

Procompetitive Effects of State Antitrust Laws: Evidence from the Progressive Era

Anne Schaller*
anne.schaller@vanderbilt.edu
Vanderbilt University

Word count: 2,720

January 24, 2025

Abstract

Most U.S. states adopted an antitrust statute in the late nineteenth or early twentieth century to regulate anticompetitive conduct and promote competition among firms. I estimate the long-term effects of these laws on manufacturing outcomes and patenting behavior using difference-in-differences and event study models that account for the staggered nature of treatment timing. Using county-by-industry tabulations from historical censuses of manufactures, I find that the enactment of state antitrust laws decreased average profits in the manufacturing sector by about 16 percent, a result that is consistent with a shift to more competitive markets. I also find that the enactment of state antitrust laws increased the number of manufacturing establishments by about 26 percent. I also find that the enactment of state antitrust laws increased patents granted to individuals by about 76 percent and patents granted to firms by about 3 percent. Moreover, by using historical newspaper data to proxy for enforcement of state antitrust laws, I show that these effects were likely driven by high-enforcement states. I also show that in cases where a state antitrust law was repealed by a legislative act or overturned by a court ruling, effects went in the opposite direction—profits increased and the number of manufacturing establishments decreased. These results provide historical evidence that antitrust policy can be an effective means of promoting competition in the U.S. economy and imply that enforcement played an important role in steering markets towards competitive equilibria.

*I gratefully acknowledge comments from Rebecca Allensworth, Bill Collins, Dale Collins, Herbert Hovenkamp, John Mayo, Andrea Moro, Joel Rodrigue, Charles Taragin, and Ariell Zimran. I also thank participants in Vanderbilt's Economic History Tea, the 9th World Cliometric Conference, the 2023 Annual Meeting of the Economic History Association, and the 2023 Annual Meeting of the Southern Economic Association for providing valuable feedback. I worked on this project while I was a dissertation fellow at the Federal Reserve Board; I thank the numerous Board economists who provided helpful suggestions. The opinions expressed in this paper are mine alone and do not necessarily reflect the views of Board research staff or of the Board of Governors. I further thank the Economic History Association and the Russell G. Hamilton Graduate Leadership Institute at Vanderbilt University for awarding grants to support this research.

Between 1888 and 1940, 39 states enacted antitrust statutes, but little is known about how these measures affected the economies of the states that enacted them. Antitrust laws restrict firms' ability to monopolize an industry or collude with each other and are designed to protect competition among firms. In turn, competition among firms can create benefits for consumers, such as downward pressure on prices and incentives for firms to maintain product quality. In this paper, I study the impacts of antitrust laws states enacted in the late nineteenth and early twentieth centuries. In particular, I examine the effects of these laws on competition, productivity, and innovation.

Over the course of the nineteenth century, a number of structural changes in transportation, communications, and other areas encouraged consolidation and eroded the position of small firms. For example, railroads, which made long-distance shipping cheaper and easier, allowed firms to serve increasingly distant markets. New communications technologies, such as the telegraph (and later, the telephone), allowed national markets to emerge as firms could more easily do business with partners in far-flung places (Yates 1986). New production technologies, such as the Bessemer process of making steel, favored mass production. The rise of these so-called "trusts" challenged the position of weaker firms, fueling antimonopoly sentiment and public support for antitrust legislation at both the state and federal levels.¹

States were the first to respond to popular cries for antitrust legislation. Thirteen states had already adopted an antitrust statute of their own by the time the Sherman Act—the first federal antitrust law—was enacted in 1890. By the start of the twentieth century, 27 states had adopted an antitrust statute, and by 1940, 39 states had adopted an antitrust statute. Figure 1 provides a map illustrating this adoption wave.

I use data from four main sources to assess the impact of state antitrust laws. The first source pertains to the state antitrust laws themselves. To identify state antitrust statutes in force in the late nineteenth and early twentieth centuries, I reviewed state session laws and legal codes from 1860 through 1940 and identified provisions restricting anti-competitive conduct, such as price fixing. In total, I identified 161 state antitrust statutes enacted between 1888 and 1940. This set

¹Though the term "trust" was used to refer broadly to big business during the study period, a trust is also a legal vehicle used to coordinate cooperative actions among parties that might otherwise compete. Under a trust, parties appoint one or more trustees to act in their collective interest and retain shares in the trust.

of statutes includes amendments, which allows me to characterize the evolution of state antitrust regimes during the study period. After identifying all such provisions, I coded the content of states' laws to understand the specific activities each law condemned, the processes for civil and criminal enforcement under each law, the civil damages each law authorized, and the fines and prison sentences each law authorized. The second data source relates to manufacturing establishments. To assess the impact of state antitrust laws on the manufacturing sector, I use decennial county-by-industry tabulations from the census of manufactures for 1860 through 1940. The particular outcomes I examine are the number of manufacturing establishments, as well as the profits and total factor productivity of these establishments. The manufacturing sector comprised a relatively large share of the U.S. economy during the study period, which motivates my focus on manufacturing in this paper. Third, I use data from the Comprehensive Universe of U.S. Patents (CUSP) to assess the impact of state antitrust laws on innovation, as proxied by patenting behavior (Berkes 2018). CUSP data cover all U.S. patents issued between 1836 and 2016 and provide a rich array of information for each patent, including issue and filing years, technological classes, backward and forward citations, and detailed inventor and assignee data, including names and geolocated addresses. Finally, to identify newspaper articles mentioning state antitrust laws, I searched two popular digital archives for terms relating to state antitrust laws. These articles allow me to understand how state antitrust laws were perceived by the general public and enforced by state governments during the study period.

I use difference-in-differences and event study models that account for the staggered nature of treatment timing to study the effects of state antitrust laws (Callaway and Sant'Anna 2021). This approach exploits variation in the timing of states' adoption of antitrust laws and compares outcomes in states with antitrust laws to outcomes in states without antitrust laws, before and after the adoption of an antitrust law. Because the timing of effects is of interest, I also employ event study models in my analysis. One identification advantage of studying antitrust in a historical context is that this approach allows for comparison to a period without any antitrust laws, which papers studying antitrust in modern settings are unable to do.

I find that state antitrust laws increased the number of manufacturing establishments. Specif-

ically, state adoption of an antitrust law resulted in an increase in the number of manufacturing establishments of about 26 percent per county-by-industry cell. By increasing the number of establishments in the manufacturing sector, these results implies that state antitrust laws achieved some success in promoting competition among firms. I also find that the enactment of state antitrust laws decreased the profits earned by manufacturing establishments by about 13 percent. This result suggests that state antitrust laws may have had some success in shifting markets to more competitive equilibria. I show that these effects were likely driven by high-enforcement states, which were mentioned in newspapers more frequently than low-enforcement states during the study period. I also show that in cases where a state antitrust law was repealed by a legislative act or overturned by a court ruling, effects went in the opposite direction—the number of manufacturing establishments decreased and profits increased. I find no evidence that state antitrust laws made manufacturing establishments more or less productive.²

This paper is the first quasi-experimental, quantitative study to examine the effects of state antitrust laws in the late nineteenth and early twentieth centuries. This evidence contributes important knowledge about the broader economic impacts of antitrust law. Existing papers on this topic tend to focus on legal outcomes, such as enforcement actions and cases won against trusts in court (e.g., Lamoreaux and Phillips Sawyer 2021). In this paper, however, I analyze the extent to which state antitrust laws had a discernible effect on markets by examining important economic

²It is worth considering what standard economic theories imply about how these laws should affect the outcomes examined in this paper. First, state antitrust laws can be expected *ex-ante* to reduce (or not increase) firms' profits. If a new state antitrust law meaningfully curtails ongoing anticompetitive conduct or deters new anticompetitive conduct from materializing, markets can be expected to shift away from monopoly or oligopoly (in which profits are positive) and towards perfect competition (in which profits are zero). Predictions for the number of manufacturing establishments are somewhat more ambiguous. Most state antitrust laws explicitly prohibited horizontal price-fixing arrangements but did not affect firms' ability to merge with each other. Thus, if firms responded to a new antitrust law in their state by merging with competitors to avoid prosecution for cartel behavior, state antitrust laws may have reduced the number of manufacturing establishments. An alternate hypothesis posits that state antitrust laws may have increased the number of manufacturing establishments by weakening large establishments, thereby enabling new entrants to more easily set up shop. Moreover, though antitrust does not directly concern productivity, some scholars, such as Bork (1978), argue that antitrust law can harm consumers by penalizing firms that achieve positions of dominance through economies of scale and staunch dedication to efficiency. I test this hypothesis by examining the effect of state antitrust laws on manufacturing establishments' total factor productivity. Finally, how the adoption of an antitrust law should affect patenting behavior is also not *ex-ante* obvious. If a new antitrust law effectively increases competition, innovation may rise as firms strive to gain market advantage. Alternatively, monopolies may foster innovation by investing their substantial resources in research and development (Schumpeter 1942). Overall, these predictions show that antitrust laws' implications for several of the outcomes I study in this paper are theoretically uncertain, which underscores the need for empirical analysis.

indicators. Moreover, this analysis examines long-term effects of antitrust, employing data covering nearly a century. Existing scholarship tends to examine a considerably narrower window of time. This paper also contributes to a somewhat thin literature on the significance of early state antitrust policy.³ Prior scholarship has paid relatively more attention to the federal antitrust laws, even though states led the way in establishing antitrust policy in the United States.⁴ Another contribution of this paper is the work I have done to characterize the evolution of state antitrust laws over time, which allows me to describe state antitrust law in its formative era in greater detail than previous scholarship. Finally, this paper contributes to our understanding of the Progressive Era, a period in American history characterized by sweeping reform. As society undergoes what some are calling a second Gilded Age,⁵ lessons from this period provide valuable insight into the challenges of today's world.

³Examples include May (1987), Troesken (2000), Clay and Troesken (2002), and Lamoreaux and Phillips Sawyer (2021).

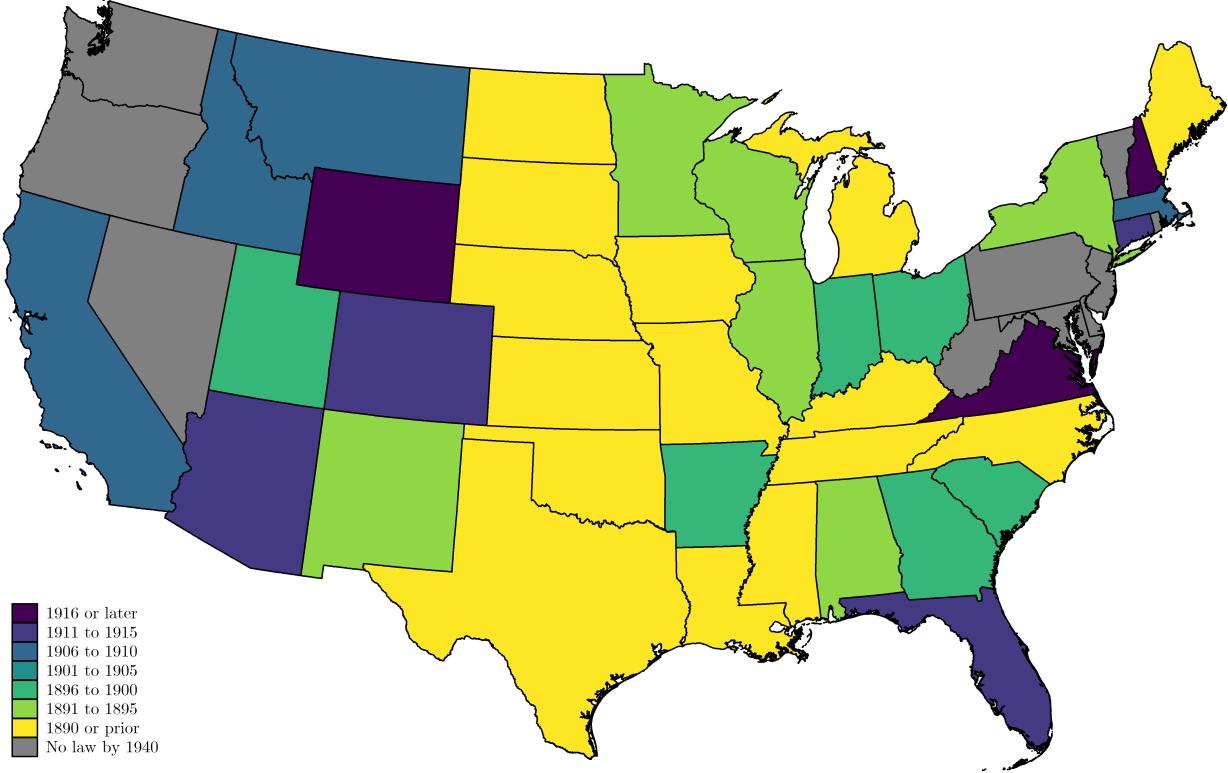
⁴For example, Stigler (1966) and Burns (1977) study the effects of federal antitrust law.

⁵See, for example, Wu (2018).

References

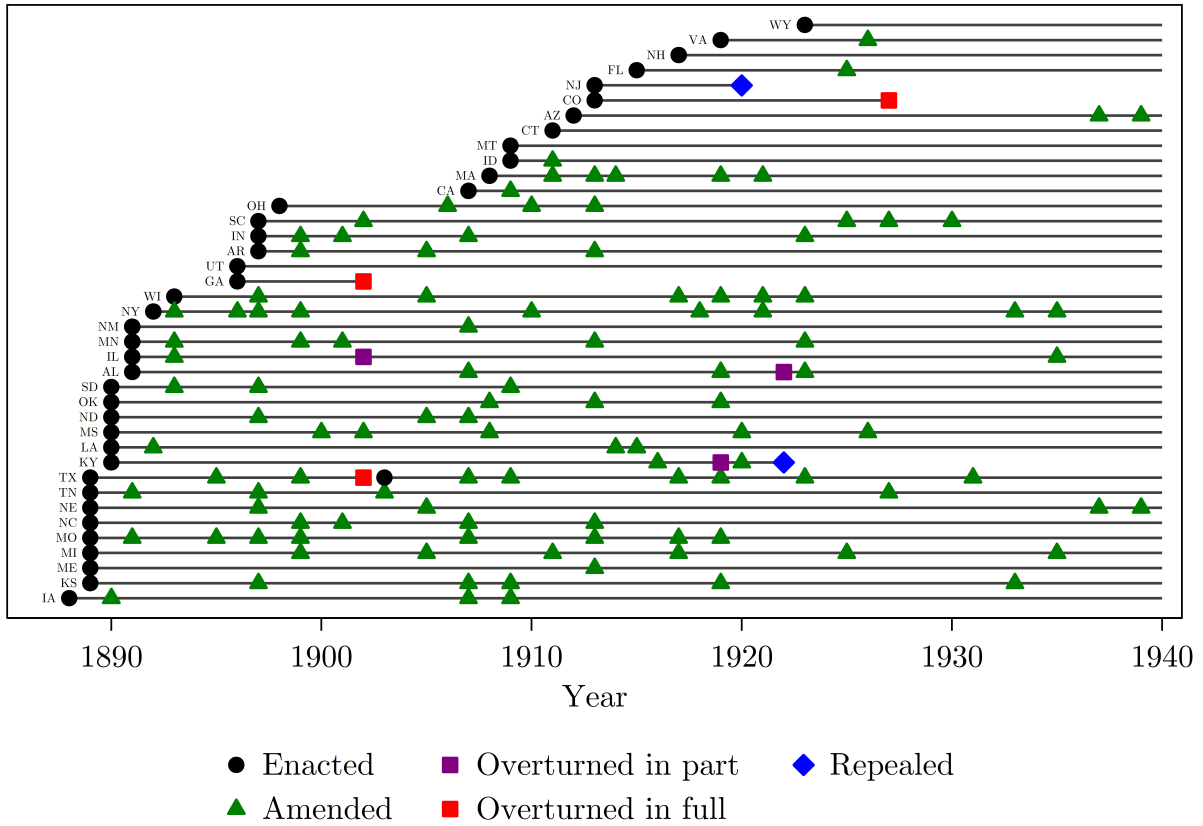
- Berkes, Enrico (2018). “Comprehensive Universe of U.S. Patents (CUSP): Data and Facts.”
- Bork, Robert (1978). *The Antitrust Paradox*. New York: Free Press.
- Burns, Malcolm R. (1977). “The Competitive Effects of Trust-Busting: A Portfolio Analysis.” *Journal of Political Economy* 85:4, pp. 717–739.
- Callaway, Brantly and Pedro H. C. Sant’Anna (2021). “Difference-in-Differences with multiple time periods.” *Journal of Econometrics* 225:2, pp. 200–230.
- Clay, Karen and Werner Troesken (2002). “Strategic Behavior in Whiskey Distilling, 1887-1895.” *The Journal of Economic History* 62:4. Publisher: Cambridge University Press, pp. 999–1023.
- Lamoreaux, Naomi R. and Laura Phillips Sawyer (2021). “Voting Trusts and Antitrust: Rethinking the Role of Shareholder Litigation in Public Regulation, from the 1880s to the 1930s.” *Law and History Review* 39:3, pp. 569–600.
- May, James (1987). “Antitrust Practice and Procedure in the Formative Era: The Constitutional and Conceptual Reach of State Antitrust Law.” *University of Pennsylvania Law Review* 135:3, pp. 495–594.
- Schumpeter, Joseph A. (1942). *Capitalism, Socialism and Democracy*. New York: Harper & Brothers.
- Stigler, George J. (1966). “The Economic Effects of the Antitrust Laws.” *The Journal of Law & Economics* 9, pp. 225–258.
- Troesken, Werner (2000). “Did the Trusts Want a Federal Antitrust Law? An Event Study of State Antitrust Enforcement and Passage of the Sherman Act.” In *Public Choice Interpretations of American Economic History*. Jac C. Heckelman, John C. Moorhouse, and Robert M. Whaples (ed.). Boston: Kluwer Academic Publishers, pp. 77–104.
- Wu, Tim (2018). *The Curse of Bigness: Antitrust in the New Gilded Age*. New York: Columbia Global Reports.
- Yates, JoAnne (1986). “The Telegraph’s Effect on Nineteenth Century Markets and Firms.” *Business and Economic History* 15, pp. 149–163.

Figure 1: Map of State Antitrust Law Adoption



Notes: This map is shaded to show the year in which a state first adopted an antitrust law. In some cases, laws were later repealed by legislative act or overturned by court ruling, but this map does not reflect those changes. Thirteen states had already adopted an antitrust statute of their own by the time the Sherman Act—the first federal antitrust law—was enacted in 1890. These are the states shaded in yellow, excepting Oklahoma and Louisiana, which enacted antitrust statutes in 1890 after the passage of the Sherman Act on July 2, 1890. State boundaries in 1940 are shown.

Figure 2: State Antitrust Statutes, 1888-1940

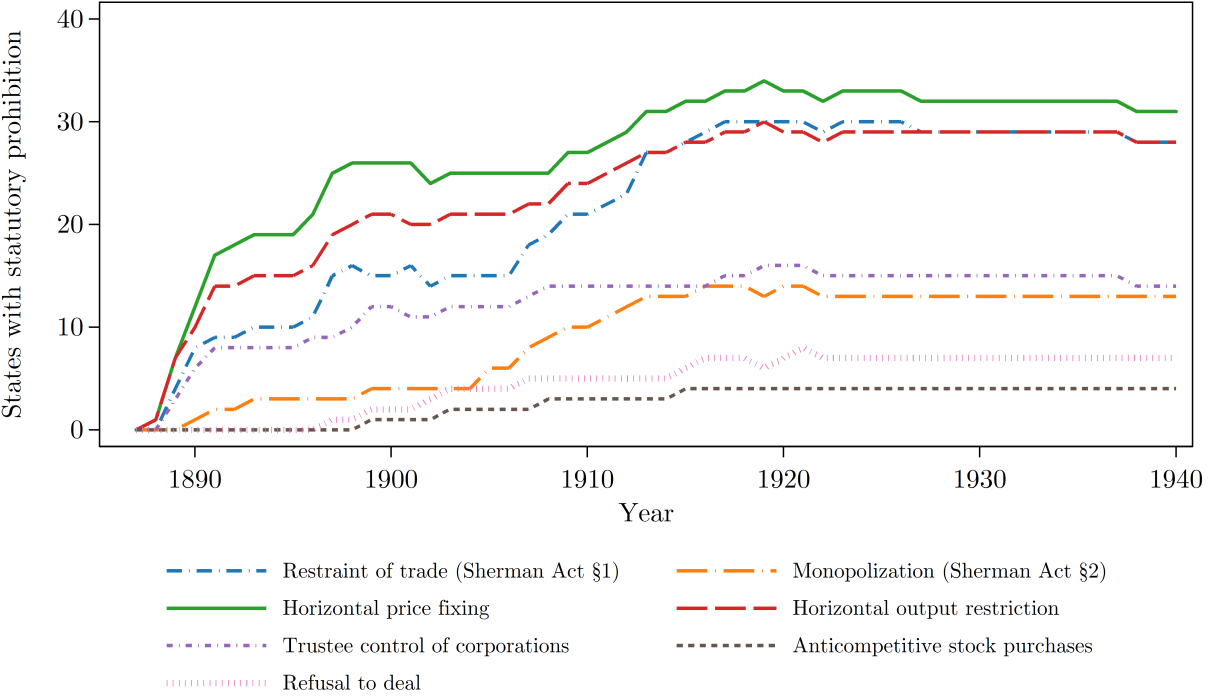


Notes: This figure illustrates the years in which state legislatures adopted and amended antitrust statutes, as well as the years in which antitrust statutes were repealed by legislative act or overturned in full or in part by a court. Delaware, Maryland, Nevada, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and West Virginia are not included in this figure because these states did not enact a general antitrust statute between 1860 and 1940. Alaska and Hawaii are not included in this figure because these states achieved statehood after 1940.

Table 1: Illegal Acts Under State Antitrust Laws

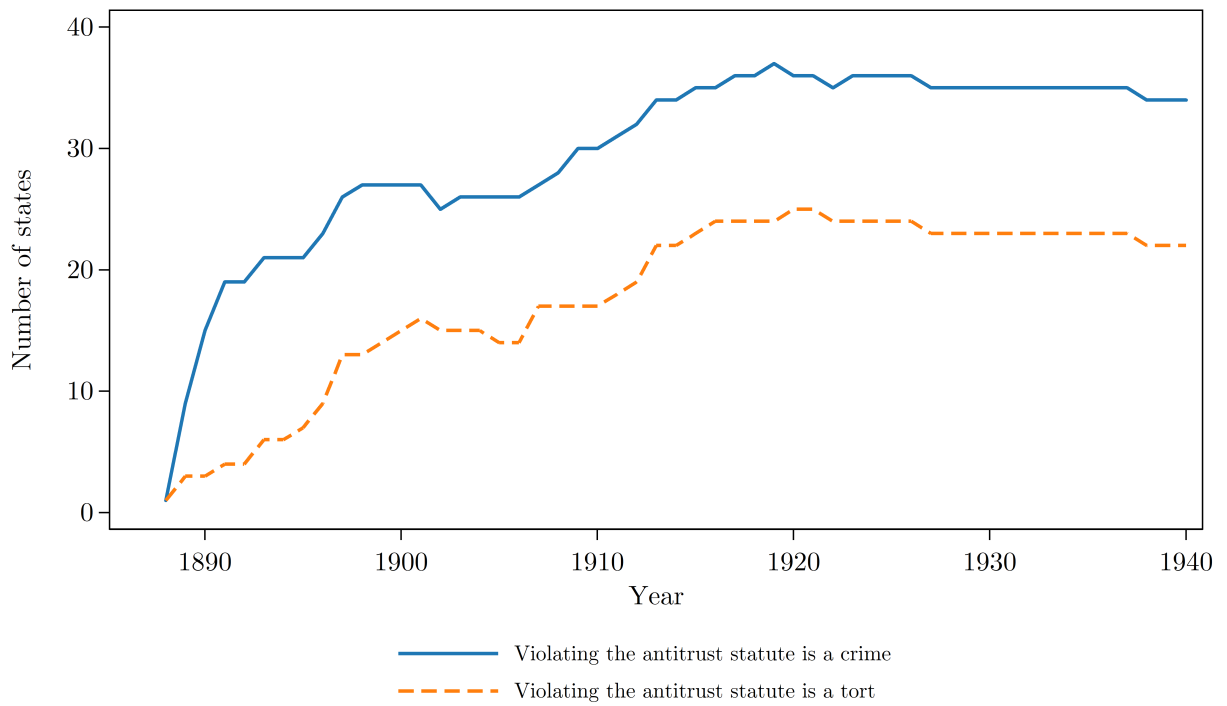
Illegal Act	Definition
Restraint of trade	To restrict competition or restrain trade in the production, manufacture, or sale of an article or commodity.
Monopolization	To monopolize or to attempt to monopolize the production, manufacture, or sale of an article or commodity.
Horizontal price fixing	To form a combination to control the price of an article or commodity.
Horizontal output restriction	To form a combination to limit the quantity of any article or commodity to be produced, manufactured, or sold.
Trustee control of corporations	To sell trust certificates establishing trustee control of several firms that would otherwise compete.
Anticompetitive stock purchases	When one firm buys shares or stock in another firm for the purpose of restricting competition.
Refusal to deal	To refuse to sell because purchaser is not a combination member or to refuse to deal with customers or suppliers who transact with a competitor.

Figure 3: Anticompetitive Acts Declared Illegal by State Antitrust Laws, 1888-1940



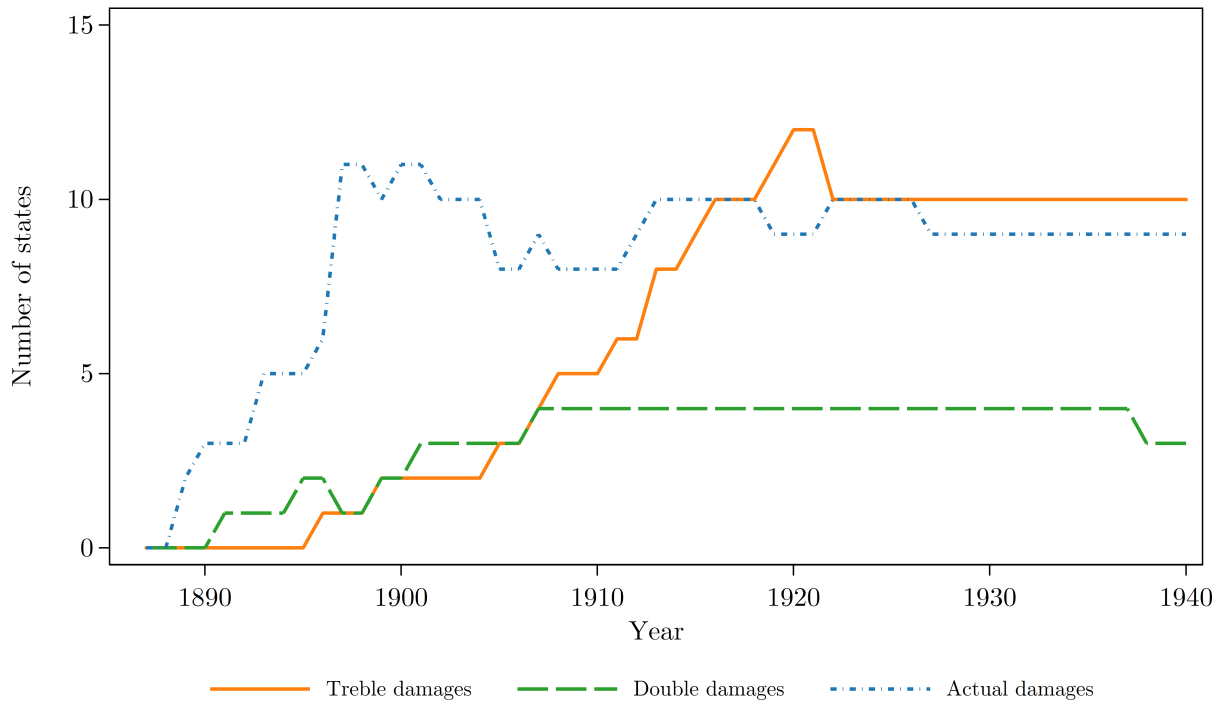
Notes: This figure illustrates the number of states that outlawed various anticompetitive acts between 1888 and 1940. These acts are defined in the table on the previous page.

Figure 4: States Declaring Antitrust Violations Crimes vs. Torts, 1888-1940



Notes: This figure illustrates the number of states that declared violations of their antitrust statute to be crimes and the number of states that declared violations of their antitrust statute to be torts between 1888 and 1940.

Figure 5: Civil Damages Under State Antitrust Laws, 1888-1940



Notes: This figure illustrates the number of states authorizing plaintiffs to seek actual damages, double damages, or treble damages in civil actions for injury due to unlawful conduct under state antitrust statutes.