Antitrust and Regulation

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Since the beginning of federal regulation of the economy, antitrust and specific regulatory statutes have jostled and combined and maybe even competed in establishing a framework for regulating competition. Within a three-year span, Congress adopted the Interstate Commerce Act (1887) and the Sherman Act (1890). The Interstate Commerce Act inaugurated the era of substantial federal regulation. The new law addressed the operation of interstate railroads, limited rates to those that were "reasonable and just" and barred rate discrimination, including long-haul/short-haul discrimination. The Sherman Act created a baseline for the regulation of competition in the United States by barring contracts in restraint of trade and forbidding monopolization. Since 1890, we have been forced to work through repeatedly how we should interleave a fully general approach to competition under the antitrust laws with area-specific approaches to competition.

The passage of these two statutes created a second ongoing question for Congress, namely what type of institutional agent should implement competition policy? The Interstate Commerce Act created the Interstate Commerce Commission, an

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agency of five commissioners appointed by the President with the advice and consent of the Senate. The Act vested authority to implement the new act in the commission, subject to appeals to federal courts. In court hearings, reports of the ICC were to be treated as prima facie evidence. In contrast, the Sherman Act was to be enforced in federal courts on suits initiated by private parties or by the United States. No governmental body would make a prior preliminary determination entitled to deference by the federal courts.

This Chapter is divided into three sections. First, we consider the general question of how competition policy should be implemented. We do that by considering possible roles for courts and agencies as set out in the modern political science literature on legislative bargaining. We then consider one particular question of scope: exclusion from antitrust, or put differently, antitrust immunities.

Second, we return to the beginning of regulation by considering the period starting with the Interstate Commerce Act and the Sherman Act and pursue the central question in early competition policy, namely, how should rates be set? This question was first addressed in railroading and we examine the early history of regulation and antitrust to see how this question was resolved. In 1897, the Supreme Court considered both acts when it examined the rate-setting practices of the Trans-Missouri freight association. The Court's decision framed much of what followed for commerce and antitrust in the period leading up to World War I. During this period, we also see the experimentation typically seen with newness, and the failed initiatives—including the short-lived Commerce Court and President Theodore Roosevelt's effort to impose general licensing rules for large entities—are at least as interesting as those that survived.

Third, we turn our attention to a group of industries that have been a focus of regulation for over a hundred years, network industries. We address the fundamental question that has occupied and continues to occupy regulatory and antitrust decisions in those industries: how should those markets should be structured and specifically what sort of access rights should be established and how should interconnection be made? In 2004, the Supreme Court considered these issues in *Trinko*, the Court's most recent detailed look at the interaction of antitrust and regulation. *Trinko* arises out of the 1996 Telecommunications Act, and the 1996 Act itself represents the latest step in a long running tango between antitrust and regulation in a network industry. Interconnection has been a key issue in transportation—for airlines, railroads and trucks—and we analyze the common patterns following deregulation in those industries to better understand the forces that drove regulators to inhibit competition.

I. Delegation Games

With these considerations in mind, we start by framing the general problem faced by Congress and the President in choosing whether and to what extent to delegate implementation of a policy to a third party. The delegation will take the form of legislation and the scope of the delegation may be determined in part by the specificity of the language used in the statute. We want to address that problem generally and then turn to what that means for the interaction of antitrust and regulation.

A. The General Setting

We start from the status quo, a policy position reached by whatever route, though more on that in a bit. To move from the status quo through new legislation, we have to pass the

hurdles created by the Constitution. In the U.S., laws are passed when the Senate, the House and the President each vote in favor of a proposed bill. That statement simplifies in that it ignores the possibility that Congress has sufficient votes (two-thirds in each chamber) to override a veto by the President, and it also skips over the interesting and tricky issue of the extent to which domestic legislation can be set through the treaty-making power, where the President is empowered to make treaties, provided that two-thirds of the Senate vote in favor.

Following McCubbins, Noll & Weingast (1989), we frame this as a principal/agent problem or, more precisely and more interestingly, as a three principal/multiple agents problem. It is conventional (see, e.g., Shepsle & Bonchek, 19xx, p.358-68) in the rational choice literature in political science to model legislation as a principal delegating power to an agent, where either a court or an agency acts as the agent in implementing the legislation. In the principal/agent problem faced in creating legislation, Congress and the President typically delegate to one of two agents: Article III courts or specialized agencies subject to court oversight. By institutional design, Congress and the President have relatively weak controls against the judiciary—we call this separation of powers—but, together and separately, the House, Senate and President can exert stronger control over agencies.

Obviously, what was just said simplifies considerably, or put more fully, slides over libraries full of administrative law and constitutional law on separation of powers. The U.S. Constitution assigns legislative power to the Congress, executive power—the duty to faithfully execute laws—to the President, and the judicial power of the United States to federal courts (though do note the planned-for double role of the President, given his power to sign or veto bills presented to him by Congress). There are agents (and agencies) fully within the control

of our principals, such as the Library of Congress or the Government Printing Office (both controlled by Congress) or the various departments within the executive branch. For our purposes, in considering implementation of legislation through an agent, we want to focus on agents outside of the individual control of Congress or the President, namely federal judges and "independent" agencies such as the Interstate Commerce Commission or the Federal Trade Commission.

To add to the frame, focus on a standard principal/agent problem, namely that the agent will depart from the principal's goals and pursue his own. In the political science literature, this is labeled the problem of bureaucratic drift. For legislation to get passed, the House, Senate and President negotiate over potential policies. But delegation is inevitable: judges decide actual cases, not Congress or the President, and with the rise of the administrative state, implementation of legislation can be delegated directly to courts or first to agencies with appeals to courts (and judicial review of agency action need not be a given).

The negotiation process that results in unanimous agreement by the House, Senate and President on new legislation has to take into account what will happen in the subsequent delegation to courts or agencies. Each player in the negotiation game should do backwards induction looking forward to see how the agent will actually implement the enacted legislation. (The players could just care about enactment and not about implementation if that is how their constituencies keep score, but we will assume that all participants are interested in actual results, and not just appearances.)

To match the political science literature, treat the House, Senate, President and agent as each having preferences over the particular policy in question and focus on the essential dynamic that takes place among our four players. After negotiation,

unanimity is reached and a bill is passed (absent unanimity nothing happens). The agent now implements the legislation.

What constrains how the agent does so? Consider possible sources of restrictions: the original legislation; oversight and monitoring; internal agency norms; and the threat of subsequent legislation. Focus initially on the possibility of constraint through subsequent legislation that overturns the decision of the agent. Note that this legislation requires a unanimous vote among H, S and P, as any one of them has the power to block a change from the new status quo defined by the agent's decision. As an initial cut, the agent then has a free hand to implement her policy preferences rather than implement with fidelity the deal struck among H, S and P. So if the agent's policy preferences matched more closely, say, P, the agent could implement a policy that P would find superior to the deal captured in the negotiated legislation, and P would veto any subsequent legislative effort to overturn the agent's decision.

That doesn't mean that the new status quo would remain, but any new law negotiated among H, S and P would need to make P better off than he is under the agent's decision. And of course in the face of that law, the agent could once again refuse to implement the deal negotiated and instead implement her policy preferences. Of course, none of this should be lost on H, S and P when they negotiate the original law. Again, they will care about how the legislation is actually implemented, not the deal cut. H, S and P can anticipate bureaucratic drift. If H and S know that the agent will deviate from the original statute in the direction of P with the agent's action protected by P's veto, H and S will never make the deal in the first place. A little bit of backwards induction goes a long way.

We quickly see the complexities of having independent agents. Congressional and Presidential power over agents is certainly two-sided. If a Congressman wants to try to cheat on

the original legislative deal, he can do so if he can exert power over his agent. As Landes and Posner (1979) argued in their explanation of the role of an independent judiciary, the congressman can commit to not cheating by relinquishing his power over the agent. At the same time, giving up control over the agent means that the agent now has freedom to implement her own policy preferences. Hands-tying at the front-end equals loss of control at the back end. If the agent doesn't face meaningful congressional discipline, why pay much (any?) attention to the statute at all?

But at the same time, independence means that the agent can implement her preferences in the veto zone, that is, the spots in the policy space where H, S and P will not agree unanimously to overturn the agent's decision. And the fact will be anticipated by the institutional players who will be disadvantaged by the deviation. They will want not want independence in their agent and will instead want to design controls over the agent that make fidelity to the original deal possible.

That would be true if H, S and P were just seeking to implement their own independent policy preferences, but would also be true if we think of the lawmakers as just selling off legislation to the highest bidder (or as having preferences that value both legislative outcomes and transfers from legislation buyers). H, S and P will also want controls on themselves, at least as a group, so that they can ensure that their control over the agent doesn't allow them to cheat on the original deal that was cut amongst themselves or with the legislation purchaser. After the fact, they would like to cheat, either individually or as a group, but that too will be anticipated by the legislation purchaser, so H, S and P need a commitment mechanism to maximize the amount that they can charge legislation purchasers.

We can sketch out what such a system might look like. Consider a basic public choice model with an interested party simply purchasing legislation that will be implemented by an agent. We can offer H, S and P each some levers of oversight over the agent. That may be enough to solve the problem of the agent cheating. H needs to have sufficient individual power to block moves by the agent away from the original law, and so too for S and P. But we also need to give S and/or P sufficient powers over H or the agent so that H can't unilaterally cheat on the original deal that H, S and P negotiated with the legislation purchaser (and, of course, corresponding powers for H and P against cheating by S and for H and S against P). Or we need to make sure that the legislation purchaser can exercise oversight powers against H, S and P to make sure that they faithfully implement the original deal bought and paid for by the legislation purchaser.

What should our legislation purchaser fear most, cheating by the principal or cheating by the agent? Purchasers have little control over Article III judges and much more control over congressional principals and agency agents. Both of these should push the legislation purchaser towards favoring a captive agency. Consider each piece of that argument. Article III judges are the ultimate long-termers. Although numbers may have trended up slightly as real judicial salaries have lagged, few Article III judges exit to do something else. Members of Congress often stay for many, many years. In contrast, agency commissioners serve short terms and frequently quickly exit to the private sector of the regulated industry for a substantial raise.

Legislation purchasers are well-situated to punish a member of Congress who cheats on the original deal by imposing her will on the agency. Members of Congress run every two years (House) or six years (Senate) and are constantly raising

money for reelection (the best way to discourage competing candidates is to amass a large pile of money). A member who cheats on a deal with a legislation purchaser reveals himself to be a poor candidate for future deals and future campaign contributions. The need to return to the market for campaign funds disciplines members of Congress from using their influence on agents to cheat on the original deal that was cut. In contrast, legislation buyers can exercise little indirect or direct control over judges, since Congress and the President both lack control over Article III judges.

We should make one other point about this structure. Agency decisions are typically subject to appeals to independent federal judges. That would seem to make the judges the ultimate authority but that depends importantly on what judges do with agency actions. Under the Supreme Court's *Chevron* doctrine, judges give agencies wide-latitude in interpreting federal statutes. Not unlimited latitude, but *Chevron* is a policy of substantial deference to agencies. *Chevron* deference creates an agent largely outside of judicial control, and therefore subject to meaningful congressional control. That in turn means that Congress and the President can more credibly commit to those seeking legislation by delegating to independent agencies than it can to Article III courts. *Chevron* preserves broad independence for agencies as against the courts—thereby making them into actors that H, S and P can control—while appeals to courts operate as a hedge against agents who have deviated too far from what their principals wanted.

B. Applying this Framework to Antitrust and Regulated Industries

On July 2, 1890, Congress passed the Sherman Act and in so doing created a baseline for the regulation of competition in the United States. Its core prohibitions—in Section 1, against illegal collusive restraints of trade, and in Section 2, against il-

legal unilateral monopolization—framed competition but also created important questions for every subsequent regulation of competition.

To the modern eye, the Sherman Act is notable for its simultaneous brevity and comprehensiveness. The entire statute is set forth in eight sections and barely covers more than one page in the Statutes at Large. Two of the sections are exclusively procedural addressing jurisdiction and process (section 4) and joinder of parties (section 5). Two others set forth the conditions under which property can be seized (section 6) and rules of standing—allowing suits by private parties—and the treble-damage remedy (section 7). Section 8 defined "person."

The substantive heart of the statute was of course set forth in sections 1 and 2 (and section 3 which extended limitations of section 1 to the territories and the District of Columbia). Section 1 condemned *every* contract in restraint of trade and section 2 made a criminal of *every* person who monopolized. What is interesting is what is missing: no limits to particular fields, no express immunities for particular contracts, and no effort to expressly coordinate with the then three-year old Interstate Commerce Act.

Consider two questions:

1. Given what was said before, why was the Sherman Act implemented in the federal courts, and not through a federal agency?
2. Given the breadth of the Sherman Act, what else would we need to regulate competition? Why doesn't the Sherman Act suffice, or, given our description of the legislative process above, when and how should we expect to add new laws regulating competition?

1. WHO GETS THE SHERMAN ACT?

On the first question, a little history may help. At the time that the Sherman Act was passed, the Interstate Commerce Commission was still a baby, a bold experiment in a highly-specialized but central industry. It would have been a big swallow and a sizeable leap of faith to apply the same mechanism to the entire economy. The natural, conservative move was to use the federal courts. Moreover, to now fast forward, arguably, twenty-five years later, we did jump, when in 1914, we created the Federal Trade Commission (more on that at the end of Section III).

The agency choice literature (Fiorina (1982), Stephenson (2005)) emphasizes the relative stability of decision-making in agencies and courts. Commissions typically are small and are controlled by the party of the President; the President also chooses the chair of the commission (this was roughly how the ICC worked and is how the FCC and FTC work today). Turnover of the presidency means turnover of the Commission. Commissions therefore may exhibit high-variance across periods of time—a Democratic FTC looks different from a Republican FTC—but greater coherence among related decisions made within a particular window. In contrast, the federal courts are quite stable over time, but are subject to very little control at any point in time. But the shear number of judges means that two contemporaneous decisions may reach quite different outcomes.

This helps to explain why an agency was a relatively more attractive choice for railroads than it was for the general economy. The railroads were the first great network industry (we could fight about canals). The nature of a network is that regulatory decisions create externalities in other parts of the network. This was precisely the issue in the fierce fight over constitutional protection in rate-setting for railroads. State regula-

tors were setting low rates for intrastate shipments, hoping that the solvency of the railroads would turn on higher interstate rates. The Supreme Court understood that fully when it decided *Smyth v. Ames* in 1898 and imposed limits on state ratemaking for railroads that could be deemed confiscatory.

But outside of railroads, in the rest of the economy, regulatory spillovers were less direct. If the Second Circuit reached one antitrust outcome, and the Seventh Circuit another, the greater the extent to which economic activity was local or regional, the less that these regulatory inconsistencies mattered. Local antitrust regulation, whether federally at the circuit level or by states, was more plausible when the economy was a local economy—the 1900s and the early 20th Century—but is less plausible today.

When many parts in the regulatory system need to move at the same time—when we are speaking of co-evolution, as it were, rather than just evolution—it may be very hard for lower federal courts to coordinate decision-making, and Supreme Court decisions are rare and slow to come. Plus courts are passive when it comes to agenda-setting: they can only decide the cases that come before them. In contrast, agencies expressly control their own agendas, subject to the original statute to be sure, but tied down often by nothing more than a public interest standard. The ability to set agendas means that agencies can push forward on all parts of the regulatory system at the same time. Agencies can do punctuated equilibria: leaps from one spot to another, while courts are normally limited to smaller moves within established frameworks.

2. AMENDING THE SHERMAN ACT

Turn from the instrument question to substantive law. How should we expect to change the Sherman Act moving forward from 1890? Not literally amend the act, but every subsequent

regulation of competition—whether within antitrust proper or outside of antitrust in the form of area-specific regulation—has to be understood in the context of the Sherman Act. Given its breadth, we might ask why weren't the antitrust laws sufficient to regulate all industries? The prevailing—but, to be sure, not universally-held—view of antitrust law in the U.S. is that it is designed to promote efficiency by protecting the competitive process to benefit consumers. Why shouldn't that be enough?

Antitrust laws may impede the efficient operation of an industry. Four reasons come to mind: (1) collective action may be required; (2) bad antitrust decisions; (3) empty core situations; and (4) natural monopolies. Take these one by one. Collective action might be required to achieve efficiency, but Section 1 flatly forbids any contract in restraint of trade. We may be able to solve this problem within antitrust proper through careful development of doctrine, but that has its own issues. It took the Supreme Court fourteen years to move from the absolutist interpretation of Section 1 that it espoused in *Trans-Missouri* in 1897, which barred *all* restraints of trade, reasonable or unreasonable, to the rule of reason framework announced in 1911 in *Standard Oil*, which incorporated common-law distinctions between unreasonable and reasonable restraints of trade.

During the interval, firms were forced to abandon sensible cooperation or hope and pray that the Department of Justice and lower courts would fail to condemn actions literally within the scope of the statute. (And remember, of course, that the Sherman Act was privately enforceable, too.) Faced with a draconian statute, firms would naturally enough seek exemption from it, either through a simple exclusion—an antitrust immunity—or, in a more complex move, by displacement of the antitrust statutes with a more targeted regulatory regime.

And it would be a mistake to think of this as just a temporary, 14-year start up problem for the Sherman Act. The Su-

preme Court spent most of the late 20th Century walking away from per se liability rules that were established in the first [50] years of the act's operation. Rules that ceased to enjoy any real analytical support in law and/or economic analysis stayed on the books to threaten firms considering sensible collective action. Again, exit from antitrust, especially for any particular industry, might be easier to implement than internal reform within antitrust proper.

There are many settings in which collective action may be beneficial, but be frustrated by bad antitrust policy. Many R&D joint ventures and sports leagues organized as joint ventures create a high risk of antitrust liability, as the history of antitrust cases against sports leagues demonstrate (Carlton, Frankel and Landes, 2004). Farmer cooperatives are another example in which small firms may be able to achieve some economies by collective action but still remain independent firms that compete against each other. Typically these collaborative activities create no market power and only efficiencies but these could have faced Sherman Act actions, especially in the early days of antitrust. Indeed Bittlingmayer (1985) has argued that the Sherman Act created antitrust liability for cooperative activities among horizontal competitors and thereby encouraged the massive merger wave around 1900.

Beyond problems of over-breadth, there is a more basic limit on what we can accomplish within antitrust. Although the Supreme Court's implementation of Section 1 has occasionally suggested that producer interests are relevant—especially the interests of small producers (see *Trans-Missouri* (1897) and *Klor's* (1959))—in the main, with the triumph of the Chicago school analysis, antitrust law focuses on helping consumers.

But there will be some set of competitive situations where more should be at stake. Two situations come to mind. A stat-

ute that focuses just on consumer welfare ignores productive efficiencies that may be created through collective action or mergers. Williamson's (1968) classic framing of merger policy focuses on just that inquiry, namely, asking whether the gains from reduced production costs exceed the deadweight losses from reduced output as a result of the creation of additional market power through the merger.

Competition also may not work well in some industries. Although one rarely sees this argument now outside of a natural monopoly context, it is theoretically possible that the core may not exist and that there is no equilibrium without some sort of collective action. This line of argument had some popularity in the 1920s (Clark, 1924) and certainly in the depression when many economists questioned the desirability of competition, as did Justice Brandeis in 1932 in his famous dissent in *New State Ice*. Empty-core arguments have passed from fashion (but see Telser (1978)) but still are occasionally used to justify exemptions from antitrust. The case of natural monopoly is probably the clearest where competition is not efficient and a substitute— usually regulation—is needed.

There, of course, is a more pernicious reason that we should expect additions to our competition law: interest groups pursue benefits from legislatures and many of those benefits take the form of legislation. Firms may want to cartelize an industry to reap profits. The Sherman Act would block that, hence an exemption from antitrust might be required. But exemption may not be enough for the serious cartelizer: a cartel cannot succeed in raising price unless entry can be restricted. With free entry it does little good to obtain an antitrust exemption.

We therefore expect that where an interest group is powerful but cannot control entry it will combine an antitrust exemption with legislation that restricts entry (or just have the entry

restriction built in to the legislation through a tariff or licensing restriction). Failing that, the industry may prefer regulation to competition with the regulator controlling entry and perhaps price. But as we know from the theory of political regulation, there are many interest groups that will have a voice in the regulatory process. Different groups of consumers and firms will have their own interests and compromises amongst them will be up to the regulator. It is unusual for a regulator to favor one group to the exclusion of all others, as Peltzman (1976) especially has shown (see also Stigler (1971) and Becker, (1983)).

C. Antitrust Immunities

Antitrust immunities serve two purposes. First, the beneficiaries of the immunity know that while the immunity runs they will not face antitrust liability for their actions, and in particular, don't risk treble damages. This facilitates collective behavior, such as rate-setting bureaus and formal cartels. Second, antitrust immunities serve a channeling function for regulatory competition. Absent the immunity, competition over regulation takes place in the courts and before the Federal Trade Commission and in Congress through the pursuit of new legislation. Immunity channels this regulatory competition elsewhere, mainly to Congress. We can think of antitrust immunity as a commitment about how the regulatory game will be played, a commitment about where the next move will be made. It means that courts and agencies don't get to move, and that instead the next move will be made by the legislature, though, of course, that could be a future legislature, rather than the current legislature.

There are many important parts of the economy which are not subject to comprehensive competition regulation but which

have received exemptions from the antitrust laws. The major areas are:

- *Agriculture and Fishing*. The exemption allows cooperatives to form and even have joint marketing. Section 1 is odd in that it does not allow two firms each with no market power to set price, even though together they have no ability to raise price. The per se treatment of such price fixing is justified by the belief that such price setting can have no procompetitive purpose. One consequence of such a rule, especially when the interpretation of antitrust was unclear was to promote mergers (Bittlingmayer). Another is for the industry to receive an antitrust exemption. Fishing follows a similar pattern.
- *R&D Joint Ventures*. Similar to the case of agricultural cooperatives, the cooperation of rivals to achieve efficiencies in R&D can raise antitrust issues. Certain of those activities are exempt (or partially exempt) from antitrust challenge.
- *Sports Leagues*. Sport leagues consist of competing teams that must cooperate in order to have a viable league. There have been numerous antitrust cases in sports because of the peculiar combination of competition and cooperation needed for a successful league. Today sports leagues often start as a separate single firm so as to avoid antitrust challenge. When Curt Flood sued baseball commissioner Bowie Kuhn to try to end baseball's reserve clause, the Supreme Court confirmed that the antitrust laws did not apply to baseball (though they may apply to other sports). The [Sports Broadcasting Act] allows leagues to act as one entity in negotiations with the media.

- *Ocean Shipping*. International cartels set rates for certain ocean shipping routes. Entry is not typically controlled, though on some routes entry is unlikely. The industry's antitrust exemption is sometimes defended (Pirrong, 1992) on the grounds that the core does not exist and that without the cartel chaos would reign with frequent bankruptcies and unreliable service.
- *Webb-Pomerene*. This act allows cartels to set the price for exports, presumably on the logic that the antitrust laws do not protect foreign consumers.
- *Colleges*. In response to an antitrust suit alleging that the top colleges agreed on a financial aid formula to use to give out scholarship aid, legislation was passed to exempt colleges from the antitrust laws if the schools agree on a common formula for financial aid provided the schools also agree to admit students independent of need and provide them financial aid.
- *Professional Societies*. Many societies such as those involving doctors and lawyers have the ability to influence entry into their profession. Although *Professional Engineers* has limited the scope of the exemption, it is still the case for example that medical societies control the number of doctors by specialty that can receive accreditation and limit the number of medical schools. The professional societies are given this exemption because they are also regulating the quality of the profession. In a recent antitrust attack on parts of the medical profession, a group of residents brought an antitrust suit aimed at the medical schools, teaching hospitals and profes-

sional societies for the medical residency system. In that system doctors seeking advanced training are assigned one hospital to work at a specified salary. There is no competition for the resident. The antitrust claim was resolved by legislation declaring that no antitrust liability can result from the administration of the medical residency system.

- *Labor*. Unfavorable court decisions led eventually to the labor exemption. In 1908, the Supreme Court found a union liable under the antitrust laws for organizing a boycott of a particular firm's product (Lowe v Lawlor (208 U.S. 274)). This decision caused labor to pressure Congress to declare in 1914 in the Clayton Act that labor organizations were exempt from the antitrust laws. A subsequent decision (Duplex Printing Company v. Deering (254 U.S. 433)) found that the unions could still be liable if they assisted other unions at another firm. This led to pressure to pass the Norris-La Guardia Act in 1932 which removed virtually all jurisdiction over labor from the federal courts (Benson et al (1987)).

Many of these exemptions deal with activities other than price setting. Moreover some such as agriculture deal with firms where we think that at least at the level of the cooperative the amount of market power is likely small. Probably the exemption that allows the greatest exercise of market power is labor.

II. Control over Rates: The Rise of Antitrust and the Regulation of Railroads

The Interstate Commerce Act was adopted on February 4, 1887. The new law addressed the operation of interstate rail-

roads and limited rates to those that were "reasonable and just." The statute also barred more general "unjust discrimination" and "undue or unreasonable preferences," and also made unlawful long-haul/short-haul discrimination. The act also addressed directly competition among railroads in barring contracts among competing railroads for the pooling of freight traffic.

Pools dividing freight and profit had been common before the passage of the Commerce Act and indeed had been created openly in an effort to control competition among railroads (Grodinsky, 1950). The structure of the railroad business prior to the Commerce Act was conducive to the formation of cartels and pools (Hilton, 1966). The number of railroads competing on a particular route was usually small and fixed costs were high. The former meant that the costs of agreeing and monitoring that agreement were relatively low. The irreversibility of the investments in the track meant that competitors were locked into place and couldn't exit if the level of demand wouldn't support multiple competitors.

We might think of the early railroad era as a search for an institutional structure that protected shippers from monopoly power and discrimination while making it possible for railroad investors to earn competitive rates of return. The Interstate Commerce Act limited competition among railroads, while also protecting local shippers against perceived discrimination in rates. Whether this was a net plus or minus for the railroads isn't our concern here (but for discussion see Gilligan, Marshall & Weingast, 1989).

A. The Problem of Trans-Missouri

Instead, our focus is the intersection of the Commerce Act with the Sherman Act, passed three years later. The Sherman Act said nothing specific about railroads. Did the Sherman Act

cover railroads, too, or should we think that the more specific, if somewhat earlier, provisions of the Interstate Commerce Act controlled?

These questions were posed to the courts in January, 1892, when the United States brought an action to dissolve the Trans-Missouri Freight Association. The Trans-Missouri association had been formed in March of 1889 as joint rate-setting organization. While Section 5 of the Interstate Commerce Act barred contacts regarding pooling of freight or division of profits, it said nothing about rate-setting organizations. Indeed, the Trans-Missouri group filed its agreement with the ICC as required by Section 6 of the Commerce Act.

The "most important railroad case … ever tried in the West" went poorly for the government.[1] After three days of argument, the railroads were thought to have established the proposition that their activities were authorized under the Commerce Act and that the Sherman Act had not changed the protections of the Commerce Act. The railroads had "demolished" the arguments made on behalf of the U.S. by Kansas district U.S. Attorney J.W. Ady, who was then a Republican candidate for the U.S. Senate.

And the newspapers were right: the district court held in favor of the association, and the ruling was affirmed on appeal (United States v. Trans-Missouri Freight Ass'n, 53 F. 440 (D. Kan. 1892)). But in a 5-4 decision, the Supreme Court reversed. Justice Peckham's opinion for the Court rejected both the idea that railroads were somehow exempt from the Sherman Act given the more direct regulatory structure set forth in the Commerce Act and that the Sherman Act condemned only unreasonable restraints of trade. Understanding the language of the Sherman Act to have meant what it

[1] The Trans-Missouri Case, New York Times, Aug 4, 1892.

"plainly imports," the Court squarely inserted the Sherman Act into the everyday economic life of the country.

The Court decided *Trans-Missouri* on March 22, 1897. Two months later, on May 24, 1897, it announced its opinion in *Cincinnati, New Orleans and Texas Pacific Railway* (167 U.S. 479 (1897)). That case considered whether the ICC had the power to set rates. Yes, the Commerce Act required rates to be "reasonable and just" and declared unjust and unreasonable rates unlawful. Yes, the Interstate Commerce Commission was to enforce the act, but the statute only expressly authorized the commission to issue a cease-and-desist order.

In the *Cincinnati* case, the Supreme Court held that the ICC could do no more than that and that the ICC lacked the affirmative power to set rates. The power to set rates, said the Court, was "a legislative, and not an administrative or judicial, function" and given the stakes, that meant that "congress has transferred such a power to any administrative body is not to be presumed or implied from any doubtful and uncertain language.

So *Trans-Missouri* turned private railroad rail setting into an antitrust violation, and under the Cincinnati ruling, the ICC could do no more than say go forth and sin no more. Where would rate-setting authority lie? A cynic would say that these decisions maximized judicial control over rates. From the getgo, the Sherman Act was to be enforced in the courts, and through its decisions, the Supreme Court had severely constrained the ICC (Rabin, 1986).

At one level, the Trans-Missouri decision dominated railroad and antitrust policy for the next decade; at another level, the decision was largely irrelevant. As to the latter, the Interstate Commerce Commission stated its 1901 Annual Report:

> It is not the businesses of this Commission to enforce the anti-trust act, and we express no opinion as to the legality of the means adopted by these associations. We simply call attention to the fact that the decision of the United States Supreme Court in the Trans-Missouri case and the Joint Traffic Association case has produced no practical effect upon the railway operations of the country. Such associations, in fact, exist now as they did before those decisions, and with the same general effect. In justice to all parties we ought probably to add that it is difficult to see how our interstate railways could be operated, with due regard to the interests of the shipper and the railway, without concerted action of the kind afforded to these associations.

But in another way, the *Trans-Missouri* decision framed the country's consideration of the trust question and the related question of how to grapple with large agglomerations of capital, as Sklar (1988) demonstrates in his history of the period. This decision seemingly satisfied no one.

B. Solving Trans-Missouri

The path forward—perhaps the only possible path forward as Kolko (1965) suggests—was through revised legislation. Theodore Roosevelt had become president when McKinley was assassinated in September, 1901. In February, 1903, Roosevelt moved forward on two fronts. The Elkins Act of 1903 gave the Interstate Commerce Commission the independent authority to seek relief in federal courts in situations in which railroads were charging less than published rates or were engaging in forbidden discrimination. Under the original Commerce Act, the ICC could only act on the petition of an injured party.

The Elkins Act increased the ICC's power, but it still didn't have an independent rate setting power. Three years, later, the Hepburn Act of 1906 took a first step in that direction. It added oil pipelines to the substantive scope of the act, and gave the ICC the power to set maximum rates, once it had found a prior rate unjust and unreasonable.

But Roosevelt was also looking for a way to exert more regulatory pressure on the rest of the economy. On February 14, 1903, Congress created a new executive department to be known as the Department of Commerce and Labor. Within the new department, the statute created the Bureau of Corporations. The bureau was designed to be an investigatory body with power to subpoena whose mission was to investigate any corporation engaged in interstate commerce to produce information and recommendations for legislation. But all of this information was to flow through the president who in turn had the power to release or not release any other parts. Railroads were expressly excluded.

The design of the Bureau of Corporations matched Roosevelt's conception of the presidency as the bully pulpit. The bureau would give Roosevelt the information that he needed to go to the public or to Congress plus, the fact that the release of the information was within Roosevelt's power gave Roosevelt leverage in negotiations of corporations.

After winning the presidency on his own in 1906, Roosevelt continued to pursue his progressive agenda. With the start of the Sixtieth Congress in December, 1907, Roosevelt had announced that he would not stand for a third term. On December 3, 1907, Roosevelt delivered to Congress his annual message on the state of the Union. (Unlike today where the President delivers the State of the Union orally and in person, these messages were delivered in writing and were read in each house by a stand-in.)

Roosevelt called for an expansion of federal control over railroads—greater control over entry and issuance of securities, while allowing private railroad agreements on rates subject to approval by the Interstate Commerce Commission. Roosevelt then characterized the Interstate Commerce Commission's views on the failure of the decision in *Trans-Missouri* (set forth above) as a "scathing condemnation" of the law.

Roosevelt then turned to antitrust. He called for an amendment to overturn Trans-Missouri's literal interpretation of Section 1 of the Sherman Act, so as to "forbid only the kind of combination which does harm to the general public." Roosevelt also called for greater specificity in the antitrust laws: "At least, the anti-Trust Act should be supplemented by specific prohibitions of the methods which experience has shown have been of most service in enabling monopolistic combinations to crush out competition." At the same time, Roosevelt wanted a broad expansion in federal powers over large corporations engaged in interstate activities. He called for a federal incorporation law, or a federal licensing act, or some combination of the two.

All of this was eventually captured in the Hepburn Bill introduced in March, 1908. The proposed legislation met a cool reception, both in Congress and with parts of the public. As the New York Times noted in a March 24, 1908 editorial in which it quoted from both the majority and dissenting opinions in *Trans-Missouri*, a one-word amendment to the Sherman Act would have sufficed to overturn that decision—condemning all "unreasonable" restraints of trade—yet the Hepburn Bill was 1700 words long. The Times feared concentration of power in the executive, especially a president who might want to serve more than two terms. In, 1909, the Hepburn Bill died in committee, and with it died Roosevelt's attempt greater direct federal regulation of the economy.

William Howard Taft succeeded Roosevelt as President in 1909. Taft had been appointed a federal appellate judge at the age of 34. Taft had written a number of opinions on the Interstate Commerce Act; indeed, his opinion on short-haul/long-haul discrimination had been reversed by the Supreme Court (East Tennessee, V. & G. Railway Co. v. Interstate Commerce Commission, 99 F. 52 (6th Cir. 1899) (Taft, J.), reversed by, 181 U.S. 1 (1901)). Taft had also addressed the Sherman Act, and his opinion in the *Addyston Pipe* case (United States v. Addyston Pipe & Steel Co., 85 F. 271 (6th Cir. 1898)) is characterized by Robert Bork (1978) "as one of the greatest, if not the greatest, antitrust opinions in the history of the law." Taft had also been in the Roosevelt cabinet and had served as Secretary of War. Taft was peculiarly well-situated to consider the structure for regulating competition.

On January 7, 1910, Taft send a special message to the House of Representatives addressing the commerce act and antitrust. On commerce, Taft started by noting the rising conflict over orders of the Interstate Commerce Commission and how appeals from those orders were proceeding in the federal courts. Taft emphasized the problems of forum-shopping, conflicting decisions and the absence of expertise:

> Of course, every carrier affected by an order of the commission has a constitutional right to appeal to a Federal court … and as this application may be made to a court in any district of the United States, not only does delay result in the enforcement of the order, but great uncertainty is caused by contrariety of decision. The questions presented by these applications are too often technical in their character and require a knowledge of the business and the mastery of a great volume of conflicting evidence which is

> tedious to examine and troublesome to comprehend.[2]

Taft proposed the creation of a new, limited-subject matter jurisdiction court, the United States Court of Commerce. It would be staffed with five judges from the federal judiciary; new judges would be appointed to replace the new commerce court judges. The new commerce court would have exclusive jurisdiction of all appeals from ICC orders and appeals from the commerce court would go to the Supreme Court.

Taft proposed a number of other changes, but two are especially worth noting. Like Roosevelt before him, Taft addressed rate-making and proposed that carriers should be permitted to agree on rates, subject to the terms of the Commerce Act and review by the ICC. As to antitrust reform, again like Roosevelt, Taft envisioned a federal incorporation law which would both displace State authority and provide a general means for federal regulation of large, interstate entities.

Taft faired no better on his antitrust reforms, but the Mann-Elkins Act of 1910 created the new Commerce Court and made other significant changes to regulation. This included bringing interstate telephone and telegraph services under the jurisdiction of the ICC and greater, if still incomplete, powers over railroad rates. But the Commerce Court is our focus here.

Stop and situate the Commerce Court in our prior general analysis of the choice between agencies and courts. Our discussion above suggested that federal courts of general jurisdiction would be poorly situated to deal with network industries. As Frankfurter and Landis (1924, p. 154) recognized, federal courts of general jurisdiction resulted in "conflicts in court deci-

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[2] "Taft Sends Message to Big Corporations," New York Times, January 8, 1910, p. 6.

sions begetting territorial diversity where unified treatment of a problem is demanded, nullification by a single judge, even temporarily, of legislative or administrative action affecting whole sections of the country." A federal court of specialized jurisdiction would make possible many of the benefits of agencies—in particular, the ability to make coherent, contemporaneous decisions—while creating more independence than an agency would have.

The new Commerce Court took over a large number of cases then spread throughout the federal judiciary. The court was instantly busy and, almost as quickly, reviled by the public (Ripley, 1910). The Commerce Court became the flashpoint for the "railroad problem;" as Frankfurter and Landis (1924, p.164), put it "[p]robably no court has ever been called upon to adjudicate so large a volume of litigation of as far-reaching import in so brief a time."

The Commerce Court failed. The public saw the ICC as exercising some power against the railroads, while the Commerce Court frequently overturned ICC decisions to the detriment of shippers. As Kolko (1965, p.199) puts it in describing a series of Commerce Court decisions that were seen to benefit the railroads, "… the Commerce Court proceeded to make itself the most unpopular judicial institution in a nation then in the process of attacking the sanctity of the courts."

The Taft Administration suggested that the actual reversal rate of the ICC had dropped, but those decisions were spread throughout the entire federal court system and were, as a result perhaps, less salient than those by the Commerce Court. In May, 1912, the House of Representatives voted 120-49 to abolish it, the Senate 36 to 23, but Taft vetoed the legislation to give the court—it turned out—a temporary reprieve. When Woodrow Wilson took over the presidency in 1913, he quickly

signed legislation ending the Commerce Court, which came to a merciful and final death on December 31, 1913.

Wilson's presidency brings the process of structural reform to a close. The Supreme Court's 1911 decision in *Standard Oil* had already muted some of the pressure for antitrust reform. That decision abandoned the literalism of *Trans-Missouri* and introduced (restored?) the common law distinction between reasonable and unreasonable restraints of trade. (And, by the way, also broke up Standard Oil.)

Early in his first term, on January 20, 1914, Wilson delivered a special message to Congress on antitrust. Wilson had two principal aims. First he wanted to make explicit the nature of antitrust violations:

> Surely we are sufficiently familiar with the actual processes and methods of monopoly and of the many hurtful restraints of trade to make definition possible—at any rate up to the limits of what practice has disclosed. These practices, being now abundantly disclosed, can be explicitly and item by item forbidden by statute in such terms as will practically eliminate uncertainty, the law itself and the penalty being made equally plain.

Wilson then turned to the idea of an interstate trade commission:

> And the businessman of the country desire something more than that the menace of legal process in these matters be made explicit and intelligible. They desire the advice, the definite guidance and information which can be supplied by administrative body, an interstate trade commission.

Wilson stated that the country

> demands such a commission only as an indispensable instrument of information and publicity, as a clearing house for the facts by which both the public mind and the managers of great business undertaking should be guided and as an instrumentality for doing justice to business or the processes of the courts or the natural forces of correction outside the courts are inadequate to adjust a remedy to the wrong in a way that will meet all the equities and circumstances of the case.

Later that year, Wilson got exactly what he wanted with the enactment of the Federal Trade Commission Act and the Clayton Act. Adopted on September 26, 1914, the FTCA, brought to a close Roosevelt's efforts to extend the Interstate Commerce Act to the general economy. The Bureau of Corporations, designed by Roosevelt as the president's private investigatory arm, was to become the back-office of the new Federal Trade Commission. The Commission itself was to parallel the Interstate Commerce Commission: an independent agency of five commissioners appointed by the President on the advice and consent of the Senate.

Section 5 of the FTCA declared unlawful "unfair methods of competition" and empowered the FTC to prevent the use of such methods other by banks, subject to the new banking act, and common carriers subject to the Commerce Act. In so doing, Section 5 split the Commerce Act in two, embracing its prohibitions against unfair discrimination while denying rate-setting power to the FTC. And the Clayton Act forbad specific practices, including tying and price discrimination. So Wilson got the specificity he wanted through the Clayton Act, and the promise for greater specificity going forward through his new Federal Trade Commission. Industry would have a regulatory agency that it could turn to and perhaps even influence.

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The 1914 legislation brought to a close the fight over *Trans-Missouri*. We know now that this fight created the core institutional features that still dominate U.S. antitrust law. Railroading has seen more change. Technological change in the form of trucking was one important factor, the nationalization of the railroads during World War I a second. The latter made more apparent the virtues of an integrated regulatory system for railroads. The Transportation Act of 1920 restored private control over the railroads. It also—finally—gave the Interstate Commerce Commission full control over rates, requiring the Commission to ensure that rates permitted carriers to receive "a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation."

Finally, as to the fight over whether antitrust or regulation controlled rate setting for railroads, in 1948, more than a half-century after the Supreme Court's original decision in *Tran-Missouri*, Congress finally put the decision to rest by exempting joint setting of railroad rates from the antitrust laws, so long as the ICC approved the rates.[3]

III. Interconnection in Network Industries

We now turn our attention to a group of industries that have been a focus of regulation for over a hundred years, network industries. If rate-setting was the great first issue of competition policy, the leading issue today is interconnection and mandatory access. We address the fundamental question that has occupied and continues to occupy regulatory and antitrust decisions in those industries: how should those markets should

[3] Pub. L. xxx-662, 62 Stat. 472 (June 17, 1948).

be structured and specifically how should firms interact in those industries?

In the past, electricity was thought to be a vertically-integrated, local natural monopoly. The economics of generation evolve and society concludes that we should encourage merchant generation, but for that to work, new generators need access to the transmission grid, either access through contract or through law. We observe the same pattern in telecommunications and the result was the 1996 Telecommunications Act. In antitrust proper, the federal government's pursuit of Microsoft can be captured in part as a fight over interconnection, namely, the circumstances under which outsiders would get access to the Windows application programming interface. In this section, we focus our analysis of telecommunications and transportation (planes, trains and trucks).

We want to continue to consider the circumstances under which we can expect regulation to depart from the antitrust baseline. We have already discussed one category of departure, namely, special rules within antitrust itself that exempt particular industries from antitrust scrutiny. A second important departure takes place when new competition regulations are promulgated for a particular industry.

There is of course a considerable difference between an antitrust exemption and separate regulation. First, a regulator typically has the ability to control or influence price. This ability could be used to cartelize the industry, or more likely, to allow elevated pricing in return for some other objective that the regulator is likely to have to satisfy, such as a cross subsidy to different customer groups. But in order to achieve either of these objectives, the regulator may need to also control entry. Otherwise there may be no way to maintain the elevated price. This means that the regulator wants to limit competition and

for that reason will be hostile to being constrained by the antitrust laws.

This concern is especially acute in network industries in which firms must interconnect with each other, such as airlines, trucking, electricity, railroads and telecommunications. In such industries, the regulator needs to administer the price and quality of the interconnection. If two firms compete in the end market and one competitor supplies the other a key input, the regulator must worry that the supplier will misuse its control over the input to harm his rival.

This concern vanishes if, as in several regulated industries, the regulated firms have separate territories. Because of this concern, regulators might prevent mergers to limit vertical integration and prevent that firm from becoming a wholesale supplier to other firms. In the absence of regulation, competition would likely lead to massive vertical merger and a concentrated market structure. In contrast, regulation should lead to many vertically disintegrated firms.

Moreover when firms must interconnect, the price of interconnection will typically be regulated to be above marginal cost. If so, there will be an efficiency motivation for a firm to vertically integrate to avoid double marginalization and also to capture the return upstream. But such mergers would eliminate firms and ultimately lead to one firm. Regulators might prefer to avoid this outcome to prevent one firm from becoming a potent political force in regulatory battles.[4] By observing what happens when regulations are lifted, we can get a sense for why it was important for the regulators to constrain the use of anti-

[4] In an industry with high sunk costs but low marginal costs, interconnection fees based on models of contestability fail to reward carriers adequately for risk, since contestability ignores sunk costs. In such situations, not only is price above marginal cost, but investment is deterred. This may have been the case in telecommunications. See Pindyck (2005).

trust. We look at a few regulated network industries below. They all show a similar pattern: after deregulation, there is massive consolidation, increased industry concentration, an end to cross subsidy, often a decline in employment or wages, and a fall in price.

A. Telecommunications

1. EARLY INTERCONNECTION BATTLES

The telephone system is about interconnection, as the single-phone phone system is worthless. In the early days of the industry, as Mueller (1997) describes, different local companies competed with each other. A customer of one company could reach only other customers of that company; you might need to have multiple phones to reach everyone. (This is very much like instant messaging today, where America Online has resisted attempts by Yahoo, Microsoft and others to create a unified IM system.)

American Telephone and Telegraph—the Bell System—was the dominant firm of the day, but local competition was widespread; indeed, during the early 1900s, half of the cities with populations larger than 5,000 had competing local firms (Mueller, p.81). This competition almost certainly had benefits—on price and service—but came with a loss of network externalities. AT&T set out to build a universal system and started by purchasing competing telephone companies.

In 1912, that led to an antitrust suit in Portland, Oregon and to calls by the Postmaster General to nationalize the telephone and telegraph system—presumably to unify the messaging systems of the day (postal, telegraph and phone) into one set of hands. Faced with these two threats, AT&T agreed to, in the words of N.C. Kingsbury, an AT&T vice-president, to "set its house in order." In what is now known as the Kingsbury Commitment, AT&T agreed to divest itself of control over

Western Union; to stop acquisitions of competing lines; and to give access to Bell's long distance lines to competing local phone companies, that is, to interconnect the Bell system's long distance lines with the local competitor's network.[5]

The Kingsbury Commitment might be framed as a victory for local phone competition, but for two factors. First, few phone users made long-distance calls, so the local line/long-distance line interconnection may not have been an important competitive factor. Second, the size of the local network did matter, and AT&T aggressively moved forward on local interconnection, something outside the scope of the Kingsbury Commitment.

As is so often the case, antitrust action—here the settlement—sets the stage for the next round of legislation. The key one came in the form of the Willis-Graham Act of 1921. The new law entrusted telephone mergers to the Intestate Commerce Commission and authorized approval if doing so would "be of advantage to the persons to whom service is rendered and in the public interest." The Act also displaced the antitrust laws: once the ICC had said yes, the Department of Justice and the Federal Trade Commission could do nothing. With the new act in place, AT&T moved swiftly to create local interconnection through acquisition, with the ICC approving 271 of 274 AT&T acquisitions over a thirteen-year period (Starr, 2004, p.209).

2. INTERCONNECTION AGAIN: MCI'S ENTRY INTO LONG DISTANCE

We jump ahead in telephones to consider the entry of MCI into long distance. We start with a single integrated phone system, with local and long-distance controlled by AT&T. MCI

[5] See "Government Accepts an Offer of Complete Separation," New York Times, Dec. 20, 1913, p.1 (setting forth terms of Kingsbury Commitment).

entered in a very limited way, by building microwave towers to enable private within firm phone calls between St. Louis and Chicago (say between the Walgreen's home office in Chicago and a district office in St. Louis). MCI didn't need access to the public network to make this work. Even this limited entry required an initial 1959 order and a subsequent 1969 ruling from the Federal Communications Commission.

But entry into the private lines network didn't required interconnection with the public network. MCI had to persuade the FCC to allow it to enter and had to sell the private line service to individual customers, but MCI didn't have to strike a deal with Ma Bell. Entry into the public market for long distance required exactly that, or in the alternative, simultaneous entry into local and long-distance. And if MCI had been forced to build the entire network, it almost certainly could not have entered the market. Certainly then, the local network was seen as a natural monopoly. It clearly would have been inefficient to build a second local network—that just says again that the local network was a natural monopoly—and it was also probably the case that it was a money-losing proposition for MCI to build a local network.

Bundling entry—forcing MCI to enter on the scale of having to build a local network if it wanted to enter the long-distance business—would probably have prevented the long-distance entry. Unbundling entry—giving MCI access to the local network while allowing entry only in long-distance (and only one route at that)—meant that MCI could just compare the much more limited capital costs of building the second piece with the profits associated with that piece rather than the costs of both pieces with the profits associated with both pieces.

MCI moved against AT&T on both regulatory and antitrust fronts. In 1970, the FCC had concluded that some entry

was appropriate in specialized communications, but when push came to shove, the FCC had back-tracked. In February, 1978, the FCC rejected MCI's request that AT&T be ordered to provide local physical interconnections for MCI's intended public long-distance service. AT&T successfully persuaded the FCC that MCI would target high-profit routes and that that would destabilize the existing structure of rates, contrary to the public interest. MCI successfully appealed to the D.C. Circuit, which concluded that the consequences of entry could be dealt with on a case-by-case basis. In a subsequent proceeding, in 1978, the D.C. Circuit ordered AT&T to make interconnection for MCI's long-distance service.

MCI filed a private antitrust suit against AT&T in 1974. That case eventually went to a jury trial in the first half of 1980. The jury ultimately found AT&T liable on ten of fifteen charges, and awarded $600 million in actual damages, then trebled to $1.8 billion under Section 4 of the Clayton Act. On interconnection, MCI successfully argued that AT&T's refusal to interconnection constituted an impermissible refusal of access to an essential facility. The Seventh Circuit sustained the jury finding that that refusal constituted monopolization in violation of Section 2 of the Sherman Act.

We should step back from the details of this fight over entry and interconnection. In general we know that regulation leads to cross subsidy, nonlinear prices, and frequently some version of Ramsey pricing. Cross subsidies create entry incentives. General antitrust law will often facilitate entry but will do so with little regard for the cross-subsidy issues. MCI's entry into long distance probably fits in this framework. The D.C. Circuit expressly considered the cross-subsidy issues as part of its review of the FCC's regulatory proceedings, but concluded that those issues could be dealt with in subsequent proceedings. In contrast, the Seventh Circuit, faced with antitrust claims

(and not regulatory claims) couldn't consider what its interconnection ruling might mean for the existing set of cross-subsidized rates.

Whether we should have welcomed MCI's entry is a separate question. To assess that, we need to assess how rates are set in the final product market. In the case of long distance, competition broke out at the period of maximal control by regulators over rates faced by users. In that context, if the regulators are doing a good job, entry just creates problems, it doesn't solve them.

If we start with a regulated monopolist offering services to different customers, the regulator will need to set prices for each group of customers. The standard response in theory is Ramsey pricing. The regulator sets a series of prices—prices for long distance and for local service, for business customers and consumers, for urban and rural users—to minimize social loss while hitting a revenue target. The revenue target will be determined through a political process, but think of it as solvency plus some sort of return to shareholders. As to minimizing social loss, the key point is that we would like prices to be as close to marginal cost as possible, since that induces the right amount of consumption.

Of course, if prices are just set to recover marginal costs, the fixed costs of creating the network aren't covered, and the regulated firm loses money. The Ramsey approach is about allocating the fixed costs of production among the different groups using the service. The theory says that inelastic demanders should pay a larger share of the fixed costs. Inelastic demanders won't change their purchases much in the face of higher charges, and it is the reduced consumption when we push prices above marginal cost that causes the social loss. So elastic demanders should not bear too many fixed costs, inelastic demanders should pay a big chunk of those costs.

Now assume that we have put Ramsey prices into place. Those prices will create arbitrage opportunities: indeed, the whole vision behind Ramsey pricing is that we dump fixed costs on inelastic demanders, while elastic demanders bear few of those costs. Ramsey pricing is precisely about price discrimination. If the regulators got the prices right in the first instance, entry that emerges because of regulator-created price gaps and that ends those gaps is entry we do not want. This is clearly the core "cream skimming" idea AT&T feared from long-distance entry.

The regulators may not have implemented Ramsey prices in the first instance, but they clearly had created an elaborate pattern of cross-subsidies, and that pattern would become more difficult to sustain after entry. The move from Ramsey prices to cross-subsidy prices just generalizes the Ramsey point, as Ramsey pricing is just in some sense an "optimal" cross-subsidy scheme. How should we evaluate entry, whether facilities-based competition or otherwise, where the entry opportunity is created by cross-subsidy driven pricing? To some extent, this requires a political account—a public choice account—about the nature of subsidies. If we thought that the subsidies were appropriate, then we should bar entry occurring just because of the opportunity created by the cross subsidy. So if the incumbent charges a higher price in urban areas than costs would warrant but does so because of a requirement that the price structure force urban users to subsidize rural users, entry targeted at urban users should be seen as problematic.

In contrast, if we think of cross-subsidies as inappropriate, entry may be useful in that it may make those subsidies unsustainable. Obviously, all of that is much more complex than just described. If winners in the regulatory capture game get cross-subsidies, as a first cut, we should expect them to win the entry regulation game as well.

3. THE 1996 ACT'S INTERCONNECTION RULES AND TRINKO

With the rise of AT&T's dominance, after the passage of the Communications Act of 1934, antitrust became the main vehicle for controlling AT&T. Given the size of both AT&T and the federal government, this may have been a fair fight. In 1949, the federal government brought an antitrust action against AT&T, which, in turn, resulted in a 1956 consent decree and final judgment. In 1974, the government brought a new action against AT&T, and in 1982, a new consent decree emerged as a modification of 1956 decree. That decree resulted in the break up of AT&T: long-distance was separated from local and regional local companies were established. The AT&T case has received no shortage of attention, and we will say nothing about it here (do see Noll and Owen, (1989) on the interaction of regulation and antitrust).

Instead, we want to focus on the next important move, namely the Telecommunications Act of 1996. The 1996 Act is wide-ranging but we address only its efforts to produce local competition through interconnection policy. The 1996 Act seeks to facilitate competition in local telephone markets by making it easier for entrants to compete with incumbents. It does so by creating a series of mandatory dealing obligations, that is, ways in which the incumbent is required to share its facilities with an entrant. This includes an obligation of interconnection; a requirement to sell telecommunications services to an entrant at wholesale prices, so that the entrant can resell those services at retail; and an obligation to unbundle its local network and sell access to pieces of the network at a cost-based price.

As just put, that grossly oversimplifies. To take just the unbundling requirement, the Federal Communications Commission has yet to come up with a set of rules that the Court's have found acceptable. The Supreme Court overturned the initial set

of rules addressing the scope of unbundling in 1999 in the *Iowa Utilities* case and the D.C. Circuit has since overturned two sets of rules. (Challenges to the fourth set of rules are currently pending.) The FCC's pricing rules have fared better and were sustained by the Supreme Court in 2002 in the *Verizon* case.

As to the intersection of the 1996 Act and antitrust, the 1996 Act contains a "savings" clause:

> Nothing in this Act or the amendments made by this Act ... shall be construed to modify, impair, or supersede the applicability of any of the antitrust laws. (47 U.S.C. § 152, Historical and Statutory Notes.)

The lower courts divided on the meaning of this language.

In January, 2004, the Supreme Court announced its opinion in *Trinko*. AT&T wanted to enter Verizon's local markets in New York and sought access pursuant to the terms of the then-applicable rules under the 1996 Act. When the access granted was seen as inadequate, both state and federal communications regulators acted and monetary penalties were imposed against Verizon.

Enter Curtis Trinko, a New York lawyer. He brought an antitrust class action against Verizon alleging that, as a local customer of AT&T, he was injured by Verizon's actions and that those actions violated Section 2 of the Sherman Act. The federal district court would have none of that and booted the complaint, but the Second Circuit reversed.

Justice Scalia, for the Court, noted that the situation seemed to call for an implicit antitrust immunity. The 1996 Act created interconnection duties and those duties could be enforced—and were enforced here—through the appropriate regulators. That would seem to suffice, and there would be some risk that additional antitrust enforcement would interfere

with the regulatory scheme. So the Court might have held, but for the savings clause, which precluded such a claim of implicit immunity.

Instead, the Court turned to the question of whether antitrust law imposed on Verizon a duty to deal with entrants. Antitrust rarely imposes mandatory obligations, other than as a remedy for an independent antitrust violation. The *Aspen Skiing* case represents one prominent exception to that statement, and whatever the merits of *Aspen* (see Carlton (200x) for criticism), the Court saw little reason to expand mandatory obligations here. Indeed, just the opposite: "The 1996 Act's extensive provision for access makes it unnecessary to impose a judicial doctrine of forced access."

B. Airlines

Congress established the Civil Aeronautics Administration, which later became the Civil Aeronautics Board (CAB), in 1938. The CAB regulated fares and entry. They cross subsidized low-density short haul routes with revenues from low-cost long-haul routes. The CAB rarely allowed mergers unless bankruptcy was imminent (Morrisson and Winston (2000), p.9). By the 1970s, the CAB began to allow entry. Several airlines were in the process of initiating lawsuits against the CAB for violating its Congressional mandate, when the Airline Deregulation Act of 1978 was passed. (Interestingly, the largest domestic carrier at the time, United, favored deregulation.) Airline deregulation was phased out and the CAB was abolished in 1984 (see Carlton and Perloff (2005)).

Deregulation set in motion forces that are still working their way through the airline system. Fares fell substantially after deregulation with typical estimates being 20% or more (see e.g. Morrison and Winston (2000, p. 2)).The menu of fares on a typical route grew. Cross subsidies were eliminated

(the CAB had eliminated cross subsidies based on distance in the 1970s) There has been a virtual flood of entry and exit since deregulation. For example, of the 58 carriers that began operations between 1978 and 1990, only one (America West) is still operating. (Morrison and Winston (2000, p.9).

Airlines developed hub-and-spoke networks (with Southwest being a notable exception) through merger and internal expansion and as a result reduced their need to rely on another airline for interconnection. For example, in 1979 25% of trips involved connections and of those 39% involved another airline. By 1989, there were more connecting flights as a result of the hub-and-spoke system, with the effect being that 33% of trips involved connections and of those less than 5% involved an interconnection with another airline.

There was considerable merger activity and agreements among airlines to cooperate on flight schedules and the setting of through-fares when a passenger travels on two airlines to reach his final destination. (These agreements are called alliances or code-sharing agreements.) The Department of Justice challenged several mergers and alliances and its opposition most recently ended the attempt of United to merge with US Air, and also ended the proposed alliances between American and US Air and between Delta and United.

As a result of mergers and firm expansion, concentration has risen nationally. The four-firm concentration ratio has risen from 56% in 1977 to 71 % in 2003 (Wessel (2004)). But concentration at hubs has behaved very differently than concentration at non-hubs. At hub airports, the HHI rose from a median of under 2200 pre deregulation to a median of 3700 by 1989, while at non-hub airports, the HHI fell from 3200 in 1979 to about 2200 in 1989 (Bamberger and Carlton (2003)).

Despite regulation, airlines have proved to be a poor investment. During regulation, especially the 1970s, service com-

petition eroded a significant portion of airline earnings. Since deregulation, fierce price competition has led to the bankruptcy of several airlines and indeed several major airlines are currently either in bankruptcy or are close to it. ("As of 1992 ..., the money that has been made since the dawn of aviation by all of this country's airline companies has been zero. .... . If I'd been at Kitty Hawk in 1903, I would have been farsighted enough and public spirited enough—I owed this to future capitalist—to shoot him down." Warren Buffet as reported in Wessel (2004)). Deregulation also led to lower wages for employees and increased productivity.

We can also study the behavior of the airline industry post-deregulation to illustrate that a regulated industry may be prone to antitrust proceedings in the aftermath of regulation. This could occur because collective action is needed for efficiency or simply because firms in the industry have gotten used to acting in concert during regulation. We think the airline industry illustrates well the heightened antitrust liability that can attend a network industry when it is deregulated.

Prior to deregulation, airlines relied on each other to interconnect passengers. That meant that airlines would have to set some fares jointly and decide how to split the revenue. So, for example, if airline 1 flies from A to B, and airline 2 flies from B to C, the two airlines could coordinate their flight times so that a traveler could conveniently go from A to C (with a change of plane at B). The two airlines would collectively set a fare for A to C travel and share it in some way. Also, airlines, post regulation, developed sophisticated pricing methods requiring booking agents to keep track of multiple fares and seat availability.

This created two problems. First, travel agents needed sophisticated software to allow them to book tickets. Second, travel agents had to have up-to-date information on pricing and seat availability. Thousands of fares existed and many

changed daily. The pricing of airlines sometimes involved wild swings in price and its pricing is much harder to comprehend than pricing in other markets. All these characteristics led to significant litigation against the airlines post-deregulation.

The tendency of airlines to cooperate in the setting of through fares when traffic is shared can be a natural and desirable way for two airlines to provide a service to consumers that neither airline, on its own, could provide. It could also be a ploy by which one airline bribes another to prevent expansion of competing routes. (If you don't enter route BC, where I fly, I will interline with your AB route and let you keep a large fraction of the through fare from A to C. In that way, you have no incentive to enter BC and compete with me on that route.) This last concern has caused the Department of Justice to investigate several proposed domestic airline alliances. And, as already mentioned, these investigations have scuttled proposed alliances between American and US Airways, and between Delta and United.

The need to have software to book tickets led to several cases and investigations into computer reservation systems (CRS). One complaint was that the CRS system used by a travel agent favored the airline that produced the CRS system. So, for example, if a travel agent used the Sabre system originally developed by American Airlines, that system displayed information about American Airlines flights more prominently than other airlines. As a result of the government investigation, detailed rules on "unbiasedness" were agreed to. Today, CRS systems are no longer privately owned by the airlines. (See Calvert [1993].)

The need to have updates of the massive number of daily fare changes led to a Department of Justice investigation of information sharing amongst the airlines. Most of the airlines would provide information each day on all their fares by route.

The information in a "notes section" would contain relevant fare restrictions (e.g. weekend stays, advance purchase requirements) as well as the date the fare became effective and expired. This information fares was transmitted to The Airline Tariff Publishing Company (ATPCO) which then made a master computer tape and distributed it to all airlines and travel agents. ATPCO is owned by the airlines.

The Department of Justice alleged that ATPCO was being used as a mechanism to coordinate pricing. One allegation was that the notes section was used to communicate price signals. So for example if airline 1 cut price on an important route of airline 2, airline 2 would retaliate and cut price on an important route of airline 1. To make sure airline 1 understood why it had cut fares, airline 2 would put a note to indicate why it had cut price in an attempt to convince airline 1 to withdraw its low fares on airline 2's routes.

A related allegation was that the first effective and last effective ticket date were used to make it easier to coordinate pricing. So, for example, if airline 1 wanted to raise fares, it would announce an increase to take effect in say two weeks. If other airlines did not match, or only partly matched, airline 1 could rescind or revise its fare increase and not suffer any loss because the fare increase had not yet gone into effect. The airlines denied the government allegations.[6] The airlines settled the case by agreeing to eliminate extraneous notes and by abandoning the use of first ticket dates. Interestingly, analysis of fares post settlement show no effect from the settlement (Borenstein (2005)).

The sometimes wild price swings that occur when new entrants start servicing a route has led to both litigation and government investigations. In a city pair that can support only one

[6] Carlton worked on behalf of the airlines.

or a few carriers, competition from a new rival not only can expand capacity a lot but can induce responses from the incumbents. In response to an aggressive price response by a rival, allegations of predation are often made. The precise definition of predation in an industry such as airlines with large fixed costs on a route but small variable costs is not well established (Edlin and Farrell (2005)). But the observation that fares frequently plummet below levels that are financially viable has led to demands for government intervention.

In U.S. v. AMR et al (140 F. Supp. 2d 1141 [2001]), the Department of Justice accused American Airlines of practicing price prediction. American Airlines competed out of Dallas Fort Worth with several low cost airlines (Vanguard, Western Pacific, Sun Jet). American lowered its fares, and increased its seat availability in response to these low cost airlines, causing them to abandon their routes. After the low cost airlines exited, American reduced the number of flights and raised prices to roughly their initial levels. American responded that its prices exceeded average variable costs, and moved for summary judgment which was granted.

Just prior to the Department of Justice case, the Department of Transportation initiated an investigation of predation in the airline industry. It investigated several incidents in which it was alleged that incumbents routinely responded to entry of low cost carriers by lowering fares, expanding output and driving them out of business, at which point fares rose. In a detailed study of entry and exit patterns (submitted to the Department of Transportation on behalf of United), Bamberger and Carlton (2005) found that entry and exit on routes were extremely common amongst both low cost carriers and established carriers. Moreover, with the exception of Southwest Airlines, there were very high exit rates amongst both low cost and regular carriers. The Department of Transportation dropped its

attempt to define predation standards. As an aside, since 2000, the share of passengers served by low-cost airlines has risen from 23% to 26%.

C. Railroads[7]

As Gilligan, Marshall and Weingast (1989) note, the consequences of the Interstate Commerce Act are complex. One view is that it was a mechanism to benefit the railroads. But as with most regulated industries the regulators had other interest groups to satisfy and did. Cross subsidy to high cost, low density routes and to short-haul shippers emerged; indeed, that was one of the central designs of the law, as it banned long-haul/short-haul discrimination. Price discrimination in which high value-added products had higher rates than bulk also emerged to placate certain shipper interest groups. In what was to be important later, regulators controlled not only entry but also exit from a route. The emergence of the truck (and air) complicated the regulatory calculations.

Control of trucking became necessary to protect railroads and did occur in the Motor Carrier Act of 1935. As trucking (especially its union, the Teamsters) developed as it own powerful interest group, the interest of railroads waned and railroads got clobbered financially resulting in numerous bankruptcies. Trucks siphoned off the profitable high value-added shipments and eroded the source of revenue for cross subsidy. The restrictions on abandonment of routes created enormous inefficiencies. The deregulation of the railroads in 1976 (4R Act) and in 1980 (Staggers Act) removed most regulations but placed merger control in the hands of the Surface Transporta-

[7] This section draws heavily from Peltzman (1989) and Grimm and Winston (2000).

tion Board (STB), not the Department of Justice. It streamlined the process for merging.

After deregulation, there was massive abandonment of track, reductions in employment, decline in certain rates, and massive consolidation that is still ongoing. Roughly one third of tracks was abandoned, real operating costs fell in the 20-year period following deregulation by about 60 percent, employment has been estimated to be about 60 percent lower as a result of deregulation (Daves and Wilson [1999]), rail volumes started to grow again, and industry profitability improved. Rates fell (Burton [1993]), especially for high value-added products, and service improved.

"Before deregulation, mergers typically involved railroads with substantial parallel trackage … . In contrast, mergers in the post-Staggers period have been primarily end-to-end" (p. 341-2, Berndt et al [1992]). Mergers in the first six years of deregulation reduced the number of large railroads (Class I) from 36 to 16 (Winston, pp. 45-46 citing Chaplin and Smith [1999]). Continued merger activity has left only two railroads servicing the West and also the East (see also Ivaldi and McCullough (2005)). Using figures from the Association of American Railroads, the number of Class I railroads declined from 40 in 1980 to 7 in 2004. According to a study by the Department of Agriculture, the HHI of railroads in the East has increased from 1364 in 1980 to 4297 in 1999 and in the West from 1364 to 4502. (Source: Comments of the U.S. Department of Agriculture before the Surface Transportation Board, STB Docket No. 34000, Canadian National Railway Co. et al – Control – Wisconsin Central Railway Co., June 25, 2001).

Despite opposition from The Department of Justice to many of the major mergers, STB has approved them. We believe that the reason the STB was given merger authority rather than the Department of Justice is precisely because mergers

were anticipated that would lead to increased rates from reduced competition, and this was perceived as a benefit by the proponents of deregulation (which included the railroads). "The railroad industry is perhaps the only U.S. industry that has been, or ever will be, deregulated because of its poor financial performance under regulation" (p.41, Grimm and Winston [2000]). Indeed, although railroads rates in general have declined, captive shippers now have much less protection than before deregulation and pay substantial rate differentials compared to non-captive shippers.

In March 2000, the STB issued a moratorium on mergers. In June 2001, it issued new merger regulations in which merged carriers would have an increased burden to show that the proposed merger would not harm competition. There have been no mergers among Class I railroads since. Recently, there have been congressional attempts to remove the antitrust immunity of railroads regarding mergers and other pricing matters. (Gallagher [2005]).

D. Trucks

As already discussed, trucking regulation emerged under the Motor Carrier Act of 1935 as an attempt to control competition with railroads. The trucking industry, especially its unions, was able to become a powerful interest group whom regulators protected from competition. (Estimates are that wages were 30 percent higher or more than otherwise, and that this premium accounted for the bulk of the regulatory rents to trucking. (See Rose [1987] and Moore [1978].)) Entry was controlled with carriers needing certificates to carry certain commodities on particular routes. Rates were regulated.

The trucking industry is composed of two very different segments, truck load (TL) and less than truck load (LTL). The TL segment consists of firms that ship in truckloads from ori-

gin to destination. In contrast, the LTL segment consists of firms that will pick up several small shipments, and deliver then to their final destination after making several stops to either pick up or drop off other shipments. Therefore, the LTL segment is a network industry where scale (or geographic scope) matters, while the TL segment is not. Deregulation had very different effects on these two segments.

Deregulation led to an increase in the total number of trucking firms. For example, the number of certified carriers rose from about 18,000 in 1980 to about 40,000 by the end of the 1980's (Nebesky et al 1995). In sharp contrast, the number of LTL carriers fell from around 600 firms in the late 1970s to 237 firms in the late 1980s and to 135 firms by the early 1990s (Fetitler et al. (1997)). Moreover, there was evidence that pre-deregulation, LTL carriers earned rents that were eliminated after deregulation.

Although LTL carriers have increased in size, they did not rely on merger but rather on expansion of the territory of individual carriers. (Mergers were not used in order to avoid being struck with unfunded pension liabilities. Post deregulation the value of an active firm was negative after the value of its operating certificate fell. Boyer [1993]). Although the evidence seems to confirm that regulation forced the LTL sector to have too many firms, evidence on scale in the LTL sector (Giordono [1997]) supports the view that there will remain a sufficient number of efficient LTL carriers to preserve competition.

The deregulation of trucking applied to interstate not intrastate shipments. States are able to, and some do, regulate rates and entry of intrastate trucking. Some states explicitly grant antitrust immunity, while others do not. (In the 38 states that still regulate trucking under 500 pounds, 22 have granted antitrust immunity to truckers as of 1987.) Econometric analysis (Daniel and Kleit (1995)) of these rates in states that still regu-

late trucking shows that in the LTL segment entry regulation raised rates by over 20 percent, rate regulation by over 5 percent and antitrust immunity by about 12 percent. In the TL segment, only rate regulation had a statistically significant effect on price of more than 32 percent.

Although employment in trucking continued to grow after deregulation, one estimate finds that deregulation caused a reduction of 250,000 to 300,000 union jobs, or about 20 percent of total workers in trucking. (Hunter and Mangum [1995])) This is further evidence that trucking regulation was heavily influenced by the powerful Teamsters Union. Moreover the wage effect in the LTL segment was small but wages declined significantly in the TL sector (Belzer (1995)).

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Although we have not examined all regulated industries, we have looked at several. They all show a similar pattern: after deregulation, there is massive consolidation, a lessening of the reliance on interconnection from other firms, a decline in either wages or employment or both, and a fall in prices with a reduction or end to any cross subsidy

Conclusion

More than a century ago, the federal government started regulating competition, first railroads through the Interstate Commerce Act and then the general economy under the Sherman Act. The Commerce Act assigned primary responsibility to the first great federal agency, the Interstate Commerce Commission, while the Sherman Act relied for its implementation on federal courts of general jurisdiction. Since that time, there has been an ongoing struggle to define the appropriate substantive scope for regulating competition and to determine the right mechanism for implementing that policy.

The United States influences competition by a variety of different and substitutable mechanisms. The antitrust laws apply to all industries unless the industries have been explicitly carved out from antitrust liability. As the antitrust laws evolved and harmed certain interest groups, these groups often sought and got explicit exemptions and even legislation protecting them from entry. Other interest groups wound up with regulation as an alternative to facing antitrust liability and had to share the benefits of regulation with other interest groups. As we have seen, many exemptions and regulatory agencies were formed as responses to unfavorable antitrust decisions.

The core business of regulating railroads was rate-setting. The railroads certainly had the incentive and perhaps even good economic reasons to agree on rates and could do so prior to the Sherman Act without fear of federal prosecution. The Supreme Court's decision in *Trans-Missouri* changed that as it made clear that the Sherman Act condemned private collective rate-setting. But if private collective rate setting was forbidden, it was left unclear how to implement public rate setting since the ICC lacked the power to set rates.

The Interstate Commerce Act itself needed a series of amendments before the ICC received true rate-setting power. And the ICC did not receive that power the courts showed that they were unable to do so. Courts of general jurisdiction do a poor job of coordinating decisions made at the same time, and in a network industry such as railroading, a single bad court decision reverberates quickly throughout the entire network. And the early attempt at a court of limited jurisdiction—the Commerce Court, with jurisdiction over the ICC and railroading—was a quick failure.

The core issue in network industries today—in telecommunications, transportation and electricity—is interconnection and mandatory access. Federal regulators such as the FCC and

FERC implement statutory schemes that require some form of interconnection or access. The Supreme Court's decision in *Trinko* suggests that antitrust will not be viewed as a substitute for regulation of interconnection in network industries and that firms seeking interconnection will need to look outside of antitrust for help.