Hunting the Big Five

Twenty-First Century Antitrust in Historical Perspective

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Amazon is doing great damage to tax paying retailers. Towns, cities and states throughout the U.S. are being hurt—many jobs being lost!

—Donald Trump, tweet, 5:12 a.m., August 16, 2017

A little more than one hundred years after the passage of the Clayton and Federal Trade Commission Acts, antitrust is once again back in fashion. Voices along the whole of the political spectrum are calling for heightened scrutiny of American information-technology companies, especially the Big Five of Amazon, Apple, Facebook, Google, and Microsoft. One may perhaps discount attacks on the tech giants from within the populist Trump administration (Meyer 2017), but even the once reliably free-market *Economist* recently published an editorial (May 6, 2017) calling stridently if vaguely for a rethink of antitrust in the digital age. Unsurprisingly, the drumbeat for regulation is loudest on the left, where a "new structuralist" paradigm is catching attention. Yet scholars such as Bill Kristol and Bill Galston, who advertise themselves as defining the centrist position, articulate a vision that is indistinguishable from that of the new structuralists (New Center n.d.).

One of the principal themes of this uprising is that present-day antitrust policy, forged in the rusty era of steel, oil, and cars, is now obsolete. We are in the age of

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information, which ipso facto calls for new rules. A second animating theme is that the antitrust thinking of the Chicago School, which came to prominence in the last quarter of the past century, must be completely overthrown. Led by Robert Bork (1978), Richard Posner (1976, 1979), and others, the Chicago School insisted that antitrust be grounded in economic theory, which privileges the well-being of consumers as much as that of producers and which points antitrust in the first instance toward problems involving the restriction of output and the raising of prices above cost. Chicago doctrine must be discarded because it creates a problem of elephant-in-the-room proportions for proponents of antitech antitrust, whom it forces to explain why consumers (or indeed society more broadly) are being harmed by an incomprehensibly magical information source offered at a price of zero; by cheap and swift access to virtually all the products of humanity at the touch of a finger; by elegant devices that concentrate in the palm of the hand abilities undreamed of even in science fiction; and in general by quality-adjusted prices that continue to plunge through the floor.

As is characteristic of Romantic endeavors, proponents of the new antitrust attempt to elude the elephant by returning to an earlier and simpler time—in this case to the historical roots of American antitrust policy. My contention, however, is that the new structuralism gets this history wrong. It both misconceives the nature of the competitive process and deliberately refuses to confront the political economy of antitrust. In so doing, it adopts some of the worst traits of the Chicago School it criticizes while manifesting few of that school's many virtues.

To focus the discussion, I consider the most significant scholarly articulation of the new structuralism, a much-cited article by Lina M. Khan in the *Yale Law Journal* called "Amazon's Antitrust Paradox" (2017). This is the urtext of hipster antitrust. Khan makes essentially three large claims: (1) Chicago antitrust is misguided because it flies in the face of the clear legislative intent and precedent of American antitrust, which never wanted its criterion to be the maximization of social surplus but instead sought to promote other "values," such as the insulation of existing competitors from pecuniary harms and the creation of a competitive environment in which "power" is decentralized for its own sake irrespective of economic efficiency. (2) Even on its own terms, Chicago fails because its indulgent attitude toward low prices and benefits to consumers blinds it to the inefficiency of predatory pricing. (3) The world would be a better place if antitrust policy returned to the values American law once supposedly embodied. This might involve, inter alia, making predatory (or even low) pricing per se illegal, scrutinizing vertical integration much more carefully, and even regulating large firms as common carriers or natural monopolies whenever any aspect of their business might be considered an "essential facility."

The History of Antitrust

In his influential book *The Antitrust Paradox* (1978), Bork argued that the legislative intent and precedential history of American antitrust law supports the economist's view that competitive behavior should be defined as economic efficiency, and he cited chapter and verse (56–66). By contrast, Khan asserts that "Congress passed antitrust laws to safeguard against excessive concentrations of private power. It recognized, in turn, that this vision would protect a host of interests, which the sole focus on 'consumer welfare' disregards" (2017, 744). As both Bork and Khan are lawyers (Bork died in 2012), this is to be expected. One chooses and frames the precedents to make one's case. But the imperatives of the economic historian are rather different. And what history suggests is that *both* are right. Legislators and judges typically claimed that "trusts"—few were actually trusts in the technical sense—harmed society *both* by charging high prices *and* by driving out smaller, less-efficient competitors. Very often these contradictory sentiments would be expressed in the same speech or opinion. The reason is easy to see: there was in fact no single, or indeed perhaps any, coherent vision behind American antitrust policy. That policy resulted from the more or less haphazard intersection of the forces of political economy in nineteenth-century America.[1]

As Harold Demsetz (1974) has argued, there are fundamentally two theories of monopoly: the interventionism theory and the spontaneous-monopoly theory. In the first account, monopoly is always the creature of the state because only legally enforced property rights (like patents or taxi medallions) represent meaningful barriers to entry, especially in the medium and long run (Demsetz 1982). In the second account, the competitive system somehow naturally generates endogenous monopolies, which a wise and disinterested government must seek out and destroy.[2] Eighteenth-century figures such as Adam Smith and James Madison thought of monopolies only in the first sense, even though their words are often trotted out against supposed monopolies in the second sense. The theory of spontaneous monopoly was effectively created along with American antitrust policy in the late nineteenth century.

At the state level, the United States after the American Revolution was highly regulated in ways that protected incumbent interests (Hughes 1977). Because of high transportation and transaction costs and to some extent because of the U.S. Constitution, the federal space was, however, far less regulated. With the coming of canals, the railroads, and the telegraph, an altered economic geography began knitting the country together economically, drastically changing the federal political economy.

Railroads were the first flashpoint. Because railroads were high-fixed-cost industries, they could not cover their total costs if they priced at marginal cost. There were two solutions to this problem: collusion to raise rates above marginal cost and price discrimination. As it always does without government support, collusion failed.[3] But although there was intense competition on trunk lines whenever there were alternative

1. For a longer, better-documented, and more nuanced account of nineteenth-century American policy toward the corporation, see Langlois 2016.

2. I give my students the image of the whack-a-mole game at old-time seaside arcades: when a monopolist sticks its head out of hole, someone has to hit it with a hammer. You might well ask about the dexterity of antitrust officials.

3. "In no other industry," writes Herbert Hovencamp, "have attempts at both legal and illegal cartelization been so persistent, widespread, systematic, or ultimately doomed to failure" (1991, 1039).

routes to ship long distances, many localities were served by only one road, and the railroads could thus raise short-haul rates on routes with few alternatives.[4] Since the railroads had become essential to the livelihoods of vast numbers of farmers and producers of raw materials, however, the pricing policies of the roads carried significant distributional implications (Higgs 1970). Both sides wanted the federal government to intervene: the roads wanted help in policing cartels, and the shippers wanted to prevent both cartels and rate discrimination. The legislative collision of a railroad-oriented Senate bill with a shipper-oriented House bill resulted in the Interstate Commerce Commission in 1887, a train wreck that pleased no one.[5]

The political economy of the Sherman Antitrust Act of 1890 was similar to, if perhaps more complex than, what lay behind the Interstate Commerce Act. The new economic geography of the country had encouraged the emergence of large concerns in manufacturing and distribution, which could produce centrally at large scale and ship their wares to the periphery (Chandler 1977). These firms began creatively to destroy the small producers and distributors that had been built up around the older network of canals (Benson 1955; Miller 1971). They also began to worry farmers and producers of raw materials in the countryside, who added "concentrations of power" to the long list of vague populist concerns that already included immigrants and Wall Street. The concerns in some cases were not entirely without a foundation in narrow interests. Traders and industrialists, mostly in the Northeast, had long favored high protective tariffs and a gold standard to encourage foreign investment, and the post–Civil War weakness of the Democratic South allowed the Republican Party largely free rein on these issues. By contrast, farmers and shippers in the South and Midwest opposed tariffs and wanted a depreciated currency to help them sell their output abroad (Frieden 1997).[6]

Representing what was then as now a swing state, Ohio senator John Sherman understood that he had to assuage populist concerns if he was going to negotiate both the Republican agenda and his reelection. Populists were already agitating for inflation under the banner of silver, and they saw tariffs as raising the prices of their inputs in significant part because they encouraged monopoly. That tariffs caused monopoly was a plank in the Democratic platform of 1888. (Take note here that populists were concerned *both* with harms to small businesses *and* with higher prices.) Sherman's deft

4. This is an example of what is now called Ramsey pricing: charging higher prices for products inelastically demanded and lower prices for products elastically demanded. It is an efficient solution to pricing in a multiproduct context in the face of high fixed costs (Baumol and Bradford 1970).

5. Gabriel Kolko (1965) famously argued that this legislation was the work of and redounded exclusively to the benefit of the railroads. More recent scholars think otherwise; indeed, if anything, it was the short-haul shippers who benefited most from the legislation (Gilligan, Marshall, and Weingast 1989). The ICC gained teeth only in the early twentieth century, when it was given rate-making authority and was promptly captured by shipping interests. The result was the decline of American railroads, which could no longer raise the capital necessary to maintain and expand facilities (Martin 1971).

6. Douglas Irwin (2007) has calculated that tariffs in the late nineteenth century amounted to an export tax of 10 percent, redistributing some 8 percent of gross domestic product between sectors.

strategy was that, rather than give the populists what would have really benefited them—free silver and lower tariffs—he would instead blame the trusts for the higher prices they were paying. He would give them an antitrust bill.[7] Then as now, antitrust offered symbolic reassurance to a diffuse constituency fearful of developments they didn't understand and couldn't control (Edelman 1964; Letwin 1965, 86–88). But there were also more concrete interests at play: independent businesses harmed by more-efficient large competitors. Typical of these independent businesses were small refiners threatened by Standard Oil's policy of translating refining and shipping efficiencies into lower prices and local slaughterhouses that had to compete with the highly efficient new system of refrigerated dressed meat (Libecap 1992; Troesken 2002).[8]

The Sherman Act forbade contracts, combinations, or conspiracies "in restraint of trade or commerce" as well as the "monopolization" or attempt to monopolize trade or commerce.[9] The phrase "restraint of trade" came from the common law, where it had referred in no way to monopoly, as monopoly had been ubiquitous and unquestioned in medieval and early-modern times (Letwin 1954).[10] The phrase also had little to do with cartels but applied primarily to what we would now think of as noncompete clauses: for example, a shopkeeper who sells his store might agree by contract not to establish another store within a certain distance of the one sold. The terseness of the act and the strange linkage of the phrase "restraint of trade" with monopoly would create an enduring legacy of interpretive complications. Because enforcing the act had never been the point, no one had given any thought to details and mechanisms of enforcement, and so Sherman became an empty vessel that future administrations could fill in their own way. The law of unintended consequences began to apply almost immediately. Because the Supreme Court originally ruled that manufacturing didn't count as "trade or commerce" (McCurdy 1979), Sherman was at first directed not at large firms but mostly at interstate cartels among small producers (and, of course, against labor unions), which created an incentive for the small producers to abandon their separate identities and merge into larger firms (Bittlingmayer 1985).

One of the reasons populists had been so restive in the late nineteenth century is that they were living through a period of mild deflation as productivity growth

7. This was in fact the accepted historiography of the Sherman Act for much of the twentieth century (Stephenson 1930; J. Clark 1931; Fainsod and Gordon 1941), though it went into decline after the success of Hans Thorelli's (1955) Progressive Whig history. Thomas DiLorenzo (1985) and Thomas Hazlett (1992) have resuscitated the older view.

8. In the three years after the formation of the Standard Oil trust in 1882, John D. Rockefeller had succeeded in consolidating what had been fifty-three refineries into twenty-one highly efficient ones, lowering the average cost of refining from 1.5 cents to 0.5 cents per barrel (Williamson and Daum 1959).

9. 26 Stat. 209, 15 U.S.C. §§1–7 (1890).

10. The common-law language referred instead to practices such as forestalling, regrating, and engrossing, which were forms of speculation and arbitrage. Although usually economically efficient, these practices would sometimes have the effect of transferring rents to merchants at the expense of city dwellers, and forbidding them was, remarkably, one of the few instances in which the common law penalized pecuniary rather than technological externalities. Under the influence of Enlightenment thinkers like Adam Smith, Britain had removed these provisions by 1844.

outstripped the growth of the money supply. As the turn of the century approached, however, new finds of gold and improved techniques for processing gold ore initiated a period of inflation, the largest since the Civil War (Friedman and Schwartz 1963, 135). Whereas (unanticipated) deflation had transferred resources from indebted farmers to eastern lenders, inflation began transferring resources away from those lenders. Complaints about the cost of living began to pile up, and, as would happen periodically throughout the century, "trusts" took the blame (Aldrich 2013). At the same time, independent middle-class businesses were coming under further pressure from the large, efficient, nationwide firms in manufacturing and distribution. Increasingly, these small-business owners looked to government to defend them against economic change, and they adopted the amorphous antimonopoly sentiment of the populists. "In general," writes Robert Wiebe, "businessmen below the level of magnates subscribed to some variant of the theory that 'the growing power and influence of trusts' destroyed honest enterprise and stunted 'the hope and ambition of the youth of the country.' They shared, in other words, the widespread, ill-defined antimonopoly sentiments of the late nineteenth and early twentieth centuries. But like 'Wall Street,' the term 'trust' was a rubbery one, covering whatever economic forces worried a particular businessman at a particular time" (1962, 13).

Unlike the populists, who wished to break up large firms for the sake of smallness not efficiency, Progressive intellectuals such as Herbert Croly (1909) embraced both the inevitability and the desirability of large size, which, they held, could be turned to advantage by planning and scientific management. When fate ushered Teddy Roosevelt into the presidency in 1901, they found their champion. Roosevelt famously believed he could distinguish between good trusts and bad trusts, offering gentlemen's agreements to the former and prosecuting the latter.[11] The president wanted to formalize this idea of gentlemen's agreements—to replace judicial antitrust with an executive agency that would supervise business and dictate behavior to them (Sklar 1988, chap. 4). Many business executives appreciated this idea, which they saw as creating a far more predictable world than that of Sherman jurisprudence. A star-studded centrist group called the National Civic Federation began drawing up legislation. But Roosevelt had his own ideas. He commandeered the drafting process and produced a bill that managed to alienate labor, small business, and big business all at the same time. The idea of a commission went down to defeat;

11. And he chose badly. Roosevelt's preeminent good corporation was U.S. Steel, which is one of the few trusts that approximated what modern-day economists think a trust is. In the nineteenth century, Andrew Carnegie had been in steel the equivalent of Rockefeller in oil: a ruthless price cutter bent on innovation and efficiency. But unlike Rockefeller, Carnegie suddenly desired to change his life and become a full-time philanthropist. The House of Morgan brokered a deal with several other steel concerns, and under Judge Elbert H. Gary the new colossus stabilized prices, declined to innovate, and maintained the status quo—precisely because it feared antitrust prosecution (McCraw and Reinhardt 1989). For this, it was rewarded by the Supreme Court with a not-guilty verdict. In the through-the-looking-glass world of American antitrust policy, the best way to avoid being anticompetitive, it turned out, is not to compete. With hammer and claw, Roosevelt went after Standard Oil, which was a far more aggressive competitor and was under pressure from new finds of oil around the world.

and when William Howard Taft supplanted Roosevelt as president, the Sherman Act would emerge energized from its near-death experience: the Taft administration would launch more Sherman suits by far than any administration until the New Deal (Posner 1970).

Yet when Woodrow Wilson became president in 1913, all the issues remained on the table. Despite the effort of left-revisionist scholars to homogenize Roosevelt and Wilson into "corporate liberals," Wilson was in fact the polar opposite of Roosevelt (Seltzer 1977). Like his principal adviser on antitrust, Louis D. Brandeis, he believed in preserving a system of small independent businesses. For both men, this was not an economic issue but a moral one: both saw the economic agent primarily as a moral agent and feared the moral costs of large-scale capitalism (Seltzer 1977, 190; Urofsky 2009, 342–43). Perhaps unsurprisingly, Brandeis is an explicit influence on the new structuralism.

At the same time, however, Wilson considered the existing Sherman Act inadequate, especially because of the uncertainty it caused for business. The solution, as he saw it, was to clearly enumerate anticompetitive practices in legislation. "Surely," Wilson told a joint session of Congress on January 20, 1914, "we are sufficiently familiar with the actual processes and methods of monopoly and of the many hurtful restraints of trade to make definition possible, at any rate up to the limits of what experience has disclosed. These practices, being now abundantly disclosed, can be explicitly and item by item forbidden by statute in such terms as will practically eliminate uncertainty, the law itself and the penalty being made equally plain" (Wilson 1914). In fact, nothing of the sort was true. Even economists had no understanding of most of the strategies and contractual devices businesses used, nor would they have any until the transaction-cost revolution of the late twentieth century (Williamson 1979). For this reason and many others, there was no way legislation could articulate clear and simple rules. When constituents, including small business, got wind of the actual legislation—what was to become the Clayton Act—they went ballistic, fearing they could be sent to prison for ordinary business contracting (McCraw 1984, 120–21; Urofsky 2009, 289–92).

Congress responded by removing the criminal sanctions and making the description of "anticompetitive" practices vaguer and more qualified. But this meant uncertainty once again. In the January speech, Wilson had also asserted that business was entitled to "the definite guidance and information which can be supplied by an administrative body, an interstate trade commission" (Wilson 1914). What he had in mind was purely a "sunshine commission," a clearinghouse for information, not the kind of strong commission Roosevelt had wanted. But if "unfair" practices were no longer to be so clearly and unambiguously enumerated, perhaps a more powerful commission was in order, one that could adjudicate as well as collect information, one that could interpret what "unfair" meant and give advice. Brandeis had already been thinking along these lines, formulating a bill to create a commission empowered to issue cease-and-desist orders and to give advice to business. It was Brandeis who persuaded

Wilson to accept what would become the Federal Trade Commission (Link 1954, 71–72; McCraw 1984, 122–25; Urofsky 2009, 389–95).[12]

The pieces of American antitrust policy had been thrown up in the air, and in 1914 they came to rest in essentially the form they would assume for the next century. Behind this configuration lay no coherent account of competition, let alone of what constituted anticompetitive practices or restraints of trade.

Predatory Pricing

The Clayton Act explicitly listed as anticompetitive such practices as price discrimination, tying, and exclusive dealing. In other words, the act sought to outlaw nonstandard forms of contracting that seemed puzzling to contemporaries, even economists. As economists later in the century would come to understand, these forms were actually contractual solutions to incentive and transaction-costs problems in arm's-length markets. Thus, on the whole, it was smaller, more vertically specialized firms that were involved in practices like tying and exclusive dealing. Making these practices illegal simply amplified the effect, already built into Sherman's anticartel policy, of encouraging horizontal and vertical integration as a way of effecting the same transactions internally and invisibly. Brandeis understood this perfectly, and he had long objected to the prosecution of cartels among small producers. It bothered him not at all that such cartels meant higher prices for consumers, whom he viewed as "servile, self-indulgent, indolent, ignorant" (qtd. in McCraw 1984, 107). For Brandeis, the one true anticompetitive practice was not pricing high but pricing low.

Precisely because antitrust jurisprudence did indeed embody in part a goal of keeping prices low to consumers, the Sherman Act was used against the practice of resale-price maintenance (RPM), which the Supreme Court outlawed in the *Dr. Miles* case in 1911.[13] RPM binds sellers (explicitly or by threat of refusal to deal) to maintain a price set by the manufacturer. To the courts, and indeed to most casual observers, this is manifestly a "restraint of trade" because such contracts restrain sellers from offering discounts, that is, restrain them from competing on price. The Court may perhaps be forgiven for getting this wrong, as it was not until the second half of the century that even economists began to understand the logic of RPM and other vertical arrangements, and prominent contemporary economists, including the likes of Frank Taussig, mostly talked nonsense on the subject (Breit 1991). In a brilliant article in *Harper's Weekly,* however, Louis D. Brandeis (1913) anticipated all the modern-day arguments in favor of RPM.[14] What

12. The author of the Federal Trade Commission bill was actually Brandeis's associate George Rublee, who was a fervent supporter of the Bull Moose Party and a proponent of the strong commission Roosevelt favored.

13. *Dr. Miles Medical Co. v. John D. Park & Sons Co.,* 220 U.S. 373 (1911).

14. There are two reasons RPM is efficient. Manufacturers may want to eliminate reseller competition along the price margin in order to force competition to take place along various nonprice margins, especially sales

angered Brandeis about the Court's decision is that it gave advantage to larger, vertically integrated firms, which could replicate the benefits of RPM by owning their own outlets.[15]

Brandeis's disdain for low prices went beyond RPM. Like the new structuralists he has influenced, Brandeis warned against "predatory" or "cut-throat" pricing, which allows large firms to drive smaller ones out of business—and, more crucially, to keep them out. As first pointed out by John S. McGee (1958), this second part is crucial: predatory pricing fails in the absence of barriers to entry because competitors can immediately reenter the market as soon as the would-be predator raises prices. Under the influence of this logic, the courts sensibly evolved a "recoupment test" (Khan 2017, 729). Claimants must demonstrate exactly how victims (or other contenders) will be prevented from reentering the market once prices are raised.

Khan promises to show that the Chicago analysis of predatory pricing (and relatedly of vertical foreclosure) fails even under the lamp of consumer benefit (by which she, like Bork, really means maximizing total social surplus). I expected her to trot out some of the many models that use game theory and related approaches to argue that predation and foreclosure are logically possible in certain abstract formal settings. These are available abundantly, including in the canonical *Handbook of Industrial Organization* (Ordover and Saloner 1989).[16] What we get instead is essentially nothing. The best Khan has to offer is that the Chicago view of predation fails the "incipiency test" in antitrust law: it fails to nip monopoly in the bud and instead waits for it to develop (if it does) (2017, 738).[17] But this is not an argument that the economic view is wrong, only an argument that it has yet to penetrate all corners of antitrust. As Demsetz points out, the incipiency test fails "not only because competition might also be nipped in the bud, but because penalizing monopoly already successful also discourages the attempt to monopolize; any penalizing of monopoly nips monopoly in the bud by reducing the expected profits of monopolization" (1982, 56).

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effort and pre- or postsales service. If some resellers are allowed to discount, customers can free-ride on the services of the nondiscounters and then buy from the discounters, which will create an incentive for no one to provide the services and sales effort (Telser 1960). Manufacturers may also want to control the resale price in order to send a quality signal (Marvel and McCafferty 1984). Be careful to note that this discussion is about *voluntary* RPM contracts, which are often confused with so-called fair-trade laws that *legally require* RPM. Fair-trade laws, pushed strongly by small retail druggists who faced competition from discounters (Hawley 1966, 254–69), were among the many pro-cyclical policies ushered in during the Depression by the New Deal.

15. As Brandeis put it in a letter to Commerce Secretary William C. Redfield in 1913, by restricting vertical contracting, antitrust policy was "playing into the hands" of the large department stores and chain stores that were beginning to arise in the early twentieth century and was giving advantage to large concerns such as Standard Oil that could "retail an article as well as manufacture" it (qtd. in McCraw 1981, 47).

16. Janusz Ordover and Garth Saloner define "anticompetitive or predatory those aggressive and exclusionary business strategies that, when deployed, have the effect of lowering a properly evaluated measure of social welfare" (1989, 539).

17. Khan also cites a book by John Kwoka (2015) that is actually about mergers, not predatory pricing, and she waves vaguely at some recent claims that entrepreneurship and firm formation are declining in the United States.

To be fair, there is a whiff of truth to Khan's criticism of the Chicago School, or, rather, of the kind of economics that has found its way into many antitrust discussions, both from the original Chicago School itself and from the present-day strategic-behavior theorists. She seems to believe that Chicago price theory ignores "product quality, variety, and innovation" (2017, 739). This is untrue. But there is a sense in which paying exclusive attention to price theory distracts attention from the complexities of economics in the real world. The important Chicago revolution after World War II was not that of Bork, Posner, or George Stigler (1968). It was the revolution of Ronald Coase, a name that nowhere appears in Khan's document. Coase derided abstract price theory as "blackboard economics."[18] He insisted that economists actually examine the world historically and through case studies, and he stressed above all the importance of seeing economic practices in the light of the costs of information, transaction, and monitoring. Deirdre McCloskey (1997) calls the Coasean variant the "good old Chicago School." It is this Chicago School that unpacked the riddles of nonstandard contracting, long decried as "anticompetitive," in terms of information and transaction costs, and many of those explanations very much involve issues of product quality, variety, and innovation. There is no better example of good-old Chicago reasoning than Louis D. Brandeis's (1913) *Harper's* article on resale-price maintenance.

Far from making Khan's case, however, the Coasean approach undoes that case. For one thing, her vague assertions about predatory pricing and vertical restraints are blackboard economics without even the blackboard. There is a more important point. If we are to evaluate market processes as they really are, with the attendant transaction costs and limitations of knowledge, then we are obliged to propose alternatives and to analyze them in exactly the same terms (Demsetz 1969). How exactly do these alternatives work? How do they deal with the inescapable problems of scarcity, transaction costs, and limited knowledge? And what is the political economy of the proposed alternatives: Who will be in charge? How will they come to possess the knowledge necessary to make wise decisions? And who will really benefit? A persuasive analysis must be a comparative-institutional one. An argument that merely criticizes the (alleged) limitations of the market process as we observe it is no argument at all.

Real Competition

Of course, Khan's principal objective is not to fix economic analysis but to throw it out. "Antitrust law and competition policy," she writes, "should promote not welfare but competitive markets" (2017, 737). To an economist, this is an

18. And one might add that formal strategic-behavior models are the blackboard economist's blackboard economics—"blackboard economics gone loco," as McCloskey puts it (1997, 244).

absolutely astonishing statement. What system of values could possibly induce you to want to sacrifice the welfare of society (properly understood to include all aspects of welfare, not just the supposedly economicsy parts)? How could it be that competition properly understood and effected would not maximize welfare? Her answer is that there exist "non-economic" values, including "our interests as workers, producers, entrepreneurs, and citizens" (737). These values may trump "whether consumers are materially better off" (737). The way to ensure the survival of these values, she maintains, is to keep power artificially decentralized—for its own sake not for the sake of efficiency.[19] This is the structure of the new structuralism. To keep the world adequately decentralized and therefore "competitive," we must invoke the strong centripetal power of the state, unexamined in its working details, to forbid low prices and any other behavior that might threaten decentralization.[20]

This vision of antitrust is misguided and dangerous. The proper goal of competition policy is very much to enhance the material well-being of members of society, understood to mean far more than the mere elimination of deadweight-loss triangles. And the proper means to this goal is to encourage real competition in its true rivalrous and messy glory, even if doing so threatens sturdy yeomen of romantic fantasy (or their modern-day equivalents). Our "interests as workers, producers, entrepreneurs, and citizens" are no doubt as vital as they are vague. But history suggests that those interests will actually be ill served by the attempt to maintain a potted decentralization in place of active rivalry.

Let me be unambiguous about what I think real competition is. Competition is active rivalry. It is striving. It is experimentation. Real competition, as Joseph Schumpeter famously put it, is the competition of

> the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance)—competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives. This kind of competition is as much more effective than the other [i.e., price competition] as a bombardment is in comparison with forcing a door, and so much more important that it becomes a matter of comparative indifference whether competition in the ordinary sense functions more or less promptly; the powerful lever that in

19. This is unlike the economist's model of "perfect" competition, in which firms are infinitely decentralized and powerless, because in that (abstract and largely irrelevant) model decentralization increases welfare.

20. As Jonathan Hughes wryly puts it in a related context, "American capitalism is normally a world of structured economic power in which competition is ever endangered and . . . competition cannot survive in this world unless it is constantly protected from market forces" (1977, 122).

> the long run expands output and brings down prices is in any case made of other stuff. (1950, 84–85)

The benefit of such competition is very much that it makes consumers (that is to say, people) "materially better off." Big time. As McCloskey has emphasized, it is precisely this kind of evolutionary, experimental competition—which she calls "trade-tested betterment" (2016, 93)—that led to the Great Enrichment of the past two and a half centuries, an enrichment, in the case of the United States, of more than 1,700 percent, conservatively estimated, since the founding of the republic (McCloskey 2010, 48).

I am acquainted with a number of people, themselves having been made more than comfortable by the Great Enrichment, who refuse to shop at Walmart, considering it crass, exploitive of workers, and destructive of the charming boutiques of small sellers. But I can also testify that when Walmart began experimenting with selling groceries, it came as a godsend to my elderly parents, who had to make due with a tiny retirement income.[21] Jerry Hausman and Ephraim Leibtag (2007) calculated that the lower prices and increased variety that came with Walmart's entry into groceries represented the equivalent of a 25 percent decline in food expenditures, an effect that was more pronounced for lower-income shoppers. Would the world have been a better place with a nip-it-in the-bud policy of making predatory pricing illegal per se and of scrutinizing lateral integration more stringently?

At one point, Khan paints as pernicious the way dynamic competition from Amazon is pressing upon the large traditional book publishers, and she quotes writers who fret that these houses will be forced to concentrate on best sellers and ignore niche authors: "A market with less choice and diversity for readers amounts to a form of consumer injury" (2017, 767). This is another absolutely astounding pronouncement. By orders of magnitude, Amazon has done more to create diversity in books, and indeed in all products, than any organization in human history. Erik Brynjolfsson, Yu Hu, and and Duncan Simester (2011) have demonstrated that, far from reducing the prominence of niche works, Amazon has dramatically increased their market share. Overall, they calculated, Amazon enriched consumers (again, people) in the year 2000 by as much as a $1 billion, and increases in variety contributed seven to ten times as much to that enrichment as did lower prices (Brynjolfsson, Yu, and Smith 2003). That was in a single year, seventeen years ago.

Regulating Platforms and Information

It is an article of faith in the new antitrust that information-technology companies, especially those that represent platforms, are something wholly new in industrial history and that such firms require some new kind of government regulation. In fact, of course,

21. My father spent the bulk of his career delivering fuel oil and concrete products for Brandeisian local businesses that paid low wages and couldn't afford benefits.

neither information technology nor platforms are new, and the government has long attempted to regulate them using many of the techniques now proposed (and many others in addition). The results have not been pretty.

One of the most notable platform enterprises of the twentieth century was one well known to Brandeis—United Shoe Machinery Corporation. Indeed, United was perhaps the only "good trust" in the book of Brandeis, at least during the period when he served on its board of directors. Assembled in the late nineteenth century from a congeries of vertically and laterally specialized shoe-machinery makers and surrounded by a ring of patents, United provided equipment to the highly competitive and fragmented American shoemaking industry. Rather than selling its machines, however, United followed a long-standing practice in similar industries of only leasing machines, which effectively turned its product into a service. United provided not only a flow of machine services but also repair services and, perhaps most importantly, detailed knowledge about how to set up a shoe factory. This approach reduced the capital and technical knowledge required to enter the shoe business, encouraging myriad small firms to take advantage of local knowledge and high-powered incentives. "The particular ground upon which I based my opinion that the shoe-machinery monopoly operated beneficially," said Brandeis, "was that it appeared to help the small manufacturers and thus, while itself a monopoly, promoted competition in shoe manufacturing" (qtd. in McCraw 1981, 45).

By 1911, however, Brandeis had decided that United was as heinous a monopolist as any other.[22] The reason? United's contracting practices: "[a] practice like that of the Shoe Machinery Trust of denying to the individual the right to lease a certain machine unless he will take his other machines from the trust, so that competition is killed; that is, a practice under which he who controls an indispensible [*sic*] article of commerce uses it to kill competition in other articles is obviously unsocial, and ought to be prohibited" (testimony in U.S. Senate 1913, 1161). The irony here is that the logic behind United's contracting practices is exactly the same one Brandeis had articulated in making the case for RPM. Because United provided complete industrial-design and layout services to the small shoemakers, the company was vulnerable to free riding: shoemakers could take the services and then go buy cheap knockoff machines (Masten and Snyder 1993, 35). There were a variety of other moral-hazard problems as well, which United dealt with through contractual restrictions of various kinds.

United survived an early antitrust case on the grounds that it had been composed of vertically and laterally related companies that didn't compete with one another, though some Supreme Court justices questioned the company's nonstandard contracting.[23] After World War II, during the heyday of activist antitrust enforcement in

22. On Brandeis's complex relationship with United, see Urofsky 2009, 310–17.

23. *United States v. United Shoe Machinery Co.,* 247 U.S. 32 (1918).

the United States, the Department of Justice would take up the cudgels once again.[24] This time the Court chose to go after the structure of the firm's contracts, demanding sale as well as lease of machines, arbitrarily altering the duration of the leases, and forbidding any restrictive provisions.[25] The ruling proved disastrous not only for United but also for the American shoe industry, which as a result went into decline well before the era of cheap international imports.

Amazon too was put together by the accretion of vertically and laterally related businesses. Amazon also provides services and support, notably in its Amazon Marketplace, that allow enormous numbers of small players to flourish.[26] Many take advantage of Amazon's own fulfillment services, thus benefiting from the massive discounts Amazon is able to negotiate with shippers such as Federal Express and UPS. Khan is sure there is some evil deviousness at work here (2017, 774–78), but she is at a loss to explain why any of it is anticompetitive. In fact, the vertical and lateral integration of present-day technology companies cuts in exactly the opposite direction she suggests. Unlike the customers of United, who had only one platform to deal with, today's customers have many platforms to choose from, and switching costs are not in fact high. As many authors have pointed out, it is precisely because the Big Five (and friends) have their fingers in many pies that they discipline and push one another: if one slips up, there are others with very similar capabilities ready to step in (Varian 2016; Manjoo 2017). A policy of forbidding vertical and lateral integration (by merger or otherwise) is a great way to create niche markets with less rivalry.

Another staple of the new antitrust is that in order to preserve the diversity of ideas and ensure access we need to regulate information companies as common carriers or maybe even natural monopolies. This, too, is not new. The federal government has long been regulating information companies in these ways, and the results have been the destruction of once vibrant markets, the throttling of technological change, and the loss of diversity and access.

By the end of the nineteenth century, the major patents surrounding the telephone had coalesced in the hands of a succession of Boston-based companies with the name "Bell" in them (Mueller 1997; MacDougall 2006). Bell had set up a subsidiary called American Telephone and Telegraph (AT&T) to create a system of long-distance connections between exchanges. Bell also gained controlling interest in the Western Electric Company, an important Chicago manufacturer of electrical equipment that had

24. Richard Hofstadter famously lamented in 1964 that "once the United States had an antitrust movement without antitrust prosecutions; in our time there have been antitrust prosecutions without an antitrust movement" (114).

25. *United States v. United Shoe Machinery Corporation,* 110 F. Supp. 295 (D. Mass. 1953), aff'd; 347 U.S. 521 (1954).

26. Glenn Ellison and Sara Fisher Ellison (2018) have shown that by improving the match between buyers and sellers, Amazon Marketplace has both increased consumer surplus *and* increased the profits of small sellers of used books.

been founded by Elisha Gray. In 1899, AT&T became the parent company of the whole operation to take advantage of New York's more-open incorporation law. Already by 1893 and 1894, however, the principal patents had begun expiring, which unleashed a flurry of competitive entry both of independent operating companies and of companies manufacturing telephone equipment. By 1907, the number of independent telephones in the United States was almost as great as the number of Bell phones.[27] This may seem surprising to modern readers accustomed to the notion of network effects.[28] But at the beginning of the twentieth century, users were content to connect within their own coteries, and long-distance communication was easily effected by telegraph rather than by telephone. Indeed, the independents had little interest in connecting with the Bell System (Mueller 1997). Some of the independents catered to farmers, even sending signals through barbed-wire fence; others were organized as mutuals, that is, as co-ops owned by the users themselves.

In 1907, the House of Morgan was able to edge out the original Boston interests and install the hard-charging professional manager Theodore Vail as head of AT&T. Vail has become associated with the idea of pushing a unified "Bell System" as a competitive strategy, but this had already long been the company's response to competition from the independents (Garnet 1985, 110–27). In fact, Vail set his sights on a quite different response to competition. The first part of his strategy was universal service, which at the time meant not putting a phone in every home but requiring all phones to connect to the same network (Mueller 1997). The second, related part was government regulation by state-level commissions and through the rather ineffectual assignment of interstate telephone regulation to the Interstate Commerce Commission under the Mann-Elkins Act in 1910, which declared telephone systems to be common carriers. Regulation stabilized competition, allowing a well-capitalized AT&T to come to terms and increasingly to merge with the independents, thus creating the regulated-monopoly structure familiar throughout most of the century.

During the New Deal, AT&T's interstate operations came under the jurisdiction of the newly created Federal Communications Commission (FCC). Officials worried that AT&T was making profits by marking up the equipment that unregulated Western Electric was selling to the regulated entities (it was). When state-level regulatory agencies began complaining about the rate hikes that AT&T's local operating companies were demanding during the postwar inflation, the Justice Department saw the chance to divest Western Electric and break it into competing pieces (Peters 1985; Temin and Galambos 1987).[29] With pressure from the Department of Defense, however, the FCC and the Justice Department instead

27. About 3 million each (Brooks 1976, 127; Brock 1981, 121).

28. On the misleading character of the simple network-effects model, especially in the case of platform industries, see Evans and Schmalensee 2016.

29. *U.S. v. Western Electric Co.*, CA No. 17-49, U.S. Dist. Ct., Dist. of New Jersey, *Complaint,* January 14, 1949.

negotiated a deal that would keep AT&T intact if it changed its accounting practices to allocate more of the joint fixed costs to long-distance service in order to lower charges to the customers of the local operating units.[30] This deal forestalled the breakup of the company for almost three decades. In the meanwhile, the FCC built a force field around "the system" to insulate it from disruptive technological change, delaying by decades the introduction of innovations ranging from the innocuous and almost silly Hush-a-Phone to fax machines and modems to cellular telephony (Wu 2010; Hazlett 2017).[31]

The resulting monumental inefficiencies, both static and Schumpeterian, eventually made it profitable for the entrepreneur William McGowan of MCI to pour resources first into persuading the FCC to alter its policies and then into fomenting the breakup of AT&T (Temin and Galambos 1987). McGowan and others recognized that microwave technology, developed for radar during World War II, could be adapted to transmit information, and line-of-sight microwave towers could provide a system of long-distance telephony alternative to copper wires, especially given the weight of cross-subsidy that AT&T's Long Lines division was bearing. Under a consent decree in January 1982, the Bell System was carved into its vertical components, with the local Bell operating companies gaining independence. Long-distance microwave providers such as MCI and Sprint would be allowed to compete with AT&T Long Lines, and customers and operating units would no longer be required to buy equipment solely from Western Electric. The breakup of the system was performed under the banner of antitrust, but it was in fact an act of deregulation.

The history of broadcasting reveals an even more appalling legacy, one that compounded lost opportunities for innovation with government control of speech. At the end of the nineteenth century, Guglielmo Marconi had demonstrated the possibility of wireless telegraphy using a spark-gap transmitter, and by World War I American Marconi dominated wireless telegraphy in the United States (Langlois 2013). Because this was a military technology, the Navy Department nationalized the company for the duration of the war. The navy wanted badly to keep radio as a state-owned enterprise after the war, but Congress compromised and instigated the creation of a "national champion"—Radio Corporation of America (RCA)—that would be owned mostly by General Electric (GE) and would take over the assets of the foreign-owned Marconi. RCA came to a patent cross-licensing agreement with AT&T, GE, and eventually Westinghouse, which partitioned technological spheres of influence. In the early 1920s, however, technological improvements had made it possible to broadcast modulated signals—words and music—not just dots and dashes. After Westinghouse created the first commercial radio station in 1920, the

30. This was *inverse* Ramsey pricing: charging a higher price to the elastically demanded service (long distance) and a lower price to the inelastically demanded service (local phone).

31. The slow pace of technological change in both telephony and broadcasting was masked to Americans to some extent because European countries had handed those industries over to state-owned monopolies, which were even less innovative. AT&T made sure to innovate in a slow, nondisruptive way, though the company suppressed disruptive technologies, famously including magnetic-tape recording, which Bell Labs developed in 1934 (M. Clark 1993). AT&T officials believed that users would fear having their secret conversations recorded, to such an extent that it would destroy telephony.

radio-receiver business exploded: over the decade, 60 percent of American homes came to possess radios. This shift favored RCA over its technological partners, and the company moved to consolidate its patent position, which by 1927 courts had made secure. AT&T had withdrawn from broadcasting in 1926, and a consent decree with the Justice Department in 1932 disconnected RCA from the ownership of GE and Westinghouse. The National Broadcasting Company, which had been created originally by AT&T, became the possession of RCA alone.

Radio in the early twentieth century was dominated by hobbyists, and transmission frequency was a free-for-all. When commercial broadcasting emerged, stations faced the problem of interference from hobbyists and other stations. The radio spectrum was an unowned commons, like your local interstate during rush hour or the George's Bank cod fishery. What was needed was the delineation of property rights. Courts actually took a step in this direction with the *Oak Leaves* decision in 1926,[32] which conceptualized the problem in terms of the common law of nuisance (Hazlett 1990). But it would be more than thirty years before Coase (1959) would clearly explain the logic of creating property rights in spectrum—and a lot longer before he would be taken seriously—and there were powerful political forces at work on the ground (Twight 1998).

In 1912, Congress had empowered the secretary of commerce to grant broadcasting licenses, though without any ability to condition those licenses, let alone refuse to grant them. When he became commerce secretary during the growth period of radio stations, Herbert Hoover tried to ignore these restrictions until a court decision forced his hand.[33] In the wake of the resulting chaos (planned or unplanned), Congress in 1927 created the Federal Radio Commission (soon to become the FCC) to hand out channels through administrative proceedings. Radio was to be regulated as a public utility, and licenses were to be granted in light of "public interest, convenience, and necessity" as defined by the commission. This regulation misallocated resources into lobbying and persuading the FCC, a process that favored the large incumbents, notably RCA; prevented the market from moving resources from less- to more-valuable uses; and encouraged favoritism and corruption.[34] In flagrant contravention of the First Amendment, it also gave the FCC the power to control the content of broadcasting, which the FCC restricted to wholesome, mainstream, nondissident fare. The FCC's technological force field quickly surrounded broadcasting as well, resulting in, among other things, decades-long delays in the adoption of FM radio, cable television, and satellite radio (Wu 2010; Hazlett 2017).

It is important to note that the problem was not centralization of broadcasting by the FCC; the problem was the choice of a central-planning system over a system of

32. *Tribune Co. v. Oak Leaves Broadcasting Station* (1926). This was a Cook County, Illinois, Circuit Court decision, reprinted in Cong. Rec.- Senate 215-19 (December 10, 1926).

33. *United States v. Zenith Radio Corp.,* 12 F.2d 614 (N.D. Ill. 1926).

34. In 1943, some Texas radio station owners had been waiting three years for the FCC to allow them to transfer ownership of their station. When the wife of a young congressman offered to buy it, authorization was forthcoming in twenty-four days. The congressman soon intervened to save the FCC's budget request. His name was Lyndon Baines Johnson, and he and his wife, Lady Bird, became rich as owners of radio and later television licenses (Caro 1990, 88–94).

well-defined property rights. Indeed, the FCC insisted on a forced decentralization: stations must be local and low powered in order to produce local content (and, of course, to please political constituencies). Concentration of content in the hands of a few big networks was actually the (unintended?) consequence of this localism, as the small broadcasters found that they needed to affiliate with a network in order to obtain better content than they could produce themselves, and the more locally isolated the broadcaster, the greater the incentive to affiliate with the largest network. Had the FCC instead permitted a handful of powerful regional stations, the Dumont network might not have been driven out of business (Hazlett 2017, 93).

This history has lessons for the drama unfolding today at the FCC: net neutrality. Tim Wu (2010), the leading proponent of net neutrality, has chronicled the FCC's history of misregulation. He announces himself as a Schumpeterian and an evolutionary thinker, citing the likes of F. A. Hayek (1945) and Richard R. Nelson and Sidney G. Winter (1982). But Wu doesn't seem to like Schumpeterian processes when he sees them today; and he is decidedly not a Coasean. His mental model derives from the FCC's failure in the postwar period to allow the interconnection to the phone system of "foreign" devices such as faxes, modems, and telephones not made by Western Electric. Thus, he thinks that the way to regulate the Internet is to prohibit service providers from discriminating in their treatment of uses for the Internet (Wu 2003). (Faxes and modems were "uses" of the phone system.) Rather than helping to create a system of well-defined property rights, however, this approach actually removes important aspects of property rights, making the Internet an unowned commons.[35] More significantly, it places barricades in front of an unforeseeable number of forms in which beneficial Schumpeterian competition might manifest itself. Predictably, the first to be accused of violating net neutrality was not one of the Big Five, whom it arguably advantages, but rather MetroPCS, a small cell phone provider that had wanted to offer unlimited access to YouTube as part of one of its service plans (Hazlett 2011).

At this writing, net neutrality has been repealed, though several states are threatening to impose it at their level. Because net neutrality is predicated on a particular static architecture, however, it may be rendered irrelevant before long in any case by technological change.[36] Not so the more general demands for government-managed barriers to competition that emanate from Khan's proposals. So we do have to think

35. Again, an unowned commons, like an open-ocean fishery or a busy highway without tolls, is inefficient because it creates an incentive to overuse the resource and to allocate the resource to low-value uses. A larger and more subtle issue with the nondiscrimination rule is that it discourages innovation by restricting possible value-creating business models. Many if not most of the greatest Schumpeterian innovations in information technology—think Apple's iTunes—have been "walled garden" business models in which services are tied to a platform. Unlike the rules actually implemented, Wu's original proposal (Wu 2003) would have allowed (nondiscriminatory) congestion pricing of bandwidth, though it would have forbidden walled gardens.

36. The likely successor to today's infrastructure appears to be 5G cellular technology, now in development, which may offer Internet services at high speed over the airwaves in competition with cable. Alarmingly if not surprisingly, the Trump administration has made noises about nationalizing 5G on grounds of national security. Tim Wu (2018) thinks it a splendid idea to create a state-owned "Tennessee Valley Authority" of 5G to bring this service to rural areas. Quite apart from the issue of why city dwellers ought to be made to subsidize the countryside, one may wonder what the benefits of a Tennessee Valley 5G Authority might look like when we live in the world of 7G, 8G, 9G, or some G not yet imagined.

hard about competition policy. Competition policy may or may not require the Chicago School of Bork, Posner, and Stigler. But it very much needs both Schumpeter and Coase.

References

Aldrich, Mark. 2013. Tariffs and Trusts, Profiteers and Middlemen: Popular Explanations for the High Cost of Living, 1897–1920. *History of Political Economy* 45, no. 4: 693–746.

Baumol, William J., and David F. Bradford. 1970. Optimal Departures from Marginal Cost Pricing. *American Economic Review* 60, no. 3: 265–83.

Benson, Lee. 1955. *Merchants, Farmers, and Railroads: Railroad Regulation and New York Politics, 1850–1887.* Cambridge, Mass.: Harvard University Press.

Bittlingmayer, George. 1985. Did Antitrust Policy Cause the Great Merger Wave? *Journal of Law and Economics* 28, no. 1: 77–118.

Bork, Robert. 1978. *The Antitrust Paradox: A Policy at War with Itself.* New York: Basic Books.

Brandeis, Louis D. 1913. Cutthroat Prices: The Competition That Kills. *Harper's Weekly*, November 15.

Breit, William. 1991. Resale Price Maintenance: What Do Economists Know and When Did They Know It? *Journal of Institutional and Theoretical Economics* 147, no. 1: 72–90.

Brock, Gerald W. 1981. *The Telecommunications Industry: The Dynamics of Market Structure*. Cambridge, Mass.: Harvard University Press.

Brooks, John. 1976. *Telephone: The First Hundred Years.* New York: Harper and Row.

Brynjolfsson, Erik, Yu Hu, and Duncan Simester. 2011. Goodbye Pareto Principle, Hello Long Tail: The Effect of Search Costs on the Concentration of Product Sales. *Management Science* 57, no. 8 (August): 1373–86.

Brynjolfsson, Erik, Yu Hu, and Michael D. Smith. 2003. Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety at Online Booksellers. *Management Science* 49, no. 11 (November): 1580–96.

Caro, Robert. 1990. *The Years of Lyndon Johnson: Means of Ascent*. New York: Knopf.

Chandler, Alfred D., Jr. 1977. *The Visible Hand: The Managerial Revolution in American Business.* Cambridge, Mass.: Belknap Press of Harvard University Press.

Clark, John D. 1931. *Federal Trust Policy*. Baltimore: Johns Hopkins University Press.

Clark, Mark. 1993. Suppressing Innovation: Bell Laboratories and Magnetic Recording. *Technology and Culture* 34, no. 3: 516–38.

Coase, Ronald H. 1959. The Federal Communications Commission. *Journal of Law and Economics* 2:1–40.

Croly, Herbert D. 1909. *The Promise of American Life*. New York: Macmillan.

Demsetz, Harold. 1969. Information and Efficiency: Another Viewpoint. *Journal of Law and Economics* 12, no. 1: 1–22.

———. 1974. Two Systems of Belief about Monopoly. In *Industrial Concentration: The New Learning*, edited by Harvey Goldschmid, Harold Michael Mann, and J. Fred Weston, 164–83. Boston: Little Brown.

———. 1982. Barriers to Entry. *American Economic Review* 72, no. 1: 47–57.

DiLorenzo, Thomas J. 1985. The Origins of Antitrust: An Interest-Group Perspective. *International Review of Law and Economics* 5, no. 1 (June): 73–90.

Edelman, Murray. 1964. *The Symbolic Uses of Politics*. Urbana: University of Illinois Press.

Ellison, Glenn, and Sara Fisher Ellison. 2018. *Match Quality, Search, and the Internet Market for Used Books*. National Bureau of Economic Research (NBER) Working Paper no. 24197. Cambridge, Mass.: NBER.

Evans, David S., and Richard Schmalensee. 2016. *Matchmakers: The New Economics of Multisided Platforms*. Boston: Harvard Business School Publishing.

Fainsod, Merle, and Lincoln Gordon. 1941. *Government and the American Economy*. New York: Norton.

Frieden, Jeffry A. 1997. Monetary Populism in Nineteenth-Century America: An Open Economy Interpretation. *Journal of Economic History* 57, no. 2: 367–95.

Friedman, Milton, and Anna J. Schwartz. 1963. *A Monetary History of the United States, 1867–1960*. Princeton, N.J.: Princeton University Press.

Garnet, Robert W. 1985. *The Telephone Enterprise: The Evolution of the Bell System's Horizontal Structure, 1876–1909*. Baltimore: Johns Hopkins University Press.

Gilligan, Thomas W., William J. Marshall, and Barry R. Weingast. 1989. Regulation and the Theory of Legislative Choice: The Interstate Commerce Act of 1887. *Journal of Law and Economics* 32, no. 1: 35–61.

Hausman, Jerry, and Ephraim Leibtag. 2007. Consumer Benefits from Increased Competition in Shopping Outlets: Measuring the Effect of Wal-Mart. *Journal of Applied Econometrics* 22, no. 7: 1157–77.

Hawley, Ellis W. 1966. *The New Deal and the Problem of Monopoly: A Study in Economic Ambivalence*. Princeton, N.J.: Princeton University Press.

Hayek, F. A. 1945. The Use of Knowledge in Society. *American Economic Review* 35, no. 4: 519–30.

Hazlett, Thomas W. 1990. The Rationality of U.S. Regulation of the Broadcast Spectrum. *Journal of Law and Economics* 33, no. 1: 133–75.

———. 1992. The Legislative History of the Sherman Act Re-examined. *Economic Inquiry* 30, no. 2: 263–76.

———. 2011. *The Fallacy of Net Neutrality*. New York: Encounter Books.

———. 2017. *The Political Spectrum: The Tumultuous Liberation of Wireless Technology, from Herbert Hoover to the Smartphone*. New Haven, Conn.: Yale University Press.

Higgs, Robert. 1970. Railroad Rates and the Populist Uprising, *Agricultural History* 44, no. 3: 291–98.

Hofstadter, Richard. 1964. What Happened to the Antitrust Movement? Notes on the Evolution of an American Creed. In *The Business Establishment,* edited by Earl F. Cheit, 113–51. New York: Wiley.

Hovencamp, Herbert. 1991. *Enterprise and American Law, 1836–1937.* Cambridge, Mass.: Harvard University Press.

Hughes, Jonathan R. T. 1977. *The Governmental Habit: Economic Controls from Colonial Times to the Present.* New York: Basic Books.

Irwin, Douglas A. 2007. Tariff Incidence in America's Gilded Age. *Journal of Economic History* 67, no. 3: 582–607.

Khan, Lina M. 2017. Amazon's Antitrust Paradox. *Yale Law Journal* 126, no. 3 (January): 710–805.

Kolko, Gabriel. 1965. *Railroads and Regulation, 1877–1916.* Princeton, N.J.: Princeton University Press.

Kwoka, John E. 2015. *Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy.* Cambridge, Mass.: MIT Press.

Langlois, Richard N. 2013. Organizing the Electronic Century. In *The Third Industrial Revolution in Global Business,* edited by Giovanni Dosi and Louis Galambos, 119–67. New York: Cambridge University Press.

———. 2016. *Antitrust: Where Did It Come from and What Did It Mean?* Working paper no. 2016-07. Storrs: Department of Economics, University of Connecticut.

Letwin, William L. 1954. The English Common Law Concerning Monopolies. *University of Chicago Law Review* 21, no. 3: 355–85.

———. 1965. *Law and Economic Policy in America: The Evolution of the Sherman Antitrust Act.* New York: Random House.

Libecap, Gary D. 1992. The Rise of the Chicago Packers and the Origins of Meat Inspection and Antitrust. *Economic Inquiry* 30, no. 2: 242–62.

Link, Arthur S. 1954. *Woodrow Wilson and the Progressive Era, 1910–1917.* New York: Harper and Row.

MacDougall, Robert. 2006. Long Lines: AT&T's Long-Distance Network as an Organizational and Political Strategy. *Business History Review* 80, no. 2: 297–327.

Manjoo, Farhad. 2017. The Upside of Being Ruled by the Five Tech Giants. *New York Times,* November 1.

Martin, Albro. 1971. *Enterprise Denied: Origins of the Decline of American Railroads, 1897–1917.* New York: Columbia University Press.

Marvel, Howard P., and Stephen McCafferty. 1984. Resale Price Maintenance and Quality Certification. *Rand Journal of Economics* 15, no. 3: 346–59.

Masten, Scott E., and Edward A. Snyder. 1993. *United States versus United Shoe Machinery Corporation:* On the Merits. *Journal of Law and Economics* 36, no. 1: 33–70.

McCloskey, Deirdre N. 1997. The Good Old Coase Theorem and the Good Old Chicago School: A Comment on Zerbe and Medema. In *Coasean Economics: The New Institutional Economics and Law and Economics,* edited by Steven G. Medema, 239–48. Dordrecht, Netherlands: Kluwer Academic.

———. 2010. *Bourgeois Dignity: Why Economics Can't Explain the Modern World.* Chicago: University of Chicago Press.

———. 2016. *Bourgeois Equality: How Ideas, Not Capital or Institutions, Enriched the World.* Chicago: University of Chicago Press.

McCraw, Thomas K. 1981. Rethinking the Trust Question. In *Regulation in Perspective,* edited by Thomas K. McCraw, 1–55. Cambridge, Mass.: Harvard Business School Press.

———. 1984. *Prophets of Regulation: Charles Francis Adams, Louis D. Brandeis, James M. Landis, Alfred E. Kahn.* Cambridge, Mass.: Harvard University Press.

McCraw, Thomas K., and Forest Reinhardt. 1989. Losing to Win: U.S. Steel's Pricing, Investment Decisions, and Market Share, 1901–1938. *Journal of Economic History* 49, no. 3: 593–619.

McCurdy, Charles W. 1979. The *Knight Sugar* Decision of 1895 and the Modernization of American Corporation Law, 1869–1903. *Business History Review* 53, no. 3: 304–42.

McGee, John S. 1958. Predatory Price Cutting: The Standard Oil (N.J.) Case. *Journal of Law and Economics* 1:137–69.

Meyer, Robinson. 2017. What Steve Bannon Wants to Do to Google. *The Atlantic,* August 1.

Miller, George H. 1971. *Railroads and the Granger Laws.* Madison: University of Wisconsin Press.

Mueller, Milton L. 1997. *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System.* Cambridge, Mass.: MIT Press.

Nelson, Richard R., and Sidney G. Winter. 1982. *An Evolutionary Theory of Economic Change.* Cambridge, Mass.: Harvard University Press.

New Center. n.d. Challenging the Titans of Technology. At http://newcenter.org/ideas-to-re-center-america/challenging-big-tech/. Accessed January 6, 2018.

Ordover, Janusz, and Garth Saloner. 1989. Predation, Monopolization, and Antitrust. In *Handbook of Industrial Organization,* edited by Richard Schmalensee and Robert D. Willig, 538–96. Amsterdam: Elsevier.

Peters, Geoffrey M. 1985. Is the Third Time the Charm? Comparison of the Government's Major Antitrust Settlements with AT&T This Century. *Seton Hall Law Review* 15:252–75.

Posner, Richard A. 1970. A Statistical Study of Antitrust Enforcement. *Journal of Law and Economics* 13, no. 2: 365–419.

———. 1976. *Antitrust Law: An Economic Perspective.* Chicago: University of Chicago Press.

———. 1979. The Chicago School of Antitrust Analysis. *University of Pennsylvania Law Review* 127, no. 4: 925–48.

Schumpeter, Joseph A. 1950. *Capitalism, Socialism, and Democracy.* New York: Harper and Brothers.

Seltzer, Alan L. 1977. Woodrow Wilson as "Corporate-Liberal": Toward a Reconsideration of Left Revisionist Historiography. *Western Political Quarterly* 30, no. 2: 183–212.

Sklar, Martin. 1988. *The Corporate Reconstruction of American Capitalism, 1890–1916: The Market, the Law, and Politics.* New York: Cambridge University Press.

Stephenson, Nathaniel Wright. 1930. *Nelson W. Aldrich, a Leader in American Politics.* New York: Scribner's.

Stigler, George. 1968. *The Organization of Industry.* Homewood, Ill.: Richard D. Irwin.

Telser, Lester G. 1960. Why Should Manufacturers Want Fair Trade? *Journal of Law and Economics* 3:86–105.

Temin, Peter, and Louis Galambos. 1987. *The Fall of the Bell System: A Study of Prices and Politics.* New York: Cambridge University Press.

Thorelli, Hans. 1955. *The Federal Antitrust Policy: Origination of an American Tradition.* Baltimore: Johns Hopkins University Press.

Troesken, Werner. 2002. The Letters of John Sherman and the Origins of Antitrust. *Review of Austrian Economics* 15, no. 4 (December): 275–95.

Twight, Charlotte. 1998. What Congressmen Knew and When They Knew It: Further Evidence on the Origins of U.S. Broadcasting Regulation. *Public Choice* 95, nos. 3–4: 247–76.

Urofsky, Melvin I. 2009. *Louis D. Brandeis: A Life*. New York: Pantheon Books.

U.S. Senate. 1913. *Control of Corporations, Persons, and Firms Engaged in Interstate Commerce: Report of the Committee on Interstate Commerce*. Washington, D.C.: U.S. Government Printing Office.

Varian, Hal. 2016. No Hope of a Quiet Life in the Age of Disruption. *Financial Times,* October 3.

Wiebe, Robert H. 1962. *Businessmen and Reform: A Study of the Progressive Movement.* Cambridge, Mass.: Harvard University Press.

Williamson, Harold F., and Arnold R. Daum. 1959. *The American Petroleum Industry: The Age of Illumination, 1859–1899.* Evanston, Ill.: Northwestern University Press.

Williamson, Oliver E. 1979. Transaction-Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics* 22, no. 2: 233–61.

Wilson, Woodrow. 1914. Address to a Joint Session of Congress on Trusts and Monopolies. January 20. At http://www.presidency.ucsb.edu/ws/?pid=65374.

Wu, Tim. 2003. Network Neutrality, Broadband Discrimination. *Journal of Telecommunications & High Technology Law* 2:141–76.

———. 2010. *The Master Switch: The Rise and Fall of Information Empires.* New York: Knopf.

———. 2018. Should Trump Nationalize a 5G Network? *New York Times,* January 31.

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