The Rise of the Regulatory State

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Abstract

The Progressive Era at the beginning of the 20th century saw significant growth of government regulation of business in the United States. To explain why this happened, we present a model of choice of law enforcement strategy between private litigation over accidents and regulation of precautions. Our basic idea is that any system of law enforcement can be subverted by private parties, but at a cost. We show that private litigation may be more vulnerable to subversion than regulation, especially as the scale of enterprise grows. The switch to regulation can then be seen as an efficient response to the subversion of justice by robber barons during the Gilded Age. The model makes sense of the progressive reform agenda. More generally, it may help explain what institutions of law and order are appropriate in different circumstances.

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## 1. Introduction

Before 1900, significant commercial disputes in the United States were generally resolved through private litigation. Courts ruled on corporate liability in industrial accidents, on anti-competitive practices such as railroad rebates, on safety of foods and medicines, and even on the constitutionality of the income tax.[2] In the three decades between 1887, when Congress passed the Interstate Commerce Act, and 1917, when "participation in the war put an end to the Progressive movement," (Hofstadter 1955), this situation changed radically. Over thirty years, reformers eroded the 19th century belief that private litigation was the appropriate response to social wrongs. During the progressive era, regulatory agencies at both the state and the federal level took over the social control of competition, anti-trust policy, railroad pricing, food and drug safety, and many other areas. At the same time, the U.S. politics experienced other important changes, such as reform of the civil service, use of voter referendums to decide local issues, direct election of senators, recall of judges, and the growth of government more generally.

In this paper, we attempt to understand why these changes occurred in the United States between 1887 and 1917. To this end, we develop a theory of law enforcement, in which private litigation, government regulation, and doing nothing are considered as alternative institutional arrangements to secure property rights. In our theory, whatever law enforcement strategy – or institutions more generally -- the society chooses, private individuals will seek to subvert their workings to benefit themselves. The efficiency of alternative institutional arrangements depends in part on their vulnerability to such subversion. The theory leads to predictions as to what institutions are appropriate under what circumstances. We use this theory to discuss law

[2] This is not to say that there was no regulation at all. Novak (1996) gives examples of extensive regulation in 19th century U.S., but virtually all the regulation he discusses is local, not dealing with commercial disputes, and not relying on regulatory agencies.

enforcement strategies in the progressive era but also across countries and over time.

Traditional economic theories of regulation do not explain the progressive movement. The standard public interest theory holds that regulation deals with market failures and externalities (Pigou 1934, Stiglitz 1989), but does not explain why either contract or tort law could not successfully address these problems in the first place. Coase (1960) draws attention to this failure of regulatory economics to address the ability of the common law to deal with social wrongs, but does not ask when regulation is desirable. Posner (1998) and Shavell (1984a) discuss this choice between litigation over damages and regulation from the efficiency perspective. Posner (1998) emphasizes the fixed cost of lawsuits as a potential argument for regulation, whereas Shavell (1984a) points to the limits on the violator's ability to pay as a drawback of litigation. Both of these theories predict that as cases became larger and the defendants' pockets deeper during the Gilded Age, efficiency calls for more litigation and less regulation. The reality, of course, was the opposite.

The most successful recent attempt to shed light on progressivism emerged from the "capture" or "special interest" theories of regulation. Stigler (1971), Posner (1974), Peltzman (1976), and McChesney (1987) rejuvenated the theory of regulation by questioning the motives and the capabilities of regulators. Applied to the progressive era, these theories hold that government regulation was sought by firms in order to restrain competition, usually coming from technologically superior rivals. Unlike capture theory, which deals with the subversion of the ex ante design of institutions, our theory deals with ex post subversion of enforcement, after the institutions are formed. We compare and relate the two approaches after presenting our ideas.

To discuss progressive reforms, we present a model of choice of a law enforcement regime between liability for accidents and regulation of precautions. In our model, the crucial difference between liability and regulation as alternative systems of controlling market behavior is their vulnerability to subversion by the potential violator. Subversion can include both legal techniques, such as hiring top lawyers and using delay tactics, and illegal ones, such intimidating judges and regulators or bribing them. By expending sufficient resources on subversion of justice, the potential violator can avoid either regulatory compliance or a liability payment.

Because liability regimes entail large payments with a small probability, such regimes are more vulnerable to ex post subversion than the regulation of inputs, especially in countries lacking law and order in the first place. In such circumstances, regulation of inputs is more efficient than liability for accidents. This reason for the growth of regulation complements others relevant to progressive reform, such as the stronger incentives and greater specialization of regulators compared to judges (Landis 1938, Glaeser, Johnson, and Shleifer 2001).

The theoretical analysis points to a fundamental change that made it efficient for the American society to increasingly rely on regulation. The commercialization and industrialization of the economy in the second half of the 19th century created firms with vast resources. As the scale of enterprise increased, the damage from industrial accidents rose proportionately, as did the incentives to avoid paying damages. However, the cost of influencing justice did not rise as fast. When courts and legislatures could be bought or manipulated, individuals and small companies were unlikely to prevail against "robber barons" in accident, restraint of trade, or discriminatory tactics disputes. From this perspective, the regulation of markets was a response to the problem of subversion of common law. Other political changes of this period, such as the Civil Service reform, increasing importance of direct elections, and judicial recalls can also be understood from the perspective of controlling subversion.

Woodrow Wilson (1913) held the failure of the judicial process to be a crucial reason for the necessity of regulation in his *New Freedom* program.

> The judicial process is the ultimate safeguard of the things that we must hold stable in this country. But suppose that that safeguard is corrupted; suppose that it does not guard my interests and yours, but guards merely the interests of a very small group of individuals; and whenever your interest clashes with theirs, yours will have to give way, though you represent ninety percent of the citizens, and they only ten percent. Then where is your safeguard? (Wilson, 1913, p. 240).

Writing during the New Deal, Landis (1938) saw regulation as a political response to the failure of private litigation to keep up with the community ideas of justice. He thought that the advocacy of "leaving the problems of railroad charges and management to work themselves out in the courts as questions arise from time to time…indicates a singular unawareness of the fact that the chief drive for the resort to the administrative process in the field of railroad regulation arose from a recognition that the remedies that the courts could provide were insufficient to make effective the policies that were being demanded." In effect, our model provides an efficiency rationale for this switch from litigation to regulation.

In addition to interpreting a crucial period of U.S. economic theory, the model sheds light on the general problem of securing private property. Economists since Coase (1960) have been interested in the question of whether regulation or litigation is a better way to deal with tort problems. Coase argued generally that "transaction costs" should determine the answer, and the successor literature has identified a range of such costs (e.g., Shavell 1984a, 1984b). But the literature has not focused on a central problem raised by Coase, namely the efficiency of alternative strategies of law enforcement. By focusing on subversion, we present a comparative analysis of such strategies. This approach helps us understand why Becker's (1968) "boil them in oil" enforcement strategies, which entail very high penalties with a very small probability and hence minimize investigation costs, are rarely workable: they will be subverted ex post.[3]

More generally, the analysis sheds light on a critical determinant of what institutions are appropriate, namely how vulnerable they are to subversion. In situations of extreme vulnerability to corruption or intimidation, appropriate institutions might involve no legal or regulatory restrictions at all, as the alternative is the socially costly regime in which law enforcement is simply subverted. This prediction contrasts with the standard "public interest" view, in which the less developed countries, exhibiting relatively greater market failures, require the heaviest government intervention (Stiglitz 1989). In the regimes of intermediate "law and order," regulation may be efficient. Although not as efficient as private litigation *absent subversion*, regulation may be less vulnerable to subversion than litigation, and might be socially preferred for that reason. Finally, in the regimes where the system of justice is least vulnerable to subversion, liability regimes – either strict liability or negligence – become the optimal strategy. In broad terms, the paper suggests that the appropriate institutions of law enforcement depend on how much order the country has in the first place.

In the next section, we sketch the U.S. regulatory situation in the second half of the 19th century, and the changes it underwent during the Progressive era. In Section 3, we present a model of the choice of a law enforcement strategy. In Section 4, we apply the model to the U.S. experience with progressivism. In Section 5, we compare our approach with the interest group analysis of the Progressive era. In Section 6 we draw broader implications of our approach.

[3] This reasoning suggested an alternative title for the paper, "The Denise Rich effect," in recognition of a friend of President Clinton who secured a pardon for her former husband by making a large donation to the Clinton Presidential library. This event apparently followed an offer to the U.S. government from Mr. Rich, a fugitive financier, of $100 million to settle all charges against him, which was turned down by the U.S. Justice Department that wanted him to stand trial. Here, as in our model, harsh penalties lead to subversion of justice.

## 2. Enforcement by courts in the 19th century

We start with three claims about the United States during the "Gilded Age" between the Civil War and the Progressive Era. First, until the end of the 19th century, the U.S., especially at the federal level, followed the laissez-faire ideal in which private litigation was the principal way of dealing with socially harmful acts. Second, after the Civil War, wealth and power regularly subverted the workings of this mechanism. Third, this subversion of private litigation entailed outcomes radically different from those suggested by Coase's (1960) benign vision of common law. Traditional arguments for the failure of the Coase theorem, such as transaction costs (Shavell 1987), do not explain the limits of the late 19th century American justice. Instead, late 19th century private litigation failed because money and power influenced the path of justice.

By the late 19th century, the development of tort law was greatly accelerated by the industrial revolution, especially the railroads. "Trains were also wild beasts; they roared through the countryside, killing livestock, setting fires on houses and crops, smashing wagons at grade crossings, mangling passengers and freight. Boilers exploded; trains hurtled off tracks; bridges collapsed; locomotives collided in a grinding scream of steel. Railroad law and tort law grew up, then, together. In a sense, the two were the same (Friedman 1985, p. 468)." In cases of both personal and social harm, individuals sought damages primarily in common law courts. Horwitz (1992) describes how the maxim *sic utere*, "use your own so as not to injure others," was invoked by many common law judges. This maxim justified court action against a variety of perceived nuisances (saloons, gunpowder storage facilities, slaughterhouses) "which could be abated without any justification of the defendant."

In the development of tort law, the 19th century saw the great debate between strict liability (plaintiff just needs to show cause) and negligence (plaintiff needs to show fault or negligence) standards (Horwitz 1992). The English case of Rylands v. Fletcher (1868), in which a court held a landowner liable when a reservoir he built on his own property accidentally flooded the plaintiff's coal mine, stands as the classic statement of strict liability. In contrast, American jurists, most notably Holmes (1881), sought to make negligence a more common rule. According to Cardozo's biographer, "the contribution of 19th century law was the creation of independent law of torts, freed from common law procedural constraints and dominated by the negligence principle" (Kaufman 1998).[4]

During this period, tort law developed significantly to accommodate the changing economy. As we argue below, the greater reliance on the negligence standard is one such accommodation. Epstein (1982) discusses the development of the concept of vicarious liability and other innovations addressing the needs of the growing economy. Despite such progress, tort law did not appear to be developing fast enough, at least for the demands of popular politics. Supreme courts regularly struck down nascent attempts at regulation by appeals to freedom of contract. In Lochner v. New York (1905), the New York and U.S. supreme courts ruled that maximum hours legislation was unconstitutional for bakeries because "there is no reasonable ground for interfering with the liberty of person or the right of free contract, by determining the hours of labor, in the occupation of a baker." In the Gilded Age, private litigation remained the dominant form of dealing with torts, and courts kept down the growth of regulation.

Despite the dominance of private litigation, many observers of the Gilded Age saw it as ineffective in achieving justice. Skocpol (1992) complains about the pro-business attitudes of the courts. Horwitz (1992) argues that this era is replete with pro-business jurists, and associates the negligence principle with attempts by pro-business jurists to protect firms from lawsuits. Lockard and Murphy (1992) claim that judges supported corporations because of "a campaign to

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[4] Schwartz (1981, 1989) argues that the movement from strict liability to negligence is not detectable prior to the Civil War. Our theory focuses on the post-civil-war period, where the change is clearer.

‘educate’ judges about the sacredness of private property.” According to Friedman (1985), “What they [the leading concepts of tort law] added up to was also crystal-clear. Enterprise was favored over workers, slightly less so over passengers and members of the public…. The thrust of the rules, taken as a whole, approached the position that corporate enterprise should be flatly immune from actions for personal injury (p. 475).”

Judicial ideology, of course, was itself shaped by the selection of judges, and through their influence on the political machines, industrialists participated in choosing who sat on the bench. According to Woodrow Wilson (1913, p.242), “The disease lies in the region where these men [judges] get their nominations; and if you can recover for the people the *selecting* of judges, you will not have to trouble about their recall. Selection is of more radical consequence than election.” Callow (1966, p. 135) writes that “the appointment of the right men to key posts is the third step in making the law as much a matter of politics as of justice.”

After the selection, judges as well as prosecutors were influenced by the rich and powerful through both legal and illegal means. Nineteenth century corporations projected substantial political influence, superior lawyers and ready access to large legal war chests. Their lawyers produced briefs that exonerated their clients and slowed down the wheels of justice for years. They used the threat of being over-ruled on appeal to bring judges to their positions. Last but not least, they routinely bribed legislators, judges, and juries.

Lloyd (1894) describes how Standard Oil subverted the attempts of its opponents to secure damages in courts by intimidation and bribery of witnesses, payments and political pressures on judges and legislators, and theft and destruction of evidence. Tarbell (1903) corroborates the outline of Lloyd’s account. In “Robber Barons,” Josephson (1934) relates the story of the battle for the Erie railroad between Commodore Vanderbilt and Jay Gould. The battling barons acquired a number of judges and legislators, who issued laws, rules and injunctions preventing each party from exercising their powers over the railroad on request. The battle culminated in an open auction of policies by the New York legislature, which Gould won by paying higher bribes to more legislators.

The subversion of justice is a pervasive theme of the muckrakers. In "Tweed Days in St. Louis," Lincoln Steffens tells the story of a young Circuit Attorney, Mr. Folk, who was put on the Democratic ticket by mistake, and upon election began putting both Democratic and Republican officials behind bars for corruption. Having failed to persuade Mr. Folk to cease and desist, the local political machine decided to get rid of him. "At the meeting of corruptionists three courses were decided upon. Political leaders were to work on the Circuit Attorney by promise of future reward, or by threats. Detectives were to ferret out of the young lawyer's past anything that could be used against him. Witnesses would be sent out of town and provided with money to remain away until the adjournment of the grand jury." In Minneapolis, Steffens describes the coercion of the jury in the trial of the corrupt Mayor Ames. He points to the foreman of the jury, "to whom $28,000 was offered to quit, and for whose slaughter a slugger was hired to come from Chicago" (Steffens, 1906).

Albert Cardozo—the father of Benjamin Cardozo—exemplifies a judge in league with a political machine. Appointed by William Marcy Tweed to the New York State Supreme Court, Albert Cardozo served Tweed ably. "He became a kind of escape hatch for criminals; through his good offices he pardoned or dismissed several hundred known criminals who were or might be useful to the [Tweed] Ring (Callow 1966)." At his own impeachment hearings, Cardozo was accused of crimes ranging from standard nepotism, to releasing convicted clients, to helping Fisk and Gould reduce the losses from their Gold Conspiracy through the legal system.

It is often argued that the distortion of justice through legal and illegal forms of influence decided many cases and had a broad influence on the 19$^{th}$ century economy. Courts often failed to address the grievances of the parties damaged in the new economy, such as workers suffering from accidents, producers suffering from abusive tactics by the railroads, or consumers poisoned by bad food, and ruled in favor of large corporations. Tort claims against railroads, following large scale accidents that often killed third parties, proved to be slow and often unsuccessful. In Ryan v. New York Central Railroad (1866), the New York court of appeals argued that even if a railroad caused a fire, its liability extended only to the immediately adjacent house and not to other homes destroyed by the fire. The court held that "to sustain such a claim…would subject [the railroad] to a liability against which no prudence could guard, and to meet which no private fortune could be adequate" (Friedman 1985, p. 469). More generally, the courts' view of such accidents was "NOBODY TO BLAME" (Friedman 1985, p. 470).

Fishback and Kantor (2000) describe the extreme inequality between firm and employee in industrial accident claims. The legal strength of corporations meant that many injured families settled for relatively small amounts of money. Summarizing a number of studies, Fishback and Kantor estimate that families of workers killed in industrial accidents received an average of 8 months pay, and nothing in about 40% of the cases (p.34). Under political (and perhaps more direct) pressure from manufacturers, courts adopted the position that the estate of an injured worker must prove negligence by the company, and that evidence of negligence by the worker himself, or by one of his co-workers, absolved the company of liability.

Although we recognize the limitations of both the historical accounts and the contemporary political rhetoric, the image of social control of business during the Gilded Age appears to be consistent across a spectrum of sources. The system of private litigation, which emerged in agrarian America in the 18th and early 19th centuries, was not suited for the conditions of the late 19th century. One reason for this failure is that large corporations possessed economic resources far in excess of those at the disposal of their opponents – whether individuals or small firms – and could use these resources to subvert justice. The problem of "inequality of weapons" became too extreme. The mechanisms of subversion ranged from superior legal talent to political pressure to outright bribery. For our purposes, the exact mechanism does not matter. What matters is that courts did not make the perpetrators pay for the social harm of their actions. As a consequence, the system broke down.

*The Regulatory Response*

As the courts supported the corporations, political actors sought a different response to social harm. Starting with Charles Francis Adams and the Massachusetts Railroad Commission, regulatory agencies became a substitute for judicial action. The reforms started with states and municipalities, but eventually moved to the federal level, in part because the increase in the scale of firms made state regulation too difficult. In 1887, the Interstate Commerce Act created the Interstate Commerce Commission, which – combined with subsequent legislation – had the power to stop railroad rebates and ultimately, under the Hepburn Act of 1906, to set rates. In 1890, Congress passed the Sherman Act, restricting the formation of trusts.

The real growth of regulatory activity occurred after the turn of the century, during the presidencies of Theodore Roosevelt and Woodrow Wilson. In 1906, under muckraking pressures, Congress passed Pure Foods and Drugs to control the distribution of medicines, as well as a federal meat-inspection law. Under Wilson, the regulation of both banking under Federal Reserve Act of 1913 and anti-trust enforcement under the Clayton Act in 1914 was intensified. Fishback and Kantor (2000) see the adoption of workers compensation laws by several U.S. states around the turn of the century as a response to the failure of courts to address the problems of workers injured or killed in industrial accidents.

Although the growth of regulation slowed down, and arguably retreated, under the Republican presidencies of the 1920s, it revived and accelerated under Franklin Roosevelt in the 1930s. Among the most notable measures of this period were the Securities Acts of 1933 and 1934, written in part by Landis, which brought securities markets under federal regulation. When Landis wrote in 1938, he could confidently conclude that "the administrative" has replaced "the judiciary" as the principal form of social control of business.

There are three broad efficiency reasons why regulation might be preferred to private litigation. First, as many champions of progressive reforms believed, regulators may have stronger incentives than do judges to pursue costly investigations necessary to establish – either to themselves or to a court -- that a violation of a rule has occurred. Such stronger incentives might come from career concerns if regulators are rewarded for finding violations, or from the better specialization of regulators. For example, a specialized regulator might be in a better position to establish a manufacturer's negligence than a generalist judge. In Glaeser, Johnson, and Shleifer (2001), we examine the case of superior incentives of the regulators, and argue that it might explain the greater success of financial regulation in Poland than in the Czech Republic. In the present paper, however, we abstract away from this issue.

Second, it can be argued that regulation is more efficient than litigation because the regulator can solve the free rider problem among the private plaintiffs by representing their mutual interest. Thus, a regulator of railroad safety can represent the actual and potential victims of accidents more effectively than they can themselves. In this respect, the effects of regulation are similar to those of class action lawsuits. This particular argument for regulation, which applies whether or not the regulator can punish violations unilaterally or must ultimately litigate the dispute, is important in some instances as well, but it is not what we model either.

Third, a crucial difference between litigation and regulation is that the former deals with damages after the harm is done, whereas the latter deals with ex-ante precautions. Because of this difference, regulation can be designed to make the identification of violations cheaper and more certain – it is easier to ascertain whether a piece of safety equipment has been installed than whether the producer is negligent. In Glaeser and Shleifer (2001), we argue that this logic of cheap verification of violations explains the prevalence of quantity regulations. Here, we take this point further, and argue that the higher probability of detection of violations in the case of regulation assures compliance at a lower levels of fines. As a consequence, regulation is less subject to subversion than litigation. For this argument to hold, it does not matter that the regulator must ultimately litigate the matter in court: the point that justice involving lower fines is less likely to be subverted holds regardless of whether or not a court is ultimately involved.

## 3. The Model

We present a model in the spirit of Posner (1972), in which the ultimate goal of social control of torts is to elicit the optimal level of precaution. Becker's (1968) and Posner's work initiated a large literature, recently surveyed by Polinsky and Shavell (2000). An important contribution to this literature that addresses the problem of corruption, but does not focus on alternative law enforcement strategies, is one by Polinsky and Shavell (2001).

A firm can take a level of precaution, equal to $Q_1$ or $Q_2$, in order to avoid an accident. The high level of precaution, $Q_2$, requires a cost of S times C, while the low level of precaution, $Q_1$, is free. The parameter C represents the cost of precaution per unit of production—the level of S represents the scale of the firm. There are two types of firms that might be responsible for the accident: $\alpha$'s and $\beta$'s. For $\alpha$ types the probability of an accident is unaffected by precaution and equals $P_\alpha$. This implies, importantly, that it is not efficient for type α firms to invest in a high level of precaution. Let $\pi_\alpha$ be a proportion of firms that are of type α. For type β firms the probability of an accident equals $P_1$ or $P_2$, with $P_1 > P_2$, depending on whether the level of precaution is $Q_1$ or $Q_2$. The accident imposes a social cost of S times D, where D refers to the social cost per unit of economic activity and S refers again to the scale of the firm. The assumption that damages scale up with the size of the firm corresponds most closely to massive calamities, such as train wrecks or factory fires. However, legal precedents raise the stakes for large firms even in accidents affecting individual workers.

For our purposes, it is not important whether D is concentrated (as in the case of a workplace accident) or widely shared (as in the case of pollution). When the damage is concentrated, simple ex ante contracts can sometimes deal with possible damages, even without a liability regime. For example, an employee working in a dangerous occupation would receive a higher wage, which compensates him for the risk of an accident. Even in such situations, however, it is generally efficient for the firm to provide the risk–averse employee with some accident insurance (Shavell 1987). As a consequence, the firm has an incentive to avoid paying after the accident takes place. To the extent that the dispute needs to be settled in court, as such issues often are (Fishback and Kantor 2000), our analysis remains pertinent. We make:

**Assumption 1:** $(P_1 - P_2)D > C$,

so that for the β types, unlike for the α types, the high level of precaution is socially valuable.

We consider the standard menu of possible regulatory schemes: (1) strict liability, (2) negligence, and (3) regulation of inputs.

1. Strict liability requires that, in case of an accident, the firm must pay a fine any time that damages occur.

2. Negligence means that a fine is charged whenever damages occur and when the firm undertakes the low level of precaution.
3. Regulation requires that the high level of precaution be taken and imposes a fine, F, whenever the firm fails to do so. We assume that the regulator cannot distinguish between the two types of firms.

We assume that the firm produces a fixed output, and its objective is to minimize costs, given by the sum of the costs of precaution and the expected fine. With no problems of enforcement, strict liability can achieve the first best as long as the fine (denoted by F) is greater than $\frac{SC}{P_1 - P_2}$.

Negligence can also achieve the first best whenever $\frac{SC}{P_1} < F < \frac{SC}{P_\alpha}$. Note that $\frac{SC}{P_1} < \frac{SC}{P_1 - P_2}$. Because strict liability uses less information, it requires a larger fine. At the same time, strict liability provides no incentives for the type α firms to invest in the useless for them high level of precaution, and therefore eliminates this source of inefficiency.

Finally, we assume that the regulator learns that the firm is using low levels of precaution with exogenous probability p.[5] To allow regulation to be a potentially efficient scheme in the presence of subversion we make:

**Assumption 2**: $p > P_1$.

The idea behind this assumption is that some regulations can be designed so that detection of the failure to invest in precaution is relatively inexpensive and certain. This could involve mandating well-specified "bright line" rules, such as the installation of safety equipment in factories or on trains, use of fire-proof materials and fire exits in buildings, the disclosure of

[5] We have also considered the case where p is endogenous. Since it yields qualitatively similar results, we focus here on the simpler scenario with exogenous p.

potential conflicts of interest, or the use of warning labels. In addition, some regulations are designed to encourage third party enforcement. For example, employees or customers themselves can occasionally cheaply identify violations and complain, as in the case of blue laws forbidding liquor sales on Sundays (Glaeser and Shleifer 2001).

We turn next to optimal law enforcement in the presence of subversion. The firm still minimizes its costs, but we assume that it subverts justice when doing so is cheaper than paying fines. We assume that the firm can escape the fine if it invests X in protection from the law, where X can include acquiring a legal team, a lobbying team, or political protection. We assume that X is paid after the firm is caught but before a fine is levied[6]. In our model, we do not distinguish between a judge and a regulator: it costs the same to subvert either. A reduction in X can be interpreted as an improvement in the technology to subvert justice available to the firm, so we think of regimes with a higher X as possessing higher levels of "law and order."

In this formulation, if X is lower than the fine, the firm would rather subvert justice than submit to the law. Recall that we have assumed (Assumption 2) that $\frac{C}{p} < \frac{C}{P_1} < \frac{C}{P_1 - P_2}$, where $\frac{C}{p}$, $\frac{C}{P_1}$ and $\frac{C}{P_1 - P_2}$ are minimal fines that overcome the subversion of justice in regulation, contributory negligence and strict liability schemes respectively. We can now formulate

**Proposition 1.** If $P_\alpha < P_1$, then:

[6] In general, some subversion costs are incurred ex ante (befriending regulators), some after the accident occurs (hiring a legal team), and some after liability is determined (bribes to reduce punishment). Our formulation avoids the credibility issues of many crime and punishment models, where the violator might not want to follow through with punishing the law enforcer (and vice versa). Our formulation also avoids the possibility of the firm bargaining with the law enforcer over the verdict and the bribe.

(a) for $\frac{X}{S} < \frac{C}{p}$ the only feasible option is laissez faire;

(b) for $\frac{C}{p} < \frac{X}{S} < \frac{C}{P_1}$ regulation dominates laissez faire if $D > \frac{C}{(1-\pi_\alpha)(P_1 - P_2)}$, and vice versa if this condition does not hold;

(c) for $\frac{C}{P_1} < \frac{X}{S} < \frac{C}{P_1 - P_2}$ negligence achieves first-best; and

(d) for $\frac{X}{S} > \frac{C}{P_1 - P_2}$ both negligence and strict liability achieve first-best.

If $P_\alpha > P_1$, then:

(a) for $\frac{X}{S} < \frac{C}{p}$ the only feasible option is laissez faire;

(b) for $\frac{C}{p} < \frac{X}{S} < \frac{C}{P_1 - P_2}$ regulation dominates laissez faire if $D > \frac{C}{(1-\pi_\alpha)(P_1 - P_2)}$ (negligence achieves the same social outcomes but requires larger fines), and vice versa if this condition does not hold.

(c) for $\frac{X}{S} > \frac{C}{P_1 - P_2}$ strict liability achieves the first-best.

For $P_\alpha < P_1$, Figure 1 illustrates the proposition graphically.

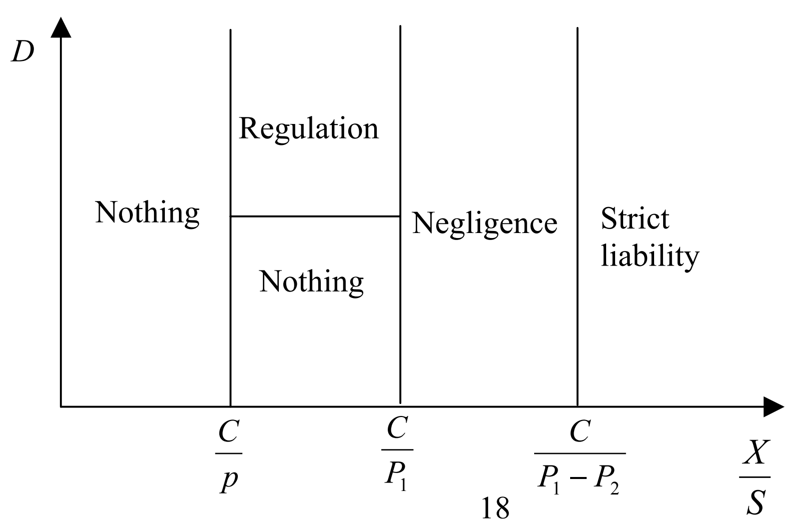




Figure 1

In sum, among the three possible regulatory schemes, only negligence and strict liability can in principle achieve the first best outcome. Strict liability, to be feasible, requires strong barriers to the subversion of justice, but has the advantage that it does not incentivize firms that do not benefit from precaution to invest in it. Negligence is less prone to subversion of justice, but can distort the incentives of the firms that do not benefit from it.

Perhaps the principal message of this model is the tight relationship between the "law and order" already prevailing in a society, and the optimality of alternative law enforcement schemes. As Figure 1 illustrates, in the environment of low law and order, doing nothing might be superior to imposing legal and regulatory rules that are only going to be subverted at some social cost. In either case, harmful conduct is not punished, but with laissez-faire, corruption and other forms of subversion are avoided. In the regime of intermediate law and order, regulation might be efficient precisely because the fines it entails to achieve compliance are modest, and therefore will not be avoided through subversion of justice. The efficiency of regulation in this regime comes precisely from the fact that the penalties associated with the liability regime are too high, and therefore in such a regime justice is subverted. It is more efficient to have the cruder but enforceable system of regulation, than the finer and unenforceable system of liability. Finally, after high levels of law and order are already achieved, society can attempt to resolve disputes through private litigation, using either a contributory negligence or a strict liability system. These systems call for the imposition of high fines ex post, and are therefore only feasible when the liable parties can be compelled to pay these fines without subverting justice.

A more subtle message of the model is that economic inequality – which here is driven by the growth in the scale of enterprise -- can undermine the functioning of institutions of law enforcement through subversion. Economic inequality exacerbates the problem of "inequality of weapons," which has been central to the discussions of legal design for several centuries.

Inequality can make institutions that would function well in a more equal environment – such as private litigation in 19th century U.S. – fail to deal with new problems. Growth in inequality – of the sort seen in the U.S. after the civil war or in Russia during the 1990s – would be accompanied by deterioration of existing institutions, and the political demand for the creation of new ones that restore law and order.

In Glaeser and Shleifer (2002), we also consider the problem of subversion of justice, but focus on the historical development of common and civil law. We argue that the civil law institutions of state-employed professional judges following clear legal rules under constant superior review developed in France as a response to high levels of disorder prevailing in the society. These institutions were a mechanism of protecting law enforcers from subversion by powerful litigants. In contrast, the common law institutions of adjudication by lay juries following broad principles of community justice with only perfunctory appeal were more appropriate for the relatively more orderly England, where subversion of justice by the powerful magnates was a less pervasive problem. Although this paper and Glaeser and Shleifer (2002) are clearly cousins, they deal with very different consequences of the problem of subversion.

## 4. Implications of the Model for the Progressive Era

We can use the model of the previous section to understand the rise of regulation in the United States at the end of the 19th and the beginning of the 20th centuries. Our interpretation is that "S"—the scale of economic activity—rose dramatically over the 19th century. During the industrial revolution, firms grew sharply in size. The social costs of harm grew roughly proportionately, but the costs of subverting justice did not. As a result, a legal system that may have operated well during the agrarian period, failed when faced with entities that had huge incentives to subvert it. Because higher levels of "S" lead to subversion of both strict liability and negligence, regulation became the efficient response.

During the first half of the $19^{th}$ century, the bulk of the economy was agricultural; 64 percent of workers in 1850 were in farm occupations. The manufacturing that did exist was concentrated in small firms. The McLane report, a large but incomplete survey of the economy, found only 106 manufacturing firms in 1832 with assets above $100,000. Chandler (1977) saw production in the mid-$19^{th}$ century as "being carried out by a large number of small units employing less than fifty workers…"

When a firm caused social harm in 1830, the judicial system could usually deal with it. Assessed damages would generally be small and the firm did not have a strong incentive to subvert justice. Moreover, the firm itself was small and did not have the resources to subvert the system. We take this to mean that the U.S. in 1830 is described by the right part of Figure 1, where $X > \frac{SC}{P_1 - P_2}$. In that region, strict liability produces the first best outcome.

This situation changed after the Civil War. The building of railroads, the growth of industrial enterprises and mines, and the creation of large financial firms introduced into the American economy disputes between parties of highly differentiated economic and political resources. America became far less agricultural; by 1900, only 37 percent of workers were in farm occupations. The manufacturing industry grew more than tenfold (measured by number of employees) over this time period. The new technologies often proved to be deadly. Thousands of passengers and third parties died in railroad accidents. By 1900, there were approximately 35,000 deaths and two million injuries annually in industrial accidents (Friedman, 1985).

New technologies also raised the scale of both railroads and manufacturing firms, as national markets developed. Innovations in organizational form made larger firm size feasible.

Chandler (1977) identifies 278 firms with more than $20 million in assets in 1917. Hofstadter (1955) writes that "the Morgan interests at the peak of the financial systems held 341 directorships in 112 corporations … with aggregate resources or capitalization of $22,245,000,000." This vast expansion in firm size corresponds to an increase in the parameter "S" in the model.

The model corresponds most closely to situations where the industrial revolution raised both the precaution costs and the size of single accidents, e.g., train wrecks or factory fires (such as the famous Triangle Shirtwaist Fire, where 146 workers died). In other instances, such as industrial accidents involving individual workers, the cost of precaution and the number of accidents rise with enterprise size, but the size of each individual case remains small. If such cases are isolated, it might not pay a firm to subvert justice. In practice, however, the stakes in such cases are large for large firms, because of the power of legal precedents. When a steel mill or a railroad concedes liability in an industrial accident, it becomes vulnerable to claims in all the future similar accidents. As a consequence, even in such situations, the assumption of the model that the willingness to subvert justice rises with the scale of the firm is appropriate.

The model treats S as exogenous, but also points to an incentive for firms to increase it. In the regimes of either strict liability or negligence, rising values of S make no difference to corporate profits when corporations actually pay the fines, as long as fines scale with S. However, when X is independent of S, when firms subvert justice, higher values of S lead to lower payments for social harm. The payment per unit of economic activity is X/S and as such, larger firms pay less.[7] Indeed, the advantage of scale in subverting the legal system is a

[7] This is not so when disputes are between two entities possessing comparable abilities to subvert justice, as in the battle for the Erie railroad. In this case, a judge or a legislator can just auction off a decision, with the result that X actually scales up with S. It has been said that commercial law in Russia in the 1990s was developing through the disputes between the so-called oligarchs, where each side has the

competitive edge of 19th century corporation. The muckraking literature sees the largest firms as particularly effective in shaping legal outcomes.

The economic creations of the late 19th century, such as national railroad systems and trusts, may have been designed to gain political and not just economic power. The entrepreneurs could use the economic and political resources that such combinations brought to buy both politics and justice. In a similar vein, and for similar reasons, financial-industrial groups were created in Russia in the 1990s with the basic goal of attaining political rather than economic influence (Nagel 1999).[8]

The progressives cited the rise in the scale of enterprise as a primary reason for new government action. In 1888, Charles Eliot noted that a modestly sized Boston railroad had three times as many employees as the Commonwealth of Massachusetts. The first chapter of Wilson's manifesto *The New Freedom* states that "the employer is now generally a corporation or a huge company of some kind," and as a result "new rules must be devised…" Wilson's progressive rival Theodore Roosevelt viewed Herbert Croly's *The Promise of American Life* as his intellectual sourcebook. Because of "the existing concentration of wealth and financial power in the hands of few irresponsible men," Croly believes "efficient regulation there must be." Progressives saw the scale of industrial enterprise as the root of the republic's problems.

The model helps us understand Croly's call for regulation. As S rises, the society moves leftward across Figure 1. First, negligence becomes optimal and should replace strict liability. We have already noted that, in the 1870s, negligence replaced strict liability as the standard in

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capacity to bribe a judge, and so must appeal to the law as well in order to win its case.

[8] In the first volume of the A.E.R. in 1887, Henry Adams wrote: "The policy of restricting public powers within the narrowest possible limits tends to render government weak and inefficient, and a weak government placed in the midst of a society controlled by the commercial spirit will quickly become a corrupt government; this in its turn reacts upon commercial society by encouraging private corporations to adopt bold measures for gaining control of government machinery. Thus the doctrine of laissez-faire

tort law. As S continues to rise, negligence itself fails to produce desirable results. When S is sufficiently high, and when D is also high, regulation provides the only reliable recourse against social harms. This is ultimately our explanation of why the progressives saw the need for regulation. Because input regulation is more consistently applied and involves smaller penalties, it provides a weaker incentive for the subversion of justice. If government action is at all responsive to efficiency, the model predicts exactly the course of the Progressive era: increased government regulation of business should follow the increase in its scale.

The Progressives themselves saw the problems of the judiciary and advocated regulation. In *The New Freedom*, Wilson argues that it is "the right of government … to see whether accidents were properly guarded against," and that "if somebody puts a derrick improperly secured on top of a building or overtopping the street, then the government of the city has the right to see that that derrick is so secure that you and I can walk under it and not be afraid that the heavens are going to fall on us." Why doesn't Wilson just trust the tort system as administered by the judiciary? He also writes:

> There have been courts in the United States which were controlled by the private interests. There have been supreme courts in our states before which plain men could not get justice. There have been corrupt judges; there have been controlled judges; there have been judges who acted as other men's servants and not as servants of the public (Wilson, 1913, p. 240).

Croly also casts aspersions on judges and calls them "creatures of the political machine," and advocates his own more ambitious plan of government ownership. As Hofstadter (1955) writes: "the average American tended more and more to rely on government regulation, to seek in governmental actions a counterpoise to the power of private business."

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overreaches itself; for the application of the rule which it lays down will surely destroy the harmony between public and private duties essential to the best results in either domain of action."

*Understanding the Progressive Program*

The Progressive program was not merely a revolution in regulation. The law saw a switch from strict liability to negligence, which according to the model should follow an increase in scale. More generally, the model suggests that efficient reforms should aim to raise X or reduce S. Many progressive reforms can indeed be understood from this perspective.

One progressive innovation was the introduction of regulatory agencies to oversee specific areas of the economy and to punish socially harmful conduct. In part, the logic of such reforms was to raise the incentives of law enforcers to punish violations (since regulators are easier to politicize than judges), and thereby to increase X. In a similar vein, many progressives supported the "recall" of government officials, especially judges, who were corrupt or failed to perform as the public wanted. Because the fear of recall makes judges more resistant to subversion, we see this reform as another attempt to raise X.

Equally important to the progressives was the professionalization of bureaucracies, or civil service reform. Croly advocates a more widespread use of life tenure for judges, which would have a similar effect of reducing the political influence on them. The progressives' simultaneous support of increased democracy in the form of judicial recall and of reduced democracy in the form of civil service reform may seem puzzling. Both reforms, however, can be understood as attempts to increase X. While the recalls aimed to punish bad judges, civil service reform attempted to decrease the influence of the political machines in the administrative process. Since political machines were used by business to select and coopt judges, eliminating their influence raised the cost of subverting justice, X.

An alternative to using regulation or raising X was to reduce S directly. In his platform of the New Freedom, Woodrow Wilson opposed "the [Roosevelt] doctrine that monopoly is inevitable and that the only course open to the people of the United States is to submit to and regulate it." Instead, he advocated reducing firm size "to prevent private monopoly by law, to see to it that the methods by which monopolies have been built up are legally made impossible."

Indeed, the whole trust-busting program aimed at eliminating the power of trusts to coerce politics and justice as much as reducing prices. Hofstadter (1955, p. 227) writes:

> The progressive case against business organization was not confined to economic considerations, nor even to the more intangible sphere of economic morals. Still more widely felt was a fear founded in political realities—the fear that the great business combinations, being the only centers of wealth and power, would be able to lord it over all other interests and thus put an end to traditional democracy.

Our model sheds light on such comments. Competitive prices may prevail in a duopoly with two very large firms, but the scale of these enterprises may enable them to subvert justice. Progressive trust-busting should be seen as a response to the subversion of justice, as well as a means of addressing standard problems of monopoly pricing.

Along similar lines, our model also helps explain the support for labor unions among many progressives. Traditionally, economists understand labor unions as a means of restricting labor supply and raising wages. Unions, however, can also become a political "countervailing power" to large firms by projecting comparable economic resources (Galbraith 1952). When large firms meet large unions in a political and economic marketplace, the efforts to subvert justice by one meet countervailing efforts by the other. The formation of labor unions parallels the creation of trusts and large industrial firms as a competitive reaction to subversion. Galbraith was not the first to appreciate this point. In *Veghelan v. Gunther*, Justice Holmes wrote: "Combination on the one side is potent and powerful. Combination on the other is the necessary and desirable counterpart, if the battle is to be carried out in a fair and equal way" (1896, p.108).

A final reform proposed by many progressives is the complete control of industry by the government. If large firms subvert justice, or corrupt politicians to extract rents, then government ownership may appear attractive. Because the nature of ownership changes a firm's objective function (as in Hart et al. 1997), government-owned firms may be less likely to corrupt the system to extract rents (Glaeser 2001). Croly in particular favored this response to subversion of justice: "if the interest of a corporation is so essentially hostile to the public interest … the logical inference is not a system of semi-official and semi-private management, but a system of exclusively public management." This type of reform was unpopular in the U.S., perhaps because the many problems of public ownership were appreciated, but European countries moved in that direction. In those countries weaker rule of law meant that less extreme measures could not be relied on to discipline big firms.

## 5. Comparison with Interest Group Theory

The traditional view of the progressive era, associated with the great historians such as Goldman (1947) and Hofstadter (1955), saw the reformers as selflessly serving the public interest, and focused entirely on the benefits of reforms to consumers. In our analysis, we have generally followed this "public interest" approach, except we recognized the centrality of enforcement to the design of reform. This analysis is not intended as a suggestion that regulation is always, or even usually efficient – some of our own empirical work indeed suggests the opposite. Even for the case of the progressive era, however, the economic analysis of regulation since the 1970s has been dominated by the "capture" or "interest group" theories, which see regulation as shaped primarily by producer or bureaucratic interests (Stigler 1971, Posner 1974, McChesney 1987). According to this view, producers either water down regulation to render it irrelevant, or else subvert it for their own benefit, such as raising prices. Bureaucrats, in turn, use regulation to enhance their budgets or bribes. Any discussion of the progressive era requires at least a brief overview of this research[9].

The most dramatic evidence bearing on the capture theory deals with the lobbying efforts around the passage of progressive era legislation. It has been pointed out, for example, that established firms often supported the passage of the Pure Food Act in 1906 as a way to raise the costs of new entrants and rivals (Okun 1986, Wood 1986, Young 1989, High 1991, Coppin and High 1988, 1999). Coppin and High (1988) show in particular that Harvey Wiley, the Chief Chemist of the Agriculture Department and perhaps the most influential advocate of the 1906 Act, was significantly influenced by traditional whiskey producers attempting to stop new technologies, as well as by a desire to grow his Department. Libecap (1992) likewise sees the Meat Inspection Act of 1891 as an attempt by traditional slaughterhouses to stop the more efficient Chicago meatpackers through legislation. Troesken (2002) studies the letters of Senator Sherman, and argues that he "intended to protect small and inefficient firms (especially oil refiners) from their larger competitors, regardless of the effect on consumer welfare. The list goes on, but the basic point remains: progressive era regulation was captured by the industry, leaving consumer interests in the dustbin.

We do not regard this lobbying evidence as dispositive. Even in our model, firms themselves in some cases prefer regulation to strict liability, because they bear the costs of subverting justice, and might therefore lower their costs with regulation. In more general models, it is easy to have some firms benefiting, and others losing, from *socially efficient* regulation as compared to litigation, with the winners lobbying ex ante for reform. Put

[9] The other – diametrically opposite-- interpretation of the progressive era is that, following populism, reforms represented just a redistribution from the rich to the poor. This interpretation is inconsistent with the view that many reforms were supported not just by the poor, but by urban elites and many firms, and championed by Republican presidential candidates – Roosevelt and Taft.

differently, neither the fact that Harvey Wiley was supported by the traditional whiskey producers, nor the fact that his bureau expanded following the 1906 Act, is convincing evidence that the Act did not serve the public interest.

Nonetheless, there are several important conceptual connections between capture theory and our approach. At the most basic level, both theories deal with subversion of institutions by the powerful. The capture theory focuses on subversion at the stage of the creation of rules, but assumes that the rules are enforced subject to limitations on the government's resources. We, in contrast, recognize that the enforcement of rules can be subverted, but then consider what rules are efficient at the creation stage given the risk of subversion. As a general matter, it is not at all clear why, at the rule writing stage, government regulation is more vulnerable to subversion through lobbying than are the laws governing private litigation. Indeed, capture theorists generally ignore litigation and its failures, and only focus on problems with regulation. We agree, nonetheless, that a more complete theory would consider both ex ante and ex post subversion of institutions.

Even if we focus on subversion at the stage of institutional design, however, the capture theory easily accommodates a role for efficiency and consumer interest (Peltzman 1976, Grossman and Helpman 2001). We have already provided considerable evidence from the statements of presidential candidates and others, as well as from the muckraking literature, that this interest was particularly important during the progressive era. Moreover, "clean government" reforms, such as reforms of the civil service, direct election of senators, recall of judges, and so on, are difficult to reconcile with the pure industrial capture perspective.

Demographic trends are also consistent with the importance of consumer interest. By the end of the 19th century, a growing number of voters became involved in the commercial and industrial economy, and thus were affected by the subversion of justice. More and more people working for corporations and railroads were exposed to industrial accidents. Increasing numbers of people lived in the cities and suffered from the subversion of city administration. More and more farmers and small businessmen were expropriated by railroads with market power, or by larger competitors who made special deals with the railroads. "Politically, the rage of the victims counted for very little in 1840, not much in 1860; by 1890, it was a roaring force" (Friedman 1985, p. 476).

While this rage was the dominant factor behind the success of the progressives, at least three other forces mattered. First, in the middle of the 19$^{th}$ century, relations between the North and the South dominated politics. For years after the Civil War, venal Republican candidates could whip up public support by "waving the bloody shirt," and reminding voters of the North-South issue. The reforming Horace Greeley was soundly beaten at the polls by Ulysses S. Grant—a corrupt President who symbolized Northern dominance. Second, changing technology in publishing facilitated the rise of popular muckraking journals. Free entry in this national industry made it possible for journals such as McClure's to thrive without the support of the local business community, and indeed to flourish by attacking industry. Finally, a crucial development in U.S. politics was the ascent of Theodore Roosevelt, who ran both his first term and the election of 1904 on the platform of subversion of the judiciary and of restoration of justice through regulation.

Ultimately, however, we must look at the consequences of regulation to shed light on its reasons, and here the picture is muddy, even for the progressive era. On the one hand, many outcomes were getting better during the relevant period. The use of child labor declined significantly, paralleling the introduction of Child Labor laws (Moehling 1999). Between 1900 and 1915, railroad passenger fatalities per million passenger miles declined from .0155 to .006, and employee fatalities from .159 to .066 (Lerner 1975). This happened precisely in the period of railroad safety regulation. One can also look at energy prices as one indication of the effectiveness of the Sherman Act, one of whose main targets was the Standard Oil Company. Between 1900 and 1915, prices of fuel and lighting rose 12 percent, compared to 22 percent for the BLS price index. This is not merely an impact of progress: over the 1890s, the BLS index fell by 7.4 percent while fuel and lighting prices rose by 21.5 percent (Lerner 1975). Wermiel (2000) describes the dramatic decline in catastrophic city fires in the U.S. around the turn of the century, which she attributes to technological progress and municipal regulation. Temin (1980), whose analysis is significantly influenced by the capture theory, nonetheless recognizes some benefits of the 1906 Pure Food Act – such as elimination of some false claims on medicine bottles, and the reduction in alcohol content of patent medicines.

Such evidence of progress is not uncontroversial. Some studies argue that progress would have occurred anyway, under the pressure of market forces, so regulation was irrelevant. Moehling (1999), for example, argues convincingly that industrial firms were sharply reducing the use of child labor even without the constraint of the laws. Gilligan, Marshall, and Weingast (1989) is a particularly balanced study of the consequences of the Interstate Commerce Act of 1887. The authors recognize that many parties, including farmers, different kinds of railroads, and consumers, were influenced by and therefore tried to shape the Act. They show that the shipping rates on short hauls, where monopoly power was particularly pronounced, were reduced by the Act, but those on more competitive long hauls were increased. They argue that, at least to some extent, the Act helped sustain railroad cartels.

In the end, the evidence appears to point to both significant social progress happening at least coincidentally with the progressive era reforms, as well as significant instances of regulatory capture by industry. Still, it is difficult to deny that the American capitalism of the 1920s was less corrupt and less abusive of workers and consumers than it was in 1900.

## 6. Appropriate Institutions

As we argued in the introduction, the key goal of economic institutions is the same across times and places, namely to secure property rights and to make perpetrators of harmful acts accountable. But even though the goals are constant, which institutions are appropriate for achieving them varies. Our model allows us to begin such analysis of appropriate institutions.

Figure 1 sheds light on the desirability of alternative modes of law enforcement in different countries and for different activities. We can think of X – the cost of subverting justice – as varying across countries and across activities. Some countries might have highly independent, disciplined and efficient judges and regulators, who are invulnerable to political pressure and bribes; this is the situation of a very high X. Other countries might have poor, politically vulnerable, and easily corruptible officials, who cannot stand up to the pressure from private parties they are supposed to regulate; this is a situation of low X. We can also think of X varying across activities: a country might have enough bureaucratic prowess to control violence, but not enough to administer securities or anti-trust laws. Our framework allows us to consider the consequences of such variations. In this discussion, we take X to be exogenous, even though many progressive and other reforms aimed to increase X.

The first, and arguably most important, message of the model is that in situations of extremely low X, the optimal government policy is *to do nothing*. When the administrative capacity of the government is severely limited, and both its judges and regulators are vulnerable to intimidation and corruption, it might be better to accept the existing market failures and externalities than to deal with them through either the administrative or the judicial process. For if a county does attempt to correct market failures, justice will be subverted, and resources will be wasted on subversion without successfully controlling market failures.

This implication of the model is of great significance.[10] Some economists (e.g., Stiglitz 1989) see market failures as pervasive in the emerging and transition economies, and recommend heavier regulation of economic activity in such economies than in advanced welfare states. Our model, in contrast, implies that countries operating at low levels of law and order in the first place should institute fewer laws and regulations of economic activity, because their officials cannot administer more without being subverted. In these countries, if the policy of laissez-faire is followed, significant torts and monopoly abuses would be common. But such evidence of market failure does not imply an error of the regulatory stance. Rather, the law and order resources necessary to secure private property may be so limited that a regime of heavier regulation would perform even worse. A number of examples illustrate this point.

In 1992, under pressure from Western donors, the government of the Russian Federation established an anti-monopoly commission to address the problems of industrial consolidation. It became immediately apparent that the new commission could not stand up to the political power of large enterprises, and it did not even try to regulate their activities. Instead, the commission started to compile lists of small firms, such as bakeries, taking the position that such firms had the potential of abusing their local market power. Small entrepreneurs had to register with the commission, and often to pay bribes just to get off the lists of potential monopolies. The commission did nothing about the real problems of market power, added a level of regulation of small firms, and provided lucrative opportunities for its own employees (Boycko et al. 1995).

This phenomenon is more general. Most countries in the world, including the poorest ones, require many procedures for new firms to begin operating legally. Most of these procedures on paper have market failure justifications: officials check that the new entrepreneurs

[10] For many further examples of appropriate institutions, see (2001) World Development Report.

do not have criminal records, have professional qualifications and bank accounts, obey sanitary restrictions, and so on. These regulations, however, are often subverted through bribes or operations in the unofficial economy (De Soto 1989). In a cross-section, countries with more regulations of entry exhibit higher corruption and larger unofficial economies, but not superior social outcomes that regulation allegedly aims for (Djankov et al. 2002).

The model, then, helps us reconcile the apparent greater extent of market failures in emerging economies stressed by Stiglitz (1989), with the equally apparent failure of regulation. The problem is not that these countries do not have a need for dealing with social harm. Rather, the problem is that these countries cannot administer the solutions. When neither the courts nor the regulators can resist subversion, the optimal policy is to leave even imperfect markets alone.

The second message of the model is that, with intermediate enforcement capacity, especially in cases of high social damage from market activities, regulation is efficient. When externalities cause large damages, fines necessary to ensure desirable conduct are very high, and therefore liability regimes are especially vulnerable to subversion. Under such circumstances, court enforcement might fail to achieve efficiency, but regulation of inputs stands a better chance. This case is even stronger if, as Landis (1938) maintains, it is more expensive to subvert career regulators than judges. The United States in the early 20th century may in fact have exhibited the conditions under which, for efficiency reasons, regulation was preferred to tort.

Glaeser, Johnson and Shleifer (2001) give another example of the same phenomenon by comparing the regulation of securities markets in Poland and the Czech Republic in the 1990s, at the time when their per capita incomes were roughly comparable to that of the U.S. during the Progressive era. During this period, the Czech government adopted a laissez-faire approach to securities regulation, expecting the judicial system to fill the necessary gaps. Poland, in contrast, adopted strict regulations patterned after the U.S. Securities Acts, and created an independent regulatory commission to enforce them. The result has been the collapse of securities markets in the Czech Republic, as the existing system of law enforcement failed to deal with pervasive fraud in the market. In contrast, the Polish stock market developed rapidly, and there is some evidence that the Securities Commission actually managed to enforce the existing rules.

This analysis also sheds light on a well-known recommendation of Becker (1968) that an optimal penalty system in the world of costly law enforcement should exhibit low probabilities of detection and conviction with very high penalties or fines. Such a strategy combines desirable deterrence effects with cost-savings on enforcement. A large literature explains why we do not see such law enforcement schemes in reality (Kaplow and Shavell 2000). Leading explanations of limited penalties include risk aversion or bankruptcy constraints of the violators (Polinsky and Shavell 1979) and considerations of fairness. We argue, alternatively, that the defendants are likely to spend enormous resources subverting a Beckerian scheme of high penalties, and may well succeed. The Denise Rich example mentioned above 3 illustrates this point. From our perspective, Becker's solution of raising fines has precisely the reverse effect: it only increases the incentives to subvert justice and diminishes the likelihood of good conduct.

Finally, the model implies that societies with the highest levels of law and order should rely on private litigation rather than regulation. The reason for this is that the liability system – as long as it is not subverted – can achieve first best efficiency, whereas regulation never can. Is this prediction realistic? Advanced economies appear to have both more litigation and more regulation, so it is difficult to say which they have more of, relatively speaking. At the same time, it is striking that, since the 1970s, the United States has followed the path of significant deregulation of many industries, such as gas transmission, trucking, financial services, and airlines. One interpretation of such deregulation is that many issues can now be effectively addressed through private litigation, and therefore regulation is relatively less efficient.

In concluding this section, we return to its general point. The law and order conditions in a country are in themselves a crucial determinant of its optimal strategies for regulating economic activity. Institutions cannot be built without recognizing where the country is in the first place. The finesse with which courts resolve disputes is appropriate for a country that has high levels of law and order. In the extreme contrast, a country beginning with low levels of law and order should tread gingerly in giving officials more power to shape economic life.

## 7. Conclusion.

In 1960, Ronald Coase posed a crucial problem for economics: what is the optimal strategy of securing property rights – also known as establishing law and order? Many of Coase's followers have interpreted his article as supporting the "free market" idea that a well-functioning market economy, with well-defined property rights, only requires the common law to deal with the problem of social harm. In such a world, regulation is unnecessary. But Coase's reasoning does not necessarily imply the superiority of private litigation. Efficiency depends on whether private litigation, regulation, or neither, work better to address the problems raised by Coase. Different institutions might be most efficient – and most attractive to a libertarian – under different circumstances.

In this paper, we have presented a model of choice of a law enforcement strategy between doing nothing, regulation, and private litigation. We showed that the choice depends crucially on the vulnerability of law enforcement in a country to subversion by powerful interests that might be affected. We argued that, in line the model, regulation may have become the increasingly efficient strategy of law enforcement in the United States between 1887 and 1917. The rise of the regulatory state may have been an efficient response to changing conditions.

None of this is to say, of course, that regulation is generally or even often efficient as a solution to the problem of market failure. We often see regulation being subverted by special interests, or by the very bureaucrats supposed to enforce it. The empirical record of regulation around the world is quite mediocre at best – and we have argued that in many times and circumstances, doing nothing may be the most efficient approach to market failure. Indeed, even the progressive era has been interpreted by many as an instance of the use of regulation to benefit the industry rather than the consumers.

At the most general level, our paper argues that establishing law and order is itself an economic problem. Different countries at different times attempt to solve this problem differently – sometimes successfully, sometimes not. We have presented one approach to the efficiency of alternative institutional arrangements – based on the idea of subversion of justice. We expect that other approaches would cast a different light on the comparative efficiency of these basic institutions of any market economy.

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Appendix.

*Proof of Proposition 1:* We consider four different cases with respect to the level of the cost of the subversion of justice, X/S, relative to the minimum fines necessary to implement alternative enforcement schemes (see Figure 2).

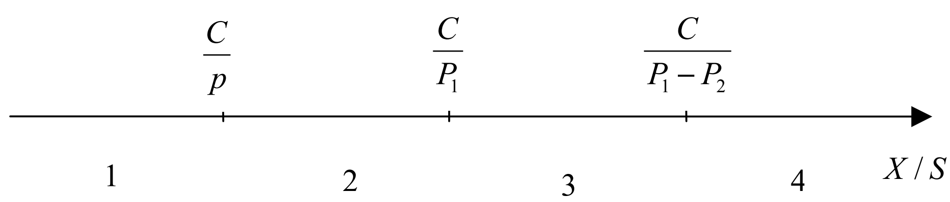


Figure 2

1. $\frac{X}{S} < \frac{C}{p}$. In this case, the firm has access to cheap intimidation technology, so no regulatory scheme can force the firm to invest in precaution. Any fine – from regulation, social loss if there is no regulation equals $L_N = \pi_\alpha P_\alpha SD + (1-\pi_\alpha)P_1 SD$.

2. $\frac{C}{p} < \frac{X}{S} < \frac{C}{P_1}$. In this case, neither strict liability nor negligence schemes can implement efficient level of precaution for the type β firms. The two relevant options are to regulate or to do nothing. Regulation forces firms to maintain the high level of precaution if the fine, F, is set in the interval $\frac{SC}{p} \le F < X$. Under our assumptions, both types of the firms choose the high level of precaution, which is excessive for type α firms. The expected social loss under regulation equals $L_R = \pi_\alpha P_\alpha SD + (1-\pi_\alpha)P_2 SD + SC$. When $C$ is small, i.e. $(1-\pi_\alpha)(P_1 - P_2)D > C$, then excessive precaution is less wasteful than the expected

damage from its absence, and regulation dominates laissez faire regime. When $C > (1-\pi_{\alpha})(P_1 - P_2)D$, then doing nothing is more efficient.

3. For X/S in the interval $\frac{C}{P_1} < \frac{X}{S} < \frac{C}{P_1 - P_2}$ negligence becomes a subversion-of-justice-proof option. If $P_{\alpha} < P_1$ then negligence achieves the first best outcome when F is set in the interval $\frac{SC}{P_1} < F < \min\{X, \frac{SC}{P_{\alpha}}\}$. The expected loss in this case is equal to $L_{CN} = \pi_{\alpha} P_{\alpha} SD + (1-\pi_{\alpha})(P_2 SD + SC) = L_{FB}$.

   If $P_{\alpha} > P_1$ then negligence cannot achieve both the efficiently low level of precaution for the type α firms and the efficiently high level of precaution for the type β firms. The social loss coincides with that under regulation, and the choice between laissez faire and regulation is the same as in case 2.

4. If $\frac{X}{S} > \frac{C}{P_1 - P_2}$, then the subversion of justice is not an acute problem, and high fines necessary for strict liability scheme cannot be avoided. Any fine larger than $\frac{SC}{P_1 - P_2}$ and smaller than $X$ leads to the first best outcome in the strict liability scheme.