers

### **Platforms**

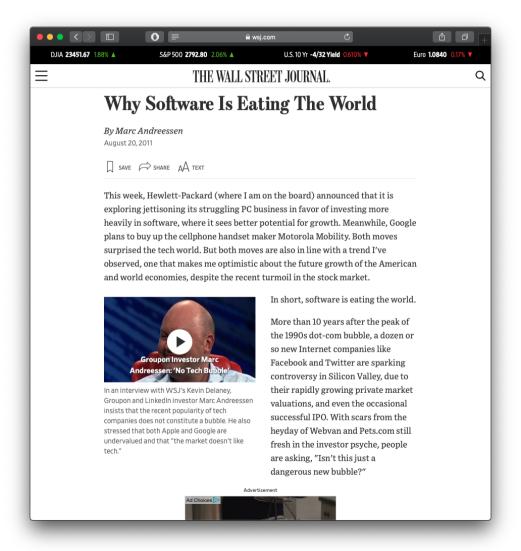






## The Digital Disruption is Here







### **Non-Platform Business Models**

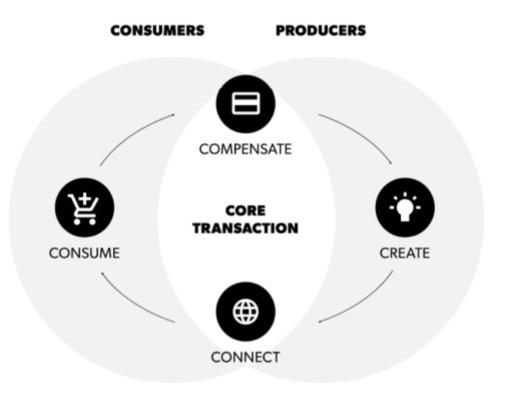


Platform		Many make, many sell
Software Company	2	Make one, sell many
Service Provider	<b>(23)</b>	Hire one, sell one
Product Company	<b>L</b>	Make one, sell one

- Linear business model: serve one segment of the market
  - direct to consumers or business (next-stage of supply chain)
- Owns one side of the transaction
- Products have an inherent value
- Compete in one dimension: on cost via economies of scale

### **Platform Business Model**





- Platform business model: facilitate transactions between multiple groups
  - "be the market"
- Owns infrastructure that adds value to both sides of the transaction

### **Platform Business Model**

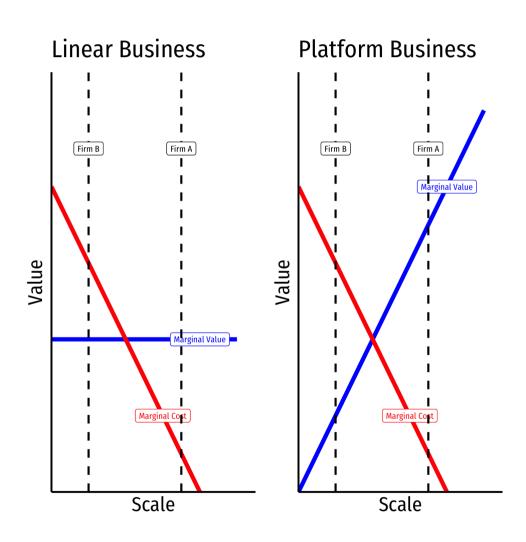




- Compete in multiple dimensions:
  - on cost via economies of scale (high entry barriers)
  - on customers via network effect
  - may also provide features to either/both groups

### **Platform Business Model**





- Competition between platforms is often "winner-take-all"
- Large initial costs and low initial value
- Increasing value due to network effect
- High barriers to entry to compete with existing platform
  - trust, history, reputation, volume, size
     of network

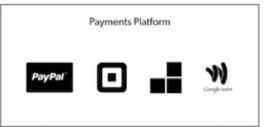
### **Platform Examples**



#### **EXCHANGE PLATFORM**









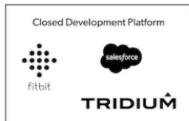


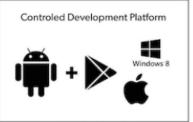


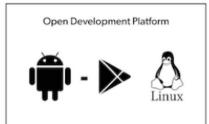


#### MAKER PLATFORM









## **Matchmaking**

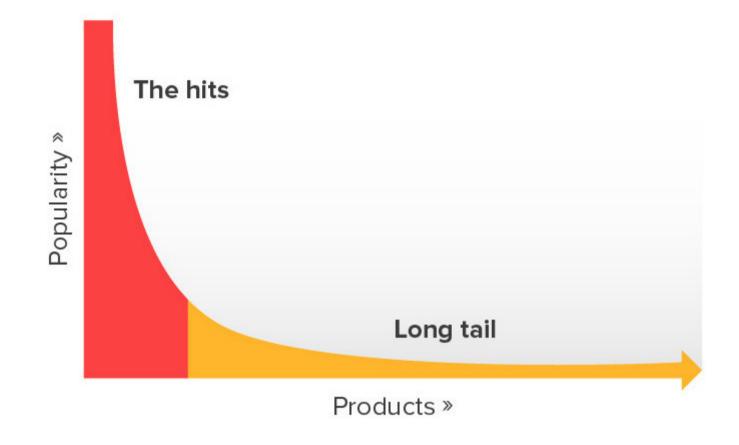


### Connecting producers and consumers

Sell — Product — Buy	ebay	amazon	KICKSTARTER
Deliver — Service — Use	0		<b>y</b> freelancer
Share —— Information —— Apply	Google	Linked in	Quora
Create — Content — Consume	f	iStock.	coursera
Write — Reviews — Read	tripadvisor	yelp 🎖	FOURSQUARE
Make — Apps — Use	<b>É</b>	dosedo	PlayStation.
Create — Designs — Use	99 designs	MIKE	Thingiverse
Pay — Money — Receive	VISA	PayPal	THE RESERVE
Lend —— Capital — Borrow	<b>!!!Lending</b> Club	SocietyOne	700
Create - Intellectual property - Use	INNOCENTIVE"	NINESICAA?	yet 2

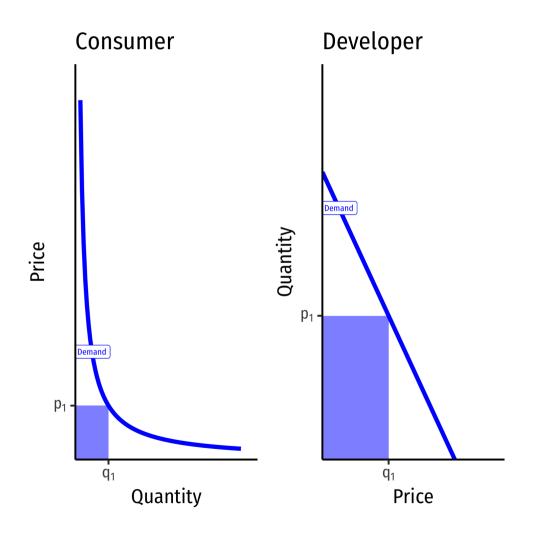
# **The Long Tail of Transactions**





## **Pricing for Platforms**

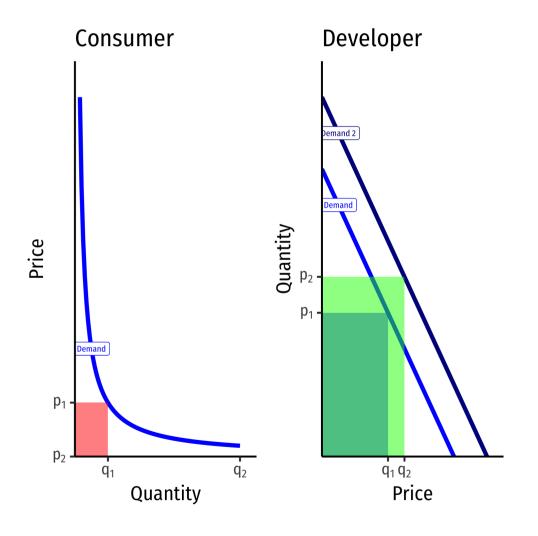




• Traditional business pricing model: price each market to maximize revenue

## **Pricing for Platforms**





- Traditional business pricing model: price each market to maximize revenue
- Platform business: so long as revenue lost from Consumers < revenue gained from Developers: cross-subsidize
  - Lower price on Consumers (even to 0)
     to boost demand
  - Increases demand for Developers, raise price on them
- Standard "champion" forecasting future value: subsidize early adopters!

## The "Subsidy Side" and the "Money Side"



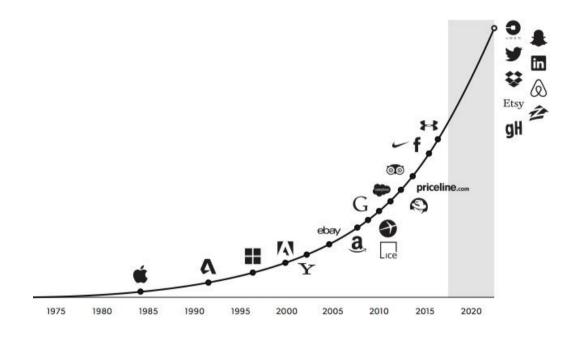
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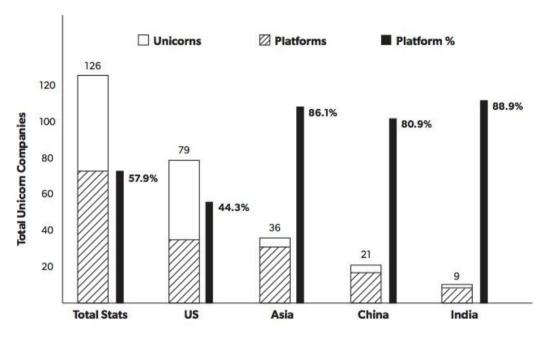
Money and subsidy	sides	for	common	multisided
platform industries				

plationii iliuustries			
Multisided platform	Money side	Subsidy side	Typical price on subsidy side
Video game consoles	Game publishers pay royalties.	Consumers pay marginal cost or less for console.	Below cost
PC operating systems	Computer users pay directly or indirectly through computer maker.	Developers do not pay access fees for operating system APIs and only pay a nominal amount for a software development kit.	Free
Physical newspapers	Advertisers pay.	Readers usually pay less than the marginal cost of printing and distribution and sometimes pay nothing.	Below cost
US broadcast TV	Advertisers pay.	Consumers do not pay.	Free
Credit cards	Merchants pay for transactions.	Consumers do not pay for transactions and sometimes get rewards.	Negative
Enclosed shopping malls	Retail stores pay.	Shoppers do not pay, get free parking at suburban malls, and often get free entertainment.	Free to negative
US real estate brokers	Sellers pay commission.	Buyers do not pay.	Free
Equity exchanges	Liquidity takers pay commission.	Liquidity providers often receive subsidies.	Negative
Online marketplaces	Sellers often pay commission.	Buyers usually do not pay.	Free
Job recruiters and online job boards	Employers pay for postings or recruitment.	Job seekers do not pay.	Free
Yellow pages	Businesses pay for listings.	Consumers do not pay.	Free
Search engines	Businesses pay for advertisements.	Searchers do not pay.	Free
		net in	Relow cost or free

### **Rise of Platforms in S&P 500**









# **Hipster Antitrust**

### **Hipster Antitrust**





Lina Khan

- "Amazon's Antitrust Paradox" Yale Law Journal 126(3)
- Response to Bork's Antitrust Paradox and the dominant "consumer welfare standard"
  - Antitrust should only be about consumer welfare, not small-business protectionism
  - Focus only on classic market power behavior: high price, low output, low quality
- Amazon (and other platforms) have fiercely low prices and provides enormous consumer surplus

## **Hipster Antitrust & Big Tech**





- Most dominant tech companies are platforms with large market share
- But consider consumer welfare standard and focus on price
- These platforms offer very low prices (often \$0!), high quantity, high quality, and ample choice to consumers
  - Consumers are often "paying" in their data, sold to advertisers
- What about the producers' (advertisers, sellers, etc) side of the market?

### **Louis Brandeis**





"We may have democracy, or we may have wealth concentrated in the hands of a few, but we can't have both."

**Louis Brandeis** 

1856-1941

Associate U.S. Supreme Court

1....

### **Louis Brandeis**





**Louis Brandeis** 

1856-1941

"[The question is,] shall we have regulated competition or regulated monopoly?"

"We learned long ago that liberty could be preserved only by limiting in some way the freedom of action of individuals; that otherwise liberty would necessarily lead to absolutism and in the same way we have learned that unless there be regulation of competition, its excesses will lead to the destruction of competition, and monopoly will take its place."

"There are no natural monopolies today in the industrial world. The Oil Trust and the Steel Trust have been referred to as natural monopolies, but they are both most unnatural. The Oil Trust acquired its control of the market by conduct...which enabled it to destroy its small competitors by price-cutting and similar practices. The Steel Trust acquired control not through greater efficiency, but by buying up existing plants and ore supplies at fabulous prices."

Brandeis, Louis, 1934, The Curse of Bigness, Miscellaneous Papers of Louis Brandeis.





Lina Khan

"Amazon is the titan of twenty-first century commerce. In addition to being a retailer, it is now a marketing platform, a delivery and logistics network, a payment service, a credit lender, an auction house, a major book publisher, a producer of television and films, a fashion designer, a hardware manufacturer, and a leading host of cloud server space. Although Amazon has clocked staggering growth, it generates meager profits, choosing to price below-cost and expand widely instead. Through this strategy, the company has positioned itself at the center of ecommerce and now serves as essential infrastructure for a host of other businesses that depend upon it. Elements of the firm's structure and conduct pose anticompetitive concerns—yet it has escaped antitrust scrutiny," (p.710).

1989-





Lina Khan

"This Note argues that the current framework in antitrust —specifically its pegging competition to 'consumer welfare,' defined as short-term price effects—is unequipped to capture the architecture of market power in the modern economy. We cannot cognize the potential harms to competition posed by Amazon's dominance if we measure competition primarily through price and output. Specifically, current doctrine underappreciates the risk of predatory pricing and how integration across distinct business lines may prove anticompetitive," (p.710).





Lina Khan

"These concerns are heightened in the context of online platforms for two reasons. First, the economics of platform markets create incentives for a company to pursue growth over profits, a strategy that investors have rewarded. Under these conditions, predatory pricing becomes highly rational—even as existing doctrine treats it as irrational and therefore implausible. Second, because online platforms serve as critical intermediaries, integrating across business lines positions these platforms to control the essential infrastructure on which their rivals depend. This dual role also enables a platform to exploit information collected on companies using its services to undermine them as competitors," (p.710).





Lina Khan

"The dominant framework in antitrust today fails to recognize the risk that Amazon's dominance poses for discrimination and barriers to new entry. In part, this is because—as with the framework's view of predatory pricing—the primary harm that registers within the 'consumer welfare' frame is higher consumer prices. On the Chicago School's account, Amazon's vertical integration would only be harmful if and when it chooses to use its dominance in delivery and retail to hike fees to consumers. Amazon has already raised Prime prices. But antitrust enforcers should be equally concerned about the fact that Amazon increasingly controls the infrastructure of online commerce—and the ways in which it is harnessing this dominance to expand and advantage its new business ventures," (p.780).

1989-





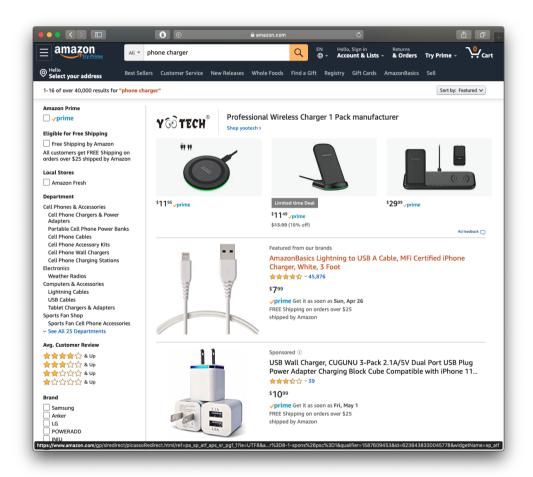
"The conflicts of interest that arise from Amazon both competing with merchants and delivering their wares pose a hazard to competition, particularly in light of Amazon's entrenched position as an online platform. Amazon's conflicts of interest tarnish the neutrality of the competitive process. The thousands of retailers and independent businesses that must ride Amazon's rails to reach market are increasingly dependent on their biggest competitor," (p.780).

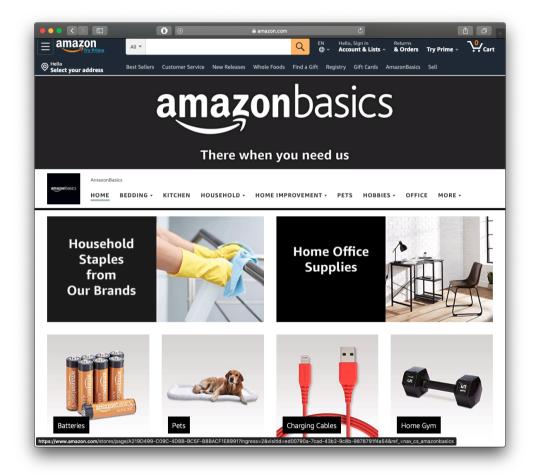
Khan, Lina, 2017, "Amazon's Antitrust Paradox," Yale Law Journal 126(3):710-805

Lina Khan

## **Amazon Exerting Market Power on its Platform?**

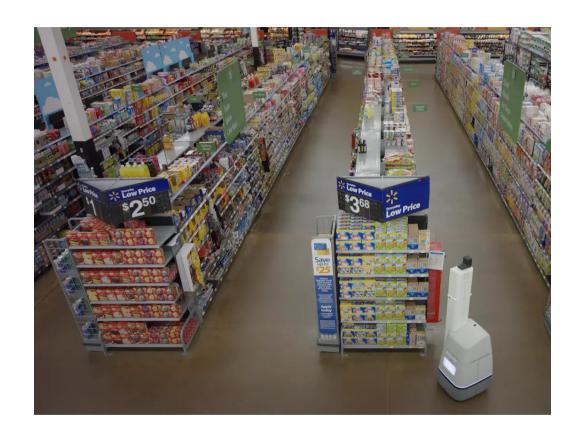






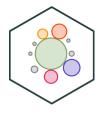
# **What's The Difference?**

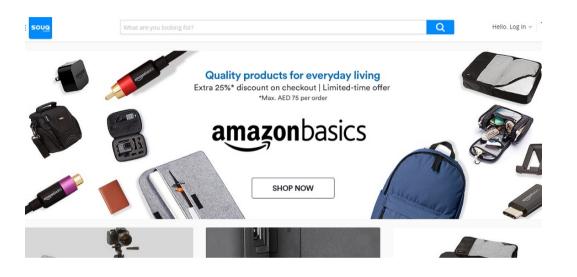






## **Amazon: Possible Solutions**





- Investigate Amazon's business practices
- Break apart Amazon's brand (Amazonbasics) from Amazon's marketplace platform
- Is Amazon subsidizing its brand from AWS revenues?





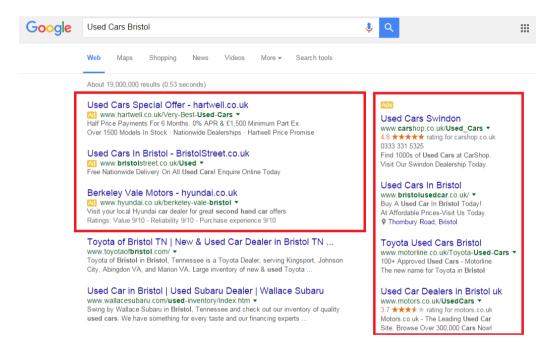
"[I consider] two potential regimes for addressing Amazon's power: restoring traditional antitrust and competition policy principles or applying common carrier obligations and duties," (p.710).

Khan, Lina, 2017, "Amazon's Antitrust Paradox," Yale Law Journal 126(3):710-805

Lina Khan

# **Search Engines**





- Consumers don't pay to search Google enormous consumer welfare
  - Google collects a lot of tracking information & data for advertisers
- Google holds auctions to marketers to place advertisements on its results
- Could Google be using its dominant market position to raise ad prices?

## **App Stores**



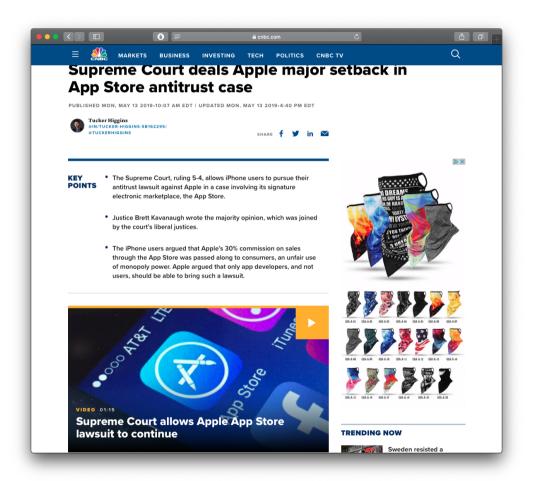




- Google and Apple app stores are dominant platforms
  - Apple & Google do not charge the consumer anything for using the stores
  - App developers set prices to consumers, Google & Apple take percentage of developers' sales
- "Walled gardens" where users are locked-into Android or Apple ecosystem

## **App Stores**



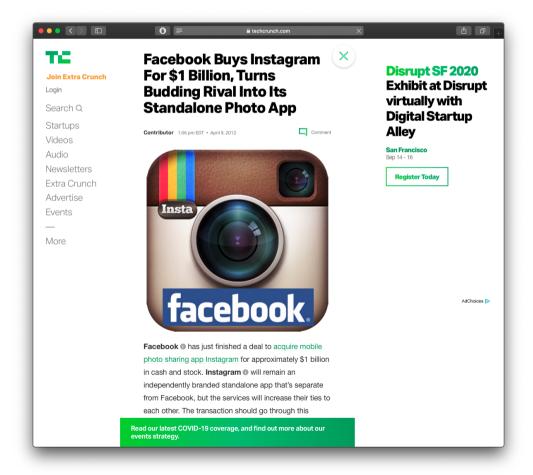


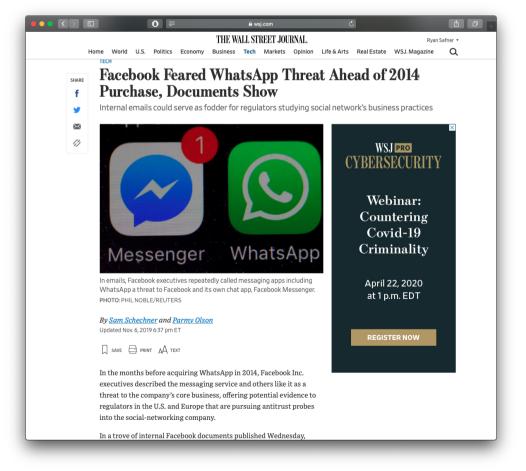
"The iPhone users argued that Apple's 30% commission on sales through the App Store is an unfair use of monopoly power that results in inflated prices passed on to consumers.

Apple argued that only app developers, and not users, should be able to bring such a lawsuit. But the Supreme Court, in an opinion authored by Kavanaugh, rejected that claim."

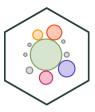
# Mergers: Is Facebook Buying Up its Potential

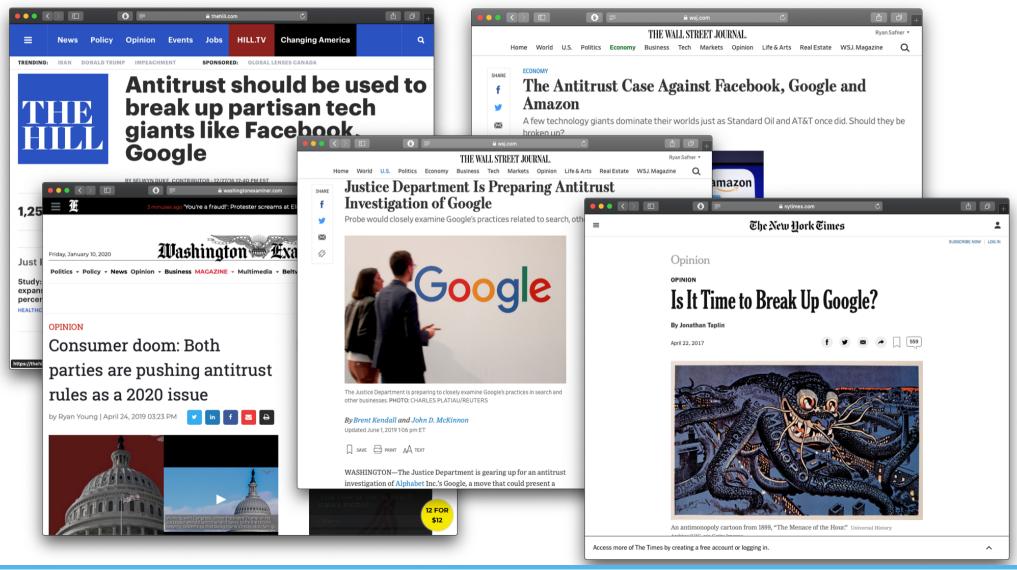
# **Competitors?**





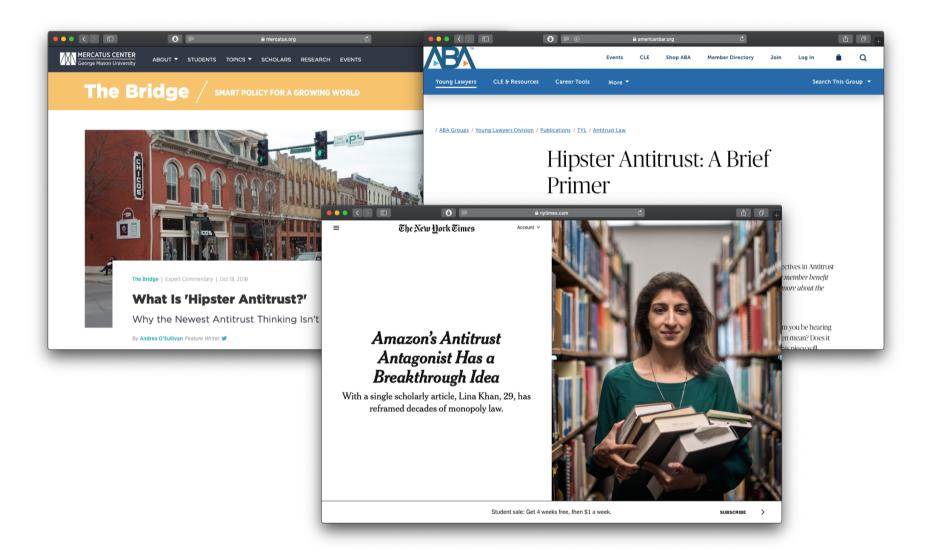
# **Is New Antitrust Action Necessary?**





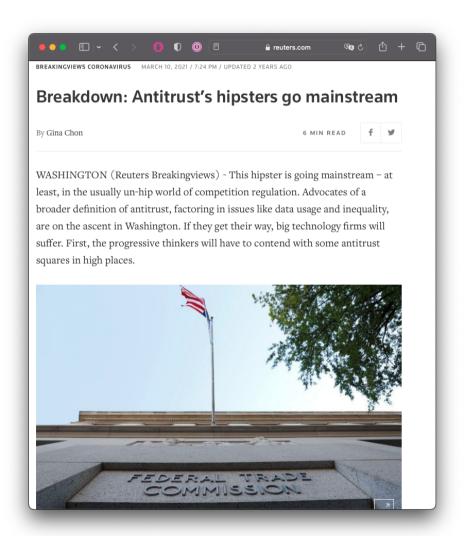
# Is New Antitrust *Thinking* Necessary?





## Well, It's Now in Power, Sort Of







# **Some Concluding Thoughts**





But which are "good" and which are "bad"?

- What is important in antitrust law?
  - Protecting consumers? Protecting (some) businesses?
  - Maximizing total economic surplus (Consumer surplus + producer surplus)?
- What does market power look like/do?
  - High prices, low output, low quality, few choice?

# **Some Concluding Thoughts**



