

ANTITRUST AND INNOVATION BEFORE THE SHERMAN ACT

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[M]onopolizers, the great pest of society, who prefer their own private gain to the interest and safety of their country, and which if not prevented threaten the ruin and destruction of the State . . .
Connecticut Laws, 1776¹

This article explores the links between American antitrust policies and innovation over the course of three centuries. Economists typically regard the Sherman Act of 1890 as a discrete disjuncture in the history of federal government intervention and regulation of enterprise. According to some, the Sherman Act represented “a significant break from what had previously been considered an appropriate role for the federal government . . . [and] provided a new and permanent mandate for government regulation in the market economy.”² As such, discussions of the origins of antimonopoly measures largely focus on the “formative era,” or the decade before the passage of the Sherman Act.³ It is rare for an economic analysis of antitrust to address the period before the 1880s in terms of either federal or state policies toward business activities. Historians, with their concern for the continuous details that comprise the daily business of life and the life of business, are less inclined to view events as such a dichotomy. They have charted the continual involvement of government in the oversight and regulation of American enterprise since the establishment of the first colonies. Such studies, however, typically

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¹ An Act to prevent Monopolies and Oppression by excessive and unreasonable Prices for many of the Necessaries and Conveniences of Life (1776), in 1 THE PUBLIC RECORDS OF THE STATE OF CONNECTICUT 62–63 (1894).

² Gary D. Libecap, *The Rise of the Chicago Packers and the Origins of Meat Inspection and Antitrust*, 30 ECON. INQUIRY 242, 242 (1992).

³ See, e.g., James May, *Antitrust Practice and Procedure in the Formative Era: The Constitutional and Conceptual Reach of State Antitrust Law, 1880–1918*, 135 U. PA. L. REV. 495 (1987).

do not focus on questions of economic interest, such as the analysis of links between antimonopoly policies, patents, and technological innovation.⁴

Regulation of American business during the colonial period and from the earliest decades of the Republic influenced and can be detected in the strategies of the federal government and individual states in the 19th century. The historical record is thus critical if we are to understand the forces that created competition policy under the Sherman Act, especially in relation to innovation and the dilemmas inherent in the enforcement of antitrust statutes. That record shows that Americans have expressed reservations and revulsion regarding monopolies and monopolization since the first days of settlement. States like New York recommended that “the Congress do not grant monopolies, or erect any company with exclusive advantages of commerce.”⁵ Thomas Jefferson even thought it would be appropriate to include an antimonopoly clause in the Bill of Rights.⁶ Despite their avowed distaste for monopolies, however, policymakers frequently granted exclusive rights if such rights were deemed to bring net social benefits.

This was especially evident in the realm of technological innovation. Before the 1830s, corporate charters granted monopoly privileges to enterprises that the states believed were vested with a public purpose—such as turnpikes, canals, and bridges—in return for concessions to consumers.⁷ At the same time, the Intellectual Property Clause of the U.S. Constitution empowered Congress to authorize grants of patents for new inventions.⁸ Congress rejected suggestions for restrictions, such as requirements that patentees must actually produce the invention or that patentees should be compelled to license their patents. Patents were not regarded as akin to monopolies (unlike in Europe), and courts paid deference to the rights of patentees, even sustaining restrictive practices and the formation of patent pools as an appropriate exercise of the patent privilege. This speciously clear distinction between the (warranted) right of exclusion through patents and (unwarranted) exclusion by monopolies arguably facilitated the concentration of markets that occurred after the Civil War. The vast industrial enterprises of the Second

⁴ For a noteworthy exception, see Herbert Hovenkamp, *Technology, Politics, and Regulated Monopoly: An American Historical Perspective*, 62 TEX. L. REV. 1263 (1984).

⁵ *The Ratifications of the Twelve States*, in 1 THE DEBATES IN THE SEVERAL STATE CONVENTIONS ON THE ADOPTION OF THE FEDERAL CONSTITUTION 330 (Jonathan Elliot ed., 2d ed. 1891).

⁶ In a letter to James Madison dated December 20, 1787, concerning lacunae in the Constitution, Jefferson wrote: “I will now add what I do not like. First, the omission of a bill of rights, providing clearly, and without the aid of sophism, for freedom of religion, freedom of the press, protection against standing armies, restriction of monopolies” THE THOMAS JEFFERSON PAPERS, SERIES I: GENERAL CORRESPONDENCE, 1651–1827, available at http://memory.loc.gov/ammem/collections/jefferson_papers/mtjser1.html.

⁷ See, e.g., HERBERT HOVENKAMP, ENTERPRISE AND AMERICAN LAW 17–35 (1991).

⁸ U.S. CONST. art I., § 8, cl. 8.

Industrial Revolution (the period between 1870 and 1914) were typically founded on extensive portfolios of patented inventions. Indeed, two years before Congress passed the Sherman Act, a bill to prohibit “combinations for the control of patented articles” was submitted to the Senate Committee on Patents.⁹

In the period before passage of the Sherman Act, concerns raised by powers of exclusion, however obtained, were addressed through state statutes, federal policies, and decisions at common law. The congressional record of debates on the Sherman Act demonstrates that its framers recognized and intended for the Act to incorporate and build on the existing common law foundation. According to Senator Sherman, the bill

does not announce a new principle of law, but applies old and well recognized principles of the common law to the complicated jurisdiction of our State and Federal Government The purpose of this bill is to enable the courts of the United States to apply the same remedies against combinations which injuriously affect the interests of the United States that have been applied in the several States to protect local interests.¹⁰

Far from pioneering a dramatically different approach to competition regulation, the Sherman Act was broadly consistent with previous state and federal policies.¹¹

⁹ BILLS & DEBATES IN CONGRESS RELATING TO TRUSTS, S. DOC. NO. 57-147 (1903). The proposed bill featured a working requirement for patents that would have voided unused patents and enjoined monopolies and monopolization attributable to “special advantages” derived from patent rights, with penalties that included fines and imprisonment of not less than six months. H.R. 7739 went even further, including a provision for annulling any patent that was used by an attempted monopolist. See H.R. 7739, 53d Cong. 2d Sess. (1894) (“A bill to declare letters patent null and void when used, operated, or controlled by any trust, monopoly, corporation, combination or other conspiracy in restraint of trade and commerce among the several States or with foreign nations.”); see also S. 2387, 53d Cong. (1894) (“A Bill to forbid maintenance and oppression in suits brought upon letters patent for inventions.”).

¹⁰ 21 CONG. REC. 2456–62 (1889). Sherman continued:

Similar contracts in any State in the Union are now, by common or statute law, null and void. Each State can and does prevent and control combinations within the limit of the State. . . . This we do not propose to interfere with. The power of the State courts has been repeatedly exercised to set aside such combinations, as I shall hereafter show, but these courts are limited in their jurisdiction to the State, and, in our complex system of government, are admitted to be unable to deal with the great evil that now threatens us. The purpose of this bill is to enable the courts of the United States to apply the same remedies against combinations . . . that have been applied in the several States to protect local interests.

Id. In the Senate debate, he similarly stated that the bill “sets out in the most specific language the rule of the common law which prevails in England and in this country.” 20 CONG. REC. 1167–69 (1889). Sherman’s conviction regarding the incremental nature of the bill likely explains, in part, its vague and general nature.

¹¹ Senator Hoar reported on the views of members of his committee that “monopoly” is a technical term known to the common law . . . the courts of the United States would say . . . that a man who merely by superior skill and intelligence, a breeder of horses or raiser of cattle, or manufacturer or artisan of any kind, got the

The first part of this article considers competition and technology policy before the Sherman Act. Even as a colonial outpost of the British Empire, Americans adapted inherited European institutions to meet the particular conditions they encountered in the New World, and this exceptionalism persisted throughout the pre-Sherman Act period. The colonies and states early on adopted policies and rhetoric regarding monopolies that mirrored the laws of Britain; but their approach to actual enforcement had more nuance, especially when monopolies promised to increase productivity. After the Constitutional Convention, this ambivalence ceded to policies that gave patentees more freedom.

As the second part discusses, 19th century policymakers were confident that potential monopoly rents would create incentives for innovation, which would benefit not just the patentee but all of society.¹² Patentees were initially given wide latitude and regarded as public benefactors, rather than as undesirable monopolists. For natural monopolies that developed from such innovations as the telegraph and railroad, the United States opted for policies that involved regulation and judicial constraints, rather than nationalization. This liberal approach to intellectual property and innovation likely promoted the rapid technological change that transformed the United States into the world's foremost industrial nation by the end of the 19th century.

The final section offers some brief observations regarding current developments in antitrust and innovation. In recent decades, antitrust enforcement has evolved in a direction that is more reminiscent of the strictures of the colonial period, in which concerns about the potential for monopolization sometimes take unwarranted precedence over incentives for innovation. An assessment of the historical evolution of antitrust and technological change therefore seems both timely and useful as part of the process of shaping antitrust policy going forward.

I. COMPETITION POLICY BEFORE THE SHERMAN ACT

An Act to prevent Monopoly and Oppression.
Massachusetts Laws, 1774

The common law of England prohibited contracts in restraint of trade, general agreements to refrain from competition, collusion between rivals to fix prices or to restrict output, and other anticompetitive practices that would

whole business because nobody could do it as well as he could was not a monopolist, but that it involved something like the use of means which made it impossible for other persons to engage in fair competition, like the engrossing, the buying up of all other persons engaged in the same business.

21 CONG. REC. 3152 (1889).

¹² See *infra* Part II.

likely lead to public harm.¹³ The early colonists modified English institutions to suit conditions in the New World, but their underlying economic policies reflected inherited precedents. Legal decisions in America during the colonial and antebellum periods held that trade restraints were unsustainable at law because they tended to “prevent competition and enhance prices. They expose the public to all the evils of monopoly.”¹⁴ As one court wrote, these concerns were “especially . . . applicable to wealthy companies and large corporations, who have the means, unless restrained by law, to exclude rivalry, monopolize business and engross the market. Against evils like these, wise laws protect individuals and the public, by declaring all such contracts void.”¹⁵

The epigraph refers to legislation that Massachusetts enacted before independence to curb the adverse effects of monopolization by fixing prices and wages at levels that it regarded as more just. Connecticut, in 1776, similarly approved an “Act to prevent Monopolies and Oppression by excessive and unreasonable Prices for many of the Necessaries and Conveniences of Life.”¹⁶ That Act included a provision to prevent the monopolization of salt, and authorized the authorities to issue a warrant to enter the premises of engrossers, seize their supplies, and distribute the product to the public at a (presumably lower) price fixed by law.¹⁷ In 1779, Boston appointed a Committee to “Enquire into the Conduct of Forestallers Engrossers and Monopolizers.”¹⁸ The Committee assiduously pursued its charge by identifying specific traders who had earned “extravagant Profit[s]” and thereby “greatly injured” the public welfare.¹⁹ It seemed clear to courts that, especially for staple products, “grants of monopolies in restraint of trade and against public convenience and improvement are not to be construed liberally in favor of the grantees but strictly against them.”²⁰ For instance, in the case of an eight-firm cartel in New Orle-

¹³ See, e.g., JOHN WILLIAM SMITH, *THE MERCANTILE LAW OF ENGLAND AND THE UNITED STATES* 19–20 (1887).

¹⁴ *Alger v. Thacher*, 36 Mass. (19 Pick.) 51, 54 (1837). The court in *Alger* also observed that contracts in restraint of trade “discourage industry and enterprise, and diminish the products of ingenuity and skill.” *Id.*

¹⁵ *Id.*

¹⁶ An Act to prevent Monopolies and Oppression by excessive and unreasonable Prices for many of the Necessaries and Conveniences of Life (1776), in 1 *THE PUBLIC RECORDS OF THE STATE OF CONNECTICUT* 62–63 (1894).

¹⁷ *Alger*, 36 Mass. (19 Pick.) at 54.

¹⁸ CITY OF BOSTON, *TWENTY-SIXTH REPORT OF THE RECORD COMMISSIONERS: BOSTON TOWN RECORDS, 1778 to 1783*, at 44 (Wm. H. Whitmore ed., 1895).

¹⁹ *Id.*

²⁰ *Westfall v. Mapes*, 3 Grant 198, 199 (Pa. 1855). The courts overturned contracts to maintain monopolies of such staples as salt, wheat, or coal, as shown in *Crawford v. Wick*, 18 Ohio St. 190 (1868). In *Central Ohio Salt Co. v. Guthrie*, the court observed:

Public policy, unquestionably, favors competition in trade, to the end that its commodities may be afforded to the consumer as cheaply as possible, and is opposed to monopolies, which tend to advance market prices to the injury of the general public.

ans that fixed prices and output of bales of cotton bags, the court found that the collusive agreement was an unjustified combination in restraint of trade that would increase the price of inputs for cotton planters.²¹

Early in the Republic, many states incorporated antimonopoly clauses in their constitutions like Connecticut did in 1818.²² These varied from broad condemnation of exclusive privileges to specific rules regarding monopoly rights and conduct.

In 1845, Louisiana declared that “[t]he general assembly shall never grant any exclusive privilege or monopoly for a longer period than twenty years.”²³ Idaho’s constitution instructed the legislature to pass laws to enforce its prohibition against monopolization, including provisions for seizing property.²⁴ Other state laws forbade an array of specific monopolistic devices, including pooling, price fixing, quantity restrictions, exclusive territories, exclusive dealing, refusals to deal, price discrimination, predation, and horizontal and vertical resale price maintenance. In 1862, in response to wartime increases in the price of necessities, Georgia imposed criminal penalties for monopolization of articles such as foodstuffs, with fines of up to \$5000 and imprisonment.²⁵ An 1888 Iowa statute provided for criminal fines of the same magnitude against price and quantity restraints.²⁶ Thus, remedies at law were not limited to civil sanctions; in many instances, especially during times of

We think the contract before us should not be enforced. By it all the salt manufacturers (with one or two exceptions) in a large salt-producing territory, and whose aggregate annual product is about 140,000 barrels, have combined for the expressed purpose of regulating the “price and grade of salt.”

35 Ohio St. 666 (1880); see also *Raymond v. Leavitt*, 9 N.W. 525 (Mich. 1881).

²¹ *India Bagging Ass’n v. Kock*, 14 La. Ann. 168 (1859).

²² See HENRY R. SEAGER & CHARLES A. GULICK, JR., *TRUST AND CORPORATION PROBLEMS* 341–42 & 342 n.1 (1929). Other states and territories that included antimonopoly provisions in their constitutions included Arkansas, Connecticut, Georgia, Idaho, Kentucky, Maryland, Montana, North Carolina, North Dakota, South Dakota, Tennessee, Texas, Wyoming, and Washington. *Id.* at 342 n.1.

²³ LA. CONST. art. 125 (1845), in 1 *THE FEDERAL AND STATE CONSTITUTIONS, COLONIAL CHARTERS, AND OTHER ORGANIC LAWS OF THE UNITED STATES* 721 (Benjamin Poore ed., 2d ed. 1878). Article 258 of the revised constitution in 1879 abolished monopolistic elements in corporate charters, with the exception of railroads.

²⁴ IDAHO CONST. art. XI, § 18 (1889) (“[T]he legislature be required to pass laws for the enforcement thereof, by adequate penalties, to the extent, if necessary for that purpose, of the forfeiture of their property and franchise.”).

²⁵ See ACTS OF THE GENERAL ASSEMBLY OF THE STATE OF GEORGIA, PASSED IN MILLEDGEVILLE, AT AN ANNUAL SESSION IN NOVEMBER AND DECEMBER, 1861, at 66 (1862). For a description of the New Hampshire Act to prevent monopolies in railroads, see *Manchester & Lawrence R.R. v. Concord R.R.*, 20 A. 383, 385 (N.H. 1889).

²⁶ Approved on April 13, 1888. See An Act for the Punishment of Pools, Trusts and Conspiracies, in ACTS AND RESOLUTIONS PASSED AT THE REGULAR SESSION OF THE TWENTY-SECOND GENERAL ASSEMBLY OF THE STATE OF IOWA, BEGUN JANUARY 9 AND ENDED APRIL 10, 1888, at 124 (1888).

political or economic crisis, the states imposed criminal penalties for monopolistic conduct.

The rhetoric against “pernicious and oppressive monopolies”²⁷ was bitter and unqualified. Nevertheless, actual enforcement was more measured and pragmatic. Antitrust scholars typically claim that the Supreme Court introduced the rule of reason doctrine in 1911 with the *Standard Oil* case,²⁸ and that it was a departure from previous policies.²⁹ However, courts had for two centuries determined cases involving restraints of trade by assessing reasonableness, rather than based on a per se rule.³⁰ In a dispute involving two operators of stagecoach service between Boston and Providence regarding an agreement not to compete, the court stated that “[b]onds to restrain trade in general are unquestionably bad, as tending to create a monopoly injurious to the public. But bonds to restrain trade in particular places may be good.”³¹ Thus, the court determined that the restraint of trade was not unreasonable.³² Similarly, the Massachusetts Supreme Judicial Court refused to declare a contract in restraint of trade illegal, because of the limited size of the market: “This is a trade but lately discovered, and it can be beneficial but to a small number of adventurers. If one adventurer will engage to retire from it for a valuable consideration, and to leave the conduct of it to others, it is lawful for him so to do, and his contract to that effect will be binding on him.”³³

Federal policies regarding economic regulation were similarly characterized by overt declarations against exclusive privileges but pragmatic acceptance of economic realities that might recommend imperfect competition. The Commerce Clause of the U.S. Constitution authorized federal oversight of interstate economic activity.³⁴ Since transactions across state lines were strongly affected by technologies that facilitated connections between places and people, it is not surprising that early federal policies were directed toward innovations in transportation and communications. Many such technologies

²⁷ The phrase is common. See, e.g., Edmund Burke, *The History of Europe*, in ANNUAL REGISTER FOR THE YEAR 1773, at 66 (5th ed. 1794).

²⁸ *Standard Oil Co. v. United States*, 221 U.S. 1, 60 (1911).

²⁹ See, e.g., Roger Bern & Michael M. Tansey, *Proper Application of the Rule of Reason to Vertical Territorial Restraints*, 20 AM. BUS. L.J. 435 (1983) (“[T]he rule of reason standard of antitrust analysis can be traced back to *Standard Oil Co. v. United States* . . .”).

³⁰ See, e.g., *Georgia v. Cent. of Ga. Ry. Co.* 35 S.E. 37, 38 (Ga. 1900) (“We are not, however, in absolute darkness as to the general principles of law that have been in existence from time almost immemorial, touching contracts of this nature; that is, principles relating to the protection of the people against contracts preventing competition or creating monopolies. The common law has always abhorred a monopoly and has encouraged competition in all legitimate businesses of the people, whether followed by individuals or corporations.”).

³¹ *Pierce v. Fuller*, 8 Mass. (8 Tyng) 223, 226 (1811).

³² *Id.*

³³ *Perkins v. Lyman*, 9 Mass. (9 Tyng) 522, 538 (1813).

³⁴ U.S. CONST. art I., § 8, cl. 3.

were associated with economies of scale and industrial concentration, which raised questions about how to supervise and order business conduct to best promote efficient outcomes. These debates often addressed whether it was advisable for the government to acquire controlling interests in businesses, with advocates of nationalization invoking European precedents favoring government ownership.

The government's Postal Service monopoly is an atypical example where advocates of nationalization prevailed. The Postal Service is the oldest government-owned enterprise in the United States. During the colonial period, the government held a monopoly for the provision of postal service. And the Constitution gave Congress the right to establish postal roads and post offices.³⁵ This clause was interpreted to mean that the federal government should retain a monopoly over the industry, with the right to use criminal penalties to enforce barriers to entry. No other competitors were allowed to intrude on the government's exclusive right to transport letters and packages along its designated routes.³⁶ Complaints were continually (and continue to be) voiced about poor service, oppressive prices, lack of innovation, and corruption. Private providers, such as Lysander Spooner's American Letter Mail Company, began service in contravention of the ban on private delivery, and the emergence of private competition led to steep declines in postal rates and revenues.³⁷ In response, postal officials harassed private carriers with lawsuits, and many were arrested and prosecuted at law. Congress enacted legislation in 1845 to reinforce government control of the industry, and significant fines were levied against private firms that attempted to make incursions into the monopoly.³⁸ The Postal Service provided a cautionary tale and ultimately *reduced* support for those wishing to resolve the private monopoly problem by means of government entry into, and monopoly on, business.

The history of the Louisville and Portland Canal provides another perspective on federal policies towards monopoly and the public interest. The canal

³⁵ U.S. CONST. art. I, § 8, cl. 7.

³⁶ See the 1825 "Act to reduce into one the several acts establishing and regulating the post-office department," UNITED STATES OFFICIAL POSTAL GUIDE 35 (1859).

³⁷ Lysander Spooner deliberately set out to break the Postal Service monopoly, offering competing services at prices significantly below the official rates. Many newspapers reported on his conflict with the Post Office, observing that "[t]he persons engaged in this enterprise contend that the laws of Congress prohibiting private mails are unconstitutional, and they are anxious to have them tested on this point as speedily as possible." PHILA. INQUIRER, Jan. 18, 1844, at 2. Spooner and several private letter carriers were arrested. *Id.* The transportation firms were held vicariously liable for the conveyance of private letters in violation of the Postal Service's exclusive franchise. *Id.*

³⁸ See H.R. Doc. No. 28-213 (1844) ("Private mails, &c. Letter from the Postmaster General, in answer to a resolution, asking what steps have been taken to prevent and punish infractions of the United States laws, prohibiting the establishment of private mails, &c."); see also *United States v. Hall*, 26 F. Cas. 75 (C.C.E.D. Pa. 1844) (imposing fine of \$2000).

was possibly the first private enterprise to be transformed into a government-owned corporation.³⁹ The waterway was critical to Western commerce; it bypassed the Ohio Falls, the only significant obstacle along the well-traveled Ohio River. Congress received complaints from groups of concerned citizens in several states, who protested that the monopoly accorded to the company was “contrary to the spirit, if not to the letter of our free institutions.”⁴⁰ They petitioned the federal government to purchase the canal and turn it over to the public. The government wished to avoid the responsibilities of outright ownership, foreseeing an unprofitable diversion of public revenues to support the enterprise, but the canal’s private investors were equally anxious to divest themselves of a losing proposition. The investors engineered a gradual buyout by withholding dividend payments to the government shares. By 1855 the government effectively owned the canal, and this status was formally acknowledged in 1874. The Army Corps of Engineers was placed in charge of its operation, and the public was granted free use of the canal in 1880. However, the Post Office and the Louisville and Portland Canal proved to be anomalies; unlike most other countries, in the United States the response to monopoly concerns was typically not national ownership of enterprise, but regulation by legislative and legal institutions.

The landmark Supreme Court decision in *Gibbons v. Ogden*⁴¹ affirmed that the Constitution granted Congress the right to regulate interstate commerce.⁴² *Gibbons* is most frequently cited because of its implications for constitutional law, but it also illustrates how and why early federal courts were able to enforce competition policy through the Commerce Clause. As with many anti-trust cases since, *Gibbons* decided the scope of monopoly rights over a new technology; in this instance, the steamboat. Robert Fulton and Robert Livingston had obtained an exclusive contract from the State of New York to operate steamboats. They licensed Aaron Ogden to ply a ferryboat trade on the Hudson River between New York and New Jersey. Ogden appealed to the courts to protect his monopoly by prohibiting Thomas Gibbons, who had obtained his own federal license, from transporting passengers from Elizabethtown, New Jersey to New York City. The Marshall Court dismantled the Fulton/Livingston steamboat monopoly and established the primacy of federal authority over state enactments.⁴³ *Gibbons* provided the legal foundation for fed-

³⁹ See Paul B. Trescott, *The Louisville and Portland Canal Company, 1825–1874*, 44 *MISS. VALLEY HIST. REV.* 686, 686 (1958). The canal became government-owned because of a strategy pursued by the private shareholders, who wished to sell out, rather than through an active attempt at nationalization. *Id.* at 697.

⁴⁰ H.R. DOC. NO. 23-11 (1834).

⁴¹ *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1 (1824).

⁴² U.S. CONST. art. I, § 8, cl. 3. The Commerce Clause allows Congress the power to “regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes.” *Id.*

⁴³ See generally *Gibbons*, 22 U.S. (9 Wheat.) at 1.

eral regulation of American enterprise, both through federal regulation of natural monopolies and the Sherman Act.

II. PATENTS, INNOVATIONS, AND MONOPOLY

A. PATENTS AND MONOPOLY

While the Nation has forbidden monopoly by one set of laws it has been creating them by another. Patent laws, valuable as they may be in some respects, often father monopoly.

Robert H. Jackson, *The Struggle Against Monopoly*⁴⁴

This section traces the evolution of the relationship between monopoly and innovation in the colonies and the early Republic before the Sherman Act by analyzing the development of intellectual property rights and the role of competition policies in landmark industries. Early American legislators and courts denounced special privileges as reprehensible in the abstract, but in practice they often defended monopolies and exclusion as reasonable. This distinction was particularly evident in their treatment of market power associated with inventive abilities and innovation. Unlike their English counterparts, American policy makers in the 19th century were confident in their ability to detect a bright line between justifiable monopolies grounded in patents and illegal control of markets. As a result of this balance between liberality toward patentees and aggressive competition policy, creative individuals were encouraged to make investments in the innovative activities. This nuanced approach constituted a uniquely “American model” that likely contributed to U.S. industrial prowess and overall economic growth.

The fundamental element of property rights in invention (broadly defined to encompass new and improved machines, processes, and cultural products) is a right to exclude, and such exclusive rights can be traced back to classical antiquity. Early rights of exclusion were associated with royal and state-created “privileges” that established monopolies in a wide variety of areas, from intellectual endeavours to manufactured products, as well as barriers to entry in guilds and occupations.⁴⁵ The rights they offered varied in geographical scope, duration, and breadth of coverage, as well as the attendant penalties for their violation. These exclusive rights led to pervasive monopolies, higher prices and greater scarcity, large transfers of revenues to officials of the Crown and their allies, and government censorship.⁴⁶

⁴⁴ Robert H. Jackson, Address, *The Struggle Against Monopoly*, 1937 GA. B. ASS'N REP. 203, 205.

⁴⁵ See BRUCE W. BUGBEE, *THE GENESIS OF AMERICAN PATENT AND COPYRIGHT LAW* (1967).

⁴⁶ See WILLIAM HYDE PRICE, *THE ENGLISH PATENTS OF MONOPOLY* (1906).

The British patent system was an outgrowth of a regime of privileges, whereby the English Crown bestowed vast numbers of monopoly rights to raise revenues and to reward favorites.⁴⁷ These ultimately caused vociferous popular protests against “odious monopolies,” which the common law deprecated. The Commons finally succeeded in a petition that outlawed all privileges, except for exclusive rights for patented inventions. The Statute of Monopolies in 1624 codified existing common law policies by authorizing patent grants for fourteen years for “the sole working or making of any manner of new manufactures within this realm, to the first and true inventor . . . so as also they be not contrary to the law nor mischievous to the state, by raising prices of commodities at home, or hurt of trade, or generally inconvenient. . . .”⁴⁸ These grants were viewed as *de facto* monopolies; as such, they were grudgingly granted, and judges construed patent rights narrowly and limited the options that patentees could exercise.⁴⁹

Thus, from their very inception, laws regarding innovation were inextricably linked to concerns about the negative consequences of monopoly grants and efforts to curb those excesses in the name of public welfare. These concerns were bequeathed to the American colonies. Colonial legislators did not “dismantle” European legal rules and standards, as popular histories frequently assert.⁵⁰ A common and significant source of conflict between England and the colonies related to economic policy.⁵¹ Sir Ferdinando Gorges was awarded the monopoly for fishing in New England in the 1620s, but his privi-

⁴⁷ *Id.* at 3–24.

⁴⁸ The Statute of Monopolies, 1623–1624, 21 Jac. c. 3, § 6 (Eng.).

⁴⁹ See H.I. DUTTON, *THE PATENT SYSTEM AND INVENTIVE ACTIVITY DURING THE INDUSTRIAL REVOLUTION, 1750–1852*, at 23–29 (1984).

⁵⁰ The original American colonies were subject to the laws of Britain and the terms of their charters, but they also had considerable leeway to adapt and introduce rules that were more appropriate to domestic circumstances. For instance, the 1691 Charter of the Massachusetts Bay Commonwealth stated that self-government implied the adoption of colonial laws as long as they were “not repugnant or contrary to the Lawes of this our Realme of England.” See 3 *THE FEDERAL AND STATE CONSTITUTIONS, COLONIAL CHARTERS, AND OTHER ORGANIC LAWS OF THE STATES, TERRITORIES, AND COLONIES NOW OR HERETOFORE FORMING THE UNITED STATES OF AMERICA* 1882 (Francis Newton Thorpe ed., 1909) [hereinafter *THE FEDERAL AND STATE CONSTITUTIONS*]. Similarly, the Carolina Charter of 1663 granted full discretion for the colony to implement laws, “[p]rovided nevertheless, that the said laws be consonant to reason, and as near as may be conveniently, agreeable to the laws and customs of this our kingdom of England.” 1 *THE STATUTES AT LARGE OF SOUTH CAROLINA* 24 (Thomas Cooper ed., 1836). The original colonies introduced legal rules and institutions that differed from each other when they were established, but the laws and their enforcement gradually converged, generally toward the Massachusetts and Virginia models. But the new American legal order ultimately deviated substantively from European precedents, especially in the realm of patents and copyrights.

⁵¹ The colonies offered bounties for flax instead so as not to antagonize the British wool manufacturing interests. Rhode Island repealed a 1751 act to offer bounties for woolen textiles for fear that “it may draw the displeasure of Great Britain upon us, as it will interfere with their most favorite manufactory.” VICTOR S. CLARK, *HISTORY OF MANUFACTURES IN THE UNITED STATES, 1607–1860*, at 35 (1916).

lege was never enforced because of protests in the colonies. The colonies were somewhat ambivalent about granting exclusive rights themselves. On the one hand, they avowed an aversion to monopolies such as the Gorges grant, and the 1629 charter of the Massachusetts Bay Company repeatedly stressed that the colonists “shall have full and free Power and Liberty to continue and use their said Trade of Fishing. . . .”⁵² On the other, the colonies initially followed a strategy similar to Europe, allowing monopolies and privileges in the form of patents of introduction or imported inventions.

The first code of laws enacted in New England, the 1641 *Body of Liberties*, notably included a prohibition on monopolies except in the case of patents for innovation.⁵³ The ninth clause is almost identical to the English Statute of Monopolies: “No monopolies shall be granted or allowed amongst us, but of such new Inventions that are profitable to the Country, and that for a short time.”⁵⁴ Nevertheless, the Colony granted monopolies that mimicked the privileges that were outlawed by the Statute of Monopolies in 1624. A few months before the passage of the *Body of Liberties*, the Massachusetts Bay Colony granted Samuel Winslow a 1641 patent for the ten-year monopoly right to produce salt using a new method, but it is unclear whether he had devised the invention or merely imported it.⁵⁵ Salt was important to the colonists and, despite the code, the colony made similar awards in subsequent years, including a 1656 monopoly to Governor Winthrop’s son for another method of making salt.⁵⁶ The colony also awarded exclusive rights to merchants who introduced methods from overseas that were new to the colony. John Clarke was even allowed to retain in perpetuity the monopoly right to charge 10 shillings per family for use of his stove invention.⁵⁷ Some of the patent grants explicitly attempted to ameliorate the potential harms from monopolistic behavior, by specifying the prices that were to be charged and the quantities to be offered. The Dutch colonists in particular exhibited an aversion to monopoly grants “as it is in our opinion a very pernicious management, principally so in a new and budding State, whose population and welfare can not be

⁵² THE FEDERAL AND STATE CONSTITUTIONS, *supra* note 50, at 1859.

⁵³ See THE COLONIAL LAWS OF MASSACHUSETTS 29 (William H. Whitmore ed., 1890). Nathan Ward, an emigrant from England, compiled this remarkable document. Ward, a minister of the church and a graduate of Emmanuel College of Cambridge University, had also studied and practiced law in England.

⁵⁴ The document consisted of ninety-eight clauses, a preamble, and a conclusion, largely drawn from biblical admonitions and British precedents. These principles comprised the major structure of laws in the colony for much of the rest of the 17th century. Clause 9 was preserved at page 62 of the Acts of 1660 and page 119 of the Acts of 1672. *Id.*

⁵⁵ The grant was qualified by a working requirement to establish a factory within one year and also allowed others to make salt using methods different from the one covered by the patent.

⁵⁶ UNITED STATES, MANUFACTURES OF THE UNITED STATES IN 1860, at cxcix (1865).

⁵⁷ See 2 JOHN J. CURRIER, HISTORY OF NEWBURY, MASS., 1635–1902, at 662 (1902) (discussing Dr. Clarke’s invention in the third unnumbered footnote on the page).

promoted but through general benefits and privileges, in which every one . . . either as a merchant or a mechanic, may participate.”⁵⁸

Like Massachusetts, Connecticut adopted a code of laws that included a clause regarding monopolies, and in 1715 declared its intention to encourage the importation of foreign methods of manufacture through the grant of privileges.⁵⁹ Privileges were part of a mercantilist economic policy to enhance growth, often providing protection analogous to an infant industry subsidy. As such, the colonial legislatures frequently appended conditions to the privileges they granted, including working requirements, price controls, assured performance in such dimensions as quantity or quality, and geographic limits on the scope of the monopoly. Patents could be annulled for failure to meet such conditions. For instance, the patent granted to the Jerom brothers in 1746 to make sea salt in Connecticut could be revoked unless they consistently produced stipulated quantities. Edward Hinman’s 1717 patent for making molasses from corn stalks required that the product be as good and as cheap as imports from the West Indies.⁶⁰

After the Revolution, Congress prompted the individual states to formalize policies toward inventors and authors to promote technological and cultural progress.⁶¹ In keeping with these social objectives, and to ameliorate any monopolistic consequences, many of the states included restrictions on the rights of authors and inventors.⁶² In 1783, Connecticut became the first state to approve an “Act for the encouragement of literature and genius” because

it is perfectly agreeable to the principles of natural equity and justice, that every author should be secured in receiving the profits that may arise from the sale of his works, and such security may encourage men of learning and genius to publish their writings; which may do honor to their country, and service to mankind.⁶³

Although this preamble might seem strongly to favor authors’ rights, the statute also specified that books were to be offered at reasonable prices and in sufficient quantities, or else a compulsory license would issue.⁶⁴ Similarly, Georgia’s law observed that “it is equally necessary for the encouragement of

⁵⁸ CLARK, *supra* note 51, at 47.

⁵⁹ For details on these early patents, see UNITED STATES PATENT OFFICE, REPORT OF THE COMMISSIONER OF PATENTS, FOR THE YEAR 1850, at 421 (1851).

⁶⁰ *Id.* at 467–68.

⁶¹ COPYRIGHT ENACTMENTS OF THE UNITED STATES, 1783–1906, at 11 (Thorvald Solberg ed., 2d ed. 1906).

⁶² *See id.* at 11–30.

⁶³ *Id.* at 11.

⁶⁴ *Id.* at 12.

learning, that the inhabitants of this State be furnished with useful books, &c., at reasonable prices.”⁶⁵

South Carolina’s “Act For the Encouragement of Arts and Sciences” decreed that books had to be sold at a reasonable price, or else a compulsory license could be ordered at the discretion of the courts.⁶⁶ It also provided that “the inventors of useful machines shall have a like exclusive privilege of making or vending their machines for the like term of fourteen years. . . .”⁶⁷ But the legislature conditioned the patent grant on compliance with conditions, such as maximum prices, compulsory licensing, and working requirements. In 1786, South Carolina granted Peter Belin a patent for “the exclusive right of constructing and vending sundry useful water machines,” but Belin had to file models with the authorities and could not refuse requests to build the water works at “a just and reasonable price” or a compulsory license would issue.⁶⁸ In 1788, Samuel Knight obtained from South Carolina “the exclusive right of constructing and vending a machine for the pounding of rice” for fourteen years.⁶⁹ At the same time, Knight was obligated to issue a license at the set fee of five pounds to anyone who applied.⁷⁰

The delegates who gathered in Philadelphia in the summer of 1787 to draw up a blueprint to “promote the general Welfare” had ample suggestions regarding intellectual property policy that they could extract from history, recent and more distant. The Constitution they finally produced included a succinct clause (art. 1, sec. 8, cl. 8), which passed unanimously and without debate, granting Congress the right to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” This was the first time that an intellectual property provision was included in a national constitution.⁷¹ The preamble to the Intellectual Property Clause (“to promote the

⁶⁵ *Id.* at 28.

⁶⁶ 4 THE STATUTES AT LARGE OF SOUTH CAROLINA 618 (Thomas Cooper ed., 1838).

⁶⁷ *Id.* at 620.

⁶⁸ *Id.* at 755–56.

⁶⁹ 5 THE STATUTES AT LARGE OF SOUTH CAROLINA 69 (Thomas Cooper ed., 1839).

⁷⁰ *Id.*

⁷¹ The Intellectual Property Clause was not included in the first draft of the Constitution. Instead, the debates record a list of related proposals, which were submitted on August 18, 1787. These included proposals “to secure to literary authors, their copyrights for a limited time,” “to encourage, by proper premiums and provisions, the advancement of useful knowledge and discoveries,” and “to grant patents for useful inventions.” It was also proposed “to establish public institutions, rewards and immunities, for the promotion of agriculture, commerce, trades, and manufactures.” These provisions were all familiar policy instruments that had prevailed in Europe and in the colonies themselves since the 17th century. However, the convention rejected the notion of offering diverse incentives for invention and innovation because such powers were regarded as too expansive. See 2 THE RECORDS OF THE FEDERAL CONVENTION OF 1787, at 321–33 (Max Farrand ed., 1911).

progress of science and useful arts”) implied that the purpose of the clause was not to confer private monopolies to benefit privileged individuals or special groups. Instead, the primary purpose was to encourage social welfare through advances in knowledge and technology, and the means to achieve this objective was through the temporary grant of exclusive rights to authors and inventors alone.⁷²

The judiciary’s attitude towards patents was primarily shaped by its interpretation of the monopoly aspect of the patent grant. The American approach was a decided departure from historical precedent, and from attitudes that prevailed in other countries. In *Whitney v. Emmet*, Justice Baldwin contrasted the policies towards the patent contract in Britain and America.⁷³ English courts, he pointed out, interpret the patent grant as a privileged exception from the general ban on monopolies.⁷⁴ By contrast, the American patent system was based on the presumption that patents for new inventions were not monopolies, and that social welfare was aligned with the individual welfare of inventors.⁷⁵ As the Court declared in *Singer v. Walmsley*:

Now, patents are not monopolies, as the counsel have all said, because a monopoly is that which segregates that which was common before, and gives it to one person or to a class, for use or profit; a patent is that which brings out from the realm of mind something that never existed before, and gives it to the country. And when we consider the priceless blessings which have accrued to our land, by the intellect and ingenuity of the country in this

⁷² The historical record shows that the legislature’s creation of a uniquely American system was a deliberate and conscious process. The separate patent bill laid before Congress, HR-41, was amended in several places. The draft of this patent bill echoed a number of other British practices, but the copy that Congress later approved differed significantly from historical precedent. The House deleted Section 6, which had imitated the English policy of granting patents for imported inventions. The Senate extended the initial definition of novelty: the patent laws still employed the language of the English statutes in allowing patents to the “first and true inventor,” but, unlike in England, the phrase was applied literally to protect inventions that were new and original to the world, not simply within domestic borders. The emphasis on novelty was consistent with the conclusion that patented inventions, which had never existed before, were thereby not monopolies.

⁷³ *Whitney v. Emmet*, 29 F. Cas. 1074 (C.C.E.D. Pa. 1831) (No. 17,585).

⁷⁴ *Id.* As the Supreme Court’s decision in *Pennock v. Dialogue* emphasized:

In the courts of the United States, a more just view had been taken of the rights of inventors. The laws of the United States were intended to protect those rights, and to confer benefits; while the provisions in the statute of England, under which patents are issued, are exceptions to the law prohibiting monopolies. Hence, the construction of the British statute had been exceedingly straight and narrow, and different from the more liberal interpretation of our laws.

Pennock v. Dialogue, 27 U.S. (2 Pet.) 1, 10 (1829).

⁷⁵ Thomas Jefferson strongly rejected the proposition that exclusive rights, even for inventors, provided a net benefit: “The saying there shall be no monopolies lessens the incitements to ingenuity, which is spurred on by the hope of a monopoly for a limited time, as of fourteen years; but the benefit of even limited monopolies is too doubtful to be opposed to that of their general suppression.” Thomas Jefferson, *Letter from Thomas Jefferson to James Madison (1788)*, in *THE JEFFERSONIAN CYCLOPAEDIA* 582 (John P. Foley ed., 1900).

department, we feel almost lost in wonder at the vastness of the interests which have been created by the ingenuity of the country, and the immense amount now invested, in this department of property.⁷⁶

Legislators and courts emphatically rejected restrictions on the rights of American patentees. Stearns and Barrett were two inventors who both owned patents granted in 1809 for silk textile machines; they had been involved in federal litigation over the validity of their patents.⁷⁷ They then decided to resolve their differences by setting up exclusive territories. Barrett would have the exclusive right to sell his machines in Massachusetts and Rhode Island, whereas Stearns would have the right to produce and sell in the rest of the United States. If the deal was broken, the non-breaching party would obtain a penalty payment of \$1000 for each machine used or sold. The Massachusetts Supreme Judicial Court held that this collusive behavior was reasonable and did not constitute an illegal restraint of trade.⁷⁸ Even if they had not entered into an overt restraint, the court found, the inventors would still have been able to earn excess returns by virtue of their superior inventive skills.⁷⁹ American policies regarded working requirements and compulsory licenses—standard measures by colonial legislatures to attenuate monopoly power—as unwarranted infringements of the rights of “meritorious inventors,” and incompatible with the philosophy of U.S. patent grants.⁸⁰ Unlike in other countries, in the United States, patentees were not required to pay annuities to maintain their property, there were no opposition proceedings and, once granted, a patent could not be revoked unless there was evidence of fraud.⁸¹

In the absence of antitrust statutes, equity provided a flexible forum for mediating between the inventor’s exclusive rights and concerns about monop-

⁷⁶ *Singer v. Walmsley*, 22 F. Cas. 207, 208-09 (C.C. Md. 1860) (No. 12,900).

⁷⁷ *See Stearns v. Barrett*, 22 F. Cas. 1175 (C.C.D. Mass. 1816) (No. 13,337).

⁷⁸ *Stearns v. Barrett*, 18 Mass. (1 Pick.) 443 (1823).

⁷⁹ *Id.* at 450 (“Being the inventors of these machines, the parties may obtain valid patents for them; or, without thus securing a monopoly, they might reasonably expect to enjoy it in fact by means of their superior skill. For a time at least, they would have little to fear from the competition of others. It was, therefore, lawful and reasonable for them to share in the profits of their invention, either by uniting in a joint concern, or by a more convenient arrangement, whereby each one might have the benefit of his own capital, industry and activity.”).

⁸⁰ According to *Ex parte Wood & Brundage*, the patentee has “a property . . . of which the law intended to give him the absolute enjoyment and possession.” 22 U.S. (9 Wheat.) 603, 608 (1824); *see also* Jerome H. Reichman, *Compulsory Licensing of Patented Inventions: Comparing United States Law and Practice with Options under the TRIPS Agreement* 4, Presentation at AALS Mid-Year Workshop on Intellectual Property (May 14, 2006) (“Congress has consistently and repeatedly declined to enact any such provision enabling the authorities, purely on grounds of public interest, to allow third parties to use a patented invention without the patentee’s permission. . . .”), available at <http://www.aals.org/documents/2006intprop/JeromeReichmanOutline.pdf>. The United States briefly applied working requirements to foreign patentees but, even here, courts rarely enforced the law. *See* B. ZORINA KHAN, *THE DEMOCRATIZATION OF INVENTION* 300 (2005).

⁸¹ *See* EDITH PENROSE, *ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM* (1951).

oly more generally. Toward the middle of the 19th century, there was a significant increase in the number of patentees resorting to courts of equity to obtain temporary or permanent injunctions against unauthorized use of their inventions. Patentees could also obtain preliminary injunctions pending common law litigation, if they stood to suffer severe losses from unauthorized use. The Supreme Court likewise attempted to find the right balance between promoting inventive rights without suppressing economic progress. The early insouciant judicial optimism about the coincidence between private and public welfare had waned by the second half of the century. As Figure 1 shows, the number of patents issued increased significantly in the decade after the Civil War, to a persistently high plateau. This served as the basis for many national monopolies, and a stream of litigation launched by patentees and their assignees to entrench their monopoly power. Justice Woodbury was prompted to declare:

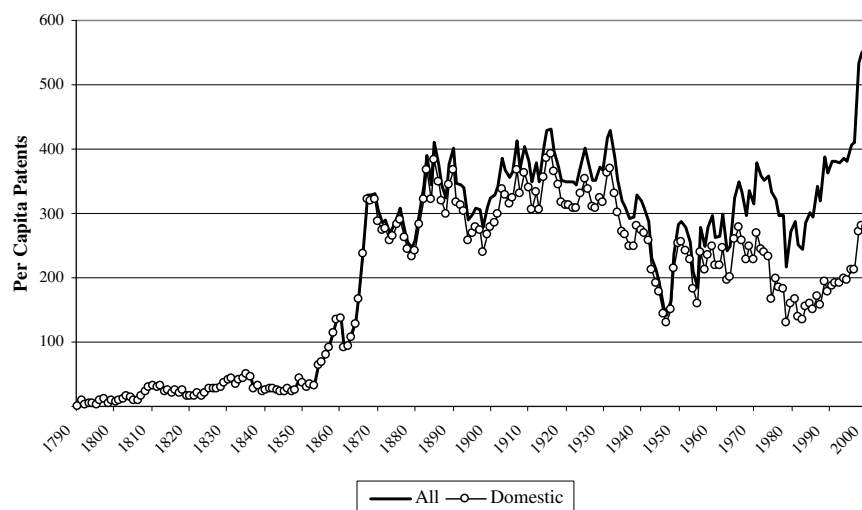
The rights of inventive genius, and the valuable property produced by it, all persons in the exercise of this spirit will be willing to vindicate and uphold, without colorable evasions and wanton piracies; but those rights on the other hand, should be maintained in a manner not harsh towards other inventors, nor unaccommodating to the growing wants of the community.⁸²

Before the 1861 patent law reform, inventors could petition Congress to extend the life of their patent to as much as forty-two years.⁸³ The decision in these cases hinged on whether the patentee had been able to appropriate sufficient returns during the initial fourteen-year period to compensate for his investments. These extended patents created a great deal of controversy among stakeholders ranging from assignees and users to members of the general public, who would have to continue paying high prices for products made by patented technologies. Petitions to Congress revealed a prevalence of monopolistic practices in markets for patented items. For instance, Joseph Grant, the inventor of a machine to make hat bodies, also manufactured the hat bodies himself. “Sundry inhabitants of New Jersey” protested that he required all his patent licensees to sign an agreement to maintain a minimum retail price for the hat bodies they manufactured and sold.⁸⁴ Thus, Grant was able to extend

⁸² *Woodworth v. Edwards*, 30 F. Cas. 567, 572 (C.C.D. Me. 1847) (No. 18,014). Morton Horwitz presents evidence for similar developments in judicial decisions regarding riparian property rights and corporate charters. He observes that, although monopoly grants had initially been considered essential to promote economic development, “the restrictive consequences of these grants were becoming apparent by the second quarter of the nineteenth century.” MORTON J. HORWITZ, *THE TRANSFORMATION OF AMERICAN LAW, 1780–1860*, at 130 (1977).

⁸³ See CAROLYN C. COOPER, *SHAPING INVENTION: THOMAS BLANCHARD’S MACHINERY AND PATENT MANAGEMENT IN NINETEENTH-CENTURY AMERICA* (1991) (discussion of Thomas Blanchard’s patents).

⁸⁴ See *Memorial of Sundry Inhabitants of New Jersey, Praying that the patent of Joseph Grant may not be renewed*, in 3 PUBLIC DOCUMENTS PRINTED BY ORDER OF THE SENATE OF THE UNITED STATES 250 (1836). The petitioners stated that Grant had become a wealthy man and,



Sources: U.S. Patent Office and Department of Census, various years. The data comprise U.S. patents per million residents, excluding patents filed by foreign residents.

FIGURE 1: U.S. PATENTS PER CAPITA, 1790–2000
(TOTAL AND DOMESTIC)

his property rights in the patent to fix monopoly prices in the final good market. Patentees were allowed to impose on their licensees restrictions in terms of region, price, and quantity, despite the prohibition against such trade restraints in other contexts.⁸⁵

Policies toward patent pools also deviated from general strictures against combinations and price fixing. Patent pools typically comprised cross-licensing agreements among patentees, who might turn their rights over to a common holding company in a trust-like arrangement. Many such agreements extended beyond the sharing of patent rights and involved trade restraints and collusive practices in the product market. The courts' tolerance for restrictions of this nature illustrated that patent rights were often interpreted as liberally as possible, despite their potential to increase market power. For instance, the canonical pool in the antebellum period involved four firms in the sewing machine industry, which combined their patent portfolios from 1851 until the

⁸⁵ "having enjoyed this monopoly for 14 years, Mr. Grant ought to be satisfied, and that the public interest and good policy require that it shall not be continued." *Id.*

⁸⁵ See, e.g., *Bowling v. Taylor*, 40 F. 404 (C.C.D. Conn. 1889) (allowing a patent licensing agreement to stand even though it restrained licensees from selling competing products that were similar).

end of the term of the last patent in 1877.⁸⁶ The pool was hardly a secret. Newspapers proclaimed:

Among the most odious and oppressive of the monopolies . . . is that of the sewing machine companies. There is little doubt that all of the leading companies are united in a powerful combination to maintain the price of their machines, and to keep down all innovations upon their profitable monopoly.⁸⁷

It was estimated that in 1870, each machine cost \$12 to produce, but the trust fixed the price at \$65, leading to \$18 million in profit for the four members of the pool. Licensees were required by contract to maintain the cartel price. When the combination failed in its bid to further extend the term of the last patents the participants owned, the news was reported in a celebratory tone throughout the country, and the price of the sewing machine immediately fell by half.⁸⁸

In short, courts initially found that patents belonged to a different class of rights: rather than monopolists, patentees were “public benefactors,” whose property the courts were duty bound to defend, to enable patentees to appropriate their returns, and to promote technological change. Ultimately, the judiciary did come to recognize that the enforcement and protection of all property rights involved conflicts between private and social interests that had to be mediated. The Second Industrial Revolution era was characterized by judicial and legislative efforts to reconcile the tradeoff between “the rights of inventive genius” and the negative effects on social welfare from monopolies whose market power primarily owed to patented technologies.⁸⁹ Despite this evolution toward more nuanced interpretations of the scope of patent monopolies, even on the eve of the passage of the antitrust statute, patentees were generally given wide latitude in the strategies they adopted. They were able to establish exclusive territories, to include non-compete clauses, and to enforce vertical restraints. Courts even held that state antitrust laws were not applica-

⁸⁶ See *Sewing Machine Monopolies*, DAILY STATE GAZETTE (Trenton, N.J.), June 20, 1872, at 2.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Woodworth v. Edwards*, 30 F. Cas. 567, 572 (C.C.D. Me. 1847) (No. 18,014) (“The rights of inventive genius, and the valuable property produced by it, all persons in the exercise of this spirit will be willing to vindicate and uphold, without colorable evasions or wanton piracies; but those rights, on the other hand, should be maintained in a manner not harsh towards other inventors, nor unaccommodating to the growing wants of the community.”).

ble to the federal property rights vested in patents.⁹⁰ The broad deference accorded to patent pools and trusts was maintained long after 1890.⁹¹

At the same time, protesters throughout the nation lobbied against monopolistic practices of patentees, and the 1884 platform of the Greenback and Antimonopoly parties declared their intention to regulate patent-based monopolies.⁹² Still, legislators were reluctant to acknowledge and confront such conflicts explicitly. Some contended that patents promoted competition: "But for the patent laws there would, probably, be but one printing-press company, but one typewriter company, but one electric company, but one adding-machine company, but one of many now listed in the thousands. Where there is now one combination, there would be scores."⁹³ Others repeated the stance that patents were not the source of illegal monopoly power.

None of the federal bills that sought to constrain the rights of patentees survived the scrutiny of the powerful Senate Committee on Patents.⁹⁴ Indeed, antitrust authorities would not achieve significant success prosecuting patent-based anticompetitive practices until well into the 20th century.⁹⁵

⁹⁰ See, e.g., *Columbia Wire Co. v. Freeman Wire Co.*, 71 F. 302, 306 (C.C.D. Mo. 1895) ("The rights so acquired by the patentee under a grant from the United States are entirely inconsistent with the patentee's being made subject to the provisions of the anti-trust laws of the several States.").

⁹¹ *E. Bement & Sons v. National Harrow Co.*, 186 U.S. 70 (1902), concerned the National Harrow pool, which had fixed prices for licensed products and forbade trade in unlicensed products. Nevertheless, the Court held that this was permissible because:

[t]he general rule is absolute freedom in the use or sale of rights under the patent laws of the United States. The very object of these laws is monopoly, and the rule is, with few exceptions, that any conditions which are not in their very nature illegal with regard to this kind of property, imposed by the patentee and agreed to by the licensee for the right to manufacture or use or sell the article, will be upheld by the courts. The fact that the conditions in the contracts keep up the monopoly or fix prices does not render them illegal.

Id. at 91.

⁹² See GRETCHEN RITTER, *GOLDBUGS AND GREENBACKS: THE ANTIMONOPOLY TRADITION AND THE POLITICS OF FINANCE IN AMERICA, 1865-1896* (1997).

⁹³ *Hearing on H.R. 23417 Before the H. Comm. on Patents*, in *OLDFIELD REVISION AND CODIFICATION OF THE PATENT STATUTES*, 62nd Cong. 10 (1912) (statement of Walter F. Rogers, Esq., Lawyer, President of the Patent Law Association of Washington).

⁹⁴ Many petitions and bills to change the patent laws were filed during the second half of the 19th century, including almost a dozen in the 1886 sessions of Congress alone.

⁹⁵ See Victor H. Kramer, *The Antitrust Division and the Supreme Court: 1890-1953*, 40 VA. L. REV. 433, 442 (1954) ("The Division's greatest success was in eliminating the use of patents as a means of avoiding the rigors of the Sherman and Clayton Acts. Of the twenty-eight victories during this period nine involved the use of patents to effect restraints of trade. The high water mark of the Division's success in this field was the *Line Material* decision in 1948 in which a bare majority of the Court largely erased the protection afforded price-fixing patentees by the *General Electric* decision in 1926. In addition, compulsory licensing of patents at reasonable royalties received Court approval for the first time in the *Hartford-Empire* case in 1944.") (citations omitted).

B. MAJOR TECHNOLOGICAL INNOVATIONS AND MONOPOLY

The experience of specific industries provides another perspective on the nexus between early competition policy and innovation, since many of the early monopoly enterprises were founded on portfolios of patented technologies. Social and economic rules and standards influenced inventiveness and innovation and, in turn, societal and legal institutions needed to change to accommodate the new technologies. As Benjamin Cardozo wrote, “the great inventions that embodied the power of steam and electricity, the railroad and the steamship, the telegraph and the telephone, have built up new customs and new law.”⁹⁶ One of the reasons for the relative economic success of the United States during the 19th century was its dependence on an array of rules and standards that proved to be sufficiently flexible both to create incentives for technological innovations and to provide the means to manage their use and effects in the public interest. These institutions included the private market, the political process vested in the legislature, administrative regulation, insurance, and the legal system.

American judges understood that market competition was one of the best means to protect the rights of customers and to constrain the power of corporations. The legal system formed a decentralized method of mediation that was continuously calibrated to the changes affecting society, technological or otherwise. Although the 19th century is often characterized as the heyday of untethered competition, common law developments both enabled and constrained the exploitation of new technologies to conform to prevailing conceptions of social welfare. The major innovations that we consider here—the railroad, the telegraph, and the telephone—were regarded as integral to social progress. Because these innovations were vested with a public purpose, private enterprises were conscripted to serve the needs of the community. For, according to judges like Cardozo, the ultimate objective of law was to promote “social utility.”⁹⁷

Technological innovations did much to reduce obstacles to a national market, but integration ran up against the constraints of individual state policies that inhibited standardization and increased the costs of transacting across geographical boundaries. The railroads and the telegraph companies—among the first national enterprises—appealed to the federal courts to remove restrictions on interstate commerce. Had the courts failed to invalidate such restrictions, the consequences would have been pervasive—not just for big business

⁹⁶ BENJAMIN N. CARDOZO, *THE NATURE OF THE JUDICIAL PROCESS* 62 (1921) [hereinafter *JUDICIAL PROCESS*].

⁹⁷ As Judge Cardozo wrote: “Where then shall we look for the revelations of the folk-spirit if not in the prevailing standards of utility and welfare?” BENJAMIN N. CARDOZO, *THE GROWTH OF THE LAW* 104 (1924).

and market integration, but also for social reformers who wished to override the political biases of state legislatures in areas as disparate as the debates about the legalization of abortion and racial segregation. While federalism was a prerequisite for market integration, the converse did not necessarily hold: general market integration did not necessarily preclude state oversight, especially for technologies whose use was predominantly local.

Many of the “great inventions” of the era led to significant benefits from economies of scale, while simultaneously lowering transactions costs and permitting a single firm to serve the entire market. In other countries, natural monopolies tended to be nationalized, whereas (apart from the government monopoly on postal service) the United States generally avoided public ownership and instead opted for regulation of varying degrees. In particular, judicial intervention was more pervasive and had important implications for the oversight of railroads, telegraph, and telephone enterprises. These innovations often reduced local monopoly power by expanding the geographic breadth of the market. At the same time, however, they facilitated the dominance of large-scale enterprises, which had the scale and scope to operate nationally and were themselves organized as dominant monopolies.

Some of the earliest antitrust prosecutions under the Sherman Act were launched against railroad trusts, associations, and cartels.⁹⁸ Railroad enterprises operated as oligopolies, and engaged in typical oligopolistic devices to avoid uncertainty, including collusion and price fixing.⁹⁹ Large customers were able to benefit from preferential rebates and quantity discounts, and other forms of discriminatory policies.¹⁰⁰ Pervasive litigation over patent rights just after the Civil War created incentives for railroad enterprises to form patent pools. Legitimate lobbying for political favors was accompanied by criminal behavior and corruption, while, as before, courts and legislators attempted to curb these excesses. Legal decisions, however, were somewhat inconsistent. For instance, some courts permitted quantity discounts. Other

⁹⁸ See, e.g., *United States v. Trans-Missouri Freight Ass'n*, 166 U.S. 290 (1897) (combinations to fix prices held illegal, even though the relevant industry was already subject to government regulation).

⁹⁹ See CULLOM, REPORT OF THE SENATE SELECT COMMITTEE ON INTERSTATE COMMERCE, S. Rep. No. 49-46 (1886).

¹⁰⁰ For an example of exclusive dealing, see *W. Union Tel. Co. v. Burlington & Sw. Ry. Co.*, 11 F. 1, 3-12 (C.C.D. Iowa 1882) (“In our opinion it is not competent for a railroad company to grant to a single telegraph company the exclusive right of establishing lines of telegraphic communication along its right of way. The purpose of such contracts is very plainly to cripple and prevent competition, and they are therefore void, as being in restraint of trade and contrary to public policy. . . . Telegraphs are now essential to business, and as such are to be kept open to competition (unless the legislature should otherwise determine) in the same way that common carriage is to be kept open to competition. An agreement to give a particular line of carriers monopoly in a state would not (without legislative aid) be enforced, nor should a contract to give a monopoly to a particular telegraph company.”).

courts invalidated such strategies, not because of any concerns regarding the exercise of monopoly power in transportation, but because they feared the discounts would enable favored customers of the railroads to obtain monopolies in the markets that those customers served.¹⁰¹

The railroads' influence permeated American society, and so did public outrage over their strategies. In the 1870s many states passed "Granger laws" to constrain the monopoly power of the railroads, but the Supreme Court ultimately struck down many of them as unwarranted interferences with the Commerce Clause.¹⁰² Many advocated national government ownership of railways, but that idea was dismissed as inadvisable. Opponents pointed to such unpropitious examples as Georgia's ownership of the Western & Atlantic Railroad between 1836 and 1870. This state enterprise proved to be as unprofitable as it was controversial, with its inefficiency due partly to rampant political corruption in its operation.¹⁰³ Moreover, national ownership of any one monopoly was feared to be a slippery slope to de facto socialism. In response to the anticompetitive behavior of the railroad corporations, the 1887 Interstate Commerce Act authorized the Interstate Commerce Commission to oversee the transportation industry, regulate rates, eliminate price discrimination, and restrict monopolistic practices.¹⁰⁴ But the Commission's failure to enforce its mandate aggressively led some observers to conclude that the legislation was engineered by the railroads themselves to avoid potentially more stringent measures and to dampen public indignation.

The telegraph, although not quite a "Victorian Internet," emerged in the 1840s as the first commercially viable means of interstate electronic communication.¹⁰⁵ As with the railroads, the telegraph was acknowledged to be a natural monopoly, and this raised questions about how to avoid the associated costs of imperfect competition. Most major countries ultimately decided that the industry should be nationalized; the British government bought out the telegraph firms there and they have been under state control since 1870.¹⁰⁶ In the United States, many argued that, like the Postal Service, the telegraph

¹⁰¹ See, e.g., *Burlington, C.R. & N. Ry. Co. v. Nw. Fuel Co.*, 31 F. 652, 656 (C.C.D. Minn. 1887) ("For here the contract provides a special rate for shipment of 100,000 tons or over; that is, for one who ships 99,500 tons it makes a rate of \$2.40; while to the man who ships 100,000 tons, or 500 tons more than the other, it makes a rate of \$1.60—a difference of 50 per cent in favor of the latter. Such a discrimination, even if any discrimination based upon the amounts of shipments is tolerable, is one so gross that it cannot be sustained.")

¹⁰² *Wabash, St. Louis & Pac. Ry. Co. v. Illinois*, 118 U.S. 557 (1886).

¹⁰³ See William A. Wimbish, *Should the Government Own the Railroads?* 20 SEWANEE REV. 318 (1912).

¹⁰⁴ Thomas Shahan Ulen, *Cartels and Regulation: Late Nineteenth Century Railroad Collusion and the Creation of the Interstate Commerce Commission* (Dec. 1978) (unpublished Ph.D. dissertation, Stanford Univ.) (on file with author).

¹⁰⁵ See TOM STANDAGE, *THE VICTORIAN INTERNET* (1998).

¹⁰⁶ See A.N. Holcombe, *The Telephone in Great Britain*, 21 Q.J. ECON. 96, 97 (1906).

should also be turned over to the federal government. Congress funded the first line between Baltimore and Washington, and Samuel Morse offered the patent right to the government for \$100,000. The decision not to nationalize the telegraph was likely due to a determination that the buyout and operation would be an unprofitable drain on the exchequer.¹⁰⁷ Instead, the telegraph remained under private ownership and was the object of extensive legislative and judicial efforts to restrain monopoly power in the hands of its owners.

Telegraphy diffused so rapidly that, by 1851, seventy-five companies with over 20,000 miles of wire were in operation.¹⁰⁸ These small scale enterprises proved to be inefficient, and a series of consolidations and exits ultimately resulted in Western Union obtaining a dominant position. In 1870, Western Union alone operated almost 4,000 offices and handled more than 9 million messages. By 1890, its 19,382 offices were dealing with approximately 56 million messages. Although telegraph usage spread quickly, its applications were predominantly limited to businesses rather than consumers. The Post Roads Act of 1866¹⁰⁹ designated telegraph companies as common carriers that were granted privileges including rights of way on public lands and waterways, access to free timber and resources, and recourse to eminent domain. In return, the telegraph firms assumed the public interest duties of common carriers analogous to those of transportation enterprises.¹¹⁰

The most significant legal doctrines arising from the telegraph cases related to the duties of common carriers, the quid pro quo for official acceptance of the monopoly franchise.¹¹¹ English legal decisions dating back to the Middle Ages raised questions regarding common carriers' duty to serve the public and to charge "just rates." As common carriers, telegraph companies were not permitted to refuse any messages and were obligated to charge reasonable, nondiscriminatory rates. This stipulation allowed judicial oversight over anticompetitive behavior well before formal antitrust statutes were enacted, at either state or federal levels. Courts adopted an economic definition of discrimination, rejecting charges of anticompetitive behavior if the differences in price were justified by differences in costs. For instance, the Nebraska Supreme Court held that Western Union had not engaged in "unjust discrimination" when it charged different tariffs to different newspapers, because it

¹⁰⁷ See POSTMASTER GENERAL, GOVERNMENT OWNERSHIP OF ELECTRICAL MEANS OF COMMUNICATION, S. DOC. NO. 63-399 (2d Sess. 1914).

¹⁰⁸ The data in this paragraph are from U.S. BUREAU OF THE CENSUS, 2 HISTORICAL STATISTICS OF THE UNITED STATES: COLONIAL TIMES TO 1970, at 775-810 (1976).

¹⁰⁹ 14 Stat. 221, repealed by Act of July 16, 1947, ch. 256, § 1, 61 Stat. 327.

¹¹⁰ WILLIAM W. COOK, A TREATISE ON TELEGRAPH LAW § 7 (1920).

¹¹¹ See B. Zorina Khan, *Innovations in Law and Technology, 1790-1920*, in 2 THE CAMBRIDGE HISTORY OF LAW IN AMERICA 483, 511-16 (Michael Grossberg & Christopher Tomlins eds., 2008).

faced dissimilar circumstances and costs in meeting the needs of a morning newspaper relative to an evening newspaper.¹¹² Courts, however, varied in their treatment of quantity discounts, with some holding that this pricing policy suppressed competition and encouraged the creation of monopolies.

The established telegraph law for much of the 19th century accepted and was based on the telegraph's common carrier status, but quite early on some noticed that the analogy was somewhat unwieldy.¹¹³ The common carrier designation had an important implication for telegraph companies because it brought assumption of liability for the "goods carried." Under this doctrine, telegraph companies could face enormous liability for their messages. For example, an error in transmitting a buy or sell order could lead to many thousands of dollars of damages. At the same time, unlike consignments on railroads or turnpikes, the intrinsic value to the telegraph company of the messages it transmitted was typically much lower than its value to the sender or receiver of the message. To insure against mistakes, the telegraph companies practiced price discrimination: they offered the customer the option of repeating the message at a cost of half the regular rate; if the customer refused, liability was limited to the cost of the transmission.¹¹⁴ The courts were confronted with challenges to companies' attempts to limit their liability in this way, given that common carriers were supposed to assume that risk themselves and to refrain from discriminatory rates. The stakes increased when businesses began to use abstruse codes or ciphers to protect their confidentiality and to reduce the cost of sending lengthy messages.¹¹⁵

In response, the courts ultimately rejected the analogy to common carriers.¹¹⁶ For coded messages, it was impossible for the telegraph company to

¹¹² *W. Union Tel. Co. v. Call Publ'g Co.*, 62 N.W. 506 (Neb. 1895).

¹¹³ For instance, the Maryland Court of Appeals found that "[a] telegraph company is not a common carrier, but a bailee performing, through its agents, work for its employer, according to certain rules and regulations, which, under the law, it has a right to make for its government." *Birney v. N.Y. & Wash. Printing Tel. Co.*, 18 Md. 341, 342 (App. 1862).

¹¹⁴ *See, e.g., Jonathan W. Ellis v. Am. Tel. Co.*, 95 Mass. (13 Allen) 226 (1866).

¹¹⁵ *See Minoprio v. W. Union Tel. Co.*, 5 Teiss. 79 (La. Ct. App. 1907) (cotton exporters who wished to convey the message, "We make firm bid two hundred bales of fully middling cotton at 43-4d twenty-eight millimeters, January and February delivery, shipment to Havre" instead required Western Union to send the words "Holminop, New Orleans, Galeistraf, dipnoi, Granzoso, Liebsesin Dipnoi liciatorum, diomus, grapholite, Gradatos and Texas"). In *Shaw v. Postal Telegraph Cable Co.*, 31 So. 222 (Miss. 1901), the telegraph operator transmitted the word "chatter" rather than the word "charter" in the ciphered message, and the difference between the letter "r" and the letter "t" cost the sender about \$1000, leading to an action against the telegraph company for \$1054 in damages.

¹¹⁶ Some courts treated telegraph companies as bailees rather than as common carriers. Bailees were not expected to act as insurers, but only to hold to reasonable standards of diligence in completing their task, with damages generally limited to the price of their services. The Supreme Court, in *Primrose v. Western Union Telegraph Co.*, 154 U.S. 1, 14 (1894), held that "[t]elegraph companies resemble railroad companies and other common carriers But they are not com-

determine the relative importance of the communication and to modulate the amount of care it took accordingly. Courts ruled that Western Union was justified in charging higher rates for important messages by requiring that they be repeated, since:

[i]t does not exempt the company from responsibility, but only fixes the price of that responsibility, and allows the person who sends the message either to transmit it at his own risk at the usual price, or by paying in addition thereto half the usual price to have it repeated, and thus render the company liable for any mistake that may occur.¹¹⁷

Price discrimination allowed the firm to reduce the problem of asymmetric information, and to obtain compensation for the greater cost inherent in more valuable messages.

Like the telegraph, the telephone industry raised similar issues regarding the limits of the legitimate exercise of monopoly power, but the stakes were much higher because telephone users included both businesses and households. Alexander Graham Bell received the key patents for the electric speaking telephone in 1876 and 1877. He assigned the patent rights to the American Bell Telephone Company, a Massachusetts corporation that was ultimately reorganized as American Telephone & Telegraph, one of the most dominant firms in U.S. history. In 1887, American Bell reported total revenues of \$3.45 million relative to expenditures of \$1.24 million, with more than 6000 employees on its roster.¹¹⁸ After Congress rejected yet another bill seeking to regulate the prices charged for telephony, Bell executives observed that the measure was defeated largely because legislators were persuaded by the firm's contention that rapid innovation in the industry required constant updates and investment costs.¹¹⁹ American Bell contracted with regional telephone enterprises to enforce their patent rights through an aggressive strategy of litigation. As an 1886 decision explained:

American Bell Telephone Company furnishes the franchise and exclusive right of said patents, and the telephone instruments, together with a contract stipulation with each of said local companies that the American Bell Telephone Company will also supply counsel, and maintain all such suits, and do all things, to make the business an exclusive and close monopoly.¹²⁰

mon carriers; their duties are different, and are performed in different ways; and they are not subject to the same liabilities."

¹¹⁷ *Camp v. W. Union Tel. Co.*, 58 Ky. (1 Met.) 164, 168 (1858). This was simply the standard of limiting liability to the level of foreseeable reliance, as in the classic 1854 case of *Hadley v. Baxendale*, (1854) 156 Eng. Rep. 145 (Ct. of Exchequer), but its application to the telegraph industry was delayed because of the common carrier analogy.

¹¹⁸ *The Telephone Monopoly: Annual Meeting of the American Bell Company*, N.Y. TIMES, Mar. 28, 1888, at 3.

¹¹⁹ *Id.*

¹²⁰ *United States v. Am. Bell Tel. Co.*, 29 F. 17, 20 (C.C.S.D. Ohio 1886).

The telephone industry, like several others, reflected a distinctly American approach to addressing monopolies. In Britain, the telephone system was nationalized in 1912 as an extension of the state's post office monopoly, but in the United States, market power of the dominant firm was constrained by a portfolio of policies enforced by an array of overlapping institutions. In sum, just as with patents and antitrust policy, this proved yet another way in which early American institutions recognized that consumer welfare is maximized by allowing private actors to search for monopoly, but provided for state policies to intervene when needed to curb excesses. Such economically based policies towards natural monopolies served to promote U.S. innovation during the Second Industrial Revolution.

III. CONCLUSION

The final cause of law is the welfare of society.
Benjamin Cardozo, *The Nature of the Judicial Process*¹²¹

The Sherman Act of 1890 was the first federal statute that articulated a general government policy toward monopolies. Critics have often complained about the nebulous nature of the statute, which failed even to define what constituted unwarranted monopolization.¹²² Contemporary congressional debates reveal that legislators who supported the statute did not think it necessary to articulate the details of antimonopoly policy because that policy had already been articulated throughout American history. From the first years of settlement, colonial, state, and federal governments had enacted laws that achieved the same ends as the Sherman Act. Moreover, the judiciary at common law had long confronted and imposed sanctions on a range of monopolistic practices.

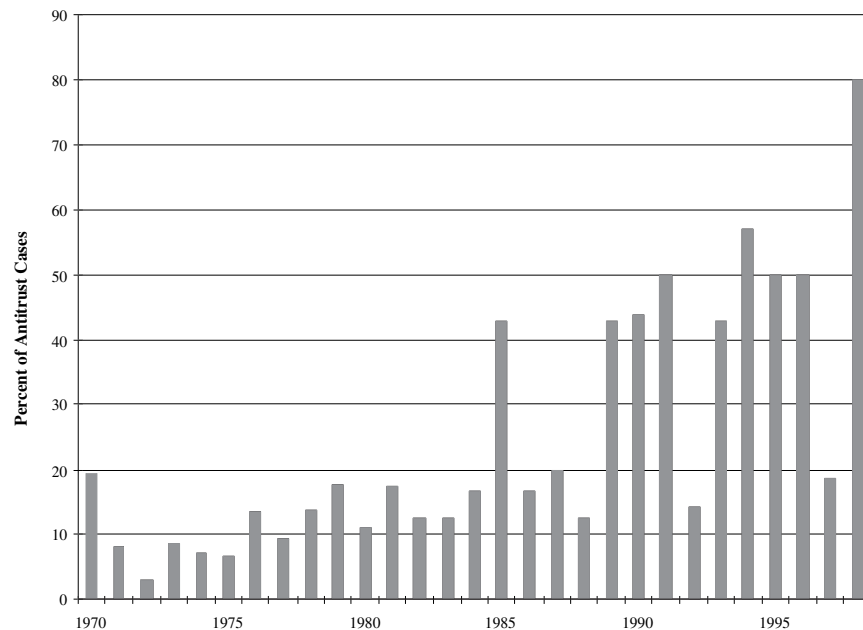
What did change over time, however, was the perceived relationship between monopoly and innovation. Laws in the colonies and states during the 1600s and 1700s placed significant restrictions on patentees and other innovators in keeping with European precedents. The Constitutional Convention and judicial decisions in the 1800s articulated a distinctly American approach, which acknowledged that in the realm of technological innovations, private actors searching for monopoly rents can benefit society.¹²³ American policy-

¹²¹ CARDOZO, *JUDICIAL PROCESS*, *supra* note 96, at 66.

¹²² *See, e.g.*, *Swift & Co. v. United States*, 196 U.S. 375 (1905); CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* 300 (1999) ("Most competition laws are pretty vague.").

¹²³ The British retained the view that patents were monopolies that must be strictly interpreted and constrained, even overturned if judges so ruled. In short, antitrust and innovation policy was largely conducted at the "ex ante" level, through rulings toward patents and patentees. By contrast, antitrust in Britain was relatively lax, cartels and cooperative noncompetition agreements were tolerated if not supported, and a formal statute was not introduced until the Monopolies and Restrictive Practices Act of 1948.

makers showed great deference to patent rights and rejected mechanisms that other countries used to constrain the power of patentees, such as working requirements and compulsory licenses.¹²⁴ The courts typically applied a rule of reason when determining how to treat exercises of monopoly power and anticompetitive behavior that allegedly harmed public welfare. This liberal approach toward patents and patentees facilitated the expansion of vast industrial enterprises ranging from railroads to photography to rubber. Economies of scale and learning curve advantages arising from ownership of innovative technologies promoted the dominance of “natural monopolies” in production, distribution, and transportation. Other countries responded to nat-



Notes: The antitrust cases comprise trade restraint complaints that the Department of Justice and the Federal Trade Commission filed against publicly traded U.S. manufacturing firms between 1970 and 2000. The dataset excludes noneconomic claims such as deceptive advertising and fraudulent commercial practices. Each case was examined to assess the key issues and the role of patented assets in the charge or decision. The graph presents the fraction of all economic antitrust cases in a specific year that involved questions or determinations about patented technology.

FIGURE 2: PATENT ISSUES IN FEDERAL ANTITRUST CASES INVOLVING U.S. MANUFACTURING FIRMS, 1970–2000

¹²⁴ B. Zorina Khan & Kenneth L. Sokoloff, *Historical Perspectives on Patent Systems in Economic Development*, in *THE DEVELOPMENT AGENDA: GLOBAL INTELLECTUAL PROPERTY AND DEVELOPING COUNTRIES* 215 (Neil Weinstock Netanel ed., 2009).

ural monopolies in railroads, telegraphs, telephones, and other utilities by nationalizing those enterprises.¹²⁵ Apart from the Postal Service, however, the United States avoided state-owned undertakings, instead imposing a network of regulations and antimonopoly rulings on their operations while maintaining a market orientation.

American legal tradition distinguished between lawful patent monopolies and unlawful practices that lead to monopoly, but the line between legal patent monopoly and illegal monopolization is not a bright one. In the pre-Sherman period the balance was decidedly in favor of patentees, and courts in recent decades have generally maintained a liberal interpretation of the legal monopoly vested in patents.¹²⁶ In the sphere of agency antitrust administration, however, that balance has shifted in a direction reminiscent of the strictures of the colonial period. U.S. antitrust enforcement toward patent-based enterprises has become increasingly stringent. Figure 2 shows the results from an analysis of patent-related issues in antitrust cases in the manufacturing sector between 1970 and 2000.¹²⁷ The graph illustrates the increasing importance of patent-related and innovation concerns in antitrust cases brought by the Federal Trade Commission and (to a lesser extent) the Department of Justice. Such concerns have translated into remedies that often limit high-technology firms' rights to exploit their intangible assets.¹²⁸ Consent decrees in government antitrust lawsuits have resulted in compulsory licenses, royalty-free access to proprietary technology, transfer of know-how and technical assistance to competitors, and other measures that arguably violate the spirit of the patent laws.¹²⁹ It is worth considering whether, had such remedies been imposed

¹²⁵ A comparative approach to antitrust is provided in TONY FREYER, *REGULATING BIG BUSINESS: ANTITRUST IN GREAT BRITAIN AND AMERICA, 1880–1990* (1992). For a historical account, see TONY A. FREYER, *ANTITRUST AND GLOBAL CAPITALISM, 1930–2004* (2006) (showing how antitrust in the major industrialized economies evolved through an interaction of U.S. initiatives and domestic influence); HELEN MERCER, *CONSTRUCTING A COMPETITIVE ORDER: THE HIDDEN HISTORY OF BRITISH ANTITRUST POLICIES* (1995) (highlighting the U.S. influence on recent British competition legislation).

¹²⁶ See, e.g., *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006) (finding that a patent is not presumed to create market power); *In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322, 1326 (Fed. Cir. 2000) (upholding a patentee's refusal to deal).

¹²⁷ The data were drawn from the FTC and DOJ dockets, and include consent decrees. Each case was categorized in terms of the relevance to innovation, according to the charges filed or the firm's line of business. (Dataset on file with author.)

¹²⁸ See, e.g., *Intel Corp.*, FTC Docket No. 9341 (2010). The FTC sued Intel in 2009 alleging violations of Section 5 of the FTC Act. The Commission charged that the company had fallen behind its rivals and employed anticompetitive practices to catch up with the market for microchips and graphic processing units. The settlement in 2010 required Intel to alter its intellectual property and licensing contracts with other firms, likely significantly infringing on the firm's ability to extract returns from its patent portfolio.

¹²⁹ For example, in *Sensormatic Electronics Corp.*, 1994 FTC LEXIS 274, FTC No. 941-0126 (1994), the FTC was concerned about the research implications of an agreement between Sensormatic Electronics and the Knogo Corporation, both of which produced electronic surveillance

during the Second Industrial Revolution, society and the economy would still have been revolutionized by entrepreneurship and enterprises based on transformative innovations.

source labels to protect against shoplifting. The two firms planned to grant each other royalty free cross-licenses and to share trade secrets. The FTC claimed that the agreement would lessen competition in a market that was unlikely to attract entry because of patent protection. Moreover, the merger would likely reduce output of research and development. The consent decree prohibited Sensormatic from acquiring patents belonging to Knogo and imposed a ten-year ban on Sensormatic's purchasing similar patents.