Antitrust: Where Did It Come from and What Did It Mean?

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ABSTRACT

This paper is a draft chapter from an ongoing book project I am calling *The Corporation and the Twentieth Century*. In *The Visible Hand*, Alfred Chandler explained the rise of the large vertically integrated corporation in the United States mostly in terms of forces of technology and economic geography. Institutions, including government policy, played a quite minor role. In my own attempt to explain the *decline* of the vertically integrated form in the late twentieth century, I stayed true to Chandler's largely institution-free approach. This book will be an exercise in bringing institutions back in. It will argue that institutions, notably various forms of non-market controls imposed by the federal government, are a critical piece of the explanation of the rise and decline of the multi-unit enterprise in the U. S. Indeed, non-market controls, including those imposed in response to the dramatic events of the century, account in significant measure for the dominance of the Chandlerian corporation in the middle of the twentieth century. One important form of non-market control – though by no means the only form – has been antitrust policy. This chapter traces the history of antitrust and argues that, far from being a coherent attempt to address an actual economic problem of monopoly, the Sherman Antitrust Act emerged from the distributional political economy of the nineteenth century. More importantly, the chapter argues that the form in which antitrust emerged would prove significant for the corporation, as the Sherman Act and its successors outlawed virtually all types of inter-firm coordinating mechanisms, thus effectively evacuating the space between anonymous market transactions and full integration.

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This paper is a draft chapter from an ongoing book project I am calling *The Corporation and the Twentieth Century*. In *The Visible Hand*, Alfred Chandler explained the rise of the large vertically integrated corporation in the United States mostly in terms of forces of technology and economic geography.[1] Institutions, including government policy, played a quite minor role. In my own attempt to explain the *decline* of the vertically integrated form in the late twentieth century, I stayed true to Chandler's largely institution-free approach.[2] This book will be an exercise in bringing institutions back in. It will argue that institutions, notably various forms of non-market controls imposed by the federal government, are a critical piece of the explanation of the rise and decline of the multi-unit enterprise in the U. S. Indeed, non-market controls, including those imposed in response to the dramatic events of the twentieth century, account in significant measure for the dominance of the Chandlerian corporation in the middle of the century.

One important form of non-market control – though by no means the only form – has been antitrust policy. The importance of antitrust policy to corporate organization has been noted often but only in scattered pieces in the literature. This chapter traces the history of antitrust and argues that, far from being a coherent attempt to address an actual economic problem of monopoly, the Sherman Antitrust Act emerged from the distributional political economy of the nineteenth century. More importantly, the chapter argues that the form in which antitrust emerged would prove significant for the corporation, as the Sherman Act and its successors outlawed virtually all varieties of inter-firm coordinating mechanisms,

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1 Chandler (1977).

2 Langlois (2003).

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thus effectively evacuating the space between anonymous market transactions and full integration.

Money, tariffs, and populism.

As the historian Richard Franklin Bensel has argued, federal political economy in the United States in the late nineteenth century rested on three pillars: the gold standard, the protective tariff, and the political construction of a national market. The first two of these explicitly, and the third implicitly, reflected the coalition that undergird the Republican Party, the dominant political force in the U. S. after the Civil War.[3]

Like most wars, the Civil War was financed in part by an inflation tax. For this purpose, both the North and the South created fiat moneys that were not convertible into gold at a fixed par. In the North, these were the famed greenbacks.[4] After the war, the question of returning to the gold standard became a significant political battleground. Initially there was widespread assent, but rifts began to form in the face of the deflation that attended the Treasury's attempts slowly to retire greenbacks in anticipation of resumption.[5] The fissure split along lines of region and industry. The U. S. in the nineteenth century was a net importer of capital – the largest debtor in the world – and of manufactured goods. It was an exporter of raw materials and especially of agricultural products like cotton, tobacco, and grain. Most American manufacturing produced for the

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3 Bensel (2000, p. 6). Bensel (1990) argues that the Civil War was crucial for the pattern of national economic development in part because of the power it gave the Republican Party during and immediately after the conflict.

4 On the political economy of money and banking in the post-Civil War era, see Friedman and Schwartz (1963, chapter 2), Unger (1964); Frieden (2015, chapter 2), and Calomiris and Haber (2014, pp. 175 ff.). The classic history of the greenbacks is Mitchell (1903).

5 Friedman and Schwartz (1963, pp. 44-45).

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domestic market, at least before 1890, but a few like iron and textiles faced foreign competition.

Greenbacks represented in effect a floating exchange rate, since the currencies of major capital-exporting countries like Great Britain were tied to gold and the greenback floated against gold. A move to the gold standard would mean a shift to a fixed-exchange-rate regime. Like exporters of raw materials in all times and places, American agricultural interests favored a regime of flexible exchange rates and a cheap currency: fringe economies dependent on raw materials, like Argentina, India, and Russia, were not on the gold standard in the nineteenth century.[6] By contrast, northeastern financial interests favored the resumption of specie payments. For them, as for eastern merchants in the import trade, paper money created exchange-rate risk that a gold standard would eliminate.[7] More importantly, as Michael Bordo and his coauthors have argued, the gold standard would encourage foreign investment in the U. S., and thus increase financial opportunity, because it would act as a commitment device and a "Good Housekeeping Seal of Approval" for the dollar.[8] Only by joining the international gold standard could the U. S. become a first-tier financial power.

Northeastern importers and financiers who supported the gold standard were an important Republican constituency. Yet there was another constituency of the Party that would oppose resumption: manufacturers subject to foreign competition, since a strong

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6 British colonies were typically on gold, but India was on a silver standard (Frieden 2015, p. 109).

7 Unger (1959, pp. 47-48).

8 Bordo and Kydland (1995); Bordo and Rockoff (1996).

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dollar would make imports more attractive. How to restore the gold standard but retain these interests under the Republican tent? The answer was tariffs, the second pillar of the Republican coalition. The U. S. had long had tariffs, but these were initially devices to raise revenue and were set on a general *ad valorem* basis. In 1861, Congress passed the Morrill Act, which ushered in the era of protective tariffs targeted for specific interest groups at rates set explicitly by Congress.[9] New England textile interests did not strongly oppose resumption, probably in part because they specialized in low-end fabrics that did not compete head-on with the juggernaut of Lancashire.[10] But most other tradables producers, notably including the Pennsylvania ironmasters, were vociferous supporters of both greenbacks and tariffs, which they viewed as complementary; the ironmasters were also crucial in the emergence of the Republican Party as a national force.[11] The Republican strategy was to offer tariffs to such key constituents as a *substitute* for greenbacks: that was the bargain. By 1875, when a lame-duck Republican Congress produced a bill mandating resumption in 1879, the ironmasters had already begun to switch sides.[12]

The subsequent Democratic House voted to repeal the Resumption Act in 1877, but the bill failed by one vote in the Senate.[13] In that same year John Sherman, the once-and-future Ohio Senator, became Secretary of the Treasury, and began to implement the 1875

[9] Baack and Ray (1983); Irwin (1998a); Taussig (1910, p. 138). The Civil War dramatically increased the demand for federal revenue, and also removed from the scene Southern opposition to tariffs. But the Morrill Act was in fact initiated before the election of Abraham Lincoln. It placed duties on iron and wool in an explicit effort to attract Pennsylvania and Western states to the Republican Party. Once the war began, however, Congress rapidly ratcheted tariff rates up for revenue purposes.

[10] Frieden (2015, p. 65); Irwin and Temin (2001).

[11] Bensel (1990, p. 307); Frieden (2015, p. 65); Unger (1959, pp. 53ff).

[12] Unger (1959, pp. 65-66).

[13] Friedman and Schwartz (1963, pp. 48-49).

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Act in earnest by accumulating specie.[14] Convertibility did indeed resume in 1879. At the same time, the high-tariff regime of the Morrill Act and its successors, put in place on an essentially emergency basis for war finance, became the post-war *status quo*.[15] To producers of raw materials and agricultural products, this delivered a double whammy. The strong dollar militated against foreign demand, and, by raising the price of imports relative to exports, tariffs imposed a tax on exports.[16] Douglas Irwin has calculated that tariffs in the late nineteenth century amounted to an export tax of 10 per cent, redistributing some eight percent of GDP between sectors.[17]

The near half-century after the Civil War was broadly a period of price deflation, as output grew more rapidly the money supply.[18] In 1879, the year of return to redemption, the price level was something like 70 per cent of what it had been in 1868; in 1896, prices were something like 60 per cent of their 1868 level.[19] This deflation is the traditional starting point for analyses of the distress among farmers and producers of raw materials that found vent in the populist movements of the period. Just as inflation transfers rents from savers to borrowers, deflation transfers rents in the other direction. Western farmers were on the whole heavily indebted, and most of the savings that financed their loans came

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[14] Friedman and Schwartz (1963, p. 83).

[15] Taussig (1910, p. 146).

[16] As first pointed out by Abba Lerner (1936).

[17] Irwin (2007).

[18] Friedman and Schwartz (1963, chapter 3); Higgs (1971, chapter 2); Frieden (2015, chapter 3). The velocity of money also declined slightly during this period. Although some have referred to the late nineteenth century as one "long depression," in fact, apart from some severe recessions, rapid economic growth continued throughout the period of deflation. For the most part, the falling price level was an instance of what George Selgin (1999; 1997) has called "benign deflation."

[19] Rockoff (1990).

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from the East, implying that Western farmers would have to repay Eastern lenders with dollars more valuable than the ones they borrowed.

As Irving Fisher pointed out at the time, however, it is only *unanticipated* inflation or deflation that transfers income; if farmers anticipated continued deflation, they would factor that in when negotiating with lenders.[20] Moreover, economic historians in the twentieth century, including Nobel Laureates Robert Fogel and Douglass North, came to question whether there really was genuine economic distress among farmers, for although nominal farm prices were falling, real farm prices – by their calculations, at least – were not falling on average, and farmers in the aggregate seemed to be making reasonable rates of return on investment.[21]

Yet agrarian distress was real. There was considerable variation in this distress, and unsurprising it was the most distressed areas that generated the most populist energy. Jeffry Frieden has argued that the force of agrarian unrest came not from indebtedness but from the effects of monetary policy on agricultural exports.[22] Nonetheless, mortgage distress tended to be important in areas of strong populist sentiment like Kansas.[23] There is also considerable evidence that the price of agricultural output did indeed lag behind the price of agricultural inputs like metal products and building materials.[24] Transportation

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[20] Fisher (1896). See also Rockoff (1990, pp. 752-753).

[21] Fogel and Rutner (1972); North (1966, pp. 137-148).

[22] Frieden (2015, chapter 2; 1997). This had been noticed before. "It is hardly accidental," wrote Richard Hofstadter, "that the products of the American staple-growing regions showing the highest discontent were the products most dependent on exports" (Hofstadter 1955, pp. 51-52).

[23] Higgs (1971, p. 99).

[24] Frieden (2015, pp. 106-107).

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was one of the largest items in the farm budget, representing for farmers in the Great Plains and the West as much as half the value of crops at market. Robert Higgs has shown that, although railroad rates were falling, they fell more slowly than crop prices; and it was in areas like Nebraska and Kansas, where transport rates were a large part of costs, that populism was most active and successful.[25]

In 1873, at a time when the market value of silver was well above the mint value, Congress had voted quietly and without controversy to demonetize little-known and little-used silver coins. By the time of resumption, however, new finds of silver and other factors had lowered the price of silver, and, for reasons that included pressure from miners in the West, populists quickly settled on the free coinage of silver as a compromise source of inflation alternative to greenbacks. It was to be silver that catalyzed agrarian unrest in the remainder of the century.[26]

It is astounding to moderns the extent to which nineteenth-century populists argued the monetary underpinnings of their concerns. But the full expression of those concerns burst out far above their underpinnings. In Bensel's words, "the alternatives of gold and silver stood in for much larger complexes of sectionally based claims on wealth."[27] The populists who favored the free coinage of silver also railed against their creditors, the Eastern lenders and financiers, whom they associated with the interests of England and the

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[25] Higgs (1971, pp. 87-90).

[26] Freidman and Schwartz (1963, chapter 3); Unger (1964, pp. 329-330). The supply of silver was also shifting out because a number of countries around the world were adopting the gold standard and demonetizing silver.

[27] Bensel (2000, p. 288).

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Jews. They railed against immigration. More generally, they railed against "monopoly," by which they meant a variety of things, none of which were much like the neoclassical definition of the term. Robert Wiebe put it this way:

> Although antimonopoly occasionally singled out a definite enemy – some large corporation, a specific banking practice, a particular for of landholding – it usually served as a general method of comprehending the threats to local autonomy. Thus it would cover the whole range of railroad activities, from determining rates to influencing legislatures; all of American finance, from issuing currency to managing international exchange; and an entire scheme of land economics, from speculating in urban real estate to acquiring timber rights. Monopoly, in other words, connoted power and impersonality.[28]

Indeed, the problem was far more often not monopoly but *competition*. When pioneers first settled the prairies, they were notoriously self-sufficient – think of the Ingalls family in the *Little House on the Prairie* books: they made most of their own inputs and consumed most of their own crops. But two bursts of railroad construction, one in 1879 and one in 1885, filled out the system of feeder tracks, connecting many of the once-isolated farmers to the world.[29] It began to pay for farmers to buy inputs they had once made, and to sell increasing amounts of their surplus on markets. This in turn meant that, in addition to dealing with great natural uncertainties like weather and locusts, the proudly independent farmers began to come up against the uncertainties – and the hard realities – of the market and of their dependence upon it.[30] As Douglass North observed, the radical fall of transportation and information costs in this period "transmitted the consequences of changes in relative prices and incomes to all members of the society with a rapidity that set

[28] Wiebe (1967, pp. 52-53).

[29] Wiebe (1967, pp. 47-48).

[30] Anne Mayhew (1972) has stressed this argument.

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out in stark contrast the difference between individual beliefs about the society and individual experience."[31]

From state to federal regulation.

There is a long tradition in American political culture, still vibrant today, that looks to Revolutionary and post-Revolutionary America as the touchstone for freedom of contract and the absence of intrusive government regulation. As Jonathan Hughes pointed out in his classic *The Governmental Habit*, this picture of early America is far from the reality of the period. At the state level, non-market economic controls were ubiquitous.[32] U. S. states adopted English Common Law, which, while broadly protecting property and contract, was nonetheless replete with business controls of medieval and mercantilist legacy. Moreover, state legislatures quickly assumed powers that had once been vested in a distant Parliament, or indeed in the Crown; and by the time the ink was dry on the various Revolutionary denunciations of British practices, state legislatures were busy enacting more-or-less the same policies.[33]

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[31] North (1978, p. 972).

[32] Hughes (1977). On this see also Sylla (1991).

[33] Incorporation was not the only Crown prerogative that state legislatures assumed. Land in the American colonies was generally held in free and common socage, the least restrictive of traditional tenures, which would come to be called tenure in fee simple. This was in part the result of colonial statutes seeking to protect British creditors by allowing colonial borrowers to pledge unencumbered land as collateral (Priest 2006). The result was that land effectively became a commodity, which was to have great import not only for ownership rights generally but especially for the dynamics of westward expansion. Yet socage was nonetheless a feudal tenure, in which the holder was obliged to pay a quitrent to the "donor," ultimately the monarch, who was the real owner and who could repossess on failure to pay. Thus the state government became the "donor," and the quitrent transmogrified into the property tax (Hughes 1977, p. 16).

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One important former Crown prerogative that state legislatures adopted was incorporation, which they exercised with enthusiasm.[34] States created corporations not just, or even primarily, for business ventures: most were towns and districts, and the majority of the rest, at least initially, were charities, colleges, and the like. Incorporation created a charter, which provided the incorporated entity with a kind of internal constitution of rules. It also made the entity a legal person, shielding its assets from the creditors of the corporation's members.[35] And incorporation created a perpetually lived organization. Early American corporations were thus "creatures of the state" in both senses of the term "state."

It would be a mistake, however, to believe that formal incorporation by a state is necessary for an entity to enjoy corporate personhood, asset partitioning, and perpetual life. As Coasean legal theorists have long argued, all of these properties are potentially available through private ordering.[36] This is most clearly true of limited contractual liability, which is after all merely a "feature" that potential creditors or investors can price in.[37] Indeed,

[34] And this at a time when incorporation had been abolished by the French Revolution and was still forbidden in Britain by the Bubble Act of 1720 (Maier 1993).

[35] Hansmann and Kraakman (2000b).

[36] Ribstein (1991). This is not the same thing as saying that something like the corporate form could be (or could have been) had purely through *contract*. Contracts create rights *in personam*, that is, against specific named individuals. By contrast, the creation of corporate person implies many aspects of rights *in rem*, that is, rights in perpetuity against an indefinite number of unidentified individuals. So the construction of corporate personhood through private ordering would require some non-contractual elements of law, notably the law of trusts at the very least (Hansmann and Kraakman 2000a).

[37] Anderson and Tollison (1983) claim that limited liability provisions were in fact enforceable in English law in the eighteenth century, even though they were little used because limited liability conferred few transaction-cost benefits in a world of closely held companies with face-to-face transactions. Whether the law ought to enforce claims of limited *tort* liability as against merely contractual liability – that is, limited liability against "involuntary" creditors – is a complex question; but that is not the same question as whether Common Law, unaided by a monarch or a legislature, could or did permit limited tort liability in addition to limited contractual liability.

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during the period of the Bubble Act (1720-1825), English courts had cobbled together "a pre-incorporation system that offered many of the effects of separate personality, asset partitioning and limited liability"; and there existed in fact a multitude of "unincorporated corporations" that enjoyed most of the benefits of incorporation without a government-granted charter.[38] The key element of these arrangements emerged from the law of trusts: "The organization's real and personal property would be placed in the names of trustees, and trustees selected by the subscribers to the organization would be authorized in certain instances to act in the society's behalf."[39]

Despite the American state-government penchant for incorporation, the majority of early American businesses were not in fact incorporated, and the majority of incorporations did not occur where most economic activity was taking place.[40] At least in the case of businesses, early American state legislatures did not dispense charters in order to fill a legal void. They did so to control access to organizational forms and to generate economic rents.

Like governments in almost all times and places, American states reserved to themselves the right to charter banks, which they both taxed and invested in, and which provided a major source of public finance.[41] State legislatures also chartered many corporations for what were essentially purposes of economic development. The United States was a vast area of land with little transportation infrastructure. Because of near-

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[38] The quote is from Getzler and Macnair (2005, p. 272). See also Anderson and Tollison (1983). Ron Harris (1994) has argued that the Bubble Act itself – actually initiated before the bursting of the South Sea Bubble – was but one manifestation of a general hostility to incorporation during this period.

[39] DuBois (1938, p. 217).

[40] Handlin and Handlin (1945).

[41] Sylla *et al.* (1987).

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universal white male suffrage, legislatures felt a strong demand for roads, bridges, and canals, especially from those who anticipated that these improvements would cause the value of their once-isolated land to appreciate. But since such benefits were geographically concentrated, it would have been politically difficult to fund the projects through state-wide taxation. So state governments turned to what John Wallis has called "taxless finance": grant monopoly powers to a private corporation by charter, and allow the venture pay for itself out of the resulting rents.[42] State legislatures of the era were not operating under some kind of modern-day theory of natural monopoly; they were in fact happy to grant charters to any business that could claim to be serving the public interest, and there were few that could not find a way to make that claim. The first three business charters granted by Massachusetts were the Massachusetts Bank in 1784, the Charles River Bridge Company in 1785, and the Beverly Cotton Manufactory in 1789.[43]

As they had in the English tradition, state business charters typically came in the first instance with grants of monopoly. Once the bank, or bridge, or coach route was in place, however, the same voters who benefited from these charters began to chafe under the resulting market power, and state legislatures felt pressure to charter competitors. In 1828, Massachusetts chartered a competitor to the Charles River Bridge Company, leading to a famous Supreme Court case that came down in favor of the populist desire for competition.[44] Some states were happy to accommodate demands for incorporation by

[42] Wallis (2005). Of course, taxpayers would retain a contingent liability in the event the venture failed.

[43] Maier (1993, p. 54). In this period, state charters did not distinguish among governmental, non-profit, or commercial corporations. The language of "public interest" was identical in all.

[44] *Charles River Bridge v. Warren Bridge*, 36 U.S. 420 (1837). On this see Lamoreaux (2014) and Kutler (1971).

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legislative charter, and by the middle of the century, most state legislatures had passed generalized incorporation laws; but, unlike comparable statutes in Britain, which had been crafted by a business elite, the American statutes varied widely across states and were typically larded with restrictions and limitations reflecting the interests of voters.[45]

All of this began to change in the second half of the nineteenth century, which is where Chandler's story begins. Early railroads had already formed part of state-level transportation schemes, but the Civil War accelerated interstate linkages among railroads. Along with the telegraph and other innovations, railroads dramatically lowered transportation and communications costs, connecting what had been small regional markets into growing and increasingly national ones. Larger extent of the market invited American producers to tap into, and indeed helped to create, the so-called Second Industrial Revolution of steel, electricity, chemicals, and eventually the internal combustion engine. This radically changed economic landscape made it more efficient to produce many kinds of goods centrally at high volumes and then ship those goods to the periphery. The new geographic and technological configuration required a new form of enterprise to coordinate mass production and distribution, leading to the multi-unit managerial corporation

In Chandler's telling, the expansion of the national market was largely a matter of the physical and organizational technology of the railroad and the telegraph. In fact, of course, political economy was crucial to the creation of a national market, even if the dramatic changes in exogenous technological and economic circumstances were an important driving force in that political economy. Political factors shaped the way in which

45 See Lamoreaux (2014) and Hilt (2015).

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the physical technologies were deployed: the creation of a national market out of a fragmented state system was arguably as much a political story as it was a technological story.

In a world of high transportation costs and relatively low scale, federal-level regulation conferred few political benefits not available more locally, and it implied politically costly income transfers among regions. Moreover, the Commerce Clause of the Constitution forbade in principle any interference with interstate commerce such as tariffs between the states. In fact, however, many of the non-market controls within the states amounted to non-tariff restrictions on interstate trade. These included differential taxation of out-of-state goods and requirements that sellers deal only through local wholesalers and not directly with customers.[46] Because of the relatively local nature of commerce in the early republic, however, the stakes were seldom large enough, and the players seldom well enough financed, to challenge such policies in court. And when on a few occasions the Supreme Court overthrew a restrictive practice, the states immediately invented around the ruling. But the coming of the railroad and the telegraph changed the stakes, and the multi-unit enterprises that arose to take advantage of the changed economic geography possessed the incentive and the wherewithal to mount a concerted legal challenge based on the Commerce Clause. Prominently among these were the sewing machine manufacturer I. M.

46 Hollander (1964).

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Singer, which worked to overthrow various anti-peddler statutes and taxes,[47] and meatpackers like Swift, who supported suits against pre-slaughter inspection laws at the state level.[48]

By far the largest sources of friction between state and federal jurisdiction were in the areas of tort and commercial law. In the growing number of railroad-related torts, state courts tended to find disproportionately for local plaintiffs, motivating the railroads to attempt to move cases to federal jurisdiction. The same was true for (mostly Eastern) creditors, who found state courts likely to repudiate local debts, especially for railroad-related municipal bonds, or to decline to foreclose the mortgages held by (mostly Eastern) insurance companies. In the end, jurisdiction moved inexorably to the federal level, despite the efforts of Midwestern congressmen to prevent this centralization through legislative action.[49]

The federal government also began to take affirmative steps to wrest economic control from the state level. Because railroads had become absolutely critical for the livelihoods of many of their largely rural constituents, state governments felt immediate

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47 McCurdy (1978). The tide would turn back during the New Deal, and the Court would become unwilling to use the so-called Negative Commerce Clause to restrict state-level protection of local special interests. It is significant that, in its fight against state laws requiring all automobiles to be sold through independent local dealerships, Tesla Motors today is reluctant to use the tactics that had been successful for Singer in the nineteenth century, fearing that the precedent set today could go against them (Crane 2016).

48 In 1891, Congress would pass legislation creating a system of pre-slaughter inspection at the federal level for all meat for export or interstate commerce. This was in response not to any actual health threat but to actual and potential protectionist measures in export markets, notably Britain, that were predicated on allegations of low-quality American meats (Libecap 1992). In addition to removing inspection from the hands of the state, the act also shifted the costs of quality certification onto the federal government.

49 Freyer (1979).

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pressure to exert non-market controls, including price controls. In the *Munn* case of 1877, the Supreme Court granted states the right to regulate any economic activity that was "affected with the public interest," thus placing its imprimatur on practices of long standing.[50] *Munn* upheld the so-called Granger Laws, which attempted to regulate railroad rates in a way favorable to farmers. Quite apart from harming the interest of the railroads, these state-level price controls wreaked havoc in an interstate network.[51] In the *Wabash* case in 1886, the Court invoked the Commerce Clause and effectively removed rate regulation from state hands.[52] The next year the federal Interstate Commerce Commission (ICC) was born.[53]

Gabriel Kolko famously argued that this was not a victory for the farmers and other shippers; it was not an instance of regulation acting in the "public interest" against the opposition of the railroads. Instead, it was a victory for the railroads, who actively sought regulation to free themselves not only from the tribulations of multiple state regulators but also from the more important problem they faced: competition among one another. Kolko characteristically sees regulation as benefiting industry almost exclusively, an outcome he labels tendentiously as "conservative."

> Business advocacy of *federal* regulation was motivated by more than a desire to stabilize industries that had moved beyond state boundaries. The needs of the economy were such, of course, as to demand federal as opposed to random state economic regulation. But a crucial factor was the bulwark which essentially conservative national regulation provided against state

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50 *Munn v. Illinois*, 94 U.S. 113 (1877).

51 McCraw (1984, p. 57).

52 *Wabash, St. Louis & Pacific Railway Company v. Illinois*, 118 U.S. 557 (1886).

53 Congress was in fact well on its way to railroad legislation before the Wabash case was decided (Kolko 1965, p. 33; Poole and Rosenthal 1993, p. 838).

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> regulations that were either haphazard or, what is more important, far more responsible to more radical, genuinely progressive local communities. National progressivism, then, becomes the defense of business against the democratic ferment that was nascent in the states.[54]

Despite the Kolko's enormous influence on the literature, however, most other scholars of the political economy of the era have come to see regulation as the outcome of a bargain that included the interests of various groups, not just business interests, and that very much included the populists.

Economists were not exempt from the nineteenth-century fascination with railroads, though their keen interest grew largely out of the theoretical challenges the industry posed. As early as 1850, the British engineer and economist Dionysius Lardner saw that, perhaps to a greater extent than most products of the First Industrial Revolution, railway transport operated under conditions of increasing returns: fixed costs are necessarily high and variable costs low. In railways,

> an expense of an immense amount is incurred before a single object can be transported. Extensive lines of road, attended by works of art of prodigious magnitude and cost, are formed. Large buildings are provided for stations, and, in fine, a stock of engines and carriages is fabricated. All these expenses are incurred preparatory to locomotion, and must be divided among the quantity of transport executed. Indeed, the mere labour or expenditure of mechanical power necessary to transport the objects of traffic from point to point along the road forms the most insignificant item

[54] Kolko (1963, p. 6).

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> of the entire cost; and this item alone is in the direct proportion of the quantity of transport.[55]

Competition tends to drive prices down to marginal cost, which is economically efficient. But, as all introductory textbooks now teach, in a high-fixed-cost industry, marginal-cost pricing will lead to a loss, since it won't generate enough revenue to cover the fixed costs. American railroads after the Civil War felt this problem acutely – a problem made worse in their case by the overbuilding that federal land grants and subsidies had encouraged.

The result was a period of rate wars.[56] As multiple lines crossed the East and soon the South and West, shippers could choose among routes for long-distance hauls, generating competition that tended to throw those trunk lines into the red. The railroads tried to avoid losses by colluding to keep rates above marginal cost. Their efforts met with only temporary success, since each railroad had a private incentive to cheat on the cartel, often by deliberately misclassifying goods or by secret rate-cutting for select shippers. The railroads could not write legally binding contracts to restrict output or raise prices, as common law precedents held such contracts unenforceable or even tortious, and contemporary courts had not been tested on the matter.[57] As a result, rates tended to fluctuate wildly as cartel arrangements rose and fell. The most successful cartels, like the Southern Railway & Steamship Association administered by Albert Fink, operated as "pools," meaning a kind of holding-company-by-contract in which the participants

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[55] Lardner (1850, p. 218). An important influence on William Stanley Jevons, Lardner was a precursor of the so-called Marginalist Revolution in economics in the 1870s.

[56] Kolko (1965, chapter 1). For a contemporary account see Adams (1878). "In no other industry," writes Herbert Hovencamp (1991, p. 1039), "have attempts at both legal and illegal cartelization been so persistent, widespread, systematic, or ultimately doomed to failure."

[57] Hilton (1966, pp. 90-93).

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contributed to a common fund and received returns that were proportional to the pool's profits not their own individual profits.[58] But even pools did not prove durable, and railroad rates and profits continued to fluctuate.

Railways had another tool at their disposal to avoid an economic loss: price discrimination. Competition among trunk lines was intense because shippers could be relatively indifferent to the route taken so long as freight got to the distant destination. But each line had its own system of feeders on which there was no competition; and the location of the intermediate node in a long-distance route mattered to those who were shipping to the nodes themselves rather than to the end points. Railroads could thus raise rates on short-haul routes while keeping them low on long-haul trunk routes. For example, it might cost twice as much to ship goods from San Francisco to Salt Lake City as from San Francisco to New York, since there were many alternatives for the longer trip.[59] "It was exactly as if a traveller was to buy a through ticket from Albany to Buffalo, and the railroad company were to insist not only on taking up his ticket but on charging him a dollar extra if he left the train at Syracuse."[60] Thus wrote Charles Francis Adams, scion of the famed Massachusetts family and perhaps the leading intellectual figure in the railroad debates of the nineteenth century. Adams believed implicitly that a per-mile rate was the only rational pricing scheme and that short-haul discrimination was an "absurd anomaly." In fact,

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[58] Hilton (1966, pp. 88-89); Kolko (1965, pp. 8-10); MacAvoy (1965, chapter 4).

[59] Which apparently was true in 1905 (Dewey 1935, p. 8). In his 1901 novel *The Octopus*, Frank Norris tells of plows waiting on a siding in fictional Bonneville, California. Although the plows are destined for Bonneville, and are even pointed out to their owner, they cannot be unloaded but must first be shipped to San Francisco and back (Norris 1901, pp. 66-67).

[60] Adams (1878, p. 124).

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however, economists before and since have understood that a discriminatory pricing scheme actually militates in favor of economic efficiency.[61] It is a variant of what is nowadays called Ramsey pricing: charging more for goods or services inelastically demanded than for goods or services elastically demanded.[62]

But economic efficiency was not among the concerns in the debates over railroad regulation. As we saw, railroads had become indispensable for the livelihoods of large segments of the American population, and railroad rates often formed a large fraction of the costs of farmers and businesses of many sorts. The rates the railroads set thus had enormous distributional implications.

Everyone wanted something done about railroad rates, but there was no agreement about what. The railroads themselves wanted both collusion and price discrimination. These were in some ways substitutes, however, and price discrimination made it possible to keep long-distance trunk rates low. Indeed, the railroads thought of the high local rates as subsidizing price wars on the trunks, so they were willing to trade lower short-haul rates for the ability to collude and raise long-haul prices.[63] Western agricultural interests opposed collusion, not only because of their general antimonopoly sentiment but also

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[61] This was understood at least as early as Ellet (1840), another precursor of the Marginalist Revolution; it was implied in John Stuart Mill's (1848, Book III, chapter XVI, p. 582) analysis of the joint-cost problem; it was in Lardner (1850, p. 220); and it was argued by contemporary economists like Hadley (1885) and Taussig (1891). Baumol and Bradford (1970), who are responsible for the modern formalization of this idea, refer explicitly to the debates about short-haul-long-haul price discrimination in the nineteenth century. Hovencamp (1991) argues not only that contemporary economists understood railroad economics but also that their ideas were influential in legislation. The latter part is dubious, at least with respect to price discrimination, as Adams was the major intellectual influence on the Senate side of what became the Interstate Commerce Act (Kolko 1965).

[62] Ramsey (1927).

[63] Hilton (1966, p. 94).

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because, as long-distance shippers, they benefited from low trunk rates.[64] At the same time, however, the small businesses in the West that supplied the farmers were harmed by the low trunk rates, since these enabled distant businesses, including the emerging Chandlerian corporations, to erode their local monopolies, which in many cases were tied to the system of river and canal transportation that the railroads were rapidly superseding.[65] For most, however, it was short-haul price discrimination that mattered: many farms and businesses were on small feeder lines, and many Eastern and Midwestern businesses found themselves sitting at what had become intermediate nodes as the economy moved west.[66]

Yet another constituency was concerned with a different sort of price discrimination: the special rates that railroads accorded to certain high-volume customers, notably Standard Oil. After oil was discovered in western Pennsylvania, three railroads competed to ship crude to refineries and to ship the resulting kerosene to the large Eastern cities, where it was becoming a replacement for whale oil and other expensive means of generating light and heat. Like other railroads of the period, these lines suffered from the problem of high fixed costs and sought methods of collusion to avoid price wars. Petroleum refining had its own problems of excess capacity and intense competition. So Pennsylvania railroad executives cooked up a plan solve their own problems by simultaneously solving those of the refiners.[67] The railroads brought together a select group of refiners, headed by John D. Rockefeller, the largest refiner in Cleveland, and

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[64] Dewey (1935, pp. 63-64); Martin (1974, p. 344).

[65] Miller (1971).

[66] Benson (1955).

[67] Chernow (1998, p. 135).

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facilitated their incorporation into the South Improvement Company, one of several "improvement companies" the Pennsylvania legislature had created under secretive and presumably corrupt circumstances. Using a complex system of rebates and "drawbacks," Rockefeller and the other refiners essentially policed a railroad cartel while earning a kickback in proportion to the amount of oil they shipped. Although helping to create a railroad cartel would raise Rockefeller's own shipping rates, it would raise them less than those of rival refiners, giving Rockefeller an advantage he could use to persuade the rivals to sell out to him.[68] Within months he had bought out almost all the refiners in Cleveland.[69]

One constituency left out of this bargaining coalition, however, were the producers of crude oil, who now faced monopsony power. The oilmen banded together and began to embargo shipments in what came to be called the "oil war."[70] As these constituents were almost all in Pennsylvania, the state legislature quickly pulled the charter of the South Improvement Company, and the cartel collapsed.[71] The victory of the oilmen was short lived, however. Within two weeks Rockefeller signed an agreement with the New York Central for preferential rates, and in 1874 had a similar agreement with the Erie; also in 1874 Standard absorbed its erstwhile partners in the South Improvement Company, who were the largest refiners in Philadelphia and Pittsburgh;[72] and in 1877 Standard came to terms with the recalcitrant Pennsylvania Railroad.[73] This last instantly threw the oilmen

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68 Granitz and Klein (1996).

69 Chernow (1998, p. 153).

70 Tarbell (1904, chapter 3).

71 Nash (1957, p. 182).

72 Granitz and Klein (1996, pp. 17-18).

73 Montague (1902).

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and remaining independent refiners into a panic.[74] Their pressure for federal legislation outlawing rate discrimination led ultimately to the House version of what became the Interstate Commerce Act.[75] Although much of the legislative agitation came from oil, volume discounts were routinely practiced throughout the country in meatpacking, lumber, and many other areas. In significant part such discounts had an economic rationale, as large shippers were lower-cost shippers because they employed more advanced logistics and because they reduced transaction costs by "leveling" loads and making shipping more predictable.[76] But volume discounts and other forms of individual rate discrimination redounded to the disadvantage of smaller, less-efficient shippers.

All of these diverse interests came together in the Act of 1887: all wanted something done; each wanted something different done.[77] The Senate bill took form under the supervision of Republican Shelby Cullum of Illinois, who held hearings and produced a careful report. Cullom had been won over to the ideas of Adams, who favored a commission of experts – Adams had run what McCraw calls a "sunshine commission" in Massachusetts – and who, more importantly, favored federally managed cartel pooling as the solution to the instability of railway rate-setting.[78] The Senate bill also outlawed secret price cutting and individual price discrimination (which would be necessary to make the cartel system work), but it contained only vague language about short-haul discrimination.

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[74] "Utter and complete terror prevailed among the independent oilmen" (Nash 1957, p. 185).

[75] Nash (1957).

[76] Nevins (1927, pp. 399-400).

[77] For accounts of the passage of the Act see Gilligan, Marshall, and Weingast (1989); Hilton (1966); Kolko (1965, chapter 2); and Martin (1974).

[78] McCraw (1984, chapter 1).

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The House bill was the work of Democratic Texas Congressman John Reagan, an antimonopoly populist who had worked and sympathized with the Pennsylvania oilmen in their fight against rate discrimination.[79] His proposal outlawed secret price cutting and individual rate discrimination (for reasons very different from those of the Senate bill) as well as short-haul discrimination. It made no mention of a commission and – most significantly – prohibited pooling, the very *raison d'être* of the Senate version.

Legislators from the South and border states strongly supported the Reagan bill, whereas those from the East and Middle Atlantic states who could be persuaded to support any regulation at all supported the Cullom bill; the Midwest split along party lines.[80] Given the popular enthusiasm for some kind of legislation, Congress was forced to act despite the incompatibility of the two bills. The result was a dog's breakfast. In committee, the House acceded to the commission idea, but Reagan would not budge on pooling. So the bill reported out had a commission to manage pooling but no pooling. Both sides agreed to provisions against individual rate discrimination, which would prove extremely difficult to enforce. And the final bill contained a weaker version of the House's prohibition against

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79 Nash (1955; 1957).

80 Poole and Rosenthal (1993). These authors contend that it was the ideological differences between the strongly pro-regulation South and the anti-regulation Northeast that were decisive in the legislative arena, not the interests of short-haul versus long-haul shippers.

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short-haul discrimination, limiting prohibition to cases in which offending hauls were performed under "substantially similar circumstances and conditions."[81]

Kolko maintained that the railroads somehow foresaw and desired all of this, and that the Commission served to coordinate cartels even without pooling. For this there is little empirical evidence, and rate wars continued. There does seem to be evidence that railroads did reduce short-haul tariffs relative to long-haul in the years after the Act. Gilligan, Marshall, and Weingast find that the Interstate Commerce Act benefited the railroads only slightly, and ultimately resulted in a transfer of income from long-haul shippers to short-haul shippers.[82] Needless to say, the short-haul shippers were importantly among Kolko's "radical" and "genuinely progressive" Midwest farming interests.

The Interstate Commerce Act was significant in creating an empty vessel of federal regulation that later decades would fill in their own way. The Interstate Commerce commission became the model for much of early twentieth-century regulation.[83] The Act provided a template in another respect as well: by prohibiting contractual approaches to coordination among legally separate entities, it encouraged those entities to combine. In outlawing pooling while at the same time attempting to limit price discrimination, the Act removed both mechanisms that independent railroads had had at their disposal to solve the fixed-cost problem. By the end of the century, continued rate wars, along with the recession of 1893, had led to a consolidation of the railroads into a network of fewer than

81 Martin (1974, p. 262). What came out of committee, writes Martin, "was pure compromise in the worst American political tradition."

82 Gilligan, Marshall, and Weingast (1989).

83 McCraw (1984, p. 62).

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ten unified lines, thus effectively providing through integration much of what pooling had originally been intended to accomplish.[84] In view of the degree of railroad overbuilding, some consolidation was inevitable; but the ICA sped it along and arguably increased its extent. Managed pooling of the sort Adams advocated would have had the opposite effect.[85]

The origins of antitrust.

The charter of the South Improvement Company was valuable to John D. Rockefeller for reasons that went beyond the company's usefulness in managing a railroad cartel. The charter was almost entirely free of restrictions, and included the right to operate across state lines and to own the stock of other companies. In effect, it created a holding company. When the Pennsylvania legislature rescinded the charter, Rockefeller was obliged to operate under the much more restrictive Ohio charter of Standard Oil; and, as he began to acquire refineries in other states, he was forced to employ locally chartered companies. Through 1881, Standard was an "alliance" of 41 separate units, each one operated as some form of corporation, partnership, or trust, with substantial cross ownership of shares.[86] "Standard," writes Glenn Porter, "was put together with a patchwork of subterfuges."[87] Needless to say, this made administration difficult, especially in view of Rockefeller's strategy of closing inefficient refineries and concentrating production in large facilities

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[84] Chandler (1965, p. 162); Chernow (1990, p. 68).

[85] At the end of 1888, Adams told the Commonwealth Club in Boston that the prohibition against pooling was putting smaller lines out of business and speeding consolidation. "The Act is at this moment rapidly driving us towards some grand railroad trust scheme." (Quoted in Martin (1974, p. 366n59).)

[86] Hidy (1952).

[87] Porter (1973, p. 65).

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nearer to customers.[88] Moreover, the local nature of its constituent charters made it vulnerable to local political forces: Pennsylvania, for example, was threatening to tax the assets of Ohio Standard as a "foreign" corporation.[89]

Standard's general counsel S. C. T. Dodd came up with the famous solution: a stock-transfer trust.[90] The owners of all units would place their stock in the hands of a group of trustees – John D. Rockefeller and his associates – in exchange for a claim to dividends. In knowing or unknowing emulation of the English solution during the era of the Bubble Act, Dodd was using the law of trusts to recreate the kind of *carte blanche* corporate charter that South Improvement had enjoyed.[91] The goal was to place effective control in a central office, which could rationalize holdings and invest in new facilities and technology.[92] In the three years after the formation of the trust in 1882, Standard had succeeded in consolidating what had been 53 refineries into 21 highly efficient ones, lowering the average cost of refining from 1.5 cents to 0.5 cents per barrel.[93]

But the states would not give up their power easily. In 1891, Ohio successfully sued Standard Oil on the grounds that its constituent units did not have the power under their individual local charters to enter into a trust arrangement – in legal terminology, the trust was *ultra vires*. Standard was forced to recede back to a congeries of state-chartered

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[88] Montague (1903, p. 309).

[89] Chandler (1977, p. 323).

[90] Hovencamp (1991, p. 249).

[91] Sitkoff (2005, p. 32).

[92] Hidy (1952).

[93] Williamson and Daum (1959).

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units, reconstituting itself as an alliance, now of 34 operating units. State corporate law was hostile in general to the stock-transfer trust, and by the turn of the century it was obsolete as a corporate form.[94]

Yet, because of the growing interconnectedness of the American economy, the ability of states to extract rents through charters was declining, and jurisdictions began adopting the opposite strategy: competing for tax revenue through *removing* restrictions from corporate charters, including restrictions on holding the stock of out-of-state corporations.[95] In this competition New Jersey led the way, and its overhaul of corporate law

> effectively bypassed all or nearly all of the common law restrictions on corporate structure and activity, removed time limits on charters, and allowed firms to engage in just about any business they saw fit to pursue, in New Jersey, in other states, and overseas. New Jersey companies could merge or consolidate at will, set their own capitalization values, and secure the stock of other firms through outright purchase or exchange of their own stock. Moreover, directors now had wide latitude in deciding what information would go to stockholders and in utilizing proxy votes.[96]

These reforms quickly attracted to New Jersey 61 of the 121 state-chartered corporations with capitalization over $10 million in 1899.[97] By 1905 the state had raised enough money from filing and franchise fees to abolish the state income tax and enjoy a healthy $3 million surplus in its coffers.[98] The Standard Oil operating unit in New Jersey was among those

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[94] Hovencamp (1991, p. 251).

[95] Butler (1985); Grandy (1989); Urofsky (1982).

[96] Urofsky (1982, p. 163).

[97] Hovencamp (1991, p. 258).

[98] Urofsky (1982, p. 164).

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that took full advantage, becoming the holding company for the entire national operation in 1899.[99]

As economic historians of the corporate form have emphasized, corporations want legal institutions to solve two different kinds of rent-seeking problems.[100] One of these is the problem of external rent seeking: protecting the corporation from a covetous state and its various interest groups. The other is the problem of internal rent-seeking: protecting internal players from one another, including protecting shareholders from managers and protecting minority shareholders from majority shareholders. State chartermongering effectively solved the first problem. Delaware quickly took over from New Jersey as the preferred jurisdiction for corporate charters after the gubernatorial administration of Woodrow Wilson pushed through severe anti-corporate legislation. The predictable winner in such a competition would indeed have been a small state like Delaware, since in a small state income from chartering is a relatively large fraction of revenue, thus effectively bonding corporations against expropriation.[101] It is more controversial whether state chartermongering solved the internal rent-seeking problems as well. But in the early years, the move to a Chandlerian managerial structure was just beginning, and corporations could avail themselves of a number of reputational devices, including the good offices of investment bankers like J. P. Morgan, to protect minority shareholders.[102]

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[99] Hidy (1952).

[100] Hilt (2014); Lamoreaux (2009) ; Roe (2013).

[101] As Grandy (1989) has argued.

[102] De Long (1991).

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The relatively unrestricted state charter thus became the dominant legal vehicle for the large enterprise.[103] Left to its own devices, the law of trusts might eventually have evolved an adequate legal structure for the large enterprise, with its need for extensive and complex financing and for managerial control across state borders.[104] But relatively unencumbered state-level incorporation was quicker on the draw: in effect, it was able to reduce the dynamic transaction costs of institutional change, in much the same way – I will argue – as did the organizational innovations of entrepreneurs like Rockefeller.

There was a third possibility as well: federal incorporation, which would become a subject of serious consideration and contention in the twentieth century. Federal incorporation would have recreated at the national level the incentives that had existed at the state level before jurisdictional competition. In effect, it would have merged corporate law with what we now think of as competition or antitrust policy, in a manner similar to what was to take place in many parts of Europe.

This did not happen. Like railroads in 1887, certain industries would receive their own specific regulatory apparatus. But for most others, including Chandler's large industrial and distributional concerns, the principal instrument of federal power, especially early on, was to be antitrust policy. Instead of a regulatory model, in effect, the U. S. adopted what Daniel Crane calls a crime-tort model of business control, a freestanding

[103] Naomi Lamoreaux (2004) and her coauthors have argued that, although relatively unrestricted by the standards of early state charters, these late nineteenth-century state charters offered a standardized set of rules useful for the large enterprise but not flexible enough for smaller businesses.

[104] Sitkoff (2005) has argued at length that the law of trusts is and has been a competitor to state chartering as a source of corporate law. Legal scholars in the early twentieth century produced a spate of treatises on the subject, many arguing that the law of trusts could do the same work as the law of corporations.

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norm of behavior left to judicial interpretation.[105] On the one hand, this model did not impose direct non-market controls (or induce interest-group capture) in the manner of public-utility regulation, thus allowing greater scope for the price system in resource allocation.[106] On the other hand, as I will emphasize, the antitrust approach – attacked and modified but never overturned in the twentieth century – would have significant implications for the choice between internal and inter-firm modes of coordination in American industry. This is so to an extent that has been glimpsed only in pieces in the literature. By generating uncertainty about government action and, especially, by rendering episodically illegal many forms of inter-firm coordination, the crime-tort model would have the effect of evacuating the space between relatively anonymous and atomistic market transaction at one extreme and complete horizontal or vertical integration at the other. In a developing economy driven by systemic change, in which markets were necessarily thin, this very often meant integration.

Most economists, and indeed legal scholars, tend to take the Sherman Antitrust Act of 1890 at face value, assuming implicitly or explicitly that it represents a sincere and perhaps even coherent attempt to correct a problem of trusts or monopolies, understood to have arisen spontaneously at the time and to be injurious to society, perhaps even injurious in the sense of economic inefficiency.[107] This is no doubt largely a matter of the conceptual baggage that economists and legal scholars carry with them. But it is also attributable in

[105] Crane (2008). Crane sees this choice as a manifestation of the antifederalist tradition in the U. S., which he traces back to the antifederalist reaction to a proposal by James Madison to include in the Constitution a provision explicitly permitting federal incorporation.

[106] Hughes (1977, p. 120).

[107] On the notion of monopoly arising "spontaneously" – and the alternative – see Demsetz (1974).

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part to Hans Thorelli's detailed, exhaustive – and self-consciously credulous – treatment of the Act's passage, which has been cited so often as to become the definitive source.[108] Thorelli's account is in fact an instance of mid-twentieth-century Progressive history, explicitly aimed at an older historiography that saw the Sherman Act as deeply imbedded in the political economy of the late nineteenth century.[109] To many writers in this tradition, both before and since Thorelli, the Sherman Act was an exercise in political compromise almost identical to its cousin the Interstate Commerce Act: it formed in the same matrix of political forces, and it also created an empty vessel left for future political actors to fill, albeit one with differences that would prove crucial.

For those who see charade as well as for those who see sincerity, the starting point of explanation has almost always been populist antimonopoly sentiment. And that is certainly an important part of the story. Populist legislators, notably including John Reagan, now elevated to the Senate, played a formative role in the deliberations leading up to the Act. Murray Edelman has gone so far as to argue that Sherman was intended principally to transmit symbolic reassurance to diffuse constituencies, importantly including the agrarian populists, who felt anxious and powerless in the face of major economic change.[110] But it is also possible to identify far more tangible interests at play.

Now once again in the Senate from Ohio, John Sherman remained a hard-core Republican: a strong supporter of tariffs as well as one of the engineers of the return to the

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108 Thorelli (1955).

109 Thorelli (1955, p. 163) takes particular aim at what he calls the "traditional view" of the "Clark School" (Clark 1931). See also Stephenson (1930) and Fainsod and Gordon (1941).

110 Edelman (1964). See also Letwin (1965pp. 86-88).

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gold standard. The northeast United States was staunchly Republican, the South largely Democratic and populist.[111] The Midwest was more complicated: then as now, Ohio was a swing state. As a result, Sherman had to compromise with populist interests to stay in office, and he sought to do this in ways that did minimal damage to his fundamental goals.[112] One important field of battle, of course, was inflation. In 1888, Republican Benjamin Harrison had defeated pro-gold Democrat Grover Cleveland in part on a promise to "do something about silver." Congress quickly agitated for the free coinage of silver. It was up to Sherman, as chair of the conference committee, to craft a result that fell far short of free coinage while appearing generous to silver. He was able to calibrate a finely tuned bill that required the Treasury to purchase the minimum amount of silver the Senate would accept and the maximum amount the House would tolerate.[113] This was the Sherman Silver Purchase Act.

The Silver Purchase Act itself was imbedded in a larger compromise. Sherman devotes a chapter of his autobiography to the 51st Congress, including the eponymous Silver Purchase and Antitrust Acts. Yet, to Sherman, the "most important measure adopted during this Congress was what was popularly known as the McKinley Tariff Law."[114] As an important thread of scholarship has long argued, both the Silver Purchase Act and the Antitrust Act were intended to placate, and were perhaps even part of a bargain with, the

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[111] Poole and Rosenthal (1993).

[112] Nichols (1934).

[113] Timberlake (1978, p. 30).

[114] Sherman (1895, p. 839).

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anti-tariff Democrats and populists.[115] The tariff issue was coming to a head because the federal government had a problem: tariffs were bringing in too much revenue, and the budget was in surplus. Democrats wanted to solve the problem by reducing tariffs, which they had long seen as strictly devices for raising revenue not protection. Republicans did not want to dull the protective effect of tariffs, so they proposed *raising* them, arguing in effect that the tariff system was on the downward-sloping portion of the Laffer curve and thus that raising tariffs would actually lower revenue.[116]

What had tariffs to do with antitrust? Opponents of tariffs in this era firmly believed that cartels and trusts were a mechanism, and perhaps *the* mechanism, through which tariffs raised the prices of their inputs. Needless to say, tariffs raise prices even in the absence of any collusion among domestic producers. But it is true that a tariff can create a price umbrella under which would-be cartelists might huddle: it never pays to collude to raise prices if there is strong international competition. Correlation is not causality; but many nineteenth-century farmers and producers of raw materials did indeed observe attempts to cartelize industries that benefited from tariffs. Prominent among the list of alleged trusts at the time was the cotton-bagging trust, which was not in fact a trust but a pool cartel, administered by a distributor in St. Louis, of the makers of the jute wrappings essential to the baling of cotton.[117] Even though Reagan and other members of Congress were working

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[115] This claim goes back at least as far as Stephenson (1930) in his biography of Nelson Aldrich, the strongly pro-tariff Republic Senator from Rhode Island. See also Fainsod and Gordon (1941). DiLorenzo (1985) and Hazlett (1992) have resurrected this idea in the context of the Antitrust Act.

[116] Irwin (1998b). By Irwin's calculations, the Democrats were right. Indeed, the failure of the McKinley tariff to reduce revenues arguably cost Harrison his job, as voters associated the surplus with excessive federal spending.

[117] Holmes (1994).

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at that time to remove jute from the protected list, the cartel nearly doubled the price of baling in 1888. Cotton-producers rose in protest and sporadic boycotts, and their associations pushed to develop cotton as an alternative baling material. In the end, the cartel collapsed within two years, and the former members of the cartel merged not into a trust but into a vertically integrated Chandlerian firm that was but one player in what became a competitive industry. But the cotton producers understood well that removing the jute tariff would have prevented the cartel.

The idea that tariffs cause monopoly was a plank in the Democratic platform of 1888, and in his annual message to Congress at the end of 1887, Cleveland denounced trusts and specified the removal of tariffs as the remedy.[118] *The New York Times* and other papers ran editorials to the same effect, including one urging tariff reform as a cure for the Cotton Bagging Trust.[119] After the introduction in the Senate of S. 1, which would eventually become the Sherman Antitrust Act, there were introduced in the House no fewer than eight proposals to attack trusts by removing tariffs.[120] Thus it is no surprise that both scholars and contemporaries saw the Antitrust Act as solely a tactic to divert concern from the forthcoming McKinley Bill. Declared *The New York Times* on October 1, 1890: "That so-called Anti-Trust law was passed to deceive the people and to clear the way for the enactment of this Pro-Trust law relating to the tariff. It was a humbug and a sham. It was

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118 Letwin (1965, p. 86). The plank read: "Judged by Democratic principles, the interests of the people are betrayed when, by unnecessary taxation, trusts and combination are permitted to exist, which, while unduly enriching the few that combine, rob the body of our citizens." The phrase "unnecessary taxation" here refers to tariffs, of course.

119 *The New York Times*, August 29, 1888, p. 4. See also *The Chicago Daily Tribune*, September 1, 1888, p. 1.

120 Thorelli (1955, p. 175).

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projected in order that the party organs might say to the opponents of tariff extortion and protected combinations, 'Behold! we have attacked the Trusts. The Republican Party is the enemy of all such rings.'"

Yet John Sherman was juggling even more balls than this. Senate Republicans had a response to the charge that antitrust was all about tariffs: what about "trusts" in other industries, like whiskey, beef, and oil, that didn't benefit from tariff protection?[121] Republicans, especially Republicans from Midwestern states like Ohio, were very much concerned about these "trusts." Not all of these were actually trusts in legal organization, but all were large Chandlerian enterprises that were consolidating, redeploying resources geographically across state lines, and taking advantage of economies of scale and scope.[122] Far from being lazy, price-raising monopolists, these enterprises were busy creatively destroying a constituency that Sherman wanted to retain under, or induce into, the Republican tent: the small, relatively local, independent business.[123] These included smaller oil refiners, who were among Sherman's own Ohio constituency. Most small refiners in this era continued to ship in barrels, whereas Standard had gained tremendous efficiencies using tank cars, for which, as we saw, it was rewarded with lower prices from the railroads. Indeed, Sherman had previously proposed a bill to outlaw differential pricing

[121] Thorelli (1955, p. 188).

[122] Chandler (1977, p. 320) was able to identify only eight enterprises in this period that were actually organized as trusts. The six of these that were successful were all in distilling or refining industries with similar technological problems and economies of scale. Sherman understood this as well. In a speech in 1888 responding to Cleveland's message to Congress, Sherman said: "The only striking examples of 'organized combination' are by the distillers of whisky, the refiners of sugar, the cotton-seed-oil trust, and the Standard Oil Company, and as to these the President is silent " (Thorelli 1955, p. 167).

[123] Stigler (1985).

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for tank cars over barrels, a measure that failed only because some independent refineries had also adopted tank cars. Werner Troesken's analysis of Sherman's letters shows that small oil refiners were the largest constituency lobbying Sherman himself.[124]

Oil was not the only industry in which small firms felt the effects of the nineteenth-century New Economy. Independent local slaughterhouses and butchers were under pressure from the large Chicago packers – Swift, Armour, Morris, and Hammond – who had pioneered the processing and shipment of refrigerated dressed meat. As we saw, state legislatures attempted to raise the costs of the large packers by requiring local pre-slaughter inspection, measures that the packers fought successfully in court under the banner of Commerce Clause.[125] The states also passed their own antitrust laws. After 1885, cattle prices began to fall, which the cattle raisers blamed on the monopsony power of the packers. The big four had indeed attempted collude, but the cartel quickly floundered, and new entrants appeared; in fact, the decline in cattle prices was almost certainly the result of overinvestment in cattle production, which had resulted from the expectations formed when cattle prices had *increased* earlier in the decade because of the expansion of dressed beef. Gary Libecap has argued that the cattle raisers and the small independent slaughterhouses were another major force pushing federal antitrust legislation.[126]

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124 Troesken (2002).

125 *Minnesota v. Barber* 36 U.S. 313 (1890).

126 Libecap (1992). The cattle raisers and slaughterhouses also succeeded in pushing through in 1891 a federal meat-inspection act, a precursor of the more famous 1906 act, in order to provide quality certification for the export market at taxpayer expense. The large packers were split on the measure, as some were wary of federal intervention in their business and felt their own brand and reputation provided adequate quality certification (Olmstead 2015, p. 183).

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The compromise bill passed the House unanimously and the Senate with but one no vote, although many Northeastern Republicans had absented themselves from the proceedings in disgust or disinterest. Not exactly a sign that the legislation contained sharp edges of any kind. Although he ended up voting in favor, Senator Orville Platt of Connecticut spoke against the bill on the Senate Floor, famously arguing that the Act was not a sincere attempt to regulate trusts but rather the cynical production of a bill with antitrust in the title "to go to the country with."[127] The bill's scattershot prohibition of inter-firm agreements, he predicted, would lead to mischief.

Antitrust, finance, and consolidation.

Sherman may have believed that the McKinley Tariff was the most important work of the 51st congress. But it would be the Antitrust Act, not the tariff or the Silver Purchase Act, that would have by far the greatest effect on the American economy over the next century.

In a couple of terse sections, the Sherman Act forbade contracts, combinations, or conspiracies "in restraint of trade or commerce" as well as the "monopolization" or attempt to monopolize "trade or commerce."[128] Businesses quickly realized that they could use the statute against labor unions, including the striking Pullman workers led by Eugene V. Debs, as unions were indeed conspiracies in restraint of trade.[129] When in 1892 the American Sugar Refining Company, a New Jersey Corporation, acquired the stock of the E. C. Knight Company in Pennsylvania, thus garnering some 98 per cent of U. S. sugar refining

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127 Coolidge (1910, p. 444).

128 *26 Stat. 209, 15 U.S.C. §§1-7 (1890).*

129 Primm (1910).

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capacity, Grover Cleveland, now once again back in office, directed his attorney general to bring suit under Sherman. In 1895, the Supreme Court handed down the famous verdict that manufacturing, including the refining of sugar, did not constitute interstate "trade or commerce" under the Sherman Act.[130] Charles McCurdy has argued that this decision did not reflect a "*laissez-faire*" attitude on the part of the court but instead a sincere belief that state-level chartering powers were the appropriate mechanism for control of unified businesses.[131] As we saw, however, states had incentives not to exercise such powers. In accordance with the explicit language of Sherman, federal courts did immediately seize authority over agreements between legally separate firms acting across state lines; and the Supreme Court quickly issued a string of decisions forbidding price-fixing arrangements, including the *Addyston Pipe* case, which involved collusion among makers of cast-iron pipe.[132]

These developments sent a clear signal that coordination through inter-firm agreements would surely face legal scrutiny whereas coordination within the boundaries of a single legal entity likely would not. This created a palpable incentive for firms to integrate. George Bittlingmayer has argued – a thesis endorsed by Chandler, as we saw – that the Sherman Act thus caused the Great Merger Wave of the turn of the century.[133] Especially during the years 1898-1902, the number of mergers in American manufacturing industry spiked. Most mergers took the form of full consolidation of assets, though many,

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130 *United States v. E. C. Knight Co*., 156 U.S. 1 (1895).

131 McCurdy (1979).

132 *United States v. Trans-Missouri Freight Ass'n*, 166 U.S. 290 (1897); *United States v. Joint Traffic Ass'n*, 171 U.S. 505 (1898); and *United States v. Addyston Pipe & Steel Co.*, 175 U.S. 211 (1899).

133 Bittlingmayer (1985).

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including the one creating Standard Oil, employed the holding-company form.[134] Eighteen ninety-nine was the banner year, with four times the number of consolidations of any other year of the wave.[135] Among those firms merging were the very makers of cast-iron pipe whose cartel arrangement had been rendered illegal by the Supreme Court in the *Addyston* case.[136] Here we begin to glimpse the great irony of American antitrust policy at the turn of the twentieth century: legislation pushed in part by small independent businesses to ward off the threat of the giant corporation actually harmed the small firms, which relied on coordination through contract, and reduced the relative cost of coordination within boundaries of large enterprises.

All authors have emphasized the problem of high fixed costs in late nineteenth-century American industry. But any comparative-institutional analysis of holding companies versus inter-firm agreements would have to account fully for the speed and drama of the transformation to mass production. Of course, rapidly changing economic conditions would make cartels harder to police, and the depression of 1893 would have made coordination all the more imperative.[137] But even this way of putting the matter fails to appreciate the larger Schumpeterian forces at work, especially in the recovery from the depression of 1893. Between 1894 and 1903, real U. S. GDP grew at an average annual rate of 5.23 per cent; despite mass immigration, real GDP per capita grew at 3.41 per cent

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134 Bonbright and Means (1932, p. 69).

135 Bittlingmayer (1985); Lamoreaux (1985).

136 Bittlingmayer (1982).

137 Lamoreaux (1985, p. 188).

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over that period.[138] After 1891, multi-factor productivity was more than double what it had been in the 1871-1891 period; taking into account the composition of the U. S. labor force, it was four times higher.[139] And perhaps most notably, U. S. capital stock increased at a phenomenal rate: "In 1870 the capital stock of the United States was about 25 percent greater than that United Kingdom's; in 1910 the U.S. capital stock was almost four times larger. Over that period, the increase in the U. S. capital stock was six times greater than the growth of the British stock."[140]

In principle, the creative destruction this required could have taken place "through the market," meaning that inefficient firms would go out of business while more efficient ones would grow. As entrepreneurs like Rockefeller and Carnegie well understood, however, this mode of transformation would have been slow and costly relative to the alternatives of inter-firm coordination and (especially) of consolidation and administrative coordination. In my interpretation of Chandler, I have always stressed the role of internal organization in overcoming the dynamic transaction costs of coordinating *vertical* flows.[141] But in the Schumpeterian gale of the late nineteenth century, consolidation into legally unified entities could also overcome the *horizontal* dynamic transaction costs of economic change more cheaply than "markets" or cartel agreements.

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138 Samuel H. Williamson, "Annualized Growth Rate and Graphs of Various Historical Economic Series," MeasuringWorth, 2014. URL: www.measuringworth.com/growth. Accessed 16 October 2014.

139 Gordon (1999, p. 124).

140 Allen (2014, p. 332).

141 Langlois (2003).

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One important speed-bump to change via "markets" emerges right out of the Principles of Economics textbook: many small producers continued to produce at a loss so long as they could cover their variable costs.[142] More significantly, in an era before well-developed capital markets, smaller entrepreneurs had no exit strategy apart from handing their illiquid and highly undiversified holdings on to their descendants. In this respect, "trusts" like Standard Oil served as internal capital markets.[143] A few successful industrialists, notably Rockefeller and Swift, had prospered through close ties with regional banks; others, like Carnegie, had raised capital through face-to-face relationships with individual backers As Lance Davis has emphasized, banks in general were a far less ready source of capital for industrial enterprise in the U. S. than in the U. K.[144] This was in part because American industrial transformation was more radical; but it was also in large part because U. S. banks were fragmented and hampered by state-level regulation that catered to agricultural interests and existing small bankers.[145]

In this telling, the Great Merger Wave was the result of the sudden emergence of a market for industrial securities, the result of a perfect storm of forces during the strong recovery from the depression of 1893.[146] By this time a ready pool of liquid savings had become available in the American economy, mostly from domestic sources, as the large inflows of foreign capital went mostly into railroads.[147] As we saw, the New Jersey

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142 Chernow (1998, pp. 149-150).

143 Porter (1973, p. 75).

144 Davis (1966).

145 Calomiris and Haber (2014).

146 Telser (1984, p. 271).

147 Porter (1973, p. 76).

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Holding Company Act of 1899 created a powerful legal vehicle for issuing stock. And by 1898 J. P. Morgan had begun turning his attentions to industrial consolidations, partly because of diminishing returns to the railroad deals on which he had made his name and partly because of the relative strength that industrials had displayed during the downturn.[148] The development of an increasingly liquid stock market created an additional exit mechanism for less-efficient small firms, who could now be bribed to exchange their holdings for a piece of the joint rents of consolidation, a piece worth more than their original illiquid and undiversified holdings.

Were these consolidations undertaken to promote monopoly, as most commentator have assumed? Or did they reflect the transformation of inefficient personal capitalism into rationalized managerial capitalism, as Chandler maintained? The answer, of course, is both. The consolidations were no doubt all undertaken to reduce competition and increase rents – against a backdrop of high fixed costs, intense competition, rapidly increasing output, and falling product prices. But apart from cases involving a property-rights barrier to entry – U. S. Steel's control of Mesabi ore might be an example – most combination quickly succumbed to competition from new entrants. By the early 1900s, Standard Oil itself was already under attack from new sources of oil in Texas and the West.[149] Those combinations that survived were the ones that transformed themselves into Chandlerian firms.[150]

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[148] Davis (1966, p. 269); Porter (1973, p. 77).

[149] Chernow (1998, p. 431).

[150] Lamoreaux (1985, p. 183); Porter (1973, p. 81).

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References.

Adams, Charles Francis. 1878. *Railroads: Their Origin and Problems*. New York: G. P. Putnam's Sons.

Allen, Robert C. 2014. "American Exceptionalism as a Problem in Global History," *The Journal of Economic History* **74**(02): 309-350.

Anderson, Gary M. and Robert D. Tollison. 1983. "The Myth of the Corporation as a Creation of the State," *International Review of Law and Economics* **3**(2): 107-120.

Baack, Bennett D. and Edward John Ray. 1983. "The Political Economy of Tariff Policy: A Case Study of the United States," *Explorations in Economic History* **20**(1): 73-93 (January).

Baumol, William J. and David F. Bradford. 1970. "Optimal Departures from Marginal Cost Pricing," *The American Economic Review* **60**(3): 265-283.

Bensel, Richard Franklin. 1990. *Yankee Leviathan : The Origins of Central State Authority in America, 1859-1877*. New York: Cambridge University Press.

Bensel, Richard Franklin. 2000. *The Political Economy of American Industrialization, 1877-1900*. New York: Cambridge University Press.

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

Bittlingmayer, George. 1982. "Decreasing Average Cost and Competition: A New Look at the Addyston Pipe Case," *Journal of Law and Economics* **25**(2): 201-229.

Bittlingmayer, George. 1985. "Did Antitrust Policy Cause the Great Merger Wave?," *Journal of Law and Economics* **28**(1): 77-118.

Bonbright, James C. and Gardiner C. Means. 1932. *The Holding Company: Its Public Significance and Its Regulation*. New York: McGraw-Hill.

Bordo, Michael D. and Finn E. Kydland. 1995. "The Gold Standard as a Rule: An Essay in Exploration," *Explorations in Economic History* **32**(4): 423-464 (October).

Bordo, Michael D. and Hugh Rockoff. 1996. "The Gold Standard as a 'Good Housekeeping Seal of Approval'," *The Journal of Economic History* **56**(2): 389-428.

Butler, Henry N. 1985. "Nineteenth-Century Jurisdictional Competition in the Granting of Corporate Privileges," *The Journal of Legal Studies* **14**(1): 129-166.

Calomiris, Charles W. and Stephen H. Haber. 2014. *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit*. Princeton: Princeton University Press.

Electronic copy available at: https://ssrn.com/abstract=2856658

Chandler, Alfred D. 1965. *The Railroads: The Nation's First Big Business*. New York: Harcourt, Brace, and World.

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

Chernow, Ron. 1990. *The House of Morgan*. New York: Grove Press.

Chernow, Ron. 1998. *Titan: The Life of John D. Rockefeller, Sr.* New York: Random House.

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

Coolidge, Louis Arthur. 1910. *An Old-Fashioned Senator: Orville H. Platt, of Connecticut: The Story of a Life Unselfishly Devoted to the Public Service*. New York: G. P. Putnam's Sons.

Crane, Daniel A. 2008. "Antitrust Antifederalism," *California Law Review* **96**(1): 1-62.

Crane, Daniel A. 2016. "Tesla, Dealer Franchise Laws, and the Politics of Crony Capitalism," *Iowa Law Review* **101**(2): 573-607.

Davis, Lance. 1966. "The Capital Markets and Industrial Concentration: The U.S. And U.K., a Comparative Study," *The Economic History Review* **19**(2): 255-272.

De Long, J. Bradford. 1991. "Did J. P. Morgan's Men Add Value? An Economist's Perspective on Financial Capitalism," in Peter Temin, ed., *Inside the Business Enterprise: Historical Perspectives on the Use of Information*. Chicago: University of Chicago Press, pp. 205-250.

Demsetz, Harold. 1974. "Two Systems of Belief About Monopoly," in Harvey Goldschmid, Harold Michael Mann and J. Fred Weston, eds., *Industrial Concentration: The New Learning*. Boston: Little-Brown, pp. 164-183.

Dewey, Ralph L. 1935. *The Long and Short Haul Principle of Rate Regulation*. Columbus Ohio State University Press.

DiLorenzo, Thomas J. 1985. "The Origins of Antitrust: An Interest-Group Perspective," *International Review of Law and Economics* **5**(1): 73-90 (June).

DuBois, Armand B. 1938. *The English Business Company after the Bubble Act, 1720-1800*. New York: The Commonwealth Fund.

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

Electronic copy available at: https://ssrn.com/abstract=2856658

Ellet, Charles. 1840. "A Popular Exposition of the Incorrectness of the Tariffs on Tolls in Use on the Public Improvements of the United States," *Journal of the Franklin Institute* **29**: 225-232.

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

Fisher, Irving. 1896. *Appreciation and Interest: A Study of the Influence of Monetary Appreciation and Depreciation on the Rate of Interest with Applications to the Bimetallic Controversy and the Theory of Interest*. New York: Macmillan for the American Economic Association.

Fogel, Robert William and Jack L. Rutner. 1972. "The Efficiency Effects of Federal Land Policy, 1850-1900: A Report of Some Provisional Findings," in William O. Aydelotte, ed., *The Dimensions of Quantitative Research in History*. Princeton: Princeton University Press, pp. 390-418.

Freyer, Tony A. 1979. "The Federal Courts, Localism, and the National Economy, 1865-1900," *The Business History Review* **53**(3): 343-363.

Frieden, Jeffry. 2015. *Currency Politics: The Political Economy of Exchange Rate Policy*. Princeton: Princeton University Press.

Frieden, Jeffry A. 1997. "Monetary Populism in Nineteenth-Century America: An Open Economy Interpretation," *The Journal of Economic History* **57**(2): 367-395.

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

Getzler, Joshua and Mike Macnair. 2005. "The Firm as an Entity before the Companies Act," in Paul Brand, Kevin Costello and W. N. Osborough, eds., *Adventures of the Law: Proceedings of the Sixteenth British Legal History Conference, 2003*. Dublin: Four Courts Press, pp. 267-288.

Gilligan, Thomas W., William J. Marshall and Barry R. Weingast. 1989. "Regulation and the Theory of Legislative Choice: The Interstate Commerce Act of 1887," *Journal of Law and Economics* **32**(1): 35-61.

Gordon, Robert J. 1999. "U.S. Economic Growth since 1870: One Big Wave?," *The American Economic Review* **89**(2): 123-128.

Grandy, Christopher. 1989. "New Jersey Corporate Chartermongering, 1875-1929," *The Journal of Economic History* **49**(3): 677-692.

Granitz, Elizabeth and Benjamin Klein. 1996. "Monopolization by 'Raising Rivals' Costs': The Standard Oil Case," *Journal of Law and Economics* **39**(1): 1-47.

Electronic copy available at: https://ssrn.com/abstract=2856658

Hadley, Arthur Twining. 1885. *Railroad Transportation: Its History and Its Laws*: London, Putnam.

Handlin, Oscar and Mary F. Handlin. 1945. "Origins of the American Business Corporation," *The Journal of Economic History* **5**(1): 1-23.

Hansmann, Henry and Reinier Kraakman. 2000a. "The Essential Role of Organizational Law," *The Yale Law Journal* **110**(3): 387-440.

Hansmann, Henry and Reinier Kraakman. 2000b. "Organization Law as Asset Partitioning," *European Economic Review* **44**(4-6): 807-817.

Harris, Ron. 1994. "The Bubble Act: Its Passage and Its Effects on Business Organization," *The Journal of Economic History* **54**(3): 610-627.

Hazlett, Thomas W. 1992. "The Legislative History of the Sherman Act Re-Examined," *Economic Inquiry* **30**(2): 263.

Hidy, Ralph W. 1952. "Development of Large-Scale Organization: The Standard Oil Company (New Jersey)," *The Journal of Economic History* **12**(4): 411-424.

Higgs, Robert. 1971. *The Transformation of the American Economy, 1865-1914*. New York: John Wiley and Sons.

Hilt, Eric. 2014. "History of American Corporate Governance: Law, Institutions, and Politics," *National Bureau of Economic Research Working Paper Series* **No. 20356**.

Hilt, Eric. 2015. "Corporation Law and the Shift toward Open Access in the Antebellum United States," *National Bureau of Economic Research Working Paper Series* **No. 21195**.

Hilton, George W. 1966. "The Consistency of the Interstate Commerce Act," *The Journal of Law & Economics* **9**: 87-113.

Hofstadter, Richard. 1955. *The Age of Reform*. New York: Vintage Books.

Hollander, Stanley C. 1964. "Nineteenth Century Anti-Drummer Legislation in the United States," *The Business History Review* **38**(4): 479-500.

Holmes, William F. 1994. "The Southern Farmers' Alliance and the Jute Cartel," *The Journal of Southern History* **60**(1): 59-80.

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

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

Electronic copy available at: https://ssrn.com/abstract=2856658

Irwin, Douglas A. 1998a. "Changes in U.S. Tariffs: The Role of Import Prices and Commercial Policies," *The American Economic Review* **88**(4): 1015-1026.

Irwin, Douglas A. 1998b. "Higher Tariffs, Lower Revenues? Analyzing the Fiscal Aspects of "the Great Tariff Debate of 1888"," *The Journal of Economic History* **58**(1): 59-72.

Irwin, Douglas A. 2007. "Tariff Incidence in America's Gilded Age," *The Journal of Economic History* **67**(3): 582-607.

Irwin, Douglas A. and Peter Temin. 2001. "The Antebellum Tariff on Cotton Textiles Revisited," *The Journal of Economic History* **61**(3): 777-798.

Kolko, Gabriel. 1963. *The Triumph of Conservatism: A Reinterpretation of American History, 1900-1916*. New York: The Free Press.

Kolko, Gabriel. 1965. *Railroads and Regulation, 1877-1916*. Princeton: Princeton University Press.

Kutler, Stanley I. 1971. *Privilege and Creative Destruction: The Charles River Bridge Case*. Philadelphia: Lippincott

Lamoreaux, Naomi R. 2004. "Partnerships, Corporations, and the Limits on Contractual Freedom in Us History: An Essay in Economics, Law, and Culture," in Kenneth Lipartito and David B. Sicilia, eds., *Constructing Corporate America: History, Politics, Culture*. New York: Oxford University Press, pp. 29-65.

Lamoreaux, Naomi R. 1985. *The Great Merger Movement in American Business, 1895-1904*. New York: Cambridge University Press.

Lamoreaux, Naomi R. 2009. "Scylla or Charybdis? Historical Reflections on Two Basic Problems of Corporate Governance," *The Business History Review* **83**(1): 9-34.

Lamoreaux, Naomi R. 2014. "Revisiting American Exceptionalism: Democracy and the Regulation of Corporate Governance in Nineteenth-Century Pennsylvania," *National Bureau of Economic Research Working Paper Series* **No. 20231**.

Langlois, Richard N. 2003. "The Vanishing Hand: The Changing Dynamics of Industrial Capitalism," *Industrial and Corporate Change* **12**(2): 351-385 (April).

Lardner, Dionysius. 1850. *Railway Economy: A Treatise on the New Art of Transport, Its Management, Prospects and Relations*. London: Taylor, Walton and Maberly.

Lerner, Abba P. 1936. "The Symmetry between Import and Export Taxes," *Economica* **3**(11): 306-313.

Electronic copy available at: https://ssrn.com/abstract=2856658

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

Libecap, Gary D. 1992. "The Rise of the Chicago Packers and the Origins of Meat Inspection and Antitrust," *Economic Inquiry* **30**(2): 242.

MacAvoy, Paul W. 1965. *The Economic Effects of Regulation: The Trunkline Railroad Cartels and the Interstate Commerce Commission before 1900*. Cambridge: MIT Press.

Maier, Pauline. 1993. "The Revolutionary Origins of the American Corporation," *The William and Mary Quarterly* **50**(1): 51-84.

Martin, Albro. 1974. "The Troubled Subject of Railroad Regulation in the Gilded Age--a Reappraisal," *The Journal of American History* **61**(2): 339-371.

Mayhew, Anne. 1972. "A Reappraisal of the Causes of Farm Protest in the United States, 1870-1900," *The Journal of Economic History* **32**(2): 464-475.

McCraw, Thomas K. 1984. *Prophets of Regulation: Charles Francis Adams, Louis D. Brandeis, James M. Landis, Alfred E. Kahn* Cambridge: The Belknap Press of Harvard University Press.

McCurdy, Charles W. 1978. "American Law and the Marketing Structure of the Large Corporation, 1875- 1890," *The Journal of Economic History* **38**(3): 631-649.

McCurdy, Charles W. 1979. "The Knight Sugar Decision of 1895 and the Modernization of American Corporation Law, 1869-1903," *The Business History Review* **53**(3): 304-342.

Mill, John Stuart. 1848. *The Collected Works of John Stuart Mill, Volume Iii -- Principles of Political Economy Part Ii*. Toronto: University of Toronto Press.

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

Mitchell, Wesley Clair. 1903. *A History of the Greenbacks, with Special Reference to the Economic Consequences of Their Issue, 1862-65*. Chicago: University of Chicago Press.

Montague, Gilbert Holland. 1902. "The Rise and Supremacy of the Standard Oil Company," *The Quarterly Journal of Economics* **16**(2): 265-292.

Montague, Gilbert Holland. 1903. "The Later History of the Standard Oil Company," *The Quarterly Journal of Economics* **17**(2): 293-325.

Electronic copy available at: https://ssrn.com/abstract=2856658

Nash, Gerald. 1955. "The Reformer Reformed: John H. Reagan and Railroad Regulation," *The Business History Review* **29**(2): 189-196.

Nash, Gerald D. 1957. "Origins of the Interstate Commerce Act of 1887," *Pennsylvania History: A Journal of Mid-Atlantic Studies* **24**(3): 181-190.

Nevins., Allan. 1927. *The Emergence, of Modern America, 1865-1878*. New York: Macmillan.

Nichols, Jeanette Paddock. 1934. "John Sherman: A Study in Inflation," *The Mississippi Valley Historical Review* **21**(2): 181-194.

Norris, Frank. 1901. *The Octopus: A Story of California*. New York: Doubleday, Page & Co.

North, Douglass C. 1966. *Growth and Welfare in the American Past: A New Economic History*. New York: Prentice-Hall.

North, Douglass C. 1978. "Structure and Performance: The Task of Economic History," *Journal of Economic Literature* **16**(3): 963-978.

Olmstead, Alan L. 2015. *Arresting Contagion: Science, Policy, and Conflicts over Animal Disease Control*. Cambridge: Harvard University Press.

Poole, Keith T. and Howard Rosenthal. 1993. "The Enduring Nineteenth-Century Battle for Economic Regulation: The Interstate Commerce Act Revisited," *The Journal of Law & Economics* **36**(2): 837-860.

Porter, Glenn. 1973. *The Rise of Big Business, 1860-1910*. Arlington Heights, IL: Harlan Davidson.

Priest, Claire. 2006. "Creating an American Property Law: Alienability and Its Limits in American History," *Harvard Law Review* **120**(2): 385-459.

Primm, C. J. 1910. "Labor Unions and the Anti-Trust Law: A Review of Decisions," *Journal of Political Economy* **18**(2): 129-138.

Ramsey, Frank P. 1927. "A Contribution to the Theory of Taxation," *The Economic Journal* **37**(145): 47-61.

Ribstein, Larry E. 1991. "Limited Liability and Theories of the Corporation," *University of Maryland Law Review* **50**(1): 80-130.

Rockoff, Hugh. 1990. "The "Wizard of Oz" as a Monetary Allegory," *Journal of Political Economy* **98**(4): 739-760.

Roe, Mark J. 2013. "Capital Markets and Financial Politics: Preferences and Institutions," in Mike Wright, Donald S. Siegel, Kevin Keasey and Igor Filatotchev, eds., *The*

Electronic copy available at: https://ssrn.com/abstract=2856658

Oxford Handbook of Corporate Governance. Oxford: Oxford University Press, pp. 65-96.

Selgin, George. 1999. "A Plea for (Mild) Deflation." *Cato Policy Report* (May/June). http://www.cato.org/policy-report/mayjune-1999/plea-mild-deflation.

Selgin, George 1997. *Less Than Zero: The Case for a Falling Price Level in a Growing Economy*. London: Institute of Economic Affairs.

Sherman, John. 1895. *Recollections of Forty Years in the House, Senate, and Cabinet: An Autobiography*. Chicago: The Werner Company.

Sitkoff, Robert H. 2005. "Trust as 'Uncorporation': A Research Agenda," *University of Illinois Law Review* **2005**: 31-48.

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

Stigler, George J. 1985. "The Origin of the Sherman Act," *The Journal of Legal Studies* **14**(1): 1-12.

Sylla, Richard. 1991. "The Progressive Era and the Political Economy of Big Government," *Critical Review: A Journal of Politics and Society* **5**(4): 531 - 557.

Sylla, Richard, John B. Legler and John J. Wallis. 1987. "Banks and State Public Finance in the New Republic: The United States, 1790-1860," *The Journal of Economic History* **47**(2): 391-403.

Tarbell, Ida M. 1904. *The History of the Standard Oil Company*. New York: McClure, Phillips & Co.

Taussig, Frank W. 1891. "A Contribution to the Theory of Railway Rates," *The Quarterly Journal of Economics* **5**(4): 438-465.

Taussig, Frank W. 1910. *The Tariff History of the United States*. New York: G. P. Putnam's Sons.

Telser, Lester G. 1984. "Genesis of the Sherman Act," in Robert F. Lanzillotti and Yoram C. Peles, eds., *Management under Government Intervention: A View from Mount Scopus*. Greenwich, CT: JAI, pp. 259-278.

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

Timberlake, Richard H. 1978. "Repeal of Silver Monetization in the Late Nineteenth Century," *Journal of Money, Credit and Banking* **10**(1): 27-45.

Electronic copy available at: https://ssrn.com/abstract=2856658

Troesken, Werner. 2002. "The Letters of John Sherman and the Origins of Antitrust," *The Review of Austrian Economics* **15**(4): 275-295 (2002/12/01).

Unger, Irwin. 1959. "Business Men and Specie Resumption," *Political Science Quarterly* **74**(1): 46-70.

Unger, Irwin. 1964. *The Greenback Era: A Social and Political History of American Finance, 1865-1879*. Princeton: Princeton University Press.

Urofsky, Melvin I. 1982. "Proposed Federal Incorporation in the Progressive Era," *The American Journal of Legal History* **26**(2): 160-183.

Wallis, John Joseph. 2005. "Constitutions, Corporations, and Corruption: American States and Constitutional Change, 1842 to 1852," *The Journal of Economic History* **65**(1): 211-256.

Wiebe, Robert H. 1967. *The Search for Order, 1877-1920*. New York: Hill and Wang.

Williamson, Harold F. and Arnold R. Daum. 1959. *The American Petroleum Indsutry: The Age of Illumination, 1959-1899*. Evanston: Northwestern University Press.

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