

**INTERNATIONAL “STANDARDS”
AND INTERNATIONAL GOVERNANCE**

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Introduction: Standards, Externalities and Governance*

Standards and standard setting are pervasive mechanisms of international governance. States and private actors create standards across a wide range of circumstances to promote their collective welfare by coordinating and limiting individual behavior. However, international standards play very different roles in different circumstances. In this paper, we examine how the diversity of standard setting problems leads, through the interaction of private and state interests, to different governance arrangements. Our analysis is rooted in a positive examination of standard setting behavior, yet it leads to normative conclusions: how international standard setting “should” be organized in different settings.

The concept of “standard” is sprawling; the dictionary is not overly helpful. Webster’s (1976) defines a “standard” as “something that is established by authority, custom, or general consent as a model or example to be followed.” This definition embraces more specific meanings, like an authoritative “rule for the measure of quantity, weight, extent, value, or quality,” but clearly includes less technical guides for behavior as well. A library search for the keywords “international standards” produces technologically oriented volumes on standards for mobile phones and for construction projects using concrete, but also turns up books on accounting, environmental and labor standards.

Since our purpose is to understand the variety of ways in which international standards are created and used, we adopt a broad working definition: a *standard* is a *guide for behavior and for judging behavior*. This definition incorporates no assumptions about provenance or governance. Indeed (as Webster’s “authority, custom or general consent” suggests), very different institutional processes are involved in creating, administering and enforcing standards for arenas as disparate as mobile phones, accounting, pollution and employment practices.

We also adopt an expansive notion of *governance*. “International governance is understood as *the formal and informal bundles of rules, roles and relationships that define and regulate the social practices of state and nonstate actors in international affairs* -- an idea whose resemblance to IR definitions of international regimes and institutions is no coincidence.”¹ Both standards themselves and the institutions by which they are created, administered and enforced are subcategories of governance.

As our definition makes clear, “governance” need not mean “government.” Many international standards emerge and operate within wholly private, market-based

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¹ Slaughter, Tulumello & Wood 1998, at 371 (emphasis added). See also Young 1994.

governance systems.² Other standard setting processes involve formal institutions rather than market forces, but are still orchestrated by private actors. In still other cases, governments ratify and enforce privately created standards. And in some settings, governments play a central role in setting and maintaining standards.³ Above all, we observe complex blends of private and public governance. Why?

This diversity of governance arrangements, we argue, results from the interactions of states, firms and other international actors seeking to resolve diverse international issues. We distinguish issues analytically according to the “externality” problems that pertain among actors, making efficiency-enhancing standards potentially valuable institutional solutions. But different actors prefer different standards – and different standard setting processes. Moreover, actors have different capacities for creating and managing standards in particular issue areas. Together, these factors provide actors with strong incentives to contest forms of governance, as well as to work together.

Our comparative institutional approach asks what governance arrangements one should expect to emerge under different circumstances. It is based on a positive analysis of strategic situations, preferences and capabilities. One normative concept – efficiency – figures prominently in our positive analysis, but that is because the possibility of welfare gains in externality situations provides the basic incentive behind efforts to standardize.

We begin (Section 1) by developing a simple but broad typology of externality problems, each of which creates demand for international standards. Our typology is set out in Table 1 below. Next (Section 2), we examine the four categories of standards problems in detail, emphasizing the difficulties and opportunities they present for affected actors. In Section 3, we analyze the governance arrangements that actors press for in different situations, and the ones we actually observe. The interplay of contestation and cooperation explains the blends of public and private governance that appear in most issue areas, as well as different mixes across issues. The discussion in these sections is summarized in Table 2.

Our analysis emphasizes international standard setting, although much of it would apply equally to other contexts. The international scene is a useful focus, because it presents a broad range of standards problems and because important governance issues are currently in play. Furthermore, because this arena engages an extra level of potential public regulation – international as well as national – it makes the tradeoffs between levels of governance, and between public and private governance, even more apparent.

² The market is a form of governance, presupposing a richer institutional structure than proponents often acknowledge. Domestic markets require states strong enough to provide property rights, enforce contracts and perform other supportive functions; international markets build on these structures with additional property rights, rules for exchange, and the like

³ See Spruyt 1994 for examples.

Ultimately, international actors need to know not just how different standards problems are governed, or why they are governed in those ways, but which forms of governance are most effective and desirable in different circumstances. In Section 4, then, we consider what forms and levels of governance are best suited for addressing particular standards problems.

1. Externalities and Standards Problems

Actors use standards to deal with externalities. An *externality* occurs whenever *one actor’s conduct affects the well being of another*. Familiar examples include factory smoke that fouls residential air, or one person’s use of a common pasture that diminishes its value to others. The generality of the externality concept opens up important lines of analysis regarding the proper roles of government and the market. But its breadth can also mean that the analysis of fundamentally different problems is inappropriately collapsed together. Table 1 introduces two distinctions among externalities — one substantive, the other analytic — to generate a simple taxonomy of standards problems.

	Network Externalities (Coordination)	Traditional Externalities (Prisoners’ Dilemma)
Technological Externalities	I Technological Interconnectivity	III Physical Externalities
Regulatory Externalities	II Transactional Interconnectivity	IV Policy Externalities

Table 1: The Diversity of Standards Problems

The *rows* of Table 1 distinguish physical or technological externalities from those based in law or policy. Technological externalities – like the smoke and commons examples above – are those in which one actor’s behavior directly (and often physically) affects another. Policy externalities occur when laws or policy choices in one jurisdiction affect actors in another, even with no physical impact. National product safety policies, for example, affect not only local producers but also foreign ones.

Technological and policy externalities are often intertwined. International policy externalities may result from national efforts to deal with technological externalities, or

other domestic regulatory problems.⁴ For example, some international regulatory standards are designed to coordinate and/or constrain national product safety standards. International standards may also be designed simultaneously to address technological and policy externalities, e.g., where states maintain disparate environmental regulations with varying technical and economic effects.

The *columns* of Table 1 distinguish externalities according to the strategic interdependencies that they create among participants. In the following section, we analyze these differences in terms of “network” versus “traditional” externalities. For now, though, the well-known distinction between coordination and prisoners' dilemma (PD) games suggests the distinction this dimension reflects.

In simple coordination games (akin to network externalities), each participant prefers to adopt the same standard as others. In more complex coordination settings, participants disagree as to which standard should be chosen, although they still prefer that all select the same one; this situation is represented by the “Battle of the Sexes” game. In PD games (akin to traditional Pigovian externalities), in contrast, each participant prefers to set its own standard and may do so in a way that harms others.⁵ Yet PD actors also have incentives to cooperate in establishing common standards, since each is better off when both adopt such standards than when both act unilaterally. The pure types of coordination and PD blend together as complications are introduced (e.g., bargaining over common standards introduces coordination problems into PD), but the simple distinction captures an essential difference among standards problems.⁶

As with our other concepts, we view externalities – and hence standards problems – expansively. Here too, our purpose is to avoid prejudging questions of governance. Doing so requires special care in this context, because the implications of externalities for governance are hotly contested. Some see externalities as pervasive, creating an equally pervasive potential for beneficial government intervention. Others downplay the factual significance of externalities, and are sanguine that markets can handle them directly. For us, these are endpoints on a continuum; most problems lie somewhere in between. We briefly explore this dispute here, because of its crucial importance for positive and normative analysis.

Proponents of market solutions insist that (perfect) markets can deal with externalities. The simplest case is the “pecuniary” externality, where the effects of an action on the welfare of others are mediated wholly through the market (e.g., producer A’s increased output lowers the price received by producer B). As Frank Knight (1924) showed in

⁴ While they are often the result of domestic externalities or state responses to domestic externalities, international externalities – especially policy externalities – can arise without any domestic externality.

⁵ We focus here on negative externalities, although traditional externalities can also be positive. Positive externalities may also create a demand for international standards, e.g., regarding burden-sharing.

⁶ Fearon (1998) argues that at a sufficiently general level all strategic problems have a similar (bargaining) structure. We show below, however, that the more specific distinctions between types of externalities – and therefore between strategic structures – have significant implications for governance.

response to A.C. Pigou (1912), markets can efficiently handle such effects. Indeed, pecuniary externalities are so normal to the functioning of markets that economists no longer categorize them as externalities (Mishan, 1971).⁷ The case for market governance is substantially broadened by Coase's (1960) demonstration that private actors can efficiently resolve PD-type technological externalities: the actors that value them most highly can simply purchase rights to impose or prevent externalities.

These arguments, however, depend on perfect market assumptions, including low transaction costs, perfect information and the absence of collective action problems. When these assumptions do not apply, market solutions may fail; market actors will then demand other forms of governance. One alternative is to internalize externalities by changing governance forms within the market, as by merging conflicting interests into a single firm that can make a single efficient production decision (Coase, 1937; Williamson, 1974).⁸ When internalization is not possible — perhaps because an externality is too wide-ranging — affected actors will typically press for some form of non-market governance, such as public regulation of the externality-producing activity.

Even when market assumptions do apply, the case for market governance entails an implicit normative judgment that market efficiency gains outweigh their distributive consequences. Consider a pecuniary externality caused by increased competition. The assumption is that the efficiency gains resulting from the operation of the market *could* be redistributed so that all would be better off than under some alternative form of governance (e.g., protective regulation). Yet this effect is irrelevant (at least to the losers) if gains are not so distributed.

At a minimum, we should expect the losers from pecuniary externalities to protest the results of market competition and to promote alternative, nonmarket governance structures.⁹ In doing so, they will use all available political strategies — including normative arguments about the unfairness of markets and the superiority of other arrangements — to mobilize support. More generally, we should expect rent-seeking actors to work at shaping and capturing governance arrangements for their particularistic ends.¹⁰ As a result, even if the efficiency of markets is normatively attractive, there is no

⁷ This result applies to both traditional and network externalities (Katz and Shapiro, 1994).

⁸ Similarly, network externalities can be managed efficiently if the entire network has a single owner (Liebowitz and Margolis, 1994). Integration of ownership, however, poses possible problems of monopoly.

⁹ For example, consumers would gain from the deregulation of milk prices even if they more than fully compensated Wisconsin dairy farmers for their losses from lower prices. Farmers would wisely oppose such a governance shift, however, since they are unlikely to maintain a direct subsidy politically whereas they have been very successful in maintaining the price subsidy.

¹⁰ This applies equally to those who seek to institute market governance. While such actors presumably expect to be winners in market competition, we would also expect them to try to shape competition law and other market rules to their benefit.

strong positive reason to assume that market solutions will necessarily be chosen to address externality problems.¹¹

Proponents of market governance also implicitly assume that efficiency, perhaps along with certain distributional considerations, are the only relevant values – if they are considered normative values at all. In fact, however, in areas such as labor, health and safety, and the environment, many relevant actors espouse quite different values. These actors almost always argue that their favored values should be given weight along with efficiency; they may even argue that those values should trump efficiency in cases of conflict. Proponents of views like these typically prefer political forms of governance.

To illustrate these differing positions, consider how a polity might deal with workplace safety. A pure market solution would leave safety issues to bargaining between producers and workers. The rationale would be that the latter might willingly accept more dangerous working conditions in return for higher wages; if the premium they demanded was unacceptably high, producers would improve working conditions. A modified market-oriented solution might add limited government intervention to encourage the provision of information regarding the dangers inherent in various occupations. The purpose would be to ensure that workers understood the risks, so that they could decide at what premium to accept them. There would be no need for mandatory labor standards, since informed decision-makers could make their own separate decisions, which need not be standardized.

But states often establish minimum safety standards, especially when dangers are great. Sometimes the relevant information is too complicated for workers to digest at reasonable cost. Here the rationale for public standards is to anticipate the decisions that workers would reach on average, if they had the ability and time to work the matter through themselves. Such regulation could also be paternalistic, if policymakers believed that they could impose better choices than individuals would make for themselves. Or public standards might be justified on the ground that individuals were likely to make inappropriate choices, perhaps violating moral or other non-efficiency criteria. Finally, public standards might be justified as responses to collective action problems, or as a way to strengthen the bargaining position of workers.¹² In this view, the case for minimal safety standards is not that workers would not refuse to take inappropriate risks, but that they might be unable to do so if employers offered no alternatives.¹³

¹¹ Efficiency simply means that the market offers greater aggregate incentives than other arrangements. But these incentives may be outweighed by rent-seeking and at most bound the level of inefficiency (Becker 1985).

¹² A rule that one may not sell oneself into slavery illustrates the last two points. On the one hand, selling oneself into slavery might be seen as morally objectionable; on the other hand, in an economy with surplus labor, workers might have to accept slavery as the terms of “employment” or face starvation.

¹³ This example hinges on particular facts about the workplace. In tight labor markets, workers may be better positioned to fend for themselves (and the safety standard will not constrain), whereas in surplus labor markets workers have a collective action problem that prevents them from limiting their competition for jobs. Of course, if workers are protected on safety, they may compete the gains away on another

All of these justifications for particular forms of governance are widely abused. Economic actors press for market solutions, ignoring market failures, distributional problems and conflicting values in order to achieve higher profits. Other groups seek public regulation under the banner of correcting market defects or addressing higher moral purposes, when their true goal is to gain monopolistic rents at the expense of other interests, either at home or in other countries. Arguments for particular forms of governance in externality situations must be analyzed with great care, giving attention to both positive and normative factors.

2. The Range of Standards Problems

Cell I: Technological Interconnectivity

Many technologies, including those central to international communications, electronics and the Internet, require common standards to ensure compatibility. The problem is long-standing: witness international standards for track gauges, to allow trains to move between national railway systems, and for electricity, to allow equipment to be used in different locations. In strategic situations like these, actors lower search costs, expand market size and reduce risk by adopting common standards.

In economic terms, these relationships are classified as *network externalities*. They are defined by the property that the benefits from using a standard are greater for each user as the number of users increases.¹⁴ Thus, being connected to a telephone or computer network joined by a common standard is more valuable to me as there are more people on the same network with whom I can communicate. The benefits of network standards may be felt far beyond those actually part of a network. Standardization of computers, for example, affects producers of computers, parts and components, software and peripherals, as well as a wide variety of direct and indirect end-users.

Technological interconnectivity relationships can be represented as *coordination games*. Some pose pure coordination problems: all participants want a common standard and are indifferent over which one is chosen. More typically, though, distributive differences create "Battle of the Sexes" problems, complicated by competing incentives over the choice of standard. For example, if two firms are already using different standards, each will prefer coordination on its own standard to avoid the costs of conversion and a

dimension, such as wages unless a minimum wage standard is in place. Finally, depending on employer alternatives and cost structures, some jobs will disappear as a result of such regulation, creating distributional issues among workers.

¹⁴ A useful review of network externalities can be found in Tirole 1988. A review with extensive analysis of legal and institutional implications is Lemley & McGowan 1998.

possible loss of economic leadership.¹⁵ Competing incentives sometimes extend to states, whose economic positions can be enhanced by the success of their national champions' standards.

When more than one potential standard is available, network participants may not achieve efficient outcomes on their own. Distributive conflicts can lead to costly bargaining, delay and/or the persistence of multiple standards, as in the protracted standoff over HDTV standards (Austin & Milner 2000). Alternatively, inefficiency can result if actors coordinate on the "wrong" standard. If one party has disproportionate influence over the standard setting process – perhaps because of large market share or a first-mover advantage – it may lead the group to its preferred standard even if that is suboptimal for the group as a whole, or for consumers and other beneficiaries. Influential actors may also use standards to block potential competitors, reducing the incentives for technological innovation. When technology is evolving, moreover, early lock-in on any standard can inhibit transitions to superior standards over time. In these situations, network actors must not simply set an appropriate standard; they must monitor technical developments and adapt that standard as conditions change.

Once equilibrium is reached in a coordination game, enforcement is generally not an issue, since all parties have an incentive to adhere to the established standard. (When the stakes are high, however, actors may have an incentive to depart from agreed standards in an attempt to initiate a move toward a new standard.) Thus, while establishing interconnectivity standards may well require institutions with significant capacity to create convergent expectations, maintaining them should not require strong enforcement or monitoring capacities (except of an advisory nature).

Cell II: Transactional Interconnectivity

A special category of interconnectivity involves *transaction standards* for business and similar interactions. Actors engaged in business transactions, both within and across national economies, utilize standardized contracts, instruments and procedures to achieve economies of scale and reduce search and transaction costs. Parties do not have to reinvent each element of their transactions, but can rely on standard documents and procedures, except when there is a positive need to modify them. Standardized arrangements further provide focal points that simplify bargaining. These advantages have been reflected in a proliferation of international transaction standards: from the standardized weights and measures, coinage and time zones created in earlier eras to the standardized form contracts, rules for shipping and letters of credit, and arbitration rules of more recent years.

For similar reasons, multinational enterprises and other transnational actors seek the harmonization of national legal standards applicable to international transactions. As

¹⁵ In some cases – choice of a common international language is a good example – the costs of conversion are so great that individuals and states prefer to maintain different standards.

with standard contracts and similar instruments, standardization of national sales laws, investment and financial laws, accounting rules and other business regulations enhances the efficiency of transnational operations. Firms and states whose domestic rules are adopted as international standards, of course, reap special advantages.

Transaction standards are analytically similar to technological interconnectivity standards. They too require convergence on a coordination equilibrium, and convergence furthers the interests of transacting parties as a group. As with technological standards, moreover, the process of setting standards is rarely neutral. Distributional conflicts among firms and governments impede agreement, while disproportionate influence can lead to suboptimal or anti-competitive standards.

Yet transaction standards exhibit two significant differences from technological standards. Both arise because the direct benefits of transaction standards for the parties to particular transactions often diverge from the indirect benefits to the community as a whole. First, while technological interconnectivity requires uniformity across the network, the persistence of multiple transaction standards is rarely troublesome to contracting parties, who typically transact business in pairs or small groups. Second, once a contract has been formed, parties typically face significant incentives to deviate from the agreed transaction standard, i.e., to breach their contract. This would not be true in a world of complete contracts and perfect enforcement: actors would choose among the available efficient contracts (on the basis of their distributional effects), knowing there was no advantage to deviation. In the real world of incomplete contracts and imperfect enforcement, however, actors face opportunistic incentives to breach.

Incompleteness and imperfect enforcement can be ameliorated by institutions, ranging from reputational bonds to arbitration and litigation. Most of these institutions, however, ultimately depend on national legal systems for coercive enforcement. Standard contracts, for example, depend on judicial interpretation and enforcement. Standardized weights and measures (including money) may emerge spontaneously, but they are legally ratified and enforced to ensure adherence (Spruyt 1999). The same applies to emerging standards for information exchange: what constitutes a valid electronic signature or an appropriate means of achieving confidentiality. Technological interconnectivity standards rarely require such institutional support.

Some transaction standards – especially the domestic regulations transnational actors seek to harmonize -- serve dual private and public purposes. While rules of this kind may facilitate private transactions, they also constitute the means by which governments regulate such transactions. Securities regulations, for example, may facilitate stock offerings and other financial transactions, but they are also the tools with which governments control fraud and other socially undesirable financial activities. The same is true of accounting standards, which play essential roles both in private transactions and in important areas of public regulation, including taxation and control of fraud and

corruption. Inevitably, efforts to standardize regulations like these will have broad public policy and institutional implications.

Cell III: Physical Externalities

Traditional (Pigovian) externalities, in which one actor's conduct causes a physical effect on another, involve quite different strategic interdependencies. Whereas network externalities depend centrally on the number of actors that join the network, traditional externalities occur relatively independently of the affected actors' behavior. For example, when producers in one state emit pollution, the harm caused in a neighboring state does not depend centrally on the latter's behavior.¹⁶ Externalities of this type create incentives to engage in either too much or too little of the relevant behavior, from the perspective of overall efficiency. A wide range of environmental and commons problems – including transboundary pollution, fisheries and the global climate -- take this form.

These problems can fruitfully be analyzed as *Prisoners' Dilemma (PD)* games, in which actors must jointly refrain from some harmful activity in order to improve the collective outcome. Adoption of agreed behavioral standards is in general more problematic in PD than in coordination situations: while cooperation is beneficial for the group, it is costly to the individual. In addition, while PD is normally depicted as a symmetrical game, real-life externality situations are highly asymmetric. Although the simple PD has a unique cooperative outcome, moreover, PD standards problems typically involve a range of potential solutions.

The collective goal in these situations is ordinarily not to eliminate the external harm, but rather to optimize the level of the externality-generating activity. States and private actors have highly divergent preferences as to the optimal amount of many externalities (e.g., high income states prefer a cleaner environment, while low income states prefer faster growth). As a result, distributive conflict is intense. At the same time, however, traditional externality standards need not require all actors to behave in exactly the same way. They are often expressed as targets or as maximum (minimum) levels, rather than as precise mandates, and are differentiated across countries. These features can simplify bargaining and increase efficiency – actors can determine how best to reach the agreed target according to their specific circumstances – but make verification of performance more problematic.

Enforcement of PD standards is potentially difficult because individual actors have incentives to defect. Domestically, states limit external harms by employing strong governance mechanisms — liability rules, property rules, regulatory agencies, taxes and the like — backed by coercive power.¹⁷ The international setting, however, lacks

¹⁶ This point implicitly uses the status quo ante as a baseline since, as Coase points out, externalities are inherently two-sided: no harm would be done if the pollutee were not in a position to be harmed.

¹⁷ Traditional externalities can also involve joint contributions to positive “goods” such as research and development.

equivalent mechanisms of centralized enforcement, and the prevailing decentralized mechanisms -- like reciprocity and reputation -- are often inadequate. The problem is further complicated when private actors create externalities, since they may be able to frustrate regulation by transferring the offending activities to non-participating states. This mobility may also give transnational actors undue influence over the content and administration of national standards, leading to demands for harmonization of domestic regulations.

Cell IV: Policy Externalities

Even where no physical externality crosses national borders, national regulations under conditions of interdependence can have serious consequences for foreign actors, creating demand for international regulatory standards. We address these *policy externalities* at somewhat greater length because observers disagree vigorously as to whether they constitute true externalities or are mere pecuniary effects best left to the market.

Policy externalities are most apparent when states use domestic regulations strategically to disadvantage foreign actors. The classic example occurs when a state adopts a regulation that differentially affects local and foreign producers, creating a protectionist barrier. The state might well be sincere in pursuing a valid regulatory purpose (such as product safety) and unaware of the differential impact. In many cases, however, the state will be induced by political pressure to craft its regulation in a discriminatory fashion (e.g., by equating safety with the characteristics of local production). In the extreme case, the state might adopt the entire regulation insincerely, not because it finds safety concerns compelling, but because safety rules offer a way to disguise protectionism.

States also have incentives to set standards in a competitive and inefficient way when they are large enough to affect international prices. Deardorff (1997) demonstrates that states able to shift the terms of trade will deviate from collectively optimal pollution regulation. Net exporters of the good associated with the pollution can gain by raising domestic pollution taxes above the optimal level. This increases overall national welfare (i.e., net tax revenue gains to the government exceed losses to domestic producers and consumers) at the expense of importing countries. Net importers have mirror image incentives, and will undertax pollution to increase national welfare at the expense of exporters. The result is regulatory divergence, with collectively inefficient standards. States would be better off if they could agree not to tax strategically, adopting a common (efficient) standard.

The well-known “race to the bottom” scenario, in which states competitively lower standards, is a variant of the same pathology. The “race” begins with a group of states that have varying domestic production standards. As interdependence grows, policy externalities emerge: high standards countries come under pressure from domestic producers to relax their regulations. Increased factor mobility creates a secondary external impact, as differential standards induce shifts in the location of production. Now

jurisdictions have an incentive to compete for investment by lowering standards below socially optimal levels – the race to the bottom.

Although scholars express strong doubts as to the empirical relevance of this scenario,¹⁸ the race to the bottom retains strong political resonance. For example, environmentalists and labor advocates raised it as a major issue during the negotiation of NAFTA. As a result, the NAFTA governments adopted two side agreements to constrain standards competition in these areas following liberalization. As always, however, rent-seeking interests tend to manipulate agreements like these. Thus, cynical observers felt that American labor unions' new-found interest in Mexican pollution standards reflected a sophisticated protectionist strategy rather than sincere environmental concern.

A similar but subtler policy externality arises when implicit regulatory competition prevents states from adopting socially beneficial standards. Here, even if states lack the *economic* power to affect markets, an interdependent regulatory environment creates *political* incentives to move national policies away from the optimal,¹⁹ creating a demand for international coordination.

Consider first a closed economy where the state is considering limiting domestic pollution created by one of its industries. If the benefits of pollution reduction outweigh the impact of increased product prices on consumers and producers, the government should adopt the regulation. Because the benefits of the policy are widely diffused while many of its costs are concentrated on producers, however, collective action theory suggests that it will be difficult to achieve the efficient policy outcome.

Implementation of an optimal regulation becomes more difficult in an open economy where the product in question is traded. Stricter regulation will raise domestic production costs and lead to an increase in imports. From a strictly economic perspective, this is a good thing: the gains to consumers (who suffer less pollution while remaining able to purchase the product at the world price) outweigh the costs to producers. But in an open economy the impact on producers will be much more serious, perhaps enough to eliminate the domestic industry. The threat of devastating import competition will strengthen the industry's resistance and may make it politically infeasible for the state to adopt the regulation. This is so *even though from an economic perspective (considering the gains and losses of all parties) the policy is more attractive* than in a closed economy.

Other considerations further increase the political difficulty of unilateral standard setting. For example, states may wish to maintain viable industries in certain economic sectors,

¹⁸ E.g., Levinson 1996, Revesz 1992.

¹⁹ This political analysis differs from standard economic analysis where, in the absence of international technological externalities or market power, states will choose individually and collectively efficient policies. States that are more averse to a (domestic) externality will tax it more heavily, and production will shift to states that impose lower taxes. The externality is simply another input to production, and the market will adjust to a Pareto-optimal outcome. Indeed, "trade" in externalities makes states better off than if they adopted common standards.

for traditional security reasons or industrial policy ones. They may also be concerned, from a normative-distributive perspective, with the consequences of regulation for particular, perhaps vulnerable social groups.

To complete the example, suppose that all countries are in the same position, with open economies. All prefer to limit domestic pollution, but none can do so unilaterally because of the resulting effects. Now states have a collective action problem; they may need international cooperation to facilitate domestic regulation.²⁰

In all these situations, no physical externality crosses borders. Yet domestic regulation still creates PD-type policy externalities between states, with the expected adverse consequences. For this reason, states and other affected actors affected by policy externalities seek international behavioral standards to constrain national regulation.

As with traditional externalities, international standards in these settings need not require each state to adopt identical regulations; they merely need to establish criteria for permissible national regulation. Nevertheless, familiar political problems make collective action extremely difficult. For international standards to be effective, they must apply to all actors that create or suffer significant external effects (or may potentially do so). This means that all relevant actors should be represented in the governance processes through which standards are created, creating a serious burden on international institutions. Disproportionate influence can also be a serious problem if powerful states use standard setting processes to pursue competitive strategies.

The greatest barrier to collective action, however, is heterogeneity of preferences, and the related problem of preference revelation.²¹ If states prefer substantially different outcomes, they face severe bargaining problems in attempting to coordinate on an international standard. These problems will be intensified insofar as the agreed standard affects not just domestic production, but the allocation of production across states. For both reasons, standard setting is generally more difficult between North and South than among the more similar OECD states. Even when states agree on appropriate standards, moreover, they have incentives to misrepresent their preferences for bargaining purposes, reproducing the very strategic problem international standards are intended to resolve.

Coordination on an international standard is still more difficult where heterogeneity stems from differences in norms or values, not mere economic calculation. In these circumstances, compromise, side payments and other tools of bargaining will be less effective. In the area of cultural policy, for example, the choice of a standard is said to go

²⁰ Deardorff (1997) reaches a different conclusion because he focuses on economic considerations in an oversimplified political model. He summarizes domestic politics in a welfare function that permits different weights for producers and consumers. But a model with states that can unilaterally optimize a weighted welfare function does not capture the political impact of rent-seeking, with its associated deadweight losses, or the problems of collective action.

²¹ Mitchell and Keilbach (2000) provide an overview of heterogeneous externality problems.

to the core of a state's identity. From this perspective, efficiency arguments are largely irrelevant.

Normative differences most frequently arise when concerned actors view the behavior of others (e.g., their forms of production) as intrinsically wrong. Examples include objections to tuna fishing methods that entrap dolphins, and to the killing of animals in certain ways (e.g., leghold traps). Other normative differences relate to the quality of goods (e.g., hormone treated beef or genetically modified foods), and appear more amenable to solution through scientific evidence or labeling. As recent disputes demonstrate, however, even these issues are rarely straightforward.

At their most fundamental level, these value-based arguments center on whether the market *should* be allowed to regulate the activities in question. When political actors view a particular activity as normatively offensive, they assert that it should not be permitted, irrespective of whether others are willing to perform it. Banning goods produced with prison or child labor, for example, is not a matter of "at what price" prisoners or children are willing to produce them; it reflects a belief that prison or child labor should not be allowed at all.²² "Human rights" are defined in very similar terms, and it should come as no surprise that efforts to narrow the scope of the market often characterize the values at issue as matters of human rights.

Regulatory standards – both domestic and international – serve to delimit the appropriate boundaries of the market. In some cases, efforts to agree on standards prompt an expansion of the market. This can occur when debate exposes contrary arguments as fallacious (e.g., in terms of scientific evidence) or self-serving (e.g., when the "values" asserted by special interests cannot withstand careful scrutiny). In the environmental area, for example, domestic regulators and international negotiators have increasingly accepted tradable emission rights and other techniques to harness market forces, even as they adopt tighter environmental regulations. In other cases, regulatory standards limit the reach of the market. In the area of labor rights, for example – from the abolition of slavery to contemporary policies on child labor – the trend has been toward restricting the types of labor that may be used and the conditions under which they may be employed.

3. Governance Arrangements

Having laid out the range of circumstances that create demand for international standards, we turn now to an analysis of the governance arrangements that arise in those settings. Our analysis remains positive: what arrangements will international actors seek in response to different standards problems?

²² Perverse effects are possible. Banning manufactured goods produced by Central American children working fourteen hour days has forced many of them into the agricultural sector where wages are even lower, the work is harder and the hours are longer. From a utilitarian perspective, but not necessarily from a deontological one, this might argue for dropping the ban.

Cell I: Technological Interconnectivity Standards

In network externality situations, standards are typically produced by the (often private) actors who benefit from interconnectivity (Zacher 1996). Product standards, in particular, are formulated mainly by the firms that produce the relevant products, with some participation by firms that use them. This holds true for products ranging from humble industrial fasteners to complex telecommunications switches, for intangible products like software, and for many services, such as Internet communications.

Two governance processes dominate the private generation of standards. The first is decentralized and market-based. Individual firms put forth their own standards -- by embodying them in their products, and sometimes by publishing specifications -- and other firms respond by adopting those standards, modifying them or putting forth competing standards. Typically, what Philipp Genschel (1997) calls “sequential adaptation” leads to coordination on a single standard or a few competing standards. Yet the process often remains dynamic: while a short time ago the proprietary Windows standard appeared to have captured the computer operating system market, for example, a revitalized Apple and an upstart, “open standards” Linux have injected new uncertainty.

The second process involves formal organizations, both purely private and mixed public and private. Here concerned firms (sometimes joined by other interests) hammer out common standards for products and services. The best example is the International Organization for Standardization (whose very acronym is standardized in all languages as “ISO”). ISO is made up of the “most representative” standard setting organizations from over 100 member countries. A majority of these are either government agencies or publicly chartered bodies, but private organizations form the “backbone” of ISO.²³ The US representative, for example, is the American National Standards Institute (ANSI), a private federation of (largely private) standard setting organizations. ISO promulgates voluntary standards on thousands of products and services; these are widely observed because of the need for market coordination.²⁴ Similar organizations, such as the European Committee for Standardization (CEN) operate regionally.

Market standard setting favors large, influential producers. This is especially true for firms that own cornerstone technologies, like the Windows operating system, since market strategies maximize their control. The market approach also favors firms that are rapidly innovating, as it eliminates the need to obtain institutional approval for new technologies. Conversely, the institutional approach benefits weaker players, including firms that are small or lag in innovation. All firms, however, should look to standard setting organizations to deal with less significant technologies that do not impinge on

²³ Zuckerman 1997.

²⁴ ISO has recently created standards for production processes, concerned with product quality (the ISO 9000 series) and environmental awareness (the ISO 14000 series). The latter, especially, are not centrally concerned with interconnectivity, but both allow producers to coordinate on standard practices for meeting consumer demands — and perhaps for heading off government regulation.

competitive advantage. Austin & Milner (2000) illustrates these points in the context of HDTV standard setting.

The line between public and private standard setting can be hazy. As already noted, even where standard setting organizations are in form public bodies, in practice private producers often dominate them. A controversial example is the Codex Alimentarius Commission, an intergovernmental organization sponsored by the Food and Agriculture Organization and the World Health Organization. Codex was created to advance producer and consumer interests in safe and widely available food. In practice, though, its standard setting activities are managed largely by food industry representatives, acting through national delegations and advisory committees.

Conversely, private standards organizations often mimic public bodies in their structures and procedures, presumably to increase institutional legitimacy. ISO, for example, prescribes the representative character of national delegations, and its rule-making procedures combine expert committees with plenary approval processes. Like many standards organizations, ISO operates almost exclusively by consensus; other bodies utilize majority or super-majority voting rules. Yet these formal procedures can mask the realities of influence, as the example of Codex suggests.

National governments support and utilize private standard setting in many ways. As regulators, they incorporate private standards into building codes, telecommunication protocols and other rules as a low-cost way of ensuring interconnectivity. As consumers, governments incorporate private product standards into procurement specifications.²⁵ As promoters of efficient international markets, they support transnational private standard setting. Since 1985, for example, the EU has relied on CEN standards in its program of internal market harmonization. The EU also helped create the producer-dominated European Telecommunications Standards Institute (ETSI) to facilitate harmonization on digital mobile telecom standards.²⁶

Both firms and governments prefer private standard setting in network externality settings for several reasons. The principal advantage private actors have is superior information regarding production processes, the effects and costs of particular standards, and so on. Public bodies can normally duplicate this information only by involving industry representatives. A second advantage -- especially important when technology is dynamic -- is flexibility. Private producers continuously monitor technological and market trends; they have every incentive to modify product standards rapidly in response to change. Private firms are also less encumbered by political and procedural constraints. Finally, private producers are best able to ensure that agreed standards are implemented.

²⁵ When governments are the dominant purchasers of particular products, however, they often set standards unilaterally.

²⁶ When governments act as producers (e.g., through state-owned enterprises), the boundary between public and private standard setting is even less sharp. For example, state-owned airlines participate alongside private carriers in IATA, promulgating standards to coordinate various aspects of inter-airline carriage.

Coordination standards rarely require actual enforcement, but potential efficiency gains can only be realized if standards are widely adopted.

Many of these points are illustrated by the story of telecommunications standard-setting (Genschel 1997). When PTTs and other national monopolies dominated telecommunications markets and technology was static, coordination through a public international organization, the International Telecommunications Union (ITU), was satisfactory. Although voluntary, ITU standards were generally observed. During the 1970s, however, deregulation and privatization swept the industry. Some national operators were privatized; others were forced to compete with private networks and carriers. Telecommunications began to converge with computer technology, leading to rapid innovation, the participation of new actors and expanded international competition. The industry became highly competitive and dynamic.

In this environment, the ITU proved too slow and ill-informed to manage coordination, primarily because the large, innovative private actors driving the market were not adequately represented. As a result, some standard setting migrated to the marketplace, where these firms attempted to establish dominant standards through product offerings and business strategies. Much activity, however, moved to new standards organizations that embodied structural reforms, notably “lean management, and the direct participation of private firms. . .” (Genschel, 1997, 609). Since network interactions clustered within geographic regions, many of these bodies were regional. These included ETSI, T-1 (the ANSI Standards Committee for Telecommunications), and the Telecommunications Technology Committee.

In spite of its general success, however, public and private actors alike sometimes find exclusively private governance inappropriate. These actors seek (limited) public intervention, typically to redress one or more of the institutional problems identified in the preceding section.

First, market actors may be unable to generate a connectivity standard because of competing interests, concerns for confidentiality or bargaining problems. Such coordination failure retards innovation if firms are reluctant to introduce new products without a prevailing standard; Austin and Milner suggest this occurred with color television in Europe in the early 1960s. Alternatively, private producers (and their governments) may be so locked into their own technologies that they cling to multiple standards, limiting network economies. This was the next chapter in the European color television story: French and German producers could not coordinate on a single standard, largely because of French government policy. In such a situation, properly designed intervention by an international private or public organization may break the logjam and spur coordination among contending camps.

Second, when there are significant asymmetries within an industry, private standard setting may lead to suboptimal outcomes. The major problem is the emergence of a

private monopoly based on a proprietary standard. This scenario is familiar from the US Justice Department's case against Microsoft. When standards are set through market actions or competing private standards organizations, the largest market players and first movers have a significant advantage. As Genschel (1997, 617) puts it, "in a centralized structure small actors can defend their interests against large actors, while in a fragmented structure they are bullied by the larger ones."

Third, even when private coordination meets the needs of network participants, the process may generate standards that are unsatisfactory to other affected actors, including consumers. One illustration is the "stranded consumer" problem in rapidly changing industries: as producers adopt new, incompatible technologies, consumers owning libraries of LPs or 8-track tapes (perhaps soon CDs) forfeit significant investments. Another example is Codex, which has been dominated by industry representatives. While harmonized food standards increase production efficiency and producers have incentives not to market unsafe food, there are many gray areas where producer and consumer interests are not so neatly aligned. Consumer groups argue that stronger public intervention can increase overall efficiency by ensuring that all externalities are taken into account.

Cell II: Transactional Interconnectivity Standards

A variety of governance arrangements are used to create standards for contracting and exchange. When the issue is interconnectivity in contracting, as with standard contract terms for business transactions, private governance is typical, for reasons similar to those discussed in the previous section. When the uniformity of (national) legal rules is at issue, public bodies are necessarily of central importance. Even here, though, the typical approach is harmonization – akin to coordination – rather than regulation, and private parties are often involved because of their expertise. As with technological interconnectivity, moreover, private and public standard setting procedures interact in a complex mix of cooperation, complementarity and competition.

Private transactional standard setting again involves two main governance processes, market-based and organizational. In decentralized market processes, firms and other entrepreneurs, including expert committees and even individual scholars,²⁷ put forward standards that others may use, though often only for a fee. Although this process frequently results in multiple standards, as noted earlier this is less troublesome than in technological interconnectivity situations.

The most common private standard setting organization is the industry trade association. The London-based Grain and Feed Trade Association (GAFTA), for example, promulgates contract forms, insurance clauses and other transactional standards for use (predominantly) by its members, international grain merchants. GAFTA is a specialized body; it produces sophisticated standards appropriate mainly within the grain trade –

²⁷ See, e.g., Hermann 1993.

sellers of wine or computers would not use GAFTA contracts. General interest organizations also promulgate transactional standards. Perhaps the best example is the International Chamber of Commerce (ICC), a federation of national commercial organizations. The ICC promulgates standard contract provisions (“Incoterms”), form contracts, rules governing letters of credit, and numerous other standards that serve as coordination points in contract negotiations.²⁸ ICC standards are applicable in many different fields, and thus are much less detailed than those of GAFTA.

Here too, private standards organizations seek legitimacy by adopting quasi-legislative structures and procedures. Anecdotal evidence from the ICC suggests their importance. According to ICC staff, in drafting and revising Incoterms the ICC had for years relied on an informal process relying on a small group of experts, though their proposals were ratified by a plenary body. This approach was satisfactory so long as Incoterms was merely one of many options. As it became a de facto standard for contracts in many industries, however, firms began to demand a more formalized and representative drafting process.

Trade associations and the ICC also provide standardized ways of dealing with the unavoidable incompleteness of contracts -- even standard contracts -- especially in the context of commercial disputes. Both organizations produce standard rules that parties can select to organize arbitration proceedings. Equally important, the ICC and many trade associations administer private arbitration proceedings, helping disputants select arbitrators, helping arbitrators perform their duties correctly, and reviewing arbitral awards to ensure enforceability.²⁹

Because contracting parties face opportunistic incentives, transactional standards generally depend on national legal institutions for their effectiveness. Parties to contracts containing arbitration clauses frequently have recourse to national courts twice: to force the recalcitrant party to arbitrate and then to enforce the award. The usefulness of private transactional standards, then, depends on national approval for private solutions in general and for the particular solutions chosen in particular contracts. For example, the willingness of courts in the US, UK and other commercial centers to enforce arbitration clauses and awards – as reflected in the New York Convention – has encouraged an explosion of private arbitration.³⁰

Other transactional standards — such as financial accounting and disclosure rules — involve elements of both private coordination and public regulation. Within the US, the Securities and Exchange Commission (SEC) delegates preparation and maintenance of

²⁸ The ICC and most of its national member organizations derive a significant part of their revenue from the sale of ICC standards and related material.

²⁹ Mattli 1998.

³⁰ The growth in international commercial arbitration may not have been completely in the public interest, because proceedings are secret and most arbitral rulings do not contribute precedents that might enhance the general governance of an issue area.

uniform accounting standards to the Financial Accounting Standards Board (FASB), a private professional organization (Myers 1999). US securities law requires companies to use the “generally accepted accounting principles” (GAAP) FASB produces. This requirement imposes a burden on foreign firms issuing securities in the US, since they must reconcile their financial statements with GAAP as well as with their home country regulations. The International Accounting Standards Committee (IASC), a private body made up of national accounting organizations, is developing common transnational accounting standards to remove such impediments to cross-border transactions.³¹ IASC is acting in conjunction with the International Organization of Securities Commissions (IOSCO) which is simultaneously attempting to coordinate national regulatory requirements, not least to encourage international transactions.³²

Both market and organizational mechanisms are used to harmonize national legal rules. First, there exists a thriving though implicit international market for legal standards, in which bodies of law like the US Uniform Commercial Code (UCC) and the German Commercial Code compete. Firms engaged in international transactions can normally select among two or more potentially applicable bodies of commercial law — such as the UCC or German Commercial Code — to govern their relationship. In addition, nations engaged in legal reform — in Eastern Europe, for example — choose among national models as the basis for new domestic rules, as the UK and Japan adopted the US model of deregulating financial markets through a “big bang.”

Organizations are also active in this field. The WTO has harmonized national laws on intellectual property, as well as trade matters; the OECD spent several years working to harmonize foreign investment laws through the now-abandoned Multilateral Agreement on Investment; and the EU has harmonized member state law in many areas. These organizations sometimes compete openly: during the Uruguay Round, the WTO captured market share from the World Intellectual Property Organization as states made it the locus of new intellectual property rules. In the area of private law, the UN created UNCITRAL to harmonize national commercial law. Important results include the 1980 Convention on Contracts for the International Sale of Goods, a widely followed model law on international commercial arbitration, and a set of arbitration rules for adoption by private parties. The UNCITRAL arbitration rules are especially popular where neutrality is important, as in North-South disputes. Private experts play a major role in UNCITRAL.

While private and public standard setting bodies normally complement one another, they sometimes compete to provide transactional standards. For example, new commercial standards became necessary in the 1970s as goods were increasingly shipped via multimodal transport. In 1975, the ICC issued standard rules and contracts for such transactions. Some years later, the UN approved an UNCITRAL convention designed to harmonize national laws affecting multimodal transport. Because the ICC rules had

³¹ See IASC 1998.

³² Trachtman 1997.

effectively solved the problem, however, few nations ratified the convention. UNCITRAL has been more successful with arbitration, where its rules compete with ICC and trade association rules.

Interstate negotiation is usually essential in efforts to harmonize national law or to strengthen the enforceability of private arrangements. Beyond this, however, private actors sometimes seek public intervention because they cannot achieve a coordination equilibrium on their own. This is more likely in some subject areas than in others: the failure of IASC to generate uniform accounting standards, for example, would be costly for multinational firms, while the persistence of multiple standard sales contracts or arbitration rules is harmless, indeed probably advantageous.

Asymmetry within the responsible industry can also pose problems for private standard setting. For example, although most ICC standards are substantively impartial (since the merchants that draft them are sometimes sellers, sometimes buyers), one standard is highly asymmetrical. The Uniform Customs and Practice for Documentary Credits is incorporated into virtually all international letters of credit; it is a de facto standard. Letters of credit involve highly asymmetrical interests: they are issued by banks, but used by commercial firms. Yet bankers dominate drafting of the Uniform Customs (and the content of the rules reflects this imbalance). There has not been strong demand for public intervention in this case, because letters of credit in general function efficiently. Yet some firms question the legitimacy of the standard because of the asymmetry of the drafting process. On a more macro level, UNCITRAL was created in large part to redress perceived asymmetries in influence between North and South, as by developing even-handed contract standards for large construction projects.

Finally, affected actors seek public intervention when private standard setting would create significant negative externalities outside the immediate industry group. Accounting standards are an obvious example: investors and other outside parties who rely heavily upon such standards are not willing to leave their preparation wholly to the accounting profession, or worse to business firms. Within the US, while FASB promulgates GAAP standards the SEC oversees the process, and could take it over at any time. Internationally, while the SEC's insistence on the use of GAAP emphasizes local regulatory requirements at the expense of transactional interconnectivity, leaving harmonization to industry or professional groups might have the opposite effect. The cooperation emerging between IOSCO and IASC reflects an attempt to balance these competing interests.

Cell III: Physical Externality Standards

The externalities represented by transboundary pollution and commons problems cannot be addressed either by private coordination or by purely national regulation. They require international public solutions. Traditional externality regimes also require active monitoring and enforcement, although legalization helps reinforce state commitments

(Abbott & Snidal 2000). Without an international legislature, of course, standards of this kind can generally be created only by agreement — with both transmitting and receiving states as parties — in the interest of a superior mutual outcome. The models of PD and collective action suggest that these results will be difficult to achieve in practice.

Absent more restrictive standards, norms of sovereignty would seem to allow a state to pollute across borders and utilize international commons without limitation. In a Coasean world, one would expect side payments and inter-state bargains to address externalities efficiently. Such payments undoubtedly take place, though they are often hidden. In general, however, states appear much less enamored of Coasean solutions than are economic theorists. Even with prototypical cross-border externalities and relatively low transaction costs — acid rain in North America and Europe, for example — states seem generally unwilling openly to offer side payments. The reasons probably include “sovereignty costs”³³ (limiting future independence of action), audience costs (compromising domestic political support), moral hazard, public goods issues, and the sheer size of the required payments.

More centralized international approaches raise difficult issues of governance. The Pigovian solution — taxing externality-causing behavior at a level sufficient to deter inefficient pollution — is almost never attempted internationally, whatever its intrinsic merits, because the available institutions have insufficient information and are otherwise too weak. An arrangement resembling a Pigovian tax can be found in the international oil spill regime, but it is virtually unique. Pure regulatory solutions (maximum emissions, for example) contain no fully satisfactory mechanism to optimize the amount of harm.

Privatization has become the dominant approach for international commons that can easily be partitioned among bordering states. State practice and law of the sea treaties have assigned property rights and corresponding management responsibilities for the continental shelf and for fish and other resources near the coasts of littoral states, introducing innovative legal devices like the exclusive economic zone. The aim has been to create incentives for rational conservation policies, while economizing on international institutionalization. The recent Kyoto Protocol to the framework convention on climate change represents a new stage in privatization, approving an internationally tradable emission right and other market-oriented approaches.

Where privatization is more difficult, as in the atmosphere, states and private experts have sometimes pressed for international legal standards that would reverse the default allocation of property rights. These include the “polluter pays” principle and the norm of “*sic utere*,” use one’s property so that others are not harmed thereby. Environmental advocates argue that a variety of normative instruments and decisions already establish such norms as international law. Outside of the EU, however, these principles are for the most part normatively soft, weakly institutionalized and infrequently applied. In any event, a legal right to be free of pollution would pose many of the same governance

³³ Abbott & Snidal 2000.

problems as a right to pollute. Distributional effects would be substantial, side payments would remain impractical and centralized regulation would remain costly, making it hard to achieve an efficient balance of costs and benefits.

Thus, in spite of the inherent difficulties of international collective action, regulatory treaties have been the most common approach to transboundary externalities. Agreements like the Convention on Long-Range Transboundary Air Pollution (LRTAP), the Vienna/Montreal ozone regime and the climate change convention reflect a form of cost-benefit analysis. They permit some types or levels of pollution while forbidding others, provide differential rules for countries with different capabilities, and so on. The scope of regulation is generally keyed to the scope of the problem: regional problems are handled regionally (LRTAP), global problems are handled multilaterally (ozone and climate change), problems that are difficult to localize (e.g., protection of migratory species) are handled by ad hoc groupings of states.

Competing firms' desire for uniformity in conditions of production creates a strong incentive to broaden the scope of regulation to the international level. In the case of the Montreal Protocol, for example, US producers of CFCs faced strong consumer pressure and likely national regulation. Rather than cede the market to foreign producers (and to avoid inconsistent regulation), US firms pressed successfully for multilateral action. On the other hand, the existence of strong governance institutions in one region – the EU, for example – can lead to an emphasis on solutions that utilize those institutions, whatever the scale of the problem.

Monitoring and enforcement are central to the success of transboundary externality regimes. Some include innovative solutions borrowed from the world of product standards. As Ronald Mitchell has described, for example, the regime regulating intentional oil pollution from ships solved the problems of monitoring and enforcement by requiring shipowners to install uniform construction elements that could be easily monitored by experts checking for vessel safety (Mitchell 1994).

While international regulation is generally public, national governments rely heavily on private actors as advisors in negotiating regulatory regimes. As in other contexts, producers have superior information about products and production methods, while scientists and environmental experts possess other relevant information. Since most (though not all) physical externalities are produced by private conduct, such information is essential to successful, cost-effective institutional design. In addition, national governments typically seek rules that will not disadvantage domestic firms and may even give them some competitive advantage. Private firms and NGOs are also effective monitors, and can activate fire alarm enforcement provisions. Finally, a few regimes authorize private parties affected by transboundary pollution to sue in the courts of the polluting country, but this is very rare.

Cell IV: Policy Externality Standards

Since policy externalities are created by the operation of national public law, such as labor standards or environmental regulations, privatization is not generally an option. Coasean side payments might provide efficient solutions in some settings, but for the reasons explored above – and because of the value-laden character of many of the policies at issue – they are not often a practical solution. Pigovian taxation is again too difficult institutionally. Merger of two or more nations could in theory resolve externality problems, but is almost always politically unacceptable. Thus, as with traditional externalities, governance arrangements aimed at policy externalities are almost necessarily regulatory in character and international (or regional) in scope.

International standards differ somewhat depending on whether they are intended to address national policies that are relatively lax in character – as with the “race to the bottom” and implicit regulatory competition – or that are relatively strict – as with protectionist product standards. Standards addressing lax regulation tend to be more or less absolute, though they usually set minimum levels of acceptable behavior. Standards addressing strict regulation are usually more flexible, allowing states to adopt higher standards if they meet certain conditions. These different approaches may be a result of the normative values involved and/or the power positions of the key actors. In both cases, however, international standards often distinguish, at least roughly, between countries in different circumstances and between sincere and manipulative policies.

Numerous international standards address lax national policies. An entire regime, centered on the International Labor Organization (ILO), has grown up to set minimum labor standards through treaties and recommendations. Private groups concerned with competitive effects were largely responsible for the creation of this regime, and business and labor interests continue to have a direct role in its governance. In recent years, however, value-based arguments have come to play a more prominent role, and issue-oriented NGOs have become increasingly significant players.

ILO treaties introduce elements of uniformity into national policies, reducing transaction costs for multinational businesses. At the same time, however, some ILO agreements include provisions tailored to the special needs of developing countries. The convention on child labor, for example, sets different minimum working ages for countries at different stages of development, although the general prohibition on work below the applicable age is absolute. The same points can be made about international environmental agreements.

The NAFTA side agreements on labor and environmental policy represent a recent regional effort to deal with policy externalities. The labor agreement builds on established ILO minimum standards. Since all three NAFTA countries either adhere to the relevant agreements or observe equivalent standards (and have roughly similar environmental laws), the major issue for the negotiators was enforcement. Both

agreements establish a regional legal standard of effective enforcement and attempt to single out manipulative national policies. For example, they prohibit the weakening of national standards as a way to attract direct investment from other NAFTA countries.

In contrast to this situation, it has proven quite difficult to force high standards countries - - generally powerful developed countries -- to accept even flexible ceilings on national health and safety rules. Under GATT, for example, national standards were generally insulated from challenge if they were non-discriminatory as between domestically produced and imported products. This national treatment rule relies on the political influence of domestic producers to keep product standards at efficient levels. Even facially non-discriminatory rules can have burdensome de facto effects, of course, but GATT did not develop effective rules for dealing with problems of this kind.³⁴ Even national standards that discriminate against foreign products, moreover, may be justified under GATT, notably through the exception for protection of human, animal or plant life and health, so long as they are “necessary” to achieve the approved regulatory end.

The Uruguay Round added two important new agreements administered by the WTO. The Agreements on Technical Barriers to Trade (TBT Code) and on the Application of Sanitary and Phytosanitary Measures (SPS Code) both address the problem of national product standards having adverse external effects. The SPS Code is the more restrictive. In addition to obligations of transparency, the agreement imposes a number of legal disciplines, typical of the kinds of international rules used to police excessively strict national regulation. These require that national SPS measures (1) be no more trade-restrictive than necessary to achieve a nation’s chosen level of protection, (2) be based on scientific principles and evidence, (3) be adopted only on the basis of a risk assessment, (4) not draw arbitrary or unjustifiable distinctions between products that result in discrimination or disguised restrictions on trade, and (5) be “based on” international standards if they exist (e.g., Codex Alimentarius standards) – although governments are explicitly permitted to exceed such standards, subject to the other disciplines.³⁵

In the Beef Hormones case, the WTO Appellate Body interpreted and applied many of these principles. It ruled against EU standards prohibiting the importation of hormone-fed beef, primarily because of a failure to justify the regulation on the basis of scientific evidence. Concern that this decision, and the rules and institutions from which it emerged, might lead to a widespread reduction in domestic health and safety standards (a traditional area of national sovereignty) helped precipitate the violent demonstrations that disrupted the December 1999 WTO Ministerial Conference in Seattle. Significantly, the

³⁴ The EU developed elaborate doctrines for policing de facto external effects under the treaty principle prohibiting national rules with effects equivalent to quotas.

³⁵ The TBT Code also includes a largely hortatory provision calling on member countries to consider mutual recognition of other countries’ product standards. For a discussion of the difficulties of achieving mutual recognition agreements between states with different regulatory preferences and procedures, see Nicolaidis & Egan 1999.

other major issue was the pressure exerted by labor groups and some developed nations to incorporate a core set of minimum labor standards into WTO law. No event could better highlight the divisiveness of international policy externalities.

4. Implications for Governance

This paper began by discussing the diversity of standards problems, both substantively (i.e., technological versus regulatory externalities) and analytically (i.e., network versus traditional externalities). Our extended discussion examined the variously convergent and divergent interests of the affected actors in these settings and the governance arrangements these actors seek to address standards problems. Throughout, we emphasized positive analysis, while noting that our consideration of both individual interests and collective efficiency introduce implicit normative evaluations. Normative considerations also enter our analysis indirectly, because many key actors – NGOs concerned with the environment or child labor are obvious examples – are motivated by understandings and values not readily reduced to interests.

Here, we explicitly draw conclusions regarding the governance arrangements that actors “should” choose to respond to particular international standards problems. This type of analysis is especially important at the international level, where fundamental governance decisions are being made at an accelerating pace, both in public forums like WTO and the EU and in private forums like the ICC and GAFTA. Although we do not specifically address whether the relevant actors are likely to follow such advice, a better understanding of how to improve outcomes (whether defined by Pareto improvements or the power of values to mobilize political action) should help motivate actors to behave accordingly.

We focus on four major conclusions. First, all standards issues are governance issues. Since no single form of governance is uniformly best, the choice of a governance mechanism requires comparative institutional analysis. Second, the most successful governance mechanisms in standards situations involve blends of private and public ordering, so as to partake of the virtues of both approaches while minimizing their defects. Third, although it remains true that no governance form is optimal for all standards problems, one can identify circumstances under which particular blends will be more appropriate. Finally, the *level* of governance – national, regional or global – must be selected along with its *form*. This choice depends on a variety of factors, including the scope of the problem and the relative competencies of actors and institutions. Again, no level is always best, and a blend of features across levels will often be desirable.

Standards issues as comparative governance issues.

A central point of our analysis has been that all standards issues are governance issues, requiring comparative institutional analysis. This contradicts the widespread tendency to treat standards questions, especially the network externality issues in categories I and II

above, either as technical problems best delegated to scientific and other experts or as economic problems best left to the market. Those too are governance approaches, with benefits and disadvantages for particular actors; neither should be chosen automatically or by default. The obvious cases are physical and policy externalities: these virtually demand public governance and cannot, in general, be entrusted to private parties. But even technological and transactional interconnectivity issues may have broader implications requiring (some) public intervention and support, or at least some public attention to the character of private governance.

An immediate corollary is that no single governance form is best in all respects or in all circumstances; each has advantages and disadvantages in terms of the problem at hand. Public governance can potentially incorporate the full range of affected interests, including those that might be neglected or harmed if responsibility for standards were left to private actors. Public governance further makes the power of the state available for dispute resolution and enforcement, and to counter monopoly power. But public governance can be notoriously inefficient, whether because of bureaucratic inertia or the inherent delay and uncertainty of representative processes. This is especially deleterious where rapid technological change requires rapid evolution in standards. Public bodies may also lack needed expertise. Most seriously, public governance is subject to capture by private interests, who may corrupt standard setting processes to support their narrow purposes. Entrenched interests may impede the emergence of superior standards, or force the introduction of particular standards for rent-seeking reasons, such as protectionism.

Yet private governance is also no panacea. Private actors have the advantage of technical expertise, and the private setting encourages alternative standards to emerge and compete. Private actors also have incentives to implement new technical standards rapidly, and are typically more flexible than government in adapting to technical and economic change. But private governance may deadlock and fail to reach agreement on a standard. Or it may be dominated by brute market power that overrides the interests of smaller actors while ignoring the interests of third parties. Above all, private governance may reflect primarily economic interests, paying insufficient regard to environmental protection, human rights and other important interests and values.

The advantages of blended governance arrangements.

Since neither purely public nor purely private governance offers all the elements needed to deal effectively and equitably with standards problems, typically different approaches should be (and are) blended to combine their advantages while minimizing their disadvantages. For example, private governance often takes non-market forms, mimicking public processes. Formal institutionalization (as through the ICC) may promote efficiency, as when convergence on a single standard is better achieved through consensus in a committee than through competition in the market. Private standard setting also often benefits from public support and oversight. Sometimes this is a matter of public authorities consciously getting out of the way – as by relaxing antitrust rules to

allow joint standard-setting activities by firms. At other times the public role is proactive – as by establishing an organization like the ISO and supporting its operation as a joint public-private venture. And private mechanisms often depends on public authorities for their effectiveness – as the ICC arbitration rules look to national courts for enforcement.

Public oversight becomes compelling where private standard setting – whether through market power or private organizations – cannot or does not include proper representation of smaller market participants or affected third parties, and thus does not protect them. Private institutions, after all, are as subject to capture and abuse as public agencies. One solution is to require consensus within an open process, inhibiting the strategic use of standards for monopoly purposes. Such governmental requirements may even benefit large players by increasing the legitimacy of the resulting standards and providing assurances that encourage small payers to participate.

Blended solutions – e.g., combining private expertise with public representativeness – often provide the best solution. In many areas, such as the harmonization of commercial contract terms, private and public institutions have evolved effective divisions of labor. In other cases, such as the ISO, these complementary approaches are joined in one organization. In blended forms of governance, private and public institutions provide checks and balances for each other — as when public scrutiny legitimates private standards or when public standards must face market tests.

The choice among governance blends.

Just as neither “pure” governance form can handle all problems effectively, no single blend of governance forms is best for all situations. The optimal combination will vary with the particular features of each issue. But a few broad principles of optimal governance are evident in our four categories of standards problems.

Where network externalities create a need for uniform technology or transaction standards, private governance is likely to be most effective at capturing potential efficiency gains. Private actors are best positioned to develop and adapt such standards over time and, provided standards are open, the network incentive structure works for the common good. Deviations from the pure network externality, however, may create a need for public intervention. For example, powerful actors may control standard setting, with undesirable distributional effects. The UN created UNCITRAL as an alternative public source of transactional standards, in part to strengthen the position of less developed countries bargaining with multinational firms under privately-created standards. Public oversight may also be needed to ensure broader representation when standards have consequences beyond the immediate network. Accounting and investment standards, for example, affect consumers of business information as much as they affect the interactions of business firms.

With physical externalities, public standard setting procedures are generally necessary, but again are best blended with private elements. Private actors typically control the necessary expertise and capabilities, although they cannot be relied upon to solve the problem themselves. The optimal combination is often for a public institution to set broad regulatory goals, allowing private institutions to fill out specific requirements and procedures. Alan Sykes (1995: 132), for example, has suggested that public officials set basic requirements for safety standards on consumer products, that they authorize private expert groups to work out detailed standards under the auspices of a public or private standards organization, and that governments retain a right to oversee the resulting standards. In effect, ISO is trying to fill the private role in such a division of labor with respect to environmental standards, promulgating detailed requirements (ISO14000) that it believes constitute sound environmental practice. It is the organization's hope, and that of the business community, that governments will increasingly accept these standards as a satisfactory form of self-regulation.

With policy externalities, the key actors are already public institutions – typically national governments – so governance necessarily entails public participation. But private actors, including both NGOs and firms, may be important in determining and implementing appropriate policies. Consider environmental agreements. NGOs play a major role in bringing the views of non-business constituencies to bear as environmental standards are formulated, and can serve as on-going watchdogs of governmental and private performance. While firms cannot be counted on to take broader interests and values into account, they are the central actors in tradable permit regimes, which allow a more efficient and flexible allocation of pollution rights than any central planner could achieve. This mixed arrangement mobilizes the competencies of both the public and various private sectors, while keeping each away from issues it cannot properly address.

Choosing levels of governance.

Should governance be located at the national, regional or global level? The most prominent answer is the European Union principle of “subsidiarity.”³⁶ Applied to the present context, subsidiarity holds that standards should be set and implemented at the lowest level of government able to address them effectively, largely because of concerns for representativeness. Yet the subsidiarity principle itself recognizes that action at higher levels is often appropriate, depending on the “scope or effect” of the problem or the proposed action. We argue further that subsidiarity should be interpreted broadly: (1) to focus on “governance,” including private governance, rather than simply different levels of “government,” and (2) to recognize that effective governance may require the involvement of multiple levels.

³⁶ Trachtman 1998 argues that the resolution of conflicts between liberal trade values and other values, such as environmental protection, requires actors to select the level of governance at which such decisions will be made, analogizing the principle of subsidiarity.

Private standard setting may actually implement the ideals of representativeness underlying subsidiarity: after all, private actors are normally most directly concerned with the operation of all types of standards. Private firms have superior information, and face market incentives to promote efficient standards and adapt them to changing circumstances. Increased competition within international markets may assuage concerns regarding anti-competitive uses of standards. Nevertheless, without countervailing public authority international private standard setting may still allow firms to use standards for monopolistic and other socially undesirable purposes. Some form of public scrutiny, at least, seems necessary to restrain potential abuses.

The appropriate level for public governance depends on a number of considerations. One important factor is the geographic range over which the externality occurs, as with environmental spillovers. But often the more significant question relates to representation. The case for national standards, for example, is often framed in terms of the right of local citizens to set standards without regard for the views of foreigners. Yet that attitude is at the root of many physical and policy externalities. When harm is reciprocal – two or more states harm each other in similar ways – states may balance their desire for autonomy with their desire to limit the adverse impact of the other’s autonomy. Even here, though, international institutions can facilitate welfare-increasing cooperation by providing focal points, monitoring compliance and the like. The case for international governance is even stronger when harm is asymmetric: there may be a strong moral case for including foreign views in national decisions, but absent linkage to some other issue, there is no corresponding incentive to do so.

International governance can discipline national governance, without replacing it, by applying rules and procedures that serve as checks against the capture of national decision-making by narrow or parochial interests. International forums provide an extra opportunity to scrutinize national policies in a setting insulated from national politics, and often governed to a greater or lesser extent by rules or norms. The WTO dispute resolution system acts in this way when it applies the rules of the SPS Code to national regulations, e.g., by ensuring that states provide scientific evidence to support trade restrictions attacked by other member states as sophisticated protectionism. The WTO Trade Policy Review Mechanism furthers the same end, in a “softer” and less legalistic way. (The WTO, of course, is under attack for failing to incorporate non-economic actors and values in these processes.)

International governance can also improve the overall representativeness of standard setting, because of the differential effectiveness of groups at different levels. For example, multinational firms may be more effective at the national level because they can threaten international escape, whereas issue-oriented NGOs that are ineffective at the national level may find international institutions a more fertile setting. While the impact of these considerations differs across issues even for the same group, these examples make clear that representation and levels of governance are deeply intertwined.

In some cases, moreover, an international solution may be preferable even when national governance is feasible. International cooperation involves sharing information and expertise and pooling other resources, including financial, possibly allowing states to address standards problems more efficiently. This is especially valuable for states that lack the resources to develop adequate standards on their own, an argument that justifies many of the standard setting activities of organizations like the ILO, WHO or Codex. The cost of standard setting is increasingly an issue even for the most developed countries, where technological advances in fields such as pharmaceuticals are swamping national regulatory processes. Here the informational advantages of international governance are augmented by the economies that common standards offer multinational firms and other transnational actors.

Political leaders are jealous of their autonomy and generally resist delegation to international forums. However, moving decisions to a higher level may actually help them achieve their goals over the resistance of powerful domestic interests. IMF financial discipline on the economies of borrower countries is an example: an international institution helps (or forces) governments to accept solutions that they cannot implement unilaterally. (This example pushes the question of representation, however, since it is often charged that international financial institutions represent undemocratic “outsiders,” supporting the interests of the business elite.) Right or wrong, paternalism here operates in a new direction. Because states are unable to find good domestic political solutions to their problems, they commit themselves to international forums where a different balance of representation leads to superior policies.

International governance can often piggyback on private standard setting, but such institutional borrowings require great care. With Codex, for example, reliance on private firms worked well when the organization was only creating common food production standards. But when trade negotiators sought to use Codex standards to address policy externalities caused by strict national health and safety standards, the predominantly private nature of the Codex process impeded the Uruguay Round agreements: critics likened the proposal to letting the fox guard the chicken coop. WTO negotiators were forced to adopt more flexible rules allowing importing countries to apply standards higher than those approved by Codex (subject to the existence of scientific evidence and the other trade-related safeguards in the SPS Code).

The Codex case illustrates the point that international governance is also subject to capture, here by business interests, elsewhere potentially by influential transnational NGOs. However, the case also illustrates that the residual power of states provides a clear and strong bulwark against abuses of international governance, which is weak by comparison. Almost all significant actions of international organizations require state approval. If international standards get too far out of line, or if international organizations stray too far from their mandates, states will withdraw their acceptance and support – as explicitly provided for in most international organizations. Only the largest states may have the wherewithal to strike out wholly on their own – although any state can refuse to

follow a proposed international standard – but groups of states clearly have this capacity. The greatest danger with international governance is that it will do too little, not that it will do too much.

Thus, blends of international and national governance will often be the best choice. National institutions have better local knowledge and usually better capacities for aggregating preferences. International governance institutions bring together transnational expertise and interests, and can force states to face up to their policy externalities. Each can serve as a check on the other, ensuring that neither private nor national interests inappropriately frustrate public and global purposes.

International governance – even as a supplement to national governance – is not an easy choice; the underlying issues are often highly distributive and contentious. But standards are one of the important ways by which we organize our society, and that society increasingly transcends national boundaries. Some role for international governance is both inevitable and desirable. That role, however, is best filled by careful combinations of actors and institutions – public and private; national, regional and international – appropriate to the problem at hand. There is no standard solution.

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	I Technological Interconnectivity	II Transactional Interconnectivity	II Physical Externalities	IV Policy Externalities
Type of Externality	Network (Coordination) Technological Regulatory		Traditional (Prisoners' Dilemma) Technological Regulatory	
Examples	Telecommunications production standards	standard contract terms accounting standards	international pollution fisheries	regulatory competition standards used as protection
Governance Problems	multiple standards third party effects monopoly	third party effects asymmetries	collective action burden-sharing enforcement	distinguishing sincere from insincere regulations enforcement
Governance Arrangement Examples	Private Actors Market, ISO	Private/Public ICC, UNCITRAL, IASC/IOSCO	International Regulation Montreal Protocol	International Standards for Domestic Regulation WTO

Table 2: Schematic Summary of Externality Problems and Governance