The Cost of Rights: An Economic Analysis

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1. – *The cost of rights and the economic theories of regulation*

The simple insight that all legally enforceable rights cost money is the intriguing subject of a recent book by Stephen Holmes and Cass Sunstein (1999), entitled *The Cost of Rights: Why Liberty Depends on Taxes*. As they put it, "rights cannot be protected or enforced without public funding and support" (p. 15), where rights are "defined as important interests that can be reliably protected by individuals or groups using the instrumentalities of government" (p. 16).

Under this definition, a right does not exist if there is no institutional machinery to protect it. If all citizens are to enjoy a certain minimum of rights, then these costs cannot be individually borne, on, say, a pay-as-you-go basis. Rather, the cost of rights must be distributed across the citizenry, which requires both tax revenue (to pay for the enforcement of rights) and state action (to implement such enforcement). Once we recognize that the law is affected by familiar economic tradeoffs, *The Cost of Rights* raises a number of questions that economic theory can help to answer.

What is the optimal mechanism to enforce a *given* law? How should laws be designed, given that *stricter* and *more complex* laws require a costlier enforcement machinery? What is the optimal *system* of laws, given that the resources devoted to enforce one law will no longer be available to enforce another law?

Effective law enforcement is a primary concern for any legal system and even the best-designed law is useless unless it is complied with. Starting with the seminal contributions by Becker (1968) and Stigler (1970), a substantial body of literature has investigated the optimal enforcement of laws (see Polinsky and Shavell, 2000, for a recent survey). This literature has improved our understanding of the design of law enforcement mechanisms, but has proceeded under the assumption that the laws to be enforced are *given*. In fact, the issue of enforcement is relevant also for the very design of the law.

The main goal of this paper is to present informally an economic model where the design of the laws and their enforcement are determined jointly. We explore the implications of this point for the economic theory of regulation. As we shall see, the implications are quite different depending on whether regulation is viewed as being designed by a benevolent government or not. The idea that laws are drafted by a

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benevolent government has a long tradition in economics: it dates at least back to Pigou's (1938) *public interest theory*, which regards regulation as a remedy of market failures, whether these are caused by the lack of information about product quality or by externalities such as pollution.[1] Instead, a more recent strand of economic models, often labeled as *public choice theory*, questions the motives and capabilities of regulators. For example, George Stigler (1971) sees regulation as "captured by the industry" in order to restrain competition and to create rents. Another strand of this theory – the "tollbooth view" expounded by McChesney (1987) and Djankov et al. (2002) – holds that regulators are *self-interested* in designing regulatory standards: they design regulations so that bureaucrats and politicians can collect bribes from producers. Djankov et al. (2002) apply this thesis to the regulation of entry. They compare the legal procedures governing the establishment of new firms or their entry in a new business, showing that the severity of the rules correlates positively with corruption in a cross-section of 85 countries. This view, contrary to the public interest theory, holds that regulation serves no social purpose.

2. – *Design and enforcement of legal standards*

To focus the analysis and understand the implications of costly enforcement for the design of laws, we leave aside general rights (such as property rights or the right to physical integrity) and restrict attention to the rights that are protected by legal standards, such as the right that harmful products be banned from sale or the right to live in a clean and safe environment. These rights are generally enforced through *regulation*, that is, a set of rules designed by the government and enforced at the initiative of public officials. In principle, one could consider more decentralized mechanisms: the enforcement of rules may be entrusted to private agents via their appeal to courts, and even the design of the rules may be delegated to private agencies, via self-regulation. Here, however, we shall not consider these alternative enforcement mechanisms.

Let us consider an economy where there is a rationale for regulation, in the sense that it can remove a *market failure*. This is a situation in which an unregulated market would not yield an efficient outcome. It often arises from the asymmetric distribution of information between the parties of an economic transaction. Regulation can often redress, at least partly, such asymmetries or at least provide some protection to the less informed party. In Holmes and Sunstein's own wording, "markets do not create prosperity beyond the protective perimeter of the law… In the absence of government machinery capable of detecting and remedying misrepresentation and false dealing, free exchange would be an even more risky business than it is. The act of buying and selling is often worrisome in the absence of reliable means to counteract the asymmetry of knowledge between buyer and seller" (Holmes and Sunstein, 1999, p. 69 and 73).

We consider precisely such a setting: sellers know the quality of their merchandise, but their potential customers don't. In this situation, in the absence of regulation

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[1] An *externality* arises when the actions of a consumer (or firm) affect directly other consumers (or firms) in the economy, outside of any market relationship. A typical case of externality arises for common resources such as fisheries or clean air, whose consumption is not excludable: each agent can use such resources without paying a price, and his consumption of the common resource directly limits the utility that other agents can draw from it. Such common resources are called *public goods*.

producers would choose an inefficiently low quality level. The government can remedy the problem by imposing a minimum quality level by law. However, to enforce this quality standard it must allocate resources to detect and punish violators. The stricter the standard, the greater the incentive to violate the law, and therefore the greater the amount of resources that must be spent on enforcement. Spending on enforcement, being funded by taxation, reduces the amount of consumption that people can afford. This sets an economic limit on the enforcement activity that the government will do, and therefore also on the strictness of the standard that is worthwhile enshrining in the law.

The idea is more general than this particular setting may suggest. It applies any economic relationship between two parties with asymmetric information where the government can ameliorate the outcome of the exchange by setting and enforcing a minimum standard. For instance, in financial markets the government can require the securities marketed by financial intermediaries to satisfy minimum standards of investor protection against fraud or misrepresentation of risk. Also in this case the government must decide jointly on the strictness of financial regulation and on the resources to be devoted to its enforcement. Moreover, as we shall see below, the idea applies also to other types of market failure, such as those deriving from the externalities generated by public goods: one such instance is the design of environmental standards and the intensity of their enforcement.

Once these ideas are formalized via an economic model, they can be shown to have a number of interesting economic implications. Here we shall sketch the structure and logic of such a model, along the lines of our recent work (Immordino and Pagano, 2003).

Consider a market where firms produce a quality good. The profit from selling a unit of the good is a function of its quality, because this affects both the price that consumers are willing to pay and the production cost. This quality measure can be thought of as a summary measure of many different dimensions of quality.[2] Consumers have a given wealth to finance spending and to pay for taxes. In the context of our story, taxes are levied only to pay for the cost of enforcement, so that in the absence of public intervention taxes are zero. When product quality is observable, firms will offer the efficient quality level, i.e. the level of quality demanded by consumers. This value is called the first-best level of quality.

Now consider the scenario where product quality is unobservable, and assume that producers cannot offer a quality guarantee, because it is too costly for consumers to verify quality.[3] In this case, firms set quality at zero. No positive level of quality is an equilibrium: if consumers expect this level, any firm that deviates by providing lower quality will make profits, as in Akerlof (1970). In the next section we show that such market failure can be tempered by an appropriate legal standard.

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[2] For instance, in the case of chicken, it could be a synthetic index of the quality of chicken feed, of the preservatives present in the meat, of the method used to raise them (free-range or not), etc. This implies that a producer can raise the quality either by raising the value of one of its particular components, such as the amount of preservatives (the "intensive margin" of quality) or by adding a new, previously neglected component, say the chemicals used to clean carcasses (the "extensive margin" of quality). By the same token, a regulator can mandate higher standards either by imposing more stringent criteria along given dimensions, a *stricter* law or by increasing the number of parameters considered, a more *complex* law.

[3] For instance, it would be prohibitively expensive for a consumer to check whether a chicken in the supermarket was raised with hormones or whether it is free-range, or whether the electromagnetic waves of a portable phone exceed a safety threshold.

3. – *Public interest theory*

If the government's objective is to maximize social welfare, it can intervene to attenuate the market failure described above and promote quality.[4] The role of the government is twofold. First, it designs the law and the penalty for infringement. Second, it determines the resources to allocate to enforcement. The law thus consists of a minimum quality standard and a penalty function setting the liability of violators. We assume that the penalty is monetary and cannot exceed an upper bound.[5]

Imagine the following sequence of moves. First, the government chooses the legal standard and the resources devoted to enforcement. Then, firms choose the quality level of their output and the corresponding price. Next, bureaucrats enforce the standard by inspection, detecting non-compliance with a probability that depends on the resources devoted to enforcement and on the technical efficiency of enforcement. One can think of enforcement spending as the salaries paid to policemen: once hired, each policeman detects violations with a given probability. Finally, consumers buy the good at a price that reflects its expected quality. Enforcement is costly and is financed out of the sum of net taxes and revenue from penalties.

A benevolent government will choose the quality standard, the enforcement level and the penalty that maximize the utility of consumers.[6] Under these assumptions, one can show the following results. 1) *Higher standards require more spending on enforcement*. 2) *The optimal quality standard is lower than the first-best quality level, it is increasing in the maximum penalty, in the efficiency of enforcement and in wealth*.

The first result underscores the *complementarity* between enforcement and legal standards. By raising the production cost for firms, a stricter standard increases the incentive to deviate and thus requires more intensive enforcement.

The intuitive reason of the second result is that enforcement is costly, and a benevolent government must take this cost into account. Holmes and Sunstein informally underline the same idea. They write, "Nothing that costs money can be an absolute… Rights are not commodities in a simple sense. But when the price soars, rights enforcement necessarily becomes more selective" (1999, pg. 97 and 102).

The second result also makes clear that the shortfall of the optimal standard below first-best (efficient) quality increases with the cost of enforcing the standard and decreases with the maximum penalty, since both of these characteristics tend to increase the deterrence potential of the enforcement machinery of the state: countries with cheaper enforcement should adopt more ambitious standards than the others. By the same token, the richer the community, the higher the optimal standard it can afford, since it can afford a more effective enforcement machinery. Poorer countries cannot afford high enforcement costs, and therefore must set lower standards.

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[4] Following the utilitarian mainstream approach in economics we define a benevolent government as one that maximize the total utility of citizens, leaving aside alternative theories of justice like the neo-contractual *A Theory of Justice* by John Rawls.

[5] The model could accommodate a non-monetary sanction, for instance imprisonment. The social cost of imprisonment should then be accounted for in the expression for social welfare. In this case, the optimal monetary sanction will be set at the maximal level, but the non-monetary sanction may not (Shavell, 1991). However, the results concerning the relationship between standards and enforcement would be qualitatively unchanged.

[6] Becker (1968) shows, that it is optimal to set the penalty at the maximum feasible level.

4. – *Corruption*

So far we have assumed the enforcement of the legal standard to be implemented by honest officials. However, officials can be bribed to be lenient. Within our story, entrepreneurs may have the incentive to do so and lower the quality of their product.

This new version of the story is half-way between the public interest theory explained so far, where governments are *benevolent* and officials are honest, and the public choice theory, where governments themselves are *self-interested*. We defer the exploration of this gloomier view in the next section: for the time being, we take officials to be corruptible, but retain the assumption that at least the government works for the common good.

A simple way to capture this point is to assume that the government chooses the amount of resources assigned to officials, but cannot perfectly control their effort in enforcing the law. It can at most devote resources to policing their behavior via a layer of internal controls. We assume that these internal controls are performed by upper-tier functionaries.[7] Both layers of bureaucracy require resources and the total amount devoted to enforcement is raised via taxation.

Due to the possibility of corruption, the probability of punishing delinquent firms depends not only on the probability of detecting them, but also on the lower-tier officials' decision to report the misdemeanor or to omit the report in exchange for a bribe. Upon detection, a non-complying firm will agree to pay a bribe to avoid the penalty. But to corrupt an official, it will have to pay a bribe that compensates him for the penalty that he risks if detected by his superiors. A lower-tier official accepts the bribe if it is larger than the expected penalty. A firm will offer the bribe if the penalty that it would pay if reported exceeds the bribe plus the expected penalty inflicted if the bribe is discovered. When both of these conditions are met, there is corruption. Anticipating this, at the production stage the firm chooses to produce a zero quality product, so that the legal standard is ineffective.

Of course, a benevolent government does not want this to happen. It must break the potential collusion between entrepreneurs and officials. To do so, the government must intensify the enforcement up to the point where the fear of being caught is so great that entrepreneurs and officials will not deem it worthwhile to collude. To achieve this result, it must direct its enforcement effort on two fronts: not only to check entrepreneurs as before, but now also to monitor lower-tier officials. In other words, the corruptibility of public officials implies that now any quality standard requires a greater amount of resources. As a result, *when officials are corruptible, the optimal standard is lower*.

This result – also proved by Immordino and Pagano (2003) – can be understood intuitively by considering what would happens if the standard were kept at the same level as under no corruption: the government would have to allocate the same amount of resources to detecting non-complying firms, but in addition it would have to devote some extra resources to monitoring low-level officials, so that the total resources spent on enforcement would exceed the level chosen when bureaucrats are not corruptible.[8] The only way to avoid this extra expense is to set a less ambitious standard.

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[7] Here we assume that upper-tier functionaries cannot themselves be corrupted, otherwise we would face an infinite recursion problem. However, our results would be qualitatively unchanged.

[8] This result parallels the insight from the model by Acemoglu and Verdier (2000), who show that potential corruption requires an increase in the resources spent on bureaucrats, in order to secure the same level of enforcement of a given law. The substantive difference between the two models lies in the fact

In summary, when bureaucrats may take bribes from non-compliers, the standard should be set even lower than in the absence of corruption, to weaken the incentive to collude. So, if governments are benevolent, countries with more corruptible bureaucracies should feature lower legal standards.

5. – *Public choice theory*

So far, the government itself was assumed to be benevolent, even though law enforces may be not. But the rot may extend beyond the officials entrusted with law enforcement: it may involve also those who draft it. Government may be, at least partly, captured by corrupt bureaucrats. In this case, it may attach a positive weight to the bribes that can be extracted from non-complying firms, as is assumed in the "tollbooth view" of regulation.

The model discussed so far can take this possibility into account, if we assume that the government may attach a positive weight to the bribes that its officials can extract, and interpret this weight as the degree of self-interest of the government. This setting differs from that examined in the previous section, where bureaucrats are corruptible but the government controls them by a system of penalties. We now assume that the penalties are absent, to allow for the possibility that the government itself is captured by its officials, who are not punished for accepting bribes.

For technical reasons, we must amend the model also in another dimension. We suppose that firms can be of two types – low-cost or high-cost – and that neither the government nor consumers know which type any given firm is.

The government chooses the standard and the enforcement level so as to maximize its objective. But it must also decide whether to provide incentives for both types or only for low-cost firms. Immordino and Pagano (2003) prove that *a sufficiently self-interested government will set standards that induce the less efficient firms to violate the law.*

More specifically, in a situation where a benevolent government would give incentives to both types, self-interested governments may provide them only for low-cost firms and extract bribes from the others. They do so by setting a stricter standard than a benevolent government, consistently with the "tollbooth view". An empirical implication of this result is that, within a sample of countries where there is corruption, bribes should be positively correlated with the legal standard and the enforcement level.

6. – *An application to environmental standards*

Though stated so far as a model of quality standards, the previous analysis can also be applied to environmental standards. Consider an economy where consumers care about the quality of the environment, and the latter is affected by the technologies chosen by *all* firms. To the individual consumer, the pollution level chosen by the specific producer that he patronizes has a negligible effect on environmental quality. He only cares for the aggregate pollution level. In this setting, the quality of the environment is a *public good*.

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that Immordino and Pagano (2003) treat the design of the law as endogenous. This leads to the result that, when bureaucrats are corruptible, a benevolent government must lower the legal standard.

This creates the need to impose an environmental standard: each consumer, being small, has no incentive to penalize polluting firms by refraining from patronizing them. Hence, in an unregulated economy the environment's quality will be low. Just as the informational asymmetry analyzed before creates the need for product quality standards, this public good problem requires government intervention by setting a minimum environmental standard for production technologies.

The results reached in the previous sections for quality standards extend to the design and enforcement of environmental standards. If these standards are chosen optimally, their strictness will be positively related to the resources devoted to their enforcement, and they will be higher in wealthier countries than in poorer ones. This is reminiscent of the provisions of the Kyoto Protocol, according to which developed countries ought to bear the entire financial burden of reducing greenhouse gas emissions, while developing countries are not bound to reduce future emissions, at least not immediately.

Also the results on corruption carry over to environmental regulation. If governments are benevolent, countries where officials are corruptible should set lower environmental standards and allocate less resources to enforcement. Conversely, if governments are self-interested, environmental standards should be positively correlated with measures of bribes, as predicted by the "tollbooth theory".

Immordino and Pagano (2003) test these predictions using international data from United Nations Conference on Environment and Development (UNCED, 1992 and Dasgupta et al. 1995) and the World Economic Forum (WEF 2002). They construct various indicators. An indicator of regulatory strictness "Environmental Legislation" based on the replies to the survey question: "How extensive is the legislation so far?"; an indicator of enforcement activity (of the resources devoted to enforcement) "Funds to Environmental Agency", using replies to the survey question: "What is the extent of the allocation of funds to the environmental protection agency?"; and an indicator of corruption misuse of public power for private benefits, e.g., bribing of public officials, kickbacks in public procurement or embezzlement of public funds.

Recall that the theory outlined so far predicts that the strictness of standards should be positively related to the resources spent on enforcement. Figure 1 shows indeed a *positive correlation between countries' environmental standards and their enforcement*, in agreement with the prediction.
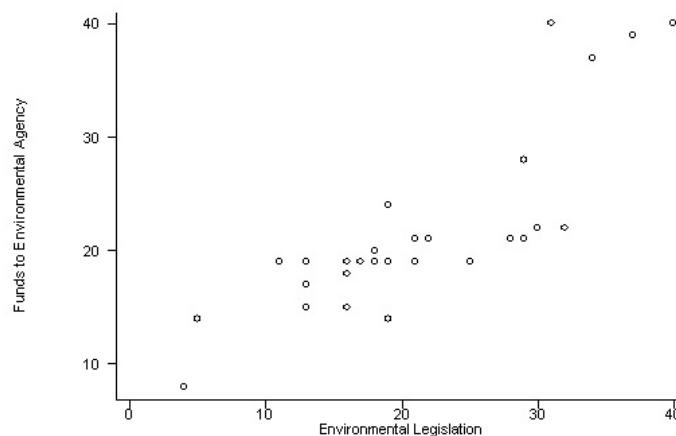

Figure 1. Enviromental standard and enforcement

Also the prediction that *the strictness of regulatory standards should be increasing in per-capita income* appears to be consistent with the data. Figure 2 shows that the Environmental Legislation indicator is positively and linearly related to the logarithm of Per Capita GDP.
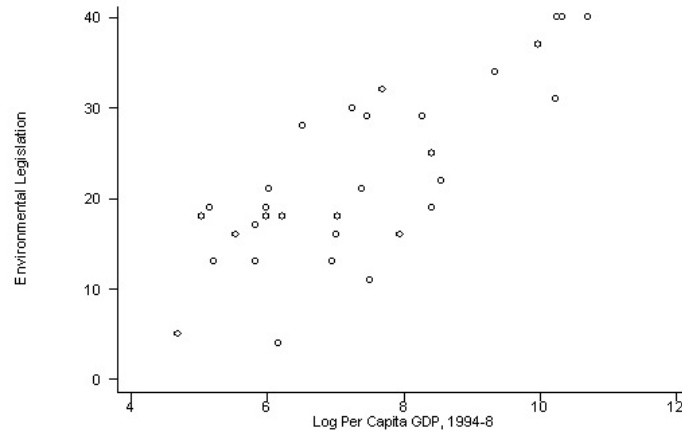

Figure 2. Enviromental legislation and log per capita GDP

The data also help us to explore the relationship between legal standards and corruption (see Figure 3). Recall that, according to the foregoing analysis, a benevolent government chooses lower legal standards when officials are corruptible, whereas a self-interested government may raise legal standards in order to extract more bribes. Empirically, *environmental standards appear to be negatively correlated with corruption*. Therefore, the descriptive evidence is consistent with the prediction of the benevolent government model, rather than with the "tollbooth view".
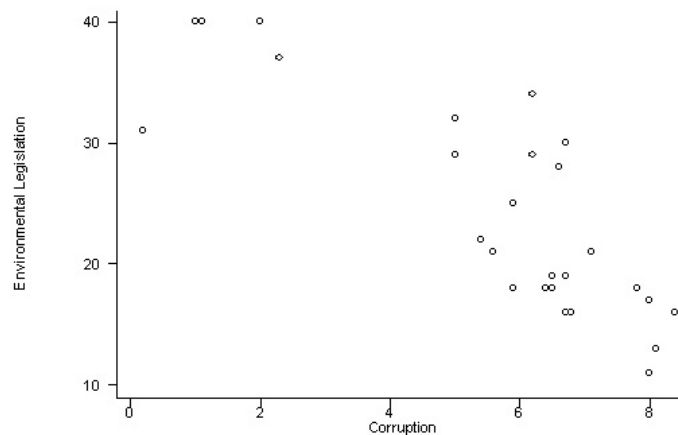

Figure 3. Enviromental legislation and corruption

7. – *Conclusion*

As compellingly argued by Holmes and Sunstein (1999), entitling people to a legal right has unavoidable budgetary consequences, since the right does not exist unless the corresponding enforcement costs are borne by the government. This has implications for the optimal design of regulations – no matter what is the economic theory of regulation one wishes to embrace. We bring out these implications using a model of legal standards, in which the design of the law and the resources assigned to its enforcement are determined jointly. Our three main results are:

(i) A *benevolent* government must trade the benefit of a stricter legal standard off against the cost of its enforcement. As a result, legal standards and enforcement are complements, and both increase in per capita income.

(ii) If the officials entrusted with enforcement are *corruptible*, the legal standard chosen by a benevolent government should be lower, to blunt the incentive for collusion with producers.

(iii) If instead the government itself is *self-interested*, in the sense that it values the bribes that bureaucrats can extract, legal standards may be increasing in corruption.

Our framework can be used in equivalent fashion to analyze both quality standards for producers (if consumers cannot observe product quality) and environmental standards (if consumers do not internalize the social cost of pollution). In both cases, government intervention is required to verify the producers' actions.

International evidence on environmental regulation provides a test of alternative economic theories: standards are correlated positively with enforcement and negatively with corruption.

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