



Regulatory interdependence and international governance

David Lazer

ABSTRACT The objective of this paper is threefold: First is to produce a broad framework of the ways that state regulatory policies are interdependent. Second is to examine the factors that determine the nature of that interdependence. Third is to discuss the governance implications of different types of regulatory interdependencies. This analysis is applied to the spread of a new international fish inspection regulatory regime.

I propose three modes of regulatory interdependence: competitive, coordinative, and informational. The key assumption in the *competitive mode of regulatory interdependence* is that states are caught in a prisoner's dilemma – either because states use social regulation as a protectionist tool or because states undercut each other's regulations in a race to the bottom. In the *coordinative mode of interdependence* it is assumed that there are certain benefits to having regulations that are compatible with those of other states – sometimes resulting in a race together, or a race to the top. Finally, in the informational mode of interdependence, it is assumed that states are coping with massive uncertainty as to their best policy options. The regulatory choices of other states provide signals (and often much data) to good policy options.

KEY WORDS Externality; governance; institutional analysis; international law; regulation; standards.

In 1994 the European Union (EU) adopted a new fish inspection regime based on a Hazards Analysis and Critical Control Points (HACCP) program. The EU's action marked the beginning of a second wave of adoption of HACCP standards in which all major exporters of fish products, except for Japan, adopted some version of HACCP. Why was there this stark disjuncture in the (effectively) global regulatory regime with respect to fish inspection? Why did so many diverse countries arrive at the same regulatory choice? A key part of the answer is clearly the desire to maintain access to the European market, but there were also other important dynamics at play as well.

The case of fish inspection illustrates the fact that social (e.g. health, safety, environmental) regulatory choices are not exclusively domestic, but are a reflection of a larger dynamic of competition and coordination among states. At the core of most social regulatory decisions are concerns regarding the regulatory choices of other states. Further, this balancing of domestic objectives with position in the international system raises increasingly troubling issues regarding international governance, even excluding policies that directly affect the well being of the global commons. First, as trade barriers have fallen, the importance of incompatible regulatory approaches increases in relative importance, and to progress further on the program of freer trade, these inconsistencies will need to be addressed. Second, since (1) these remaining barriers are increasingly important, yet often reflect a core of strong policy preferences, and (2) the demand to conform to the pressures of the international system can be overwhelming, these processes can result in fundamental accountability problems. That is, potentially, regulatory policies are becoming increasingly detached from the policy preferences of the regulated.

My objective in this paper is therefore threefold: First, drawing on the diverse literatures on regulatory interdependence, is to produce a broad framework of the ways that state social regulatory policies are interdependent. Second, is to examine the factors that determine the nature of that interdependence. Finally, is to discuss the governance implications of different types of regulatory interdependencies.

I propose three modes of regulatory interdependence: competitive, coordinative, and informational. The key assumption in the *competitive mode of regulatory interdependence* is that states care about the competitiveness of their industry and their ability to attract investment on the one hand, and on the other, value reducing the 'bad' at which potential regulations are aimed. It is often asserted that this competitive dynamic will result in a 'race to the bottom' (RTB) where states set suboptimal levels of social regulation to attract capital. Further, as with purely technical-interface issues, social regulation may be hijacked for protectionist purposes. In the *coordinative mode of interdependence*, it is assumed that there are certain benefits to having regulations that are compatible with those of other states – sometimes resulting in a race together, or a race to the top. Finally, in the *informational mode of interdependence*, it is assumed that states are coping with massive uncertainty as to their best policy options. The regulatory choices of other states provide signals (and often much data) to good policy options.

The first section of this paper develops the logic and evidence regarding each of these modes of regulatory interdependence. In the second section, I apply each of these approaches to a particular case of regulation – fish inspection, where a dramatic shift in regulatory approach swept the world in the 1990s.

THE THREE MODES OF REGULATORY INTERDEPENDENCE

This section highlights three general ways that regulatory policies are interdependent: competitive, coordinative, and informational.

The competitive mode

The underlying premise of the competitive mode is that there can be competitive advantages to having regulatory policies that are distinctive in some way, but that if every jurisdiction seeks regulations that make it more competitive, all jurisdictions are worse off. Thus, jurisdictions are locked in a prisoner's dilemma; cooperation might lead to regulatory policies that make all better off, but there is a constant temptation to adopt regulatory policies that improve one's own standing. As Abbott and Snidal (2001) discuss in detail, such policy externalities might result from (1) states trying to gain competitive advantage by undercutting each other's regulations; and (2) states using technical barriers to keep foreign competition out of domestic markets. There is little empirical research to support the first statement, and substantially more to support the second.

It is important to consider the beneficial aspects of regulatory competition. Arguably, under some circumstances, jurisdictional competition leads to overall welfare improvements. For example, for corporate law, there has been the well-known 'Delaware' effect, where a vastly disproportionate number of corporations make their official home in Delaware. The Delaware effect has spawned a large sub-literature on jurisdictional competition, where the initial interpretation of the attractiveness of Delaware as a home to corporations was that this was a classic case of a race to the bottom – where Delaware undercut all other jurisdictions in their regulation of corporations (Cary 1974). However, there has been a powerful revisionist take on the Delaware effect, where it has been argued that in reality Delaware simply does a more efficient job at administering corporate law than other jurisdictions. That is, jurisdictional competition yielded improved governance (Revesz 1992). In sum, the interaction among states may be characterized by a prisoner's dilemma, but the non-cooperative outcome produces substantial benefits to non-players.

The coordinative mode

While there is relatively little empirical support for the assertion that states attempt to undercut each other's regulations, there is far more support for the assertion that states benefit from having compatible regulations. There are two inter-related reasons: (1) market access – what Abbott and Snidal label 'transactional interconnectivity'; and (2) economies of scale – identical regulations reduce the cost of production.

As noted above, product standards are a potential (and often real) barrier to trade. If exporters in country A wish to export to country B, they need to meet the standards of country B. If there are no economies of scale in production (see discussion below), it would be feasible to produce efficiently multiple versions of a product for multiple markets. However, under certain circumstances different standards increase transaction costs. For example, some product standards (1) determine the process by which a good is produced, and (2) require compatible national regulatory standards. This is particularly true in the case of agricultural goods – increasing the pressure toward regulatory convergence in this area. For example, Israel has adopted EU pesticide standards, and a number of Latin American countries, US standards (Vogel 1997).

Even if countries A and B have different regulatory standards, it may still be possible for exporters from A to export to B. However, the differences in regulatory standards may increase the transaction costs involved in trade. If two countries have incompatible railroad tracks, commerce is not impossible, but it does become more expensive. Thus, for example, it was generally uneconomical for American meat producers to produce both hormone and hormone-free beef, because the existing distribution system would have made the cost of distributing hormone-free beef prohibitive (Vogel 1995).

If different jurisdictions have different product standards, and the process/product issues common to agriculture do not exist, then producers could respond by producing multiple versions of their product. If there are significant economies of scale in production, however, producing multiple versions of a product could significantly increase unit costs. The smaller the population served by the standard, the larger the likely unit costs. There is a substantial incentive for jurisdictions to adhere to standards that are compatible with other jurisdictions, so as to lower the price of goods sold in that jurisdiction. Similarly, there is an incentive for manufacturers to lobby for standards that are compatible across many jurisdictions.

Thus, while a jurisdiction may prefer a particular standard, it can only afford to adopt that standard if it is either very large, or if a critical mass of other jurisdictions have adopted that standard. This, in fact, describes the logic by which strict emission car standards adopted in California spread to other US states and eventually to Western Europe. If only Vermont had adopted such strict standards, either auto manufacturers would not have produced cars for Vermont, or Vermonters would have been paying exorbitant prices for their cars. Once California adopted strict emissions standards, it changed the balance of benefits and costs to other jurisdictions of adopting the same standards, and in 1994, twelve eastern states requested the federal government to permit them to adopt California's new standards (Vogel 1995).

Below I discuss four possible outcomes when the coordinative mode is operative (and why each might occur): 'a race together,' 'a race to the top,' 'a race toward the hegemon,' and, finally, regulatory divergence (no race).

Race to the top or race together?

When either factors listed above – market access, or economies of scale – are present, there is an incentive for states to harmonize their regulations. Imagine a given regulatory policy, where states have a continuum of regulatory choices, arrayed from less stringent to more stringent. Assume states A and B have different ideal points in this policy space (Figure 1a). If both states prefer a ‘harmonized’ world, there will be a space surrounding each of these ideal points, where each state would prefer the policies in that space, assuming the other state adopted those policies as well, as compared to the scenario where both states are at their ideal points. In Figure 1b, these sets of preferred points are bracketed by [and] for A, and (and) for B. As long as the sets of points overlap, as they do in Figure 1b, there is an opportunity for states A and B to improve their welfare by harmonizing their regulatory policies.

Figure 1b suggests that there is a possibility of a ‘race together,’ where states negotiate mutually acceptable harmonized regulations that would be a compromise in stringency between what A and B would choose in the status quo. However, the type of convergence in regulatory policy depends on the shape of the space around A and B’s ideal points. For example, it is possible that politically it would be difficult to lower standards to achieve harmonization. Regulatory policy is a political process colored by analytical methods to achieve a balancing of the benefits and costs of regulation, rather than an analytical process occasionally affected by political realities (Lazer 1999b). The possibility of a loss (as in a less strict standard than the status quo) might result in greater political mobilization than the possibility of an equivalent gain. This political bias against reducing the strictness of standards creates the potential for a ‘race to the top’ (RTT), to adopt the strictest standards that exist in the system (Vogel 1995). That is, one might imagine that for a given state, the set of harmonized policy points that are superior to the status quo all lie to the right of the status quo. If there is an overlap of harmonized policy points that are superior to the status quo, there will necessarily be a convergence to the stricter state’s standards (Figure 1c).¹ In the resulting political bargain, no state reduces the stringency of its regulations – keeping environmentalist/consumer groups etc. happy in every state – but achieves harmonization with other states.

Further, there may be a de facto harmonization on the strictest standards in the system, e.g. because it is cheaper to produce one version (even if it is to stricter standards) than multiple versions (this is essentially what occurred in the US with respect to California’s emission standards).

Finally, it is worth noting that the underlying diversity of state preferences will often prevent such a convergence from occurring. Even in the case of auto emissions, thirty-seven states did not adopt California’s emissions standards. California’s strict standards merely meant that those strict standards became viable for other states.

Figure 1a A and B's ideal points

Figure 1b Regulatory convergence

Figure 1c Race to the top

Figure 1d Race to the hegemon

Hegemony and coordination

Many of the 'easy' examples of coordination are cases of the small adapting to the choices of the large. Imagine the scenario of large country A and small country B, each with their ideal points in a one-dimensional regulatory policy space. Small country B potentially has a lot more to gain from harmonizing with A's policies than vice versa. If there are economies of scale in production, unit costs in B's market will go down if product standards are the same as in A's market. If market access is an issue (as with agricultural standards), then, presumably, B needs access more to A's market than vice versa. The set of harmonized policy points that are superior from B's perspective to its ideal point is likely to be much larger than the set of policy points that are superior to the non-harmonized status quo from A's perspective (see Figure 1d). That is, unsurprisingly, in a world with a single large economy and many small ones,

there will be a 'race toward the hegemon.' Many of the examples listed above qualify as such a race – e.g. Latin America toward the US and Israel toward the EU with respect to pesticide regulations.²

The outcome of regulatory 'bargaining' involving countries of equal economic power and dependence is considerably less predictable than these cases. There are many cases of failed regulatory bargains in international trade history, perpetuating divergent regulatory outcomes. While convergence often may not be efficient because of a large gap in underlying policy preferences and adjustment costs, as Austin and Milner (2001) make clear, it is also plausible that the lack of a clear leader will result in inefficient non-coordination (Kindleberger 1983). Without a clear leader, there is a range of possible outcomes that are pareto-superior to the status quo (e.g. see Figure 1b). States may not harmonize because (1) they are battling over the gains of harmonization (as Fearon (1998) notes, the coordination game blurs into a prisoner's dilemma game), (2) the actual transaction of reaching a compromise standard is so complex, or (3) political elites gain political rents from non-harmonization – so what is a coordination game from a social welfare point of view may be a game of deadlock from the elites' point of view (Spruyt 2001).

The informational mode

The diffusion of information will, of course, partially be driven by competitive and coordinative factors – e.g. the only way to coordinate with another country's policies is to get information on what that country is doing. However, information may have a substantial effect independent of competitive and coordinative concerns. There is an inherent uncertainty as to what a 'perfect' regulation should look like: What is the ideal balancing of the environment, public health, and safety against the costs of a regulation? States strive to achieve this balance partly through research, and partly through expensive administrative procedures. Thus, for example, in the US the promulgation of a significant regulation requires the development of a regulatory impact analysis and extensive administrative actions to solicit input from affected parties. The production of regulations thus involves the production of information. This information must, at least in part, be public, since the rule must be public. To the extent that states have similar policy preferences, this information becomes a public good, readily usable by any other states that might consider similar regulatory policies.

The US offers a model of this, where policies adopted by one state often provide models for other states, as Walker (1969) and Kollman *et al.* (forthcoming) have documented.

Further, it is not simply the adoption of a standard, but subsequent experience with those standards that provides information to other states. In all, the development of regulations costs billions of dollars annually, and the accumulated stock of rules presumably reflects rulemaking costs of many tens

of billions. While these costs are not large in a multi-trillion dollar economy, the cost of producing rules would be prohibitive for less wealthy countries.

The basic premise of the informational mode is that there are myriad connections among states that result in a spillover of information from one jurisdiction to another. It is clear that coordinative challenges will drive the creation of informational networks; however, the assertion here is that information flows will occur independent of functional needs to coordinate in particular cases. Schauer (2001), for example, documents the flow of constitutional ideas through the world in recent years – driven more by the development of databases such as LEXIS and WESTLAW than a need to harmonize laws.

These connections may be governmental or non-governmental, and the immediate causal path of the connections may be invisible. Clark *et al.* (2000) provide a number of striking examples from the environmental arena, where there was a remarkable convergence in policy debates regarding environmental issues across developed countries in the 1960s and 1970s. Despite the fact that the rise and fall of each of these environmental issues tracked each other closely from state to state, in each country the policy debate was framed almost exclusively in terms of domestic circumstances. One might hypothesize that there was significant spillover from one jurisdiction to another through epistemic communities of scientists and the news media, as well as government to government contacts.

To the extent that governments are creating information that is useful in regulatory policy, there are a number of patterns one would expect in cross-national comparisons. First, large states will tend to invest more in regulatory research than small states, and thus diffusion will tend to be from large states to small ('exploitation of the great by the small'). Second, research on rules will tend to be underprovided (Lazer 1999a).

Depending on the form of information collected and publicly available in the rulemaking process, it is possible that either (1) just the rule will be publicly available to outside parties; or (2) the data on which the rule was based will be available to outside parties. Thus, for example, in US rulemaking, standards may partially be based on the analysis of a committee of experts (e.g. industrial hygienists), where the rule is largely based on the collective experience of those experts – expertise not available to third parties. However, for major rules, substantial research will be publicly available, and may be used by third parties. For example, data from epidemiological studies may easily be re-used by third parties. Thus, in the case of regulating asbestos, the initial epidemiological studies were done in Britain, spurring rulemaking in the US.

The extent to which a particular policy innovation will spread will partly be a function of the underlying diversity of preferences in the system. In the case of asbestos, there was a diffusion among developed economies toward strict regulation of asbestos use through the 1970s. These standards did not spread to developing nations despite the availability of information regarding the dangers of asbestos, presumably because of different trade-offs between health

and development. The spread of information regarding the dangers of asbestos led to a divergence of regulatory policies in the international system.

In the next section I examine the role that each of these modes played in the dramatic international spread of a new fish inspection regime in the 1990s, focusing in particular on the governance mechanisms that regulated regulatory interdependence in each mode.

FISH INSPECTION

Over the last decade there has been a dramatic international change in the regulation of the handling of fish. Starting with Canada in 1992, most major consumers and exporters of fish products have shifted the paradigm of guaranteeing the safety of fish products from a product inspection approach to a regulation of *process* approach, called Hazards Analysis and Critical Control Points (HACCP). The key principles of HACCP are: (1) that a fish processor conduct an analysis of where hazards (e.g. spoilage) are likely to occur in processing seafood; (2) to produce a plan to intervene to control those hazards; with (3) documentation processes that allow regulators to verify that the fish processor is following their management plan.

The role of a regulatory agency is to assess the quality of each processor's HACCP plan, and to verify (largely through checking of records) that the HACCP plan is being followed.

One of the principles underlying HACCP is that there are multiple ways of achieving safe processes. This, however, raises questions as to whether one set of HACCP regulations offers protection equivalent to another (see below).

Countries that have introduced HACCP-based regulation in some form include a first wave of Canada, Uruguay, Brazil, Chile, Ecuador, Australia, New Zealand, Thailand, Iceland, US (a voluntary program), and later the EU, US (a mandatory program), Argentina, Peru, Ireland, Cuba, Morocco, Norway, Sri Lanka, Vietnam, South Africa, Mexico, Venezuela, Russia, Madagascar, Guatemala, Honduras, Tunisia, and Myanmar. (In the last five states the private sector has taken the lead in voluntarily introducing HACCP-based processes in the processing of their exports (Sophonphong and Lima dos Santos 1998a)).

The fact that all of these states converted to HACCP-based regulatory regimes at approximately the same time suggests that these were not independent events. In fact, I argue, HACCP has contained significant elements of all three of the processes outlined above, and I discuss those elements below.

Informational

HACCP, like many health/safety regulations, is a potentially beneficial innovation. As with any innovation, especially non-incremental ones, there was substantial uncertainty as to how to implement a HACCP standard. Even in the absence of any competitive or coordinative trade concerns, states are informa-

tionally interdependent, since the experiences of one state create data from which other states might draw. The analysis below traces the spread of information regarding HACCP, and evaluates the domestic and international mechanisms that facilitated the spread of information.

The regulation of fish processing is a direct product of National Aeronautics and Space Administration (NASA)-sponsored research into ensuring the safety of astronauts' food.³ In subsequent decades these methods were developed by the scientific community into a more generally applicable process to ensure food safety. In 1989, the US adopted a voluntary HACCP program, and in 1992 Canada was the first country to adopt a mandatory HACCP program. In 1994 the EU adopted a mandatory HACCP standard (which commenced in 1996), and in 1995 the US also adopted a mandatory HACCP standard (which commenced in 1997).

The diffusion process of HACCP thus created a body of knowledge and experience regarding HACCP, which in turn encouraged further spread of the innovation.⁴ As one participant in the process notes:

Leading countries [USA, EU, and Canada] have produced an enormous quantity of material regarding regulations, their reasons, practical procedures, industry opinions, etc. All this material can be analyzed, bearing in mind local country conditions and domestic and international markets, and adapted to produce local regulations and procedures that can be applied.
(Lupin 1997: 42)

For example, the Canadian government runs training programs on the implementation of HACCP plans. These training programs are intended for Canadian fish processors; however, they are frequently attended by non-nationals, who can then bring home a deeper understanding of HACCP. Canada has also directly promoted the spread of information regarding its HACCP program – e.g. to ASEAN members through the ASEAN-CANADA project (Sophonphong and Lima dos Santos 1998b). Canada, in turn, can observe international experiences and apply those lessons at home in adjusting their HACCP rules. As a Canadian regulator states, Canada seeks 'to better understand the approaches taken in other countries and learn from their strategies in adopting quality assurance and HACCP systems' (McEarchern and Dillon 1998).

Another example of information generation is the US regulatory effort. Rule development in the US is an informationally rich endeavor, requiring cost-benefit analysis and solicitation of comments from the public. In developing the rule, first the US Food and Drugs Administration (FDA) extensively consulted with industry, did an in-depth analysis of the costs and benefits of HACCP, solicited comments, and responded at length to those comments. The rules and these materials constitute potentially significant resources to other countries that are developing similar rules. There are numerous examples of regulations and guidelines from the US being essentially taken whole and

simply translated by regulatory authorities in other countries, including US rules on shellfish in New Zealand and Australia, and the Icelandic HACCP manual.

The US has also taken steps to facilitate the spread of HACCP standards. For example, the FDA held workshops in the period after adoption of HACCP in Thailand, India, China, the Philippines, Singapore, and Indonesia, plus presented details on the HACCP at a meeting of thirty-seven embassies in DC (Spiller 1997).

Informationally, there is an overlay of a system of bilateral flows of information between states with a system of international organizations that are serving as conduits and processors of information. The bilateral system is a network of ties among policy-makers, a result of any negotiations regarding Mutual Recognition Agreements (MRAs), as well as the natural process of information gathering. One might hypothesize that the network structure that would emerge out of this process would follow the market structure – neighbors interacting disproportionately with neighbors, with a few large states acting as hubs. To the extent that the network is spatially configured, it will not be very effective at spreading information (Lazer 1999a). The existence of hubs could greatly accelerate the spread of information; e.g. if everyone is connected to one hub, there are only two degrees of separation between any two states in the system (i.e. everyone is connected to everyone else, or connected to someone who is). If the hubs are effective at spreading information, the entire system will be effective at spreading information. In particular, key factors are: (1) Does the hub re-transmit the experiences of one spoke to other spokes where applicable? (2) Does the hub aggregate the experiences of the spokes, and aggregate them in a fashion that is useful for the spokes? and (3) Does the hub facilitate communication among the spokes? Since these are all positive externalities, it is likely that a state will underprovide these.

It is not surprising, then, that international organizations have played a key role in the spread of information. International organizations, in turn, have played a key role in the diffusion of information regarding HACCP. In 1993, the Codex Alimentarius Commission (Codex) of the United Nations (UN) developed guidelines for the application of HACCP. HACCP was actively promoted by the Food and Agriculture Organization (FAO) of the UN starting in 1985. The FAO has used the Canadian experience, in turn, to promote HACCP internationally, through United Nations Development Program/FAO training programs, and Danish Agency for Development Assistance (DANIDA)/FAO regional workshops. Since 1986, more than 3,000 individuals from eighty developing countries have received training (Cato 1998). In fact, most government inspectors and quality controllers in a large number of developing countries have been trained by the FAO.⁵

Figure 2 offers a qualitative characterization of the information flows regarding fish inspection.

Information, of course, plays a critical role in the coordinative mode. A key question is to what extent information flows were simply a result of the need

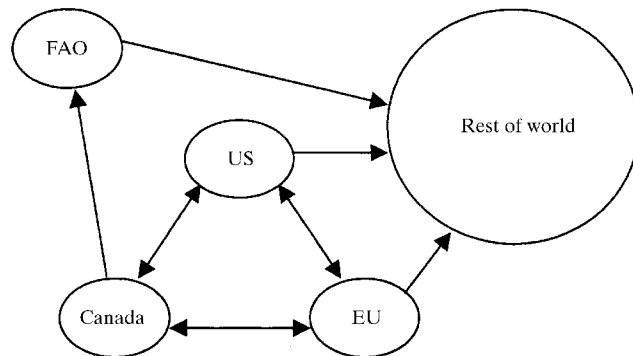


Figure 2 HACCP information flows

for coordination. With respect to the initial adopters, information seems likely to have been critical – the US voluntary program in 1989 provided data from which the Canadians could draw, and the Canadian experience provided information to the EU. After EU adoption, however, market access was probably the most important factor driving adoption.

Coordinative

The need for coordination can manifest itself down to the most banal details of the regulation of fish safety. Unclear and non-harmonized sensory standards potentially increase transaction costs in trade, and a variety of multilateral and bilateral mechanisms have been developed to harmonize sensory inspection. Examples include the aforementioned Codex standard, bilateral workshops between the US and Canada to coordinate sensory inspection also attended by third parties, such as Thailand, and a glossary of terms to describe decomposed fish that has been developed for twelve European languages (Howgate *et al.* 1992).

If there are significant coordination benefits involved in producing a common standard, even in the absence of hegemonic dominance, it is plausible that a small group of great powers can work together to produce a global standard. That is, if a critical mass of states supports a particular standard, the rest of the world should follow. Genschel and Plümper (1997) provide an example in the banking arena, where in 1987 the US, the UK and Japan effectively imposed a global standard on the rest of the world. They were successful in doing so because once a critical mass (provided by those three countries) adopted a standard, banks from non-compliant countries would be placed at a competitive disadvantage internationally. The rest of the world quickly fell in line behind the standard.

In the case of HACCP it could be argued that in 1994 all it took was the EU adoption of HACCP to change the international regime of fish inspection.

The general principle is that adoption of a regulation in one country changes the balance of interests in other countries. If domestic interests across the globe are closely balanced, a single adoption may set off a cascade (Lazer 1999c). Producers in the US resisted a mandatory HACCP program until the EU had adopted HACCP, at which point the larger, export-oriented producers reversed policy preferences – resulting in a policy reversal by the US. In fact, in the US regulation, one of the five principle reasons cited for the adoption of the rule was ‘to provide US seafood with continued access to world markets, where HACCP-type controls are increasingly becoming the norm’ (*Federal Register* 1995: 16578). These market-access issues also shaped the comprehensiveness of the rule. For example, comments to the public docket on the proposed rule suggested that low-risk products be exempted from HACCP requirements. The FDA responded in its final rulemaking ‘that the benefits to the industry in international trade from adopting a HACCP system might be minimized if such exemptions were adopted because the US’s international trading partners are opting for complete systems’ (*Federal Register* 1995: 65105). The US adoption of HACCP, in turn, placed pressure on other countries to adopt HACCP, since the US requires imports to comply with HACCP procedures. The US does not actually require that the nation of origin has a mandatory HACCP program, just that the particular producers abide by HACCP-style processes that offer equivalent protection. The FDA rule suggests that the FDA would energetically pursue Memoranda of Understanding (MOUs) with other countries, where imports from parties to such understanding would not be subject to special controls on the part of authorities. In the absence of an MOU, importers are responsible for ensuring that foreign processors have handled the fish properly. Importers would be required to take ‘affirmative steps’ to verify compliance with US rules – effectively increasing the cost of exporting the US market (*Federal Register* 1995: 65157).

While the FDA recognized that these steps potentially pose barriers to imports of fish, it observed that the US HACCP standard placed increased pressure on other states/producers to adopt HACCP standards to maintain that access:

Foreign processors that want to participate in the export market, not only to the US but to the EU, Canada, and an increasing number of other countries, will implement HACCP and sanitation control programs and will be prepared to address an importer’s needs for verification.

(Federal Register 1995: 65155)

If two states have different regulations that offer equal protection, as Nicolaïdis and Egan (2001) point out, mutual recognition is one mechanism to solve coordination problems in the international system. In the cases where process and product standards blur together (such as with food safety), states could recognize each other’s regulatory systems as ‘equivalent’ (even if different) through mutual recognition, and bind themselves to particular minimum

standards. This could be done either bilaterally (e.g. Thailand and Canada recognizing each other's fish inspection regimes as equivalent through an MOU) or multilaterally (the EU).

Mutual recognition, so far, has gained only limited use as a mechanism to overcome coordination issues with respect to HACCP. For example, the US currently has no MOUs. The FDA does take into account the regulatory regime of exporting countries in evaluating imports. The EU also has not pursued MOUs.

In contrast to the US and EU, Canada has energetically pursued MOUs, signing MOUs with Australia, Ecuador, Iceland, Indonesia, Japan, and the Philippines, and a Mutual Recognition Agreement with Thailand. Those foreign firms covered by an MOU are then granted Preferred Status, which results in a reduced inspection rate (Sophonphong and Lima dos Santos 1998b).

A possible outcome is that out of the system of bilateral agreements will emerge a *de facto* multilateral standard. There are two opposing dangers in mutual recognition – a race to the strictest standards, and a race to the bottom in the enforcement of those standards (the latter scenario is discussed in the next section). In the first case, there is a possibility that a major consumer of a good, such as the US or the EU, could force major exporters of a good to adopt strict standards that would then be imposed on all consumers. The likelihood of this depends on the feasibility of producing multiple versions of a product. This, in turn, depends on (1) whether the production is subject to economies of scale, and (2) whether there are institutional mechanisms to send satisfactory signals regarding the quality of producers in a given country. Thus, for example, Thailand has different fish safety standards for exports as compared to fish that are domestically consumed. This is feasible because there are not major economies of scale in the dimensions of fish inspection affected by HACCP, and the Thai regulatory authorities have been able to work with exporters to install a credible regulatory regime. As discussed above, where there are economies of scale, there is a serious danger of a welfare-reducing race to the top.

The World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT), discussed at greater length below, offer a number of mechanisms that address coordinative concerns, including (1) mandatory transparency, which facilitates mutual adjustment, even in the absence of direct consultation, and (2) the reification of international standards, which serve as focal points for mutual adjustment.

Competitive

There are twin competitive dangers that arise from the spread of HACCP. First, there may be a race to the bottom with respect to enforcement of

HACCP; second, HACCP may be used as a non-tariff barrier to exclude safe competitors.

Given that compliance with HACCP rules is costly (and for processors in developing countries sometimes a particular stretch of their resources) there is an incentive for other countries to minimize compliance subject to maintaining access to the importer's markets (Sophonphong and Lima dos Santos 1998c). This is particularly the case since the importer would bear the health costs of any failures to control hazards. The issue of unfair competition from less regulated imports came up repeatedly in comments on the US proposed rulemaking. For example, a number of comments suggested that it could not be assumed that the standards of other governments were actually being enforced, that the only way 'to achieve a "level playing field" is for FDA to perform inspections of foreign processors at the same frequency, and using the same standards, that the agency applies to domestic processors' (*Federal Register* 1995: 65156). Of particular concern was the development of MOUs, which could, the commentator argued, 'result in inconsistencies between domestic and foreign requirements . . . [and] could result in an economic disadvantage for domestic processors' (*Federal Register* 1995: 65156).

As a result, both the US and the EU 'inspect the inspectors.' For example, to evaluate whether an exporter is truly enforcing EU standards, the EU sends official inspection missions to exporters. There is some evidence that EU fish regulations have had an impact on imports to the EU; e.g. on February 13, 1998 the European Commission modified its list of countries (and establishments within countries) allowed to export products to the EU, excluding 10 percent of the sources of its imports in 1996 (Cato 1998).

This example, as well as the fact that HACCP rules generally subject imports to paperwork burdens that domestic products are exempt from, also highlights the possibility that HACCP-type rules will be used to exclude safe imports to benefit domestic producers.

The SPS and TBT aim to eliminate competitive dynamics in the international system, while allowing states, individually and collectively, to achieve key health and safety policy objectives (Abbott and Snidal 2001). These agreements rely on a plethora of international standards-setting organizations. The SPS, for example, states that 'measures that conform to international standards, guidelines or recommendations shall be deemed to be necessary to protect human, animal or plant life or health, and presumed to be consistent with the relevant provisions of this Agreement and GATT 1994' (Art. 2, para. 2). States may choose stricter standards than the prevailing international standards, but only if 'there is scientific justification' (Art. 2, para. 3), where the measures taken must not be 'more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection' (Art. 5, para. 6). States are also required to accept 'equivalent' standards – standards that offer the same level of protection as domestic standards (Art. 4, para. 1).

Recognizing that 'equivalence' is difficult to determine, the agreement encourages states to bilaterally/multilaterally 'enter into consultations with the

aim of achieving bilateral and multilateral agreements on recognition of the equivalence of specified sanitary or phytosanitary measures' (Art. 4, para. 2).

As noted above, the SPS highlights the role of international standards. It also specifically points to the role of international standards-setting organizations in this governance structure, and directs that members involve themselves in these organizations (Art. 3, para. 4).

The SPS also requires transparency with respect to changes in sanitary and phytosanitary measures, through procedural requirements regarding advance notification and potential involvement of other states (Annex B of SPS). It also prescribes bilateral consultation and agreements to resolve conflicts. The combination of the last two points is particularly powerful: Imagine country A has a mutual recognition agreement regarding a particular good with B, but not with C. B and C both abide by a particular international standard. A must therefore recognize that C's regulations offer protection equal to B's, or be prepared to make the case before the WTO that B and C's enforcement levels differ.

These SPS provisions are largely aimed at preventing the regulatory process from being hijacked for protectionist purposes by limiting the ability of states to arbitrarily craft regulations tailored to domestic producers.

CONCLUSION

The objective of this paper is two-fold: To delineate the different ways that state regulatory policies are interdependent, and to discuss the governance mechanisms implied by the different ways that regulatory policies are interdependent. This paper has outlined three 'modes' of regulatory interdependence: informational, competitive, and coordinative.

The key message here is that the ideal governance outcome will depend critically on which mode is applicable. The informational mode presents the governance challenge of how to maximize the *diffusion* of relevant information regarding the policies, research, and experiences of every jurisdiction. Out of this challenge come two subsidiary challenges: First, is how to maximize the *production* of information. As information becomes more public, there is a greater incentive to free-ride in the production of that information (Lazer 1999a). Second, is how to aggregate information in the network. As the density of the network increases, so does the risk of fads (information cascades). However, if there are mechanisms to provide information about the success and failure of policies, the possibility that dysfunctional policies will spread is reduced or eliminated. If there is an effective mechanism to aggregate international experiences with a policy approach, the likelihood of information cascades is greatly eliminated.

If the *competitive mode* is operative, ideally jurisdictional competition will be prevented where it is destructive. That is, if an RTB is a possibility, the challenge is to prevent a competitive lowering of standards below a point that is desired by the various members of the system. Alternatively, if non-tariff

barriers to trade are a possibility, the challenge is to prevent those barriers from manifesting themselves – a challenge which the WTO is struggling with.

If the coordinative mode is operative, there are three governance challenges. First, *inefficient regulatory divergence* needs to be avoided – particularly a possibility where there is not a single dominant power creating de facto standards for the international community. Second, *inefficient regulatory convergence* needs to be avoided – where international standards squelch welfare-enhancing policy heterogeneity. The third, and closely related, challenge is *accountability*. If there is an overwhelming tendency to adopt the emerging regulations in the international system, regulated communities may have little or no voice regarding the regulations governing them. It is possible with a product standard regulating an industry subject to large economies of scale, for example, that a relatively strict regulator could force third parties to shoulder many of the costs associated with the regulations that only they want. For example, the California emissions standards of the early 1990s became the de facto national standard, because it was cheaper for automobile manufacturers to produce all cars to a single standard. Any fixed costs involved in adopting that standard were thus distributed over all states – including states that placed little or no value on the environmental benefits of those standards.

These different modes of interdependence can sometimes lead to similar outcomes. For example, as noted above, the discovery that asbestos was hazardous led to a convergence among OECD countries of strict regulation of asbestos – just as the discovery that particular pesticides are hazardous has led to a convergence within the Americas on these policies. While the outcome in each case is similar – convergence – the mode of interdependence in each case is likely to be different – predominantly informational in the first, and coordinative in the second. The research challenge that this paper poses, therefore, is to distinguish the multiple strands of interdependence that exist in state regulatory choices, and to develop prescriptive governance models aimed at the pathologies associated with each mode of interdependence.

Address for correspondence: David Lazer, Assistant Professor of Public Policy, Kennedy School of Government, Harvard University, Cambridge, MA 02138, USA. email: david_lazer@harvard.edu

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NOTES

- 1 However, the primary process of convergence is 'together' rather than to the top, since there will be pressures on non-conformists to a dominant standard to shift to that standard. Further, while producers in countries that have lower standards may support (or at least not oppose) efforts to increase standards, the race to the top dynamic would lead one to expect enormous efforts by all producers to lower the standards of jurisdictions that would be inclined to have the strictest regulations. If RTT conditions hold, in the extreme, only the rules of the jurisdiction with the strictest regulations matter to producers. Producers should therefore focus *all* of their lobbying energies on the jurisdiction with the strictest regulations. For example, if California sets many environmental standards for the US, as Vogel argues, then corporations should focus all of their lobbying in Sacramento. Thus, there may be a race to the top, but also pressure to keep the top from getting too high. Without specifying the political economy dynamics in the states inclined to the strictest standards, it is impossible to say how general RTT dynamics are.
- 2 Note that since larger economies tend to be richer economies, and richer economies tend to have stricter standards, there is a systemic bias toward the spread of strict standards.
- 3 HACCP was developed by the Pillsbury Company in 1959 in the process of developing protocols to ensure the safety of astronauts' food.
- 4 The revolution in information technology has greatly facilitated the spread of information regarding HACCP. Thus, training courses on HACCP are beamed to any point on the globe through satellite, and it is possible to go to the web sites of the Food and Agriculture Organization (FAO) (www.fao.org), the World Health Organization (WHO) (www.who.org) and the Organization for Economic Cooperation and Development (OECD) (www.oecd.org) and download model guidelines for HACCP, as well as benefit-cost analyses based on the experiences of countries that have already implemented HACCP. These web sites also provide links to the regulatory authorities in charge of HACCP programs around the world.
- 5 Including: Thailand, Senegal, Cote d'Ivoire, Mozambique, Tunisia, Morocco, Mauritania, Gabon, Cameroon, Sri Lanka, Malaysia, Ghana, Cape Verde, Guinea-Bissau, Kenya, Uganda, Argentina, Brazil, Uruguay, Nicaragua, Panama, Venezuela, Cuba, Chile, Colombia, and Costa Rica.

REFERENCES

- Abbott, Kenneth W. and Snidal, Duncan (2001) 'International "standards" and international governance', *Journal of European Public Policy* 8(3): 345–70.
- Austin, Marc and Milner, Helen (2001) 'Strategies of European standardization', *Journal of European Public Policy* 8(3): 411–31.
- Cary, William (1974) 'Federalism and corporate law: reflections on Delaware', *Yale Law Journal* 83: 663.
- Cato, James C. (1998) 'Economics of Hazard Analysis and Critical Control Point (HACCP) programmes'. Paper presented during participation by the author in the FAO Partnership Programme with Academic Institutions, Rome.
- Clark, William C., Jäger, Jill, Eijndhoven, Josee van and Dickson, Nancy M. (eds) (2000) *Learning to Manage Global Environmental Risks: A Comparative History of Social Responses to Climate Change, Ozone Depletion and Acid Rain*, Cambridge, MA: MIT Press.
- Fearon, James (1998) 'Bargaining, enforcement, and international cooperation', *International Organization* 52(2): 269–306.
- Federal Register* (1995) Volume 60, 'Procedures for the Safe and Sanitary Processing and Importing of Fish and Fishery Products; Final Rule', December 18.

- Genschel, Philipp and Plümper, Thomas (1997) 'Regulatory competition and international co-operation', *Journal of European Public Policy* 4(4): 626–42.
- Howgate, Peter, Johnston, A. and Whittle, K.J. (1992) *Multilingual Guide to EC Freshness Grades for Fishery Products*, Torry Research Station, Aberdeen.
- Kindleberger, Charles (1983) 'Standards as public, collective and private goods', *Kyklos* 36: 393.
- Kollman, Ken, Page, Scott and Miller, Jonathan (forthcoming) 'States as policy laboratories', *Journal of Law*.
- Lazer, David (1999a) 'How to maintain innovation.gov in a networked world?' Paper presented at the Annual Visions Conference at Bretton Woods.
- Lazer, David (1999b) 'Regulatory review: presidential control through selective communication and institutionalized conflict'. Kennedy School of Government Politics Research Group Working Paper, Cambridge, MA. <http://www.ksg.harvard.edu/prg/lazer/lazerabs.htm#control>
- Lazer, David (1999c) 'The free trade epidemic of the 1860s and other outbreaks of economic discrimination', *World Politics* July: 447–83.
- Lupin, Hector M. (1997) 'FAO technical assistance on HACCP in fishery industries', in Roy E. Martin, Tobert L. Collette and Joseph W. Slavin (eds), *Fish Inspection, Quality Control and HACCP: A Global Focus*, Lancaster, PA: Technomic Publishing Co., Inc., p. 42.
- McEarchern, Vance and Dillon, Michael (1996) 'Canada Implementation of the Quality Management Program', in Roy Martin, Robert Collette and Joseph Stavin, *Fish Inspection, Quality Control and HACCP: A Global Focus*, Lancaster Technomic Publishing Co.
- Nicolaïdis, Kalypso and Egan, Michelle (2001) 'Transnational market governance and regional policy externality: why recognize foreign standards?', *Journal of European Public Policy* 8(3): 454–73.
- Revesz, Richard L. (1992) 'Rehabilitation interstate competition: rethinking the race to the bottom rationale for federal environmental regulation', *New York University Law Review* 67: 1210.
- Schauer, Frederick (2001) 'The politics and incentives of legal transplantation', in Joseph Nye and John Donahue (eds), *Governance in a Globalizing World*, Washington, DC: Brookings Institution.
- Sophonphong, Krissana and Lima dos Santos, Carlos A. (1998a) 'Fish Inspection and HACCP: An Overview' in *Workshop on Seafood Inspection*, Paris, OECD Committee for Fisheries, p. 79.
- Sophonphong, Krissana and Lima dos Santos, Carlos A. (1998b) 'Fish Inspection and Equivalence Agreements: Overview and Current Developments—Developing Countries Perspective', in *Workshop on Seafood Inspection*, Paris, OECD Committee for Fisheries, p. 92.
- Sophonphong, Krissana and Lima dos Santos, Carlos A. (1998c) 'Fish Inspection Equivalence Agreements: Overview and Current Developments – developing countries perspective'. Paper presented at the International Workshop on Market Access to Seafood, Toronto, Ontario, Canada, September 1997, p. 94.
- Spiller, P. (1997) 'The new US FDA HACCP program', in Roy E. Martin, Tobert L. Collette and Joseph W. Slavin (eds), *Fish Inspection, Quality Control and HACCP: A Global Focus*, Lancaster, PA: Technomic Publishing Co., Inc., p. 591.
- Spruyt, Hendrik (2001) 'The supply and demand of governance in standard-setting: insights from the past', *Journal of European Public Policy* 8(3):371–91.
- Vogel, David (1995) *Trading Up: Consumer and Environmental Regulation in a Global Economy*, Cambridge, MA: Harvard University Press, p. 161.
- Vogel, David (1997) 'Trading up and governing across: transnational governance and environmental protection', *Journal of European Public Policy* 4(4): 556–71.
- Walker, Jack L. (1969) 'The diffusion of innovations among the American states', *American Political Science Review* 63(3): 880–99.