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Assessing the Relative Influence and Efficacy of Public and Private Food Safety Regulation Regimes: Comparing Codex and Global GAP Standards

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THE

ABSTRACT

*An extensive **global** system of **private** **food** **regulation** is under construction, one that exceeds conventional **regulation** thought of as being driven by **public** authorities like FDA and USDA in the U.S. or the **Food** **Standards** Agency in the UK. Agrifood and grocer organizations, in concert with some farming groups, have been the primary designers of this new **food** regulatory **regime**. These groups have established alliances that compete with national **regulators** in complex ways. This article analyzes the relationship between **public** and **private** sources of **food** **safety** **regulation** by examining **standards** adopted by the **Codex** Alimentarius Commission, a **food** **safety** organization jointly run by the **Food** and Agricultural Organization and the World Health Organization and GlobalG.A.P., a farm assurance program created in the late 1990s by supermarket chains and their major suppliers which has now expanded into a **global** certifying coalition. While **Codex** **standards** are adopted, often as written, by national **food** **safety** **regulators** who are principal drivers of the **standard** setting process, customers for agricultural products in many countries now demand evidence of GlobalG.A.P. certification as a prerequisite for doing business*

*This article tests not only the durability and strength of **private** sector **standard** setting in the **food** **safety** system, but also the desirability of that system as an alternative to formal, governmental processes embodied, for our purposes, in the **standards** adopted by **Codex**. In many cases, official **standards** and GlobalG.A.P. **standards** clash in ways that implicate not only **food** **safety** but the flow of agricultural products in the **global** trading system. The article analyzes current weaknesses in both **regimes** and possibilities for change that will better reconcile the two competing systems.*

*263 INTRODUCTION

The **safety** and quality of a nation's **food** supply are the responsibilities of both its **public**, accountable officials and profit-driven **private** actors.[1] Breakdowns in the management of these responsibilities have led to occurrences of **food**-borne disease and death. A 2015 World Health Organization (WHO) report found that an estimated 600 million-almost 1 in 10 people in the world-fall ill after eating contaminated **food** and 420,000 die every year, resulting in the loss of 33 million healthy life years, both in developed and developing countries.[2] The United States Centers for Disease Control and Prevention (CDC) estimates that 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths result from foodborne diseases each year in the United States.[3] In 2015 alone, contaminated cilantro, cucumbers, onions, pork, tomatoes, tuna, and turkey, as well as hygiene breakdowns at factories and restaurants resulted in hundreds of hospitalizations.[4] These

outbreaks have prompted not only reform of public laws governing food safety, but also the construction of an extensive global system of private regulation. [5] This new system of private food safety law is being developed by transnational agrifood and grocer organizations, in concert with a small but growing number of farming group. [6] These groups have established mutually interested alliances that cooperate and compete with national regulators in complex and shifting ways. They have developed a shadow regulatory regime that often imposes verification burdens that exceed national or international food safety requirements. [7]

The complex relationship between public, formal food safety regulation-still implemented largely through public officials-and private regulation implemented primarily through third-party auditors has raised critical questions about not only who may appropriately make decisions with respect to food safety policy, but also how private regulation of food safety may burden access to food as commerce and trade expand the reach and complexity of food supply chains.

The overall system of food regulation has therefore become a multi-centered private/public one, which operates in a loosely coordinated and sometimes disjointed manner. Conceptually, this system articulates and adapts guiding norms through channels of shared authority characteristic of "governance" systems; it also involves ***264** multiple institutions operating according to common principles, rules, procedures and programs typical of "regimes." [8] In order to highlight the principles and rules governing these processes and their interaction, this article evaluates the system as one of regulation, and indeed of regulatory law-making driven by two sets of actors, one public and formal the other private and less predictably organized.

The public actor is the Codex Alimentarius Commission (Codex), a food safety organization jointly run by the United Nations (UN) Food and Agricultural Organization (FAO) and WHO. The standards it issues are often adopted as written by national governments, as they are the drivers of the standard setting process. [9] The private actor is GlobalG.A.P., a farm/producer assurance program created in the late 1990s by several European supermarket chains and their major suppliers, which has now expanded into a global certifying coalition. G.A.P. is an acronym for Good Agricultural Practices. Business customers for agricultural products--although not consumers--in many countries now demand evidence of GlobalG.A.P. certification as a prerequisite for doing business. [10]

For the past decade, a major institutional focus of this emergent system has been "certification," wherein auditors certify to specific constituencies-- e.g., consumers, other businesses, or regulators--that specific operations meet applicable standards for food safety (or' animal welfare or worker rights) practices. [11] Because private certification is more fragmented and decentralized than most government regulation, understanding it requires forsaking simplistic source-of-law models for understanding how fundamental private-sector standard setting is changing norms in governance and regulation. [12] Certification of farming practices is connected to related developments in other sectors, including organic labeling, [13] fishery sustainability, [14] fair trade in coffee, [15] and others, although it appears to be more comprehensive and influential.

This article treats certification of farming practices both as an indicator of broader trends in the administrative law of global governance, and as a place from which to trace connections to other regulatory domains. [16] Because certification is now embedded within formal legal and regulatory structures in the European Union, the ***265** United States, and several Asian jurisdictions, understanding how it has operated within the private-standard regulatory sphere will undoubtedly inform how certification may work as it adopts more public-sector attributes and in more countries. [17] For example, the 2011 Food Safety Modernization Act (FSMA) in the United States adopted as part of its official regulatory apparatus a

program for accreditation of third-party auditors, also known as certification bodies, to conduct food safety audits and issue certifications of foreign facilities and the foods for humans and animals they produce. [18]

The objective of this article is to examine not only the durability and strength of private sector standard setting in the food safety system, but also the desirability of that system as an alternative (or perhaps complement) to formal, governmental processes embodied in the standards adopted by the Codex Alimentarius Commission and implemented by national governments. In many cases, Codex standards and GlobalG.A.P. standards clash in ways that implicate not only food safety, but the free flow of agricultural products in the global trading system. Private standards were first brought to the World Trade Organization's (WTO) Committee on Sanitary and Phytosanitary Standards in 2005 by St. Vincent and the Grenadines, which complained that the rules and standards of GlobalG.A.P. were more stringent than international standards and government requirements, and argued that public rules should apply. [19] By raising its concern about GlobalG.A.P. and other private entities in general at the WTO, St. Vincent and the Grenadines triggered heated debates at the international level with countries divided on the issue. [20] The position of St. Vincent and the Grenadines was supported by Jamaica, Peru, Ecuador, and Argentina. The issue of private standards has since then been raised frequently as a specific trade concern at the WTO. [21]

The threshold inquiries that all stakeholders must make is: do the individual and public health benefits, if any, provided by private food safety standards, justify their costs? Do the processes leading to standard development--public and private--adequately protect the participation of stakeholders, hold decision-makers accountable, and operate with the transparency necessary for that accountability to occur? [22] While Codex processes have often been accused of being politicized on important food safety matters, [23] the replacement of Codex standards in specific instances by GlobalG.A.P. standards poses challenges to the availability of less expensive food that is nevertheless just as safe. Moreover, the predominance of private standards over public ones necessarily implicates the market shaping influence of those standards: through the standards, a relatively small number of global food ***266** retailers exercise disproportionate influence on the export potential of low- and middle-income countries. [24]

Our methodology in answering this inquiry is to select two product specific sectors--fish and crops--and two process specific approaches-- certification bodies and traceability--and identify applicable Codex and GlobalG.A.P. standards. After analyzing textual and process differences in the standards, we identify three jurisdictions where both standards apply-- Honduras, Thailand, and the United States--and evaluate the relative influence of Codex and GlobalG.A.P. standards on farming practices. In future work, we intend to expand this comparison to a broader set of jurisdictions.

At the outset, we acknowledge certain limitations inherent in our approach. First, Codex has a much longer history than GlobalG.A.P., and therefore a larger number of standards that apply to any given product or process. We have analyzed all Codex standards but concede that there may be relevant information contained in an ostensibly inapplicable standard. A standard applicable to live and raw bivalve molluscs, for example, may have a labeling provision covering a wider category of food than its title suggests. Second, Codex and GlobalG.A.P. share food safety mandates but have broader missions that make perfect comparison difficult or impossible. Codex has an explicit mandate to "ensur[e] fair practices in the food trade" while GlobalG.A.P. nominally monitors conduct that affects the welfare of animals and the rights of workers. [25] Nevertheless, the broader scholarly consensus holds that both organizations largely orient their activities toward the food safety objective. [26]

The next two subsections describe the historical emergence of the global food regulatory system and the primary actors: Codex and GlobalG.A.P. Section III describes their rule-making and adjudicatory policies and practices. Section IV

analyzes Codex and GlobalG.A.P. standards in two product and two process sectors and explores what the effect of those standards are in jurisdictions where at least some producers comply with both. Section V offers some preliminary assessments of the effectiveness, reliability and accountability of the emerging global regulatory system. It suggests that private certification of farming practices has triggered significant changes in the global food safety regulatory environment that are likely to expand; that private standards, like public ones, may ultimately be driven by market shaping as ***267** much as food safety objectives, and that accountability mechanisms for both are in need of substantial development in the case of GlobalG.A.P. and reform in the case of Codex.

I. HISTORICAL CONTEXT

A. Codex

The need for an international system to regulate food safety was acknowledged soon after the end of the Second World War when national food safety regulations as well as the industrialization of food production posed new and transnational problems in assuring both the availability and safety of food. The history of Codex dates back to the creation of the FAO and WHO in the late 1940s, both of which had mandates to address, at least in part, the aforementioned problems. [27] In 1950, the FAO and WHO formed the First Joint Expert Committee on Nutrition (Joint Expert Committee), emphasizing the need to address the inconsistencies of international food standards. [28] In 1955, the Fourth Joint Expert Committee declared the uncontrolled use of food additives a pressing matter of public concern and established a committee to draft guidelines on food additive control and use. [29]

The Joint Expert Committee joined a number of international and regional food regulatory agencies that had evolved in the post-war period. The United Nations Economic Commission for Europe, for example, established a Geneva Protocol that proposed standards and guidelines for food commodities, mainly fruits and vegetables. [30] The FAO/WHO Committee of Governmental Experts worked with the International Dairy Federation to implement milk quality and labeling requirements. [31] Europe had worked out a region-wide harmonization system, the Codex Alimentarius Europaeus, based on a model developed under the Austrian-Hungarian Empire. [32]

In 1960, the Codex Alimentarius Europaeus partnered with WHO and FAO as part of an effort to create a global set of food safety, testing, labeling and nutrition standards. [33] During the 1961 FAO/WHO Eleventh Joint Expert Committee, the FAO passed the resolution, which led to the establishment of the Codex Alimentarius Commission as it is known today. [34]

***268** The First Session of the Codex Alimentarius Commission was held in Rome in October 1963, and was attended by an estimated 120 participants from 30 countries. [35] To date, 188 members (187 member countries and one member organization) are represented in the Codex. [36] Codex is assisted in its work both by independent international experts and other international organizations to develop a scientific basis for its standards. [37]

Codex offers three avenues of organizational participation based on a party's qualifications. [38] First, membership is open to all countries but is contingent upon membership in both the WHO and FAO. [39] Only member countries and member organizations (Members) approve standards and guidelines, sit on committees within the organization, and submit candidates for executive positions. Second, countries and organizations that either do not qualify for membership or choose not to become Members can still participate in Codex as observing parties (Observers). [40] While Observers are

technically not entitled to give input at sessions, Observers customarily have been permitted to express their opinions on particular issues and policies.[41] Third, intergovernmental organizations (IGOs) and non-governmental organizations (NGOs) also may attain Observer status.[42] IGOs are required to submit an application for review by the Codex Secretariat and the legal offices of both the WHO and FAO, where additional inquiries may be required.[43] The application process for unaffiliated NGOs is similar; however, NGO applications require more detailed information.[44]

Codex has adopted over 300 codes of practices, guidelines, and standards regulating nearly all aspects of food moving in international commerce from nutrition labeling to food additives, to infant formula, to principles for food import and export certification. Technically, Codex standards are neither binding nor self-executing even among its member countries.[45] Each government is free to develop its own food health and safety standards framework.[46] However, Codex's relevance increased substantially after ***269** 1995 when the WTO was established. At that point, Codex standards became the international benchmark for trade compliant food hygiene regulations.

Codex is now the official standard reference body for the WTO when food safety or labeling measures are challenged as burdening free trade, according to its Sanitary and Phytosanitary (SPS) Agreement.[47] It plays a similar, although not dominant, role for the Technical Barriers to Trade (TBT) Agreement. All countries who agreed to the creation of the WTO in 1994 may be bound by WTO panel decisions regarding SPS and TBT issues;[48] therefore, these countries may be constrained by Codex standards.[49] If a Member country wishes to impose SPS-related standards more stringent than Codex's standards, the country must provide an adequate scientific basis for taking such actions.[50] Codex standards, while criticized on several levels, have been credited with raising the global standard of food safety.

B. GlobalG.A.P.

The movement for private certification of farming practices resulted from two consumer-related pressures and at least as many formal, regulatory ones. The first was from the frequent incidence of food quality and safety episodes in the 1990s and 2000s and, implicitly, the seeming failure of the international food safety and quality assurance system to safeguard against threats arising from the food supply chain.[51] The second was from growing consumer pressures for aspects of the food system like animal welfare and workers' rights to be respected.[52] Although the causes of food safety and quality failures are multiple and vary from case to case, an important cause in many cases is quality control failure at the point of production.

***270** Governments responded by adopting measures aimed at reducing contamination and breaches in the food supply chain. The UK, for example, passed the Food Safety Act in 1990, which increased liabilities on retailers.[53] Coincident with pressures arising from the integrity of the food supply chain, the growing integration of the European economy highlighted the barriers that disparate private and public food safety standards were erecting across the producer-retailer food sectors.[54]

GlobalG.A.P. began in 1997 as EurepGAP, an initiative by retailers belonging to the Euro-Retailer Produce Working Group. British retailers worked together with supermarkets in continental Europe to address what they argued to be consumer demand regarding product safety, environmental impact and the health, safety, and welfare of workers and animals.[55] The standards helped producers comply with Europe-wide accepted criteria for food safety, sustainable production methods, worker and animal welfare, and responsible use of water, compound feed and plant propagation materials.[56]

Over the next ten years the process spread throughout Europe and beyond. Driven by more episodes involving compromised food safety systems, more producers and retailers subscribed to GlobalG.A.P. audits, approval, and certification. EurepGAP changed its name to GlobalG.A.P. in 2007. Today, GlobalG.A.P. is the most influential private standard setting body in the world, certifying more than 134,000 farms in at least 116 countries. [57]

II. STRUCTURES AND STANDARD-SETTING PROCESSES OF CODEX AND GLOBAL G.A.P.

A. Codex Structure and Standard Setting Process

Led by the geographically balanced Executive Committee, Codex consists of twenty-four active committees and task forces. [58] The Executive Committee manages the development of committee standards and guidelines, and develops strategic plans for implementation. [59] Typically, the Executive Committee combines such submissions with those of lower level subcommittees for Commission consensus or ***271** vote. [60] The Executive Committee may exercise the Commission's powers to appoint subcommittee officials or implement Commission approved standards. [61] Commission votes are with some frequency conducted by secret ballot, and while Codex custom, like that of other international organizations, stresses consensus and transparency, [62] it has adopted several standards through secret ballot applying majority vote (sometimes narrowly so) for such decisions. [63]

Beneath the Codex's executive and administrative organs sit four subsidiary bodies responsible for developing the standards to be reviewed by the Commission and Executive Committee. [64] These subsidiary bodies create subcommittees to develop standards for specific regions, subjects and commodities. [65] A host country heads each subcommittee, which is responsible for subcommittee maintenance and administrative functions. [66]

The mandate of the Codex is to develop international food standards, guidelines, and recommendations to "protect the health of consumers" as well as "ensure fair practices in food trade." [67] The Codex standard-setting process, framed by the "Procedures for the Elaboration of Codex Standards and Related Texts," [68] resembles a structured domestic rulemaking process that may be found in a democratic regulatory state. The same procedures apply to the elaboration of Codex guidelines, codes of practices, and other texts. The eight steps detailed below show important elements of the Codex standard-setting process.

First, a Codex committee or member can propose new work or revision of an international standard. [69] The proposal, together with a project document [70] prepared by the committee or member, is evaluated by the Executive Committee [71] through a critical review process taking into account the relevant expert scientific advice available from the FAO or WHO, special needs of developing countries, and criteria and priorities established by the Codex Commission. [72]

***272** After the critical review, the Codex Commission decides to elaborate a new standard and designate a responsible subsidiary body for the preparatory work. Second, after the Codex Commission evaluates the official standard proposal, it undergoes a drafting process, in which members, FAO and WHO expert bodies, and Codex committees participate to create the draft text. On the basis of available scientific evidence, dedicated scientific committees [73] conduct risk assessments and make recommendations for the use of food additives, or maximum limits for residues of pesticides or animal drugs, and so on. [74] Third, the Secretariat circulates the draft text (prepared in step 2) to members and other

interested parties (international organizations, NGOs, and industry representatives) for comment with regard to all aspects of the proposed draft **standard**--from scientific evidence to economic interests. [75] Fourth, the Secretariat returns both the draft and comments to the relevant subsidiary body (committee), which considers and, if necessary, amends the draft text. The draft and the comments are reviewed at the committee level. [76] In steps 5 through 7, with the endorsement of the relevant **Codex** committee in step 4, the Executive Committee again conducts a critical review. [77] The Secretariat then submits the proposed draft, the Executive Committee's critical review and members' comments to the Commission for its adoption of the draft as an official "draft **standard**." [78] Based upon a two-thirds majority of votes and the Executive Committee's critical review, the Commission may decide that the draft **standards** are ready for both an accelerated procedure and the final adoption, which takes place during the eighth step. [79]

The Secretariat again sends the official draft **standard** to members and other interested parties for a final round of review and comments. The Secretariat returns the comments to the relevant committee for consideration and, if necessary, amendment. Finally, the Executive Committee, for the third and last time, conducts a critical review of the draft **standard** in its finalized form together with the comments submitted by members or interested parties. The Commission then decides to adopt, discard, or suspend the draft **standard**. If adopted, the draft **standard** becomes a formal **Codex** **standard** and is published by the Secretariat.

B. The GlobalG.A.P. Structure and Standard-Setting Process

GlobalG.A.P. is a **private** **standard**-setting body that "**regulates**" its member suppliers with various sets of **standards**, corporate social responsibility recommendations, best practices, codes of conduct, and extensive checklists that ***273** incorporate those **standards** into evaluation criteria. [80] GlobalG.A.P. sets out pre-farm-gate, business-to-business **standards** *(i.e.* there is no scheme to inform consumers through labeling or advertising about GlobalG.A.P. certified **foods**), covering activities from seedlings, feed, pesticide use, and harvesting etc. until the **food** product leaves the farm gate. **Standard** compliance is monitored through third party certification that producers are following General **Regulations**, Control Points and Compliance Criteria (CPCC) Protocol, checklists, and guidelines of general interpretation and application. [81] Agni Kalfagianni and Doris Fuchs succinctly explain the GlobalG.A.P. approach:

> The general **regulations** set out the rules by which the **standard** is administered ... describe[] the basic steps and considerations involved for the applicant to obtain and maintain GlobalG.A.P. certification, as well as the role of producers, GlobalG.A.P. and certification bodies .... The CPCC Protocol is the **standard** with which farmers must comply and which are audited to verify compliance ... listing for each scope and sub-scope the control points, compliance criteria and the level of compliance required. Checklists are used by farmers to fulfil[l] the annual internal audit requirement and also form the basis of the farmers' external audit. They replicate the Control Points in the CPCC, and are therefore also composed of modular sections. [82]

The organization is administered by a Board above all the other organs including the Secretariat (legally represented by FoodPLUS GmbH, a **privately** held limited liability entity incorporated under German law) which is in charge of executive management for policy and **standard** implementation, Certification Body Committee, Technical Committees, Focus Groups, Integrity Surveillance Committee, and National Technical Working Groups. [83] The Board consists of an equal number of elected producers (50%) and retailers (50%) and is headed by an independent chairman. [84] The

Board adopts decisions according to a structured consultation process.[85] GlobalG.A.P. standards are developed and implemented by a few Technical Committees, Focus Groups, and Certification Body Committee.[86] There are three categories of members under the GlobalG.A.P. governance structure: retailers and food services providers, producers, and associate members. However, GlobalG.A.P. membership varies year by year as members are free to join and ***274** drop out anytime.[87] GlobalG.A.P. has a global membership in terms of geographic coverage, yet its European members dominate the organization--European firms account for 93% of all retailers, and producers in Europe amount to 72% of all suppliers.[88]

The GlobalG.A.P. standard-setting process is composed of six essential steps.[89] First, a standard-setting procedure may be initiated upon a member (retailer or producer) request, followed by a stakeholder analysis to determine if such a proposed standard will be viable in the GlobalG.A.P. context; namely, whether the proposed product/process standard falls in the scope of GlobalG.A.P. and who the potential clients might be.[90] Second, the GlobalG.A.P. Secretariat defines target markets and evaluates the proposed standard in terms of its value and necessity against the existing standard.[91] Third, when the evaluation process (similar to cost benefit analysis) is completed, a standard proposal will be submitted to the Board to approve and reject by consensus, and the Board decision will be published online.[92] If the Board decides in favor of proceeding with standard setting procedure, the terms of reference will also be published for the public (in particular interested parties) to review and comment. A relevant Sector Committee (Sector Committee members are elected for a three-year term by their supplier and retailer peers) oversees developing the standard.

GlobalG.A.P. procedures require two rounds of public comment periods, each of which must remain open for 60 days. If the proposal concerns a new standard, the second round is accompanied by at least two trial on-site audits. Fourth, GlobalG.A.P. incorporates the comments received during the public comment procedures, responds to individual comments, and prepares a summary of the standards online.[93] Decisions on whether to incorporate certain comments at the Sector Committee level are generally adopted by consensus, or, in the alternative, a simple majority vote (with minority views documented).[94] Fifth, after the proposal is approved by the relevant Sector Committee and adopted by the Board, an interim final standard is published online.[95] While the interim final standard enters into force upon publication, it will not become a final standard until a last round of comment (on technical errors only) for four weeks. Finally, after the standard is finalized, the GlobalG.A.P. Secretariat translates all relevant documents according to member ***275** demand.[96] The Board and Sector Committees also review and revise the standard every four years, taking into account technological and market developments, to ensure the standard's relevance and effectiveness.

III. THE RELATIVE INFLUENCE AND EFFICACY OF CODEX AND GLOBALG.A.P. STANDARDS

Theoretically, there is no reason that public and private standards may not harmoniously coexist. As long as GlobalG.A.P. standards do not explicitly or implicitly encourage violation of relevant law, they may be seen as merely complementing existing law or providing a set of market entry requirements for certain producers who wish to enjoy some benefit by forming and sustaining a relationship with one or more major retailers.[97] For example, GlobalG.A.P. requirements are quite extensive in terms of generating and retaining documentary support for their compliance criteria--a characteristic that would, if anything, assist in complying with statutory and regulatory frameworks that may share compliance criteria, but be less demanding with respect to record generation and retention. Some countries, like Turkey, for example, have explicitly adopted GlobalG.A.P. standards as their national regulatory scheme.[98]

Practically, compliance with GlobalG.A.P. standards has become an independent legal regime whereby the third-party accreditation scheme shifts risk away from larger retailers and upon farmers and producers, and consequently, creates barriers to entry for smaller or poorer producers. [99] Moreover, there has been little study into the relationship between compliance with GlobalG.A.P. standards and food safety benefits. Indeed, both independent research and GlobalG.A.P. memoranda concede that their standards have not resulted in uniform outcomes or even responses. [100] There are therefore relevant questions to answer as GlobalG.A.P. continues to overshadow formal regulation in the food safety sector, especially whether the costs it imposes are with the benefits it generates. The following discussion analyzes Codex and GlobalG.A.P. standards, and compliance criteria in two product sectors (aquaculture and fresh fruit and vegetables) and two process standards (certification by third-party auditors and chain-of-custody requirements) to highlight what gaps, if any, separate Codex from GlobalG.A.P. and, using examples from countries in which both standards apply, assess GlobalG.A.P.'s influence, costs, and benefits.

*276 *A. Product Standards*

1. Aquaculture and Fisheries

Fish continues to be one of the most-traded food commodities worldwide. [101] According to the FAO, 45% of the world fish catch is now traded internationally. [102] The fishery trade is especially important for developing nations, in some cases accounting for more than half of the total value of traded commodities. [103] According to the National Marine Fisheries Service, 86 percent of the seafood the U.S. consumes is imported. [104] Seafood consumption has increased in the United States in recent decades, reaching a high during the past decade: the average American now eats approximately 16.5 pounds of seafood each year, compared with 10 to 12 pounds during the 1980s. [105] This increase is reflected globally as the contribution of fish to global diets has reached a record of about 17 kg (37.4 lbs) per person on average, supplying over three billion people with at least 15 percent of their average animal protein intake. [106]

The extensive production and transportation networks involved with the fish and seafood trade open vulnerabilities to contamination and spoilage. [107] Chemicals, metals, marine toxins, and infectious agents have been found in seafood. Infectious agents associated with food-borne illness include bacteria, viruses, and parasites, and the illnesses caused by these agents range from mild gastroenteritis to life-threatening syndromes. Seafood is responsible for an important proportion of food-borne illness and outbreaks both in the United States and worldwide. [108] While not every country tracks seafood-related illnesses and infections, reports from the FAO suggest that seafood borne illnesses may comprise up to 16.1% of all foodborne related illnesses in some countries. [109]

Codex and GlobalG.A.P. each have issued detailed standards and codes of conduct for assuring the safety of seafood, or at least minimizing the risks of contamination or decomposition. Codex recommends the application of Hazard Analysis and Critical Control Point approach designed for all food safety (CODEX/RCP 1-1969) with far more detailed standards and recommendations both for fishery products specifically (fish, crustaceans and molluscan shellfish, etc.) as well as additional processes applicable to the handling of fish and shellfish (e.g. cleaning and disinfection of fish *277 processing facilities, controlling sources of contamination, providing adequate lighting). Similarly, GlobalG.A.P. builds its general regulations for aquaculture over its integrated farm assurance requirements applicable to all the producers who participate in its certification system. [110] GlobalG.A.P. certification is more demanding with respect to documentation for specific practices. For example, where Codex recommends that "no fish, shellfish and other aquatic invertebrates should be accepted if they are known to contain parasites, undesirable micro-organisms, pesticides, veterinary drugs or toxic, decomposed or extraneous substances known to be harmful to human health," GlobalG.A.P. certification requires

that "[f]ish ... introduced to the farm shall be certified free from known diseases" and that records be kept on "information on sampling protocols, test methods and reagents, frequency and results" of disease surveillance all documents of which must be further certified by a "competent authority." [111]

Yet there has been little examination into whether the **relatively** more burdensome documentation provisions of GlobalG.A.P. compliance correspond to better **food** **safety** outcomes. This is important given the cost that participation in GlobalG.A.P. imposes. Thailand, for example, has adopted **Codex** **standards** with respect to a national good agricultural practices program aimed at enhancing the competitiveness of its shrimp industry, which generates $2.1 billion in annual revenues and employs nearly 1 million people. [112] Thai **standards** cover all stages of production, processing and marketing, and subjects farms to inspection and documentation. [113] By May 2008, nearly half of Thailand's 363,946 registered farms--including aquaculture--were certified for national quality control **standards**. [114] The Thai Department of Fishery (DOF) establishes guidelines for all stages: hatchers to farm rearing to processing and shipment all the way to the consumers. Thai DOF auditors **assess** all processes of shrimp farming against the code of conduct for Responsible Fishery, with guidelines on aquaculture from the UN **Food** and Agriculture Organization and the ISO14001 **standard** for Environmental Management System (EMS).

Shrimp transporters and processors must comply with international health and **safety** **standards** and must provide traceability of products. DOF also certifies marine shrimp feed and issues licenses to certified producers and importers of aquatic feed. Random checking is carried out to ensure feed quality, and antibiotic inspection is employed to detect the presence of prohibited antibiotics. [115]

***278** Yet in 2008, only 923 of Thai registered farms qualified for GlobalG.A.P. certification, and that number has subsequently declined to 277. [116] A study conducted by the Fisheries & Environmental Science of Kasetsart University evaluated the impact on Thai farms if GlobalG.A.P. rather than **Codex** **standards** applied. Eighteen shrimp farms were sampled from different farm types (seven small single farms; six medium single farms; and five small/medium, group farms, covering both inland and coastal farms) in the Central, East and South of Thailand. The sample represented more or less typical shrimp farming practices in the country. [117] The studied farms were audited clause-by-clause against the GlobalG.A.P. criteria. The sampled farms complied with nearly half of the GlobalG.A.P. criteria with no significant difference among different farm sizes. In general, the compliance level of the farms with aquaculture **standards** was highest (47-52%), followed by shrimp specific **standards** (44-46 percent), workers' rights (43-45%) and the more general **standards** GlobalG.A.P. applies to all farms (22-27%). [118] For aquaculture, the compliance failures largely had to do with procedures to deal with customer complaints and product recall rather than *ex ante* **food** **safety** practices. [119]

Even within GlobalG.A.P. **standards**, it is not necessarily clear that they are more demanding or consistent in their approach to **food** **safety** principles. GlobalG.A.P. **standards** are divided into "major musts," "minor musts," and recommendations. [120] Certified farms must pass 100%) of all "major musts," 95% of all "minor musts," while recommendations do not affect certification but may become "minor musts" over time. [121] Under GlobalG.A.P. **standards**, monitoring fish for health indicators is a "minor must" while having a system to register all disease occurrences is a "major must," but does not require any documentation as to the existence of the system. [122] Producers are required to maintain a written "equipment cleaning and disinfection plan," but a **food** **safety** system in place at the time of an auditor's inspection is a recommendation. [123] As Antoine Bernard de Raymond and Laure Bonnaud have observed, "there exists not one but several interpretations of GlobalG.A.P." [124]

2. Fresh Fruits and Vegetables

International trade of fresh fruit and vegetables is a billion-dollar business that has significantly increased in the last decade. [125] Between 2003 and 2007 alone, the value ***279** of fruit and vegetable imports increased by 60%. [126] Among GlobalG.A.P.'s supplier members, 70% are in the area of crops (while 22% are in aquaculture). [127]

Increasing trade in fruits and vegetables has been accompanied by increases in the number of reported outbreaks of foodborne illness linked to fresh produce of both imported and domestic origins. [128] Fresh produce is especially vulnerable to microbiological contamination and may also become contaminated post-harvest, especially during the stages of processing, transportation, preparation, or storage. Contaminated fruits and vegetables not only harm human health and life, but also undermine the **public's** confidence in the **safety** of the **food** supply. [129] In addition, as more people consume raw and/or fresh-cut produce without cooking or treatments to reduce or control pathogens, fresh produce may pose even more health risks. According to the WHO, fresh fruits and vegetables pose particular risks for hepatitis A, ascaris, Cryptosporidium, entamoeba histolytica, giardia, salmonella, Campylobacter, enterohaemorrhagic escherichia coli, listeria, and vibrio cholera as well as chemical toxins. [130] Indeed, there have been several of these kinds of outbreaks of foodborne pathogens in the U.S., such as the fresh spinach outbreak of *E. coli* O157:H7 in 2006, [131] the peanut butter outbreak *of Salmonella typhimurium* in 2008, [132] and cantaloupe outbreak of *Listeria monocytogenes* in 2011. [133] Between 1996 and 2010, about 131 reported produce-related outbreaks occurred, resulting in 14,350 illnesses, 1,382 hospitalizations, and 34 deaths. [134] Contamination is likely to occur at an early stage along the production chain, such as during growing and harvesting. [135]

Codex **standards** for fresh fruits and vegetables are codified in the Code of Hygienic Practice for Fresh Fruits and Vegetables (**Codex** Fresh Produce Code) as well as many produce- and process-specific **standards** like dates, corn, fruit cocktails mixtures, and ***280** table olives. [136] The **Codex** Fresh Produce Code was adopted in 2003 and amended in 2010 with Annex III for Fresh Leafy Vegetables, 2012 with Annex IV for Melons, and in 2013 with Annex V for Berries. [137] The main section of the **Codex** Fresh Produce Code is composed of ten parts--objectives of the code; scope; use and definitions; primary production; packing establishment: design and facilities; control of operation; packing establishment: maintenance and sanitation; packing establishment: personal hygiene; transportation; product information and consumer awareness; and training. [138] The GlobalG.A.P. Produce **Safety** **Standard**: Control Points and Compliance Criteria (GlobalG.A.P. Produce **Safety** **Standard**) is the **Codex** Fresh Produce Code's counterpart instrument. [139] The current edition of the GlobalG.A.P. Produce **Safety** **Standard** was adopted on July 24, 2013, and became obligatory from October 24, 2013. The **Standard** covers only part of the GlobalG.A.P. Integrated Farm Assurance **Standard** that is directly related to **food** **safety**--including Section AF: all farm base module, Section CB Crops Base Module, and Section FV: Fruit and Vegetables Module. [140]

Both the **Codex** Fresh Produce Code and the GlobalG.A.P. Produce **Safety** **Standard** address **GAPs** and Good Manufacturing Practices (GMPs), which aim to address microbial, chemical, and physical hazards associated with all stages of the production--from primary production to packing--of fruits and vegetables. Nevertheless, contrary to the general applicability of the GlobalG.A.P. Produce **Safety** **Standard**, the **Codex** Fresh Produce Code pays particular attention to reducing microbial hazards in specific product categories. [141] In terms of regulatory rigor and flexibility, **Codex** provides a general framework of recommendations for governments to move toward international harmonization, especially in the specified sectors. **Codex** does not provide detailed recommendations for specific agricultural practices

but maintains a necessary level of flexibility. The GlobalG.A.P. Produce Safety Standard, on the other hand, lays out an extensive 81-page document, detailing not only standards for fruits and vegetables at all production stages, but also the designs and practices of farms and crops bases.

The Codex Fresh Produce Code is based on the format of the General Principles of Food Hygiene with regard to formats and basic principles, [142] but provides further rules on hygienic issues specific to fruits and vegetables. For example, the Annex for Sprout Production sets out supplementary recommendations for sprout seeds and the primary ***281** production of sprouts for human consumption; [143] the Annex for Fresh Leafy Vegetables gives additional guidance for the farming, harvesting, packing, processing, storage, distribution, marketing, and consumption of raw leafy vegetables; [144] and the Annex for Melons provides specific advice on how to minimize microbiological hazards in the process of farming, packing, and transporting fresh melons. [145] The Codex Fresh Produce Code covers guidance on environmental hygiene, water for irrigation and harvesting, manure, biosolids and other natural fertilizers, soil, and biological control. [146] The Fresh Produce Code, its Annexes, and the General Principles of Food Hygiene should therefore be read together in application. [147]

The GlobalG.A.P. Produce Safety Standard goes beyond mere safety and hygienic practices for the primary production of fruits and vegetables, covering additional issues such as food defense, [148] worker safety and welfare, [149] infrastructure and training for employees, [150] application of organic fertilizer, [151] and site management. [152] With regard to the standard on control points and compliance criteria for fruits and vegetables, the GlobalG.A.P. Produce Safety Standard applies the same regulatory system--*i.e.* categorizing control points and compliance criteria into major must, minor must, and recommended on the basis of their respective importance as well as premising enforcement measures on extensive and detailed checklists. [153] In addition, the GlobalG.A.P. Produce Safety Standard sets out compliance-facilitating requirements, such as record keeping and internal self-assessments, and internal inspection against applicable control points. [154] Most importantly, the GlobalG.A.P. Standard gives step-by-step "decision trees" [155] that are readily operational.

As with aquaculture, GlobalG.A.P. fresh fruit and vegetable standards play mixed roles in food supply chains. Hortifruti, Walmart's Central American regional distribution entity, sources its fresh fruits and vegetables from about 284 producers, but only 30 of those have passed GlobalG.A.P. certifications. [156] As with Thai fisheries, most non-compliant firms actually *were* compliant with the food safety practices endorsed by Codex like pest- and disease-control practices, general cleanliness, and contamination control, but tended to fail in areas like postharvest facilities. [157] Indeed, in the context of Hortifruti's activities in Honduras, Walmart had actually created an ***282** adapted form of GlobalG.A.P. standards in order to balance quality control and supply demands. [158] For example, where GlobalG.A.P. required a facility with running water for workers to wash their hands in the fields, the standard was adapted to allow a bucket of water with a spigot and disinfectant soap. [159]

B. Process Standards

1. Certifying Bodies

GlobalG.A.P.'s scheme is dependent upon third-party certification or audits that verify compliance with its extensive checklists. In light of the globalized patterns of food production, distribution, and consumption, there has also been a growing use of certification bodies by public authorities as an important regulatory intermediary in food safety

governance. [160] Along the global supply chain, certification bodies apply public and/or private standards, perform on-site audits, and measure the extent of compliance by upstream suppliers and producers to ensure food safety (or other desired production process or outcomes).

For example, multinational food companies, supermarket chains, and NGOs-- including *inter alia* GlobalG.A.P., British Retail Consortium (BRC) Global Standards, Tesco's Nature's Choice, Walmart, Carrefour, and McDonald's-- are increasingly employing private standards, certification protocols, third-party auditing, and transnational contracting practices to achieve various regulatory objectives. [161] In addition, under Title III of the 2011 Food Safety Modernization Act (FSMA), the Food and Drug Administration (FDA) is allowed to require certifications from importers as a condition for entry, where such certifications may be issued by accredited third-party auditors. [162] FDA has proposed new rules to implement Title III for accreditation and monitoring of third-party auditors of imported food products. [163]

While certification bodies play an important role as regulatory intermediaries in food safety conformity assessments, their actual effectiveness as well as impact on trade and development are contested. On the one hand, given the trade restrictive effect of certification requirements, member governments of the WTO are urged to follow ***283** relevant international standard, guidelines, and recommendations [164] --namely, the Codex instruments. Likewise, the Trans-Pacific Partnership (TPP) (the adoption of which is now in doubt) SPS Chapter stipulates a legal obligation for member governments to "take into account relevant guidance of the WTO SPS Committee and international standards, guidelines, and recommendations" when enforcing their certification requirements, which shall also limit to essential information for applicable regulatory objectives. [165] On the other hand, private entities involved in food safety auditing and certification also have a substantial stake in ensuring the effectiveness, accountability, and legitimacy of the certification bodies. [166] In some cases, certification and control systems performed by private entities could complement government regulation and enforcement as certification bodies generally enjoy more technical expertise and financial resource. [167] In other cases, however, certification bodies could fail to provide rigorous and reliable output, guarantee compliance with regulations and standards, and eventually become part of the regulatory problem. [168]

Given the increasing relevance and importance of certification bodies in ensuring food safety, both Codex and GlobalG.A.P. have adopted rules and/or guidelines for certification systems. There are two Codex documents for government agencies' reference, the Principles for Food Import and Export Inspection and Certification [169] (Codex Principles) as well as Guidelines for the Design, Operation, Assessment and Accreditation of Food Import and Export Inspection and Certification Systems [170] (Codex Guidelines). The Codex Principles are short, composed of three sections that set out general and abstract ideas. The focus of the Codex Principles lies in Section 3, covering fitness for purpose, risk management, non-discrimination, efficiency, harmonization, equivalence, transparency, special and different treatment, control and inspection procedures, and certification validity. [171] The Codex Guidelines were first adopted in 1997 and later revised in 2010 to provide a framework for the development of import and export inspection and certification systems consistent with the Codex ***284** Principles. Similarly, GlobalG.A.P. has adopted the Certification Body and Accreditation Rules, part of the GlobalG.A.P. General Regulations, to discipline its own auditors and certification bodies. [172] The GlobalG.A.P. Certification Body and Accreditation Rules are a much more detailed instrument in comparison to those of the Codex, covering certification body approval process, operation requirements, producer registration and acceptance, assessment process, certification process, transfer between certification bodies, certification body sanctions, and integrity programs.

The Codex Guidelines directly incorporate the definitions of audit, certification, and inspection set by the Codex Principles to guide governments overseeing activities regarding the equivalence recognition of inspection and certification systems. [173] The GlobalG.A.P. Certification Body and Accreditation Rules serve to regulate its own certification bodies for auditing, inspection, certification, and licensing activities. In addition to their voluntary nature, the Codex Guidelines employ general, flexible, and sometimes vague words regarding the regulatory and methodological recommendations for governments to consider. For example, in the process of determining regulatory equivalence, the Codex Guidelines state that "governments should recognize that ... control methodologies can be different but achieve equivalent results." [174] Also, the Codex Guidelines encourage government inspection systems' "frequency and intensity of controls ... should be designed to take account of risk and the reliability of control already carried out by those handling the products." [175] In some cases, the extent of vagueness in the wording of the guidelines may render the documents much less operational--*e.g.* "the national competent authority in the exporting or importing country should have the ability to enforce and take action based on adequate legislation. It should take all necessary steps to ensure the integrity, impartiality and independence of official inspection systems and officially recognized inspection systems." [176] Terms such as "should have the ability," "adequate legislation," and "take all necessary steps" are far from readily operational and implementable, understandably due to the document's legally non-binding and advisory nature.

In contrast with the Codex Guidelines, the GlobalG.A.P. Certification Body and Accreditation Rules are a much more extensive, rigorous, and detailed set of norms. The GlobalG.A.P. Certification Body and Accreditation Rules are a much lengthier instrument than the Codex Principles and the Codex Guidelines combined, and include issue areas that are not covered in the Codex documents-- *e.g.* training and qualification of personnel [177] and transfer between certification bodies. [178] In addition, despite their private ordering nature, the GlobalG.A.P. Certification Body and Accreditation Rules generally use strong language like "shall" so as to impose mandatory responsibility to all GlobalG.A.P. certification and auditing bodies.

***285** The GlobalG.A.P. Certification Body and Accreditation Rules contain specific requirements that leave little flexibility. For example, with regard to the final approval of certification bodies, the GlobalG.A.P. Certification Body and Accreditation Rules ask that such certification bodies "shall obtain ISO/TEC 17065 (an international inspector qualification standard) accreditation within six months after the date of provisional approval" and that "as a condition for final approval, the provisionally approved [certification bodies] shall have at least one in house trainer ... who has completed the required training available for the applied sub-scope." [179] Furthermore, there are specific criteria regarding experience and qualification, education and legal/technical knowledge, and declaration of independence and confidentiality, which are applicable to GlobalG.A.P. auditors and certification bodies. [180] Additional requirements include that certification holders shall perform internal self-assessments, and that licensed certification bodies conduct unannounced inspections on certificate holders. [181]

GlobalG.A.P. maintains a grading system in terms of compliance and follows the CPCC instrument--major musts, minor musts, and recommendations are listed in different modules covering various sectors, products, and areas as well as respective levels of compliance. [182] As opposed to the loosely defined integrity clause in the Codex Guidelines, the GlobalG.A.P. Certification Body and Accreditation Rules provides a good structure and clearly defined integrity system. Under the GlobalG.A.P. integrity system, there are two components for different regulatory purposed--Brand Integrity Program (BIPRO) and Certification Integrity Program (CIPRO). [183] BIPRO deals with non-compliance issues that have brand/GlobalG.A.P. integrity implications, such as false or incomplete registration, failure to meet requirements, or fraud. [184] CIPRO deals with non-compliance by certification bodies during the process of certification. [185] More specifically, the Integrity Team of the GlobalG.A.P. Secretariat is involved in a record inspection in the GlobalG.A.P.

database based on the classification result of a risk assessment taking into account product characteristics, compliance history, and complaints, etc. [186] The GlobalG.A.P. Integrity Team may also decide to perform an on-site reassessment by observing certification bodies audit production processes of certificate holders in order to ensure inspection effectiveness. [187]

***286** Unlike produce-specific standards, there is less evidence that any particular component of third-party certification requirements translate into substantial differences between compliance and non-compliance. What is logical from GlobalG.A.P.'s more extensive requirements is that it is more costly to use third-party certifiers who qualify to serve as GlobalG.A.P. auditors. As Suzuki and others note, GlobalG.A.P. demands for third-party certification bodies are "a rather high hurdle" even in high-resource, well-regulated economies like Japan. [188] In adopting its final rule for third-party certification bodies under FSMA, FDA acknowledged the wide range of evidence that could be used to establish auditor competency, requiring flexibly articulated criteria (embodied in international standards) that could be met by both governmental agencies and private firms: ensure audit agents are competent and objective, verify the effectiveness of corrective actions to address identified deficiencies in audited facilities, assess and correct any problems in their own performance, and maintain and provide FDA access to records required to be kept under the program." [189]

2. Traceability

Given the growing reach and scope of global food supply chains, traceability of food sources has become increasingly important. A can of tuna, for example, may originate with tuna caught off Australia, go through pre-canning processes in Thailand, be canned in Spain, and finally reach a distributor in Michigan before an American consumer ultimately buys it. [190] When food safety problems occur, firms need to be able to quickly identify the product, which lots are involved, where they were shipped and where they are presently.

GlobalG.A.P. embeds its traceability standards both through its product specific modules and through chain-of-custody requirements. Sourcing, identification, and traceability for livestock, for example, include animal identification, records, and segregation of certified and non-certified animals (although these requirements do not appear to contain the same robust record-keeping that other provisions do). For aquaculture, labeling and traceability requirements include traceability forward, backwards and identification of farms by geographical coordinates. GlobalG.A.P. recently introduced two control points on registered varieties and compliance with IP rights on varieties, thus taking a step toward using its traceability certifications for enforcement of intellectual property rights as well as food safety and other concerns relevant to traceability systems. [191]

Strictly speaking, GlobalG.A.P. standards for chain-of-custody certifications do not serve a food safety purpose. According to GlobalG.A.P., chain of custody certifications ensure "segregation and traceability throughout the supply chain." [192] As ***287** a practical matter, there would be little reason for GlobalG.A.P. chain of custody standards to matter unless they secured underlying food safety (and sustainability and social welfare) guarantees.

Codex principles are more explicit, noting that traceability is a "tool that may be applied, when and as appropriate, within a food inspection and certification system in order to contribute to the protection of consumers against food-borne hazards and deceptive marketing practices ..." [193] Yet Codex principles are just that--general guidelines which have tolerated a wide range of implementation regimes often not closely tied with Codex rationales. Codex, for example, suggests a strong relationship between traceability systems national governments adopt and the ultimate effect on trade:

> An importing country should consider that a food inspection and certification system without a traceability/ product tracing tool may meet the same objective and produce the same outcomes (e.g. regarding food safety, provide the same level of protection) as a food inspection and certification system with traceability/ product tracing. [194]

Countries implementing traceability systems have tended to disregard the trade aspects of Codex principles. The 2001 Bioterrorism Act in the United States, for example, required food processors to be able to identify the origin of all food received by lot, code or other identifier and provide the same information when releasing products. [195] The Act applies to both foreign and domestic food, including all ingredients. FSMA authorizes FDA to order mandatory recalls and establish a food product tracing system. The Act requires FDA to use pilot studies and stakeholder recommendations to develop the food product tracing system. [196]

There are thus competing influences on traceability regimes under Codex and GlobalG.A.P. that distort their ultimate orientation toward food safety and consumer protection. As with the regime for products and certifying bodies, the record-keeping requirements (which impose a substantial component of GlobalG.A.P. compliance costs) may not ultimately serve the food safety end. An Institute of Food Technologists' study found that in the context of traceability systems, documentation-intensive systems (as opposed to those that categorize on the basis of risk level) may cause confusion and delay if there is not a precise framework for defining data inputs; if products carry inconsistent item descriptions or information is incomplete; and, if the entire corporate chain and ownership structure of sources is not identified. [197]

*288 IV. BALANCING FOOD SAFETY AND MARKET SHAPING OBJECTIVES OF PUBLIC LAW AND PRIVATE STANDARDS THROUGH LAW

The preceding discussion illustrated some of the strengths and weaknesses of public versus private standards examined solely through their effect on food safety. The reality is that there are market-shaping objectives behind both publicly adopted and privately driven standards, and legal accommodation of competing standards requires acknowledgment of market size and access. The following section describes how these legal accommodations are unfolding, as well as some advantages and disadvantages of each.

A. Codex Market Politics

Criticism aimed at Codex activities after 1994 has frequently, if not uniformly referred to the special role afforded it under the WTO's free trade regime. [198] Codex standards have a decisive impact on the market access of agricultural, animal, and other food products. Given Codex standards' normative implications in the WTO, Codex members have tended to evaluate proposed standards for their potential impact on trade interests and act strategically. In some cases, trade considerations may outweigh public health and countries may have material incentives to vote in Codex standard-setting processes to "advance their trade interests rather than promote food safety." [199] The relationship between the SPS Agreement and the Codex encourages countries to push for Codex standards through the use of majority voting rather than consensus, or even to distort the decision-making process. Emily Lee has argued that the "linkage between Codex standards and the WTO has diverted the focus of the Commission from health to trade considerations." [200] Elizabeth Smythe has suggested that "[a]s a result of its changing role, Codex rule-making processes have become more

politicized ... reflected in the increased involvement of national trade officials pursuing their interests, and the increased attention and involvement of other organizations." [201] Consumer advocacy groups take the criticism further. [202]

But from Codex's origin--when a number of regional standard-setting organizations threatened to disrupt global trade in food--to the present day, the *289 organization's mission has always been trade-oriented. [203] In 1973, L.M. Beacham, the Assistant to the Director of FDA for International Standards, wrote of Codex's mission that it was to create "a collection of internationally adopted food standards that harmonize the legal requirements of the participating countries, thereby facilitating international trade and affording consumers sound, wholesome products, informatively labeled in a uniform manner." [204] In their brief history of Codex, Franz Vojir, Erwin Schubl, and Ibrahim Elmadfa wrote that "the [FAO] and the [WHO] of the [UN] were intent on impeding ... regional activities [in rules for the testing of food samples] to prevent trade barriers at a global level." [205]

Codex has done little to diminish the appearance of imbalance toward trade or industry influence. Codex's structure has always leaned in favor of not only trade promotion, but giving countries with substantial interests in a given food or subject area privileged status within the standard-setting process. Norway, for example, has always led standard-setting for fish and fishery products; China leads the food additives and pesticide residues committees; and Switzerland led the now-adjourned committees on natural mineral waters and cocoa/chocolate products. [206] In each of these cases, the host country is either a leading exporter of the regulated commodity or chemical or home to major global firms. The Codex standard-setting process may appear accountable to Codex members, given the Procedures for the Elaboration of Codex Standards and Related Texts in theory allows members' comments to be elaborated and considered in the Committees. However, as there exist no clear rules on determining if there is "consensus" among the members to move onto the next step, the chairmen of Codex Committees are effectively able to wield considerable power over the standard-setting process during steps 3 to 7. Such potential problem can be exacerbated in cases involving controversial substances when the science or non- science concerns are contentious. In effect, whether or not Codex members raise concerns during steps 3 to 7 might eventually matter little, and the 8-step structured process becomes ossified. [207]

Moreover, there are few structural incentives for Codex to reform. The principal agricultural players dominate Codex committees and external forces, primarily the WTO, remain content to defer to Codex processes. Specifically, the WTO Dispute Settlement Body (DSB) has expressed that the WTO has no responsibility or interest whatsoever to look at considering the Codex rulemaking practices and determining whether it suffers from procedural defects or legitimacy deficits. [208]

*290 *B. GlobalG.A.P. Market Politics*

Despite the structural balance GlobalG.A.P. incorporates into its decision-making structure (50% retailers, 50% producers), it is an organization established for, and driven by, retailers. [209] As Kalfagianni and Fuchs conclude, "retailers ... still dominate decisions within GlobalG.A.P." [210] For this reason, technical and administrative complexity associated with private regulatory schemes, which provide detailed requirements for every stage of the production and processing chain ("down to the level of each individual producer or processing plant"), [211] drive out small and often foreign producers with the high costs of compliance. [212] Developing countries often complain that many private standards seem to exceed relevant government requirements, such as maximal levels of pesticide residues of 50% or even 33% of public standards established by the importing countries, or much more stringent and complicated animal disease control steps. [213] As a result, since such demanding private food safety standards have emerged from developed countries

and have considerably affected developing countries' exports, some developing countries have criticized private food safety standards as new (*de facto*) SPS market barriers that undermine their trade (export opportunities) and rights to development. [214]

C. Regional Food Safety and Trade Rules

Indeed, GlobalG.A.P. may in many ways represent the re-fragmentation of global food safety rules along regional lines of the kind Codex was established to prevent. Its retailers and producers are overwhelmingly European. [215] Despite the participation of North American retailers like Walmart and McDonald's, producers overwhelmingly state that they undertake GlobalG.A.P. accreditation to access the European, as opposed to North American, market. [216] European animal welfare and labor laws mean that it is often less costly for European producers to comply with GlobalG.A.P. requirements.

In some respects, regionalization of food safety rules may effectively maximize public health and economic interests. There are specific aspects of agricultural products originating in the countries close to Europe like Egypt, Ghana, Kenya, and Turkey that implicate those specific trade routes, food safety factors, and market ***291** access issues. Regional markets across many sectors may be more economically rational than global ones. On the other hand, the regionalization of food safety rules has historically been associated with higher priced and less accessible--if not necessarily less safe--food, so efforts at creating regional alternatives that smooth the disparities caused by privately developed standards may nevertheless adversely affect overall access to food if regional regimes disrupt global trade in food.

D. Nation-Level Adaptations and Reconciliations between Public and Private Standards

In some countries, both governmental and non-governmental constituencies have created hybrid documents or arrangements that combine aspects of Codex, GlobalG.A.P., or other standard-setting sources. In Japan, farmers who sought to reap the perceived benefits of GlobalG.A.P. formed the Japan GAP Association in 2008. Compliance "The ... goal was to make JGAP internationally recognized standard. This essentially meant that JGAP be benchmarked to GlobalG.A.P. to facilitate the export of agricultural products to the EU market." [217] Between 2008 and 2013, although significantly more farms were certified according to GlobalG.A.P., JGAP reorganized its legal structure and abandoned GlobalG.A.P. standards for those more tailored to the Japanese legal and market environment and now benchmark against GFSI, a scheme aligned with Codex's "internationally-recogni[z]ed food safety standards". [218] Kenya, Chile, Malaysia, and Mexico [219] have developed government-led Good Agricultural Practices (GAP) and certification services at very low or no cost to assist small suppliers, and they have *benchmarked* such public certification services against private standards. Vietnam adopted so-called VietGAP, through ministerial decree, a set of criteria, principles and procedures regulating growing, harvesting, and post-harvesting. VietGAP was aimed at replacing disparate private standards like GlobalG.A.P., Marine Stewardship Council, and Aquaculture Stewardship Council with a uniform set of agricultural practices that more closely mirrored Codex standards. [220] The reasons for steering away from GlobalG.A.P. are clear-cost. In a survey undertaken by Oleg Nicetic and his research team, they found that there were no producers in 13 of Vietnam's citrus-growing provinces that complied with GlobalG.A.P. requirements and who could be awarded certification with minimum adjustments. [221]

As with regionalization of food safety standards, the development of formal, national laws that either combine Codex and GlobalG.A.P. standards, or benchmark against them using third-party certification mechanisms, is justified by traditional notions of sovereignty and law-making. Since each country has specific factors that ***292** affect its approach

to food safety, each country should tailor its regulations-or tolerance of private standard setting-to those factors. This was precisely the approach of Codex before it assumed the role it now plays within the WTO system. [222]

Yet it was precisely the discordant system of national standards that led both to the creation of Codex post-World War II and its enshrinement as the official standard for WTO in 1994. States that make GlobalG.A.P. standards part of their official regulatory approaches more clearly run afoul of the SPS Agreement, since laws and regulations are undoubtedly "measures" subject to the scientific justifications imposed as part of the SPS Agreement. This issue was raised specifically by the European Union when the United States passed FSMA; its principal response was based on the trade-burdening effect the third-party certification scheme may have on European exporters, even though a similar regime operated without formal sanction in many EU countries. [223]

E. Sector-Specific Food Safety Rules

If regional or national approaches to combining Codex and GlobalG.A.P. standards either run afoul of international trade law or fail tests of economic rationality, a third alternative is for firms to steepen their influence over their supply chains without coordinating between themselves or for governments to explicitly adopt private standards in specific sectors. Indonesia, for example, has adopted through regulation sector-by-sector requirements for GlobalG.A.P. certification like apples and melons, but not other agricultural products. [224]

Many countries, including the United States, have developed bilateral, product-specific agreements like those governing importation of cantaloupes from Mexico, or seafood from Japan. [225] There are also firm-driven quality control variations that either blend Codex and GlobalG.A.P. standards, or incorporate standards developed elsewhere. Coca-Cola Japan, for example, requires certification according to FSSC22000, a standard issued by the International Standards Organization. [226] As the aforementioned example of Walmart's supply chain in Central America shows, some firms have modified versions of GlobalG.A.P. or Codex standards to fit particular market environments.

This incremental approach has the advantage of tailoring heightened safety standards where it is warranted, without sweeping up all agricultural practices in a single document or approach.

F. A Global Framework for Food Safety?

One solution to the re-fragmentation of global food safety law is the establishment of a framework convention on food safety under the auspices of the WHO or the FAO. Such an instrument has been successful in the tobacco control context at harmonizing varying national and regional approaches and has received implicit acceptance by ***293** major international decision-making bodies as representing "global law" on tobacco control. One of us (Ching-Fu Lin) has elsewhere proposed such a treaty.

CONCLUSION

The exponential increase in food safety incidents across the globe in the past decades have resulted in mushrooming regulatory initiatives, including new standards and requirements from national governments, international organizations (i.e. Codex), and private actors (i.e. GlobalG.A.P.). Such regulatory initiatives, public as well as private, have emerged primarily to address the rapidly decaying public trust in modern global food chains, complicated by many factors including the globalization of economic activities, advancements in food science and transportation technology, the

multi-nationalization of the food industry, and the advent of WTO. Given the significantly transformed production, transportation, and consumption of food, recent food safety incidents, with their intensified scope, severity, frequency, and impact, have become global problems requiring global solutions. [227] Despite the unprecedented numbers of food safety incidents, no multilateral treaty exists to monitor or regulate global food safety, other than the SPS Agreement, [228] which lightly touches upon the side issues of harmonization and scientification from an international-trade-law (facilitation of food trade) perspective.

In light of the regulatory lacunae in public regulatory space, private actors, such as GlobalG.A.P. (or other multinational food companies, supermarket chains and non- governmental organizations), are increasingly filling the gaps by employing private standards, certification protocols, third-party auditing, and transnational contracting practices. [229] The emergence of private governance in the food safety arena has been alongside the gradual decline of states' traditional command-and-control regulation, which is increasingly being replaced by more flexible, market-oriented mechanisms. [230] Although private standards such as those ***294** of GlobalG.A.P. are, in theory, not mandatory for suppliers, many have a *de facto* mandatory status, as a large part of buyers in global agri-food markets now require their suppliers to meet such private requirements, which are usually stricter than their public counterparts.

This article has analyzed the influence and efficacy of public and private standards, as well as the processes leading to their development, with the objective of outlining legal regimes that may mandate the use of certain standards when circumstances warrant; reconcile clashing standards where both apply; and, balance the food safety and market control objectives embedded in both. In so doing, we have endeavored to place standards' legitimacy (input legitimacy and output legitimacy)--inclusion of participatory norms, accountability, and transparency-at the center of our inquiry. While the idea of global food safety governance confers no supremacy to either public or private institutions, their legitimacy derives from the extent to which their institutional design embeds social (economic, public health, and other) norms in the global marketplace, norms "that derive authority directly from interested audiences, including those they seek to regulate, not from sovereign states." [231]

GlobalG.A.P., as well as other private governance models, may suffer from a legitimacy deficit, primarily due to private regulators' narrow pursuit of corporate profits rather than public goods, [232] and their lack of electoral mandate or democratic representativeness as enjoyed by public institutions. [233] Such a myriad of legitimacy deficit limits the roles of private governance and therefore public standards and approaches would seem to remain indispensable. [234] The real challenge for the next several decades is how to create mechanisms that will seamlessly combine the strengths of market-driven approaches with the legitimacy that public sector regulation often provides.

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