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The Informational Origins of Regulatory Barriers

In the summer of 2007, Argentina leveled an accusation against its wealthier trading partners, claiming they were unfairly impeding trade from poorer countries. Argentina's grievance, which was aired during a meeting of the World Trade Organization (WTO), centered on regulations restricting the amount of pesticide residue that could remain on agricultural imports. Argentina argued that because these restrictions often targeted older, cheaper pesticides, they "had a particularly negative impact on developing countries," which could not afford newer alternatives. A number of WTO members echoed Argentina's concern, with some suggesting that the regulations not only were unscientific but might represent a deliberate attempt to disadvantage less-developed nations.[1]

This complaint is one of hundreds of so-called "trade concerns" related to domestic regulatory practices registered during WTO meetings over the past two decades. It is also one of dozens about pesticide regulations, in particular, making agrochemical standards one of the most frequently contested regulatory issues at the WTO, a fact that reflects these standards' substantial potential to shape international trade.[2] The vast majority of complaints related to agrochemicals have been submitted by developing countries protesting the stricter standards of their wealthier

[1] World Trade Organization (2020*b*), G/SPS/R/45, para. 12–14.
[2] Chen, Yang and Findlay (2008) found, for example, that the strengthening of Japanese and EU pesticide standards in 2002 led to a $2.4 billion reduction in Chinese vegetable exports to those two markets in 2005 alone. Likewise, a study by Wilson and Otsuki (2004) concluded that a 1% increase in regulatory stringency among trade partners for a single agrochemical compound reduced Latin American banana exports by 1.63%.

trading partners. For example, in 2009, Brazil, China, and Ecuador all challenged Japan's strict limits on pesticide residues for imported agriculture, calling Japan's rules "arbitrary" and claiming they lacked any scientific justification, an accusation that Japan vigorously denied.[3] In 2010 India was joined by Argentina, Brazil, Pakistan, and Thailand in questioning the validity of the European Union's restrictive pesticide policies, with the complainants contending that "[n]o scientific evidence had been provided to justify" the stringent standards.[4] The complainants went on to raise the issue nine more times over the next several years, repeatedly expressing their frustration over the EU's barriers to agricultural shipments but appearing to make little progress. Likewise, in 2011, India raised a concern against the United States, noting that US limits on agrochemical residues had led to numerous rejected shipments of rice, one of India's primary exports. Over the course of several meetings, during which India reiterated its displeasure and emphasized the substantial costs it had incurred as a result of continued shipment rejections, the Indian representative alleged that the United States' restrictions were "contrary to the core principles" of the WTO agreement.[5]

It is easy to write off these disagreements as the inevitable result of diverging national risk preferences. After all, it seems reasonable that governments would seek to control the level of contaminants in their national food supply, and it is not surprising that developed and developing countries might differ in their perceptions of what level of risk is acceptable.[6] Indeed, those countries accused of overly stringent pesticide regulations regularly defend their policies by arguing that they are simply an implementation of the latest scientific evidence and necessary to protect their populations from harm.

At the same time, nations have a long history of seeking to advantage domestic producers through a variety of surreptitious measures, either in conjunction with or in place of taxes at the border. Considering that regulatory impediments are a well-understood method of such protectionism, it is perhaps not surprising that exporters impacted by these measures sometimes wonder whether governments' claims of necessity might be

[3] World Trade Organization (2020*b*), G/SPS/R/55, para. 37.
[4] Ibid., G/SPS/R/61, para. 17.
[5] Ibid., G/SPS/R/64, para. 47.
[6] Inglehart has traced how, as countries become wealthier, they experience a value shift, leading policymakers to prioritize "quality of life concerns such as environmental protection and lifestyle issues" (Inglehart (2000) p. 219).

overstated and whether these regulations are, if not a deliberate attempt to disadvantage foreign producers, at the very least an unnecessary and unscientific barrier to international commerce. But how do we determine whether a regulation is necessary or unnecessary, let alone whether it is scientific? Who provides the science upon which claims of necessity are based, and how might this bias both the regulatory outcomes themselves and subsequent determinations about their need?

Although there is often an implicit assumption that science reflects an objective, unbiased conclusion, this book will show that determinations about what regulations are and are not necessary to protect the population from harm are frequently a function of who has the relevant scientific information and what their incentives are to provide or withhold it. In particular, this book argues that a variety of regulatory barriers, including many of the agrochemical standards that have proven to be so contentious in the international arena, result from interest groups' ability to strategically leverage scientific information about the risks of their products in order to extract preferential policies that impede domestic competition and international trade. In addition, the book shows that when regulatory barriers stem from these dynamics, current international solutions for eliminating unnecessary barriers may end up legitimizing and even exacerbating them.

1.1 THE DEMAND FOR REGULATION

There are few responsibilities more central to the foundational purpose of government than the responsibility to protect the population from harm. Though the most obvious form of protection may be protection from external attack, protection from other forms of injury or death, including from unsafe products and technologies, is also a key function of governance. As such, all governments have an interest in implementing regulatory policies aimed at reducing risks to their population and the concomitant backlashes that can occur when governments fail to reduce these risks adequately. And there are backlashes. The 1999 discovery that Belgian regulators had declined to notify the public about the existence of toxic dioxins in the meat supply until months after they uncovered them led to the resignations of several high-level officials and the downfall of a Prime Minister.[7] Eight years later and several thousand

[7] James (1999).

miles away, the revelation that China's top food and drug regulator had been approving untested pharmaceuticals in exchange for bribes resulted in that official's execution.[8] Not long after, in a second scandal out of China that dominated international headlines, several officials were fired or forced to resign in the wake of realizations that multiple Chinese companies had intentionally added industrial chemicals to milk products used in infant formula. More recently, in the United States, the 2014 finding that the water supply in Flint, Michigan was heavily contaminated with lead resulted in manslaughter charges being brought against several local officials as well as a national reckoning over unequal access to clean water. Finally, the back-to-back crashes of two Boeing 737 MAX 8 aircraft in October 2018 and March 2019, as a result of a glitch in the flight control system, led to global scrutiny of how airplane regulators conduct oversight. This scrutiny has proved extremely damaging to the reputation of the US Federal Aviation Administration (FAA) and led to public pressure for an overhaul of how the regulatory agency operates.

While these are just a handful of examples, they illustrate the political consequences of failing to appropriately regulate the goods we all consume and depend upon in our daily lives. The potential for such political consequences has led some scholars to conclude that much of the temporal and cross-national variation that we see in regulatory stringency reflects the public pressures and political exigencies that come in the wake of prominent regulatory failures.[9] Certainly, it is not difficult to identify instances of regulations that seemingly stemmed from public crises. The 1906 US Pure Food and Drug Act followed immediately on the heels of Upton Sinclair's disturbing, albeit fictionalized, story describing conditions in US meatpacking factories. Likewise, a set of bans imposed by Europe on growth hormones in livestock during the 1980s can be traced back to an incident in Italy in which it was reported that infants were showing premature signs of puberty as a result of eating hormone-treated veal.[10] Finally, the 2008 Chinese milk contamination scandal that was mentioned previously spurred an attempt to restore confidence in the nation's food supply through several prominent revisions to China's food safety laws.

[8] Kahn (2007).
[9] See, e.g., Ansell and Vogel (2006); Bernauer and Caduff (2004); Bernauer and Meins (2003); Vogel (2012).
[10] Vogel (2012), ch. 3.

Nevertheless, while crises undoubtedly can help catalyze regulatory change, the precise shape that the change takes is less likely to respond to the public, whose lack of attention to or expertise in regulatory matters opens the door to those more informed and with stronger preferences.[11] More generally, even if large, structural changes sometimes occur, at least partially, in response to crises or public pressure, many of the regulations that become the subject of disagreements between nations in forums such as the WTO relate not to broad, structural legislation but rather to individual product or process standards. Such standards, in turn, are constantly evolving, entirely separate from any highly visible legislative change. Each month national regulators approve certain drug formulations, while others have their approvals withdrawn. Vehicle designs are accepted, rejected, and recalled on a rolling basis across different markets. And permissible contaminant levels are introduced, raised, or lowered as new evidence of benefits or dangers emerges. These product-level standards are usually determined by scientists or bureaucrats and largely go unnoticed by ordinary citizens. This suggests that the public is unlikely to be doing all or even most of the work when it comes to shaping the nuts and bolts of regulatory outcomes, raising the question of what else might be driving these policies. The answer, according to many, is special interests.

Specifically, a substantial body of scholarship, which traces its origins back to work by Bernstein (1955) and Huntington (1952), has posited that concentrated interest groups, frequently comprised of powerful industry members, tend to have an undue influence on regulatory policies. In his book, *Regulating Business by Independent Commission*, Bernstein argued that over the course of interactions between regulators and the regulated, it eventually becomes "unlikely that the commission … will be able to extend regulation beyond the limits acceptable to the regulated groups."[12] Likewise, in his study of the Interstate Commerce Commission, Huntington described the relationship between the agency and the railroads as one of "benevolent paternalism."[13] A decade later, Olson helped lay the theoretical groundwork for explaining why industry tends to outmaneuver the public in the regulatory arena by focusing on the superior ability of business groups to mobilize.[14] Subsequently, in a

[11] Moe (1989).
[12] Bernstein (1955), p. 87.
[13] Huntington (1952), p. 483.
[14] See Olson (1965).

piece that effectively catalyzed what is often referred to as the "regulatory capture" literature, Stigler concluded that "as a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit."[15]

As for what sorts of regulations industry sets out to acquire, Stigler (1971) and many of those writing after him argued that these actors will seek regulations that impose barriers to entry. Such regulations might include licensing requirements that dictate who can work in a profession, environmental emission standards limiting pollutants, or technical specifications restricting which variations of products can be sold. The common theme is that all of these rules make it more expensive for certain actors to operate, thereby reducing competition and increasing the profits of those that remain in the market.

The incentives of industry to acquire regulatory oversight provide an alternative explanation for why nations impose the sorts of stringent regulatory standards that can then create barriers to trade: These standards serve the interests of domestic groups. Thus we might observe that when the EU banned hormone-treated livestock, ostensibly in response to public concern over premature puberty in Italian infants, European cattle ranchers offered their wholehearted endorsement. Why did the European cattle ranchers support a measure that restricted how they could do business? The most obvious answer is that at the time of the regulation, these producers had already opted not to use the hormones in question, meaning their beef would not be impacted.[16] As a result, when American beef and veal producers went from selling hundreds of millions of dollars worth of meat to the EU annually to selling practically nothing after the ban went into effect,[17] European farmers stood ready to profit from the reduced competition.[18]

The anticompetitive nature of regulation means that governments have an incentive to use regulations as a form of disguised trade barrier, a

[15] Stigler (1971), p. 3. Later work has greatly expanded upon this insight, showing the many ways that regulations can benefit some firms over others. Posner (1974) and Peltzman (1976) provided some of the most notable theoretical expansions of Stigler's original conclusion, but there has been an enormous amount of work in this area. For a comprehensive review of the literature, see Dal Bó (2006).

[16] Johnson and Hanrahan (2010).

[17] WT/DS26/R/USA p. 17. (World Trade Organization [2020*a*]).

[18] It has similarly been noted that the US 1906 Pure Food and Drug Law, while undoubtedly helping to mollify consumers alarmed by Upton Sinclair's publication, also had support from members of industry, who saw in the law an opportunity for gaining competitive advantage (Wood (1985)).

strategy that may be particularly appealing to governments needing to feign an open trading posture.[19] Moreover, even in cases in which governments may not deliberately mean to block foreign products in favor of domestic ones, governments' tendencies to discount the interests of foreign producers can lead them to craft regulations in ways that are disadvantageous to foreign sellers, while perhaps containing more generous carveouts for producers at home.[20]

1.2 THE INTERNATIONAL SOLUTION

The potential for regulations to favor certain domestic sellers, often at the expense of foreign competitors, has led the international community to seek cooperative solutions so as to ensure that these behind-the-border measures do not simply replace tariffs as a less visible but no less damaging barrier to trade. In particular, under the WTO's Agreement on Sanitary and Phytosanitary Measures (SPS Agreement), as well as the WTO's Technical Barriers to Trade Agreement (TBT Agreement), nations are required to use relevant international standards as a basis for their domestic rules.[21] These international standards are developed by various international bodies in which technical experts and/or national representatives collaborate to arrive at non-binding yet highly influential recommendations. In addition to encouraging nations to base their regulations on international standards, the WTO agreements also specify that in instances in which governments decide to impose regulations that are more onerous than the international recommendation, they must be able to demonstrate, upon challenge, that their regulations are "based on scientific principles"[22] or are not "more trade restrictive than necessary to fulfill a legitimate objective," where determinations of legitimacy partially depend upon the consideration of "available scientific and technical information."[23]

[19] Kono (2006), for example, notes how this tactic may be especially attractive to democracies.
[20] Gulotty (2020) details these dynamics in his discussion of the EU's recent chemical safety legislation (REACH) and the United States' Food Safety Modernization Act.
[21] Whereas the SPS Agreement lists three relevant international standard-setting bodies by name, the TBT Agreement leaves the interpretation of which standard-setting bodies are relevant more vague.
[22] World Trade Organization (1995*b*), 2.2.
[23] World Trade Organization (1995*a*), 2.2.

The WTO's strategy of championing international standards while requiring a scientific justification for regulations that go beyond the international recommendation raises an important question: Can international standard-setters actually provide a more objective guideline than national regulators? The international standard-setters themselves certainly make claims of this nature. For example, the International Organization for Standardization (ISO) asserts that its standards "level the playing field for developing countries and facilitate free and fair global trade."[24] Another international standard-setter, the Codex Alimentarius Commission, states that its standards are based on "sound science" and "contribute to the … fairness of the international food trade."[25] Moreover, a large body of literature has long viewed delegation to international organizations as a way to help governments tie their own hands in order to avoid catering to a narrow set of private actors at the expense of the broader public good.[26] This suggests that greater delegation to international standard-setters under WTO law could reduce the ability of powerful interest groups to acquire regulations that harm foreign competitors. Along these lines, scholars have concluded that international decision-making bodies "should tend to ignore or discount demands made by interest groups in given member countries,"[27] which in turn ought to make international standards less biased toward these industry groups than their domestic counterparts.

Nevertheless, there are some reasons to be skeptical that international standards will offer greater objectivity than national regulations. First, several scholars have observed that international standard-setters have a tendency to cater to their most powerful national members[28] and to those countries whose domestic institutions allow them to gain first-mover advantage in the regulatory process.[29] As a result, we might expect that rather than simply bowing to science, these standard-setting organizations might instead bow to influential nations. Second, just because international standard-setters are more removed from the domestic political process does not mean that they are immune to it. Thus Mattli and Woods

[24] International Organization for Standardization (2018).
[25] Codex Alimentarius Commission (2016).
[26] See, e.g., Grossman and Helpman (1994); Maggi and Rodriguez-Clare (2007); Bagwell and Staiger (2011).
[27] Nielson and Tierney (2003), p. 250. Also see, e.g., Kapstein (1989); Keohane, Macedo and Moravcsik (2009).
[28] See, e.g., Krasner (1991); Drezner (2004).
[29] Mattli and Büthe (2003); Büthe and Mattli (2011).

(2009) contend that although international standard-setters *can* reduce interest group influence, this will only occur given that there is both a supply of good institutional conditions and a demand for outcomes that benefit the global good. Although these conditions may be met at times, in many areas of international standard-setting, such as the determination of global capital requirements for financial institutions, lack of public attention or understanding will likely undermine public oversight. It is, therefore, perhaps not surprising that numerous scholars have identified what appears to be capture in the creation of the second Basel Accord, a regulatory agreement intended to reduce systemic risk in banking.[30]

Taken together, the above discussion raises questions about whether international standard-setters will actually provide more objective outcomes than domestic regulators, particularly in cases in which powerful interests, be they private actors or sovereign nations, are best able to leverage their political influence to capture the standard-setting process. At the same time, the existing literature often presents a rather narrow view of what influence at international standard-setting organizations entails. By and large, influence is seen as a function of political might or, in the case of Büthe and Mattli (2003; 2011), of domestic institutions. Thus, private actors or specific nations win when they are able to leverage their economic, institutional, or military power, and standard-setters comply because they are, in some sense, captured by or beholden to the powerful. This conception of influence, in turn, generates specific predictions about who the winners will be, what strategies they will use, and under what conditions they will be more or less successful at imposing their preferences nationally versus internationally. This book, by contrast, shifts the emphasis from conventional power to instead focus squarely on scientific information about risk. In particular, this book highlights how information asymmetries about product risks between product producers, on the one hand, and national regulators, on the other, allow producers to impose regulatory barriers to competition and trade at the national level. In addition, the book demonstrates how these same information asymmetries are replicated internationally, thereby allowing producers to impose the same barriers at the international standard-setting level,

[30] Underhill and Zhang (2008); Griffith-Jones and Persaud (2008); Lall (2009); Baker (2010).

under standard-setting organizations officially endorsed by the WTO and charged with leveling the global playing field and eliminating unnecessary impediments to international commerce.

1.3 THE ARGUMENT IN BRIEF

The book's argument builds off of two simple premises. The first is that those charged with setting regulatory rules need detailed, product-level information in order to do so. A regulator cannot know at what level a chemical is safe without knowledge of that chemical's toxic or carcinogenic potential. It is similarly impossible to predict if a plane is likely to crash or a crib to lead to an infant's death without information about the plane's aerodynamics or the crib's design. Information is the sine qua non of regulation.

The second premise is that producers frequently have a much greater ability to acquire information about the risks of their products than regulators, regardless of whether those regulators are domestic bureaucrats or international technocrats. This information asymmetry is often implicitly acknowledged during initial product approvals, when regulators typically rely on producers to conduct and share outcomes of clinical trials and safety tests. Yet this asymmetry is also present and may even become more pronounced over time, the longer a product is on the market. This is due to the fact that producers have the ability to accrue updated information about product risks to which regulators are not privy – information stemming from consumer complaints, in-house studies, and observations of worker exposure. Compounding the problem is the fact that scientific understanding and consumer acceptance of risk are constantly evolving, meaning prior regulations inevitably grow out of date, and unlike the producers of a given product, domestic regulators and international standard-setters generally lack the resources to continuously monitor all the products on the market to independently ensure that standards continue to meet modern criteria.

Taken together, these two premises suggest that producers will be uniquely positioned to influence product-level standards through the strategic provision and withholding of information about risks.

Notably, neither the idea that safety information is crucial to regulatory policymaking nor the observation that producers frequently enjoy an advantage over regulators in acquiring such information is novel. Various scholars, particularly those in the legal and science and technology stud-