

Regulatory Scaffolding: Food Safety Politics in Federal, Unitary, and Multilevel Systems¹

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ABSTRACT

This paper explores the effects of a country's macro-governing framework (MGF) on its regulatory politics in order to better understand China's food safety challenges. The study employs a nested analytical design and conducts a structured comparison of the MGFs of China (fragmented unitary), the European Union (EU) (multilevel), India (decentralized federal), and the United States (centralized federal). A MGF structures how policymakers diagnose problems, design solutions, and resolve regulatory conflict. The paper suggests that a MGF can ameliorate or aggravate regulatory politics in the following ways: (1) newly established regulatory institutions may conflict with the prevailing MGF, (2) a lack of clarity in the MGF regarding vertical and horizontal relations can generate conflict, and (3) persistent regulatory failures may prompt the fundamental reshaping of a MGF regarding food safety. The paper shows that relative to the MGFs of the EU, India, and the US, China's fragmented unitary framework is acutely problematic. The article concludes with a series of policy recommendations to address these regulatory challenges.

Keywords: China, food safety, fragmented authoritarianism, unitary, federal, multilevel governance, regulatory politics

Andamios Regulatorios: Política de seguridad alimentaria en sistemas federales, unitarios y multinivel

RESUMEN

Este documento explora los efectos del marco de macrogobierno (MGF) de un país en su política regulatoria para comprender mejor los desafíos de seguridad alimentaria de China. El estudio emplea

¹ This article draws on findings presented in Yasuda (2017),

un diseño analítico anidado y realiza una comparación estructurada de los MGF de China (unitaria fragmentada), la Unión Europea (UE) (multinivel), India (federal descentralizado) y los Estados Unidos (federal centralizado). Un MGF estructura cómo los formuladores de políticas diagnostican problemas, diseñan soluciones y resuelven conflictos regulatorios. El documento sugiere que un MGF puede mejorar o agravar las políticas reguladoras de las siguientes maneras: (1) las instituciones reguladoras recientemente establecidas pueden entrar en conflicto con el MGF prevaleciente, (2) la falta de claridad en el MGF con respecto a las relaciones verticales y horizontales puede generar conflicto, y (3) las fallas regulatorias persistentes pueden provocar la remodelación fundamental de un MGF con respecto a la seguridad alimentaria. El documento muestra que, en relación con los MGF de la UE, India y Estados Unidos, el marco unitario fragmentado de China es sumamente problemático. El artículo concluye con una serie de recomendaciones de políticas para abordar estos desafíos regulatorios.

Palabras clave: China, seguridad alimentaria, autoritarismo fragmentado, gobierno unitario, federal, multinivel, políticas regulatorias

监管的支持框架：联邦、单一、多层体系中的食品安全政治

摘要

本文探究了一个国家的宏观治理框架（MGF）对其监管政治产生的效果，以期更好地理解中国的食品安全挑战。该研究使用一个嵌套分析设计，并对中国（分散式单一体系）、欧盟（EU）（多层体系）、印度（去中心化联邦体系）、美国（中心化联邦体系）四者进行了结构化比较。一个MGF对决策者如何诊断问题、设计解决方案、解决管理冲突进行体系建构。本文暗示，一个MGF能从以下方式改善或加剧监管政治：（1）新制定的监管制度可能与现行MGF相冲突，（2）MGF中关于垂直和水平关系的阐述不足能引起冲突，（3）不断的监管失败可能推动从根本上重塑MGF的食品安全方面。本文表明，与欧盟、印度、美国的MGFs相比，中国的分散式单一体系框架尤其存在问题。本文结论就应对这些监管挑战提出了一系列政策建议。

关键词：中国，食品安全，碎片式威权主义，单一制，联邦制，多层治理，监管政治

How would you design a system with over 240 million producers that sell their goods in thousands of unregulated markets throughout this country? Show me how it is done!

—*Official, State Food and Drug Administration, May 19, 2009*

China faces the unenviable task of building a food safety regime for the largest food production system in the world. Compounding the regulatory challenge is the extraordinary degree of heterogeneity in its supply and distribution systems in terms of baseline production conditions, producer concentration, and market access. As global food safety rankings indicate, the Chinese government is struggling in this task.² This article highlights the challenges of governing in a large-scale context, and explores the food safety experiences of other large regulatory unions to chart potential pathways for China's food safety reforms.

Ensuring food safety in large, heterogeneous polities presents regulators with vexing governance challenges (Ansell and Torfing 2015; Yasuda 2017). Regulators bemoan the difficulties of monitoring millions of farmers and producers, coordinating regulatory activities across diverse subnational units, and implementing traceability in complex supply chains. In addition, developing a legal framework that imposes uniform food safety standards while being sensitive to local conditions is particularly complicated under large, heterogeneous conditions.

A cross-national comparison of food safety systems highlights the negative correlation between food safety outcomes and the scale of a food production system. Using a global food safety measure developed by Convertino and Liang (2014), regressed on a Scale Index, a rough measure of a country's size and heterogeneity in food production, a negative, curvilinear relationship can be observed (Figure 1).³ China, however, significantly underperforms relative to its predicted value, suggesting that the country is less adept at managing its large-scale food production system. At the other extreme, the European Union (EU) outperforms relative to its predicted value in its provision of food safety. Why is scale particularly problematic for China relative to other countries?

This paper conducts a structured comparison of four of the largest regulatory unions in the world—China, the EU, India, and the United States—to better understand the relationship between scale and food safety governance. I argue that the ability to develop an effective food safety system in a large-scale regulatory union is dependent on the prevailing macro-governing framework (MGF). Whether federal, unitary, or multilevel, MGFs struc-

2 The 2013 EIU ranking ranks China no. 48; the RASSF 2013 worst offender ranking places China as no. 1; the Food Sentry 2013 Food Risk ranking places China as no. 1.

3 For a discussion of the index, please see Appendix 1.

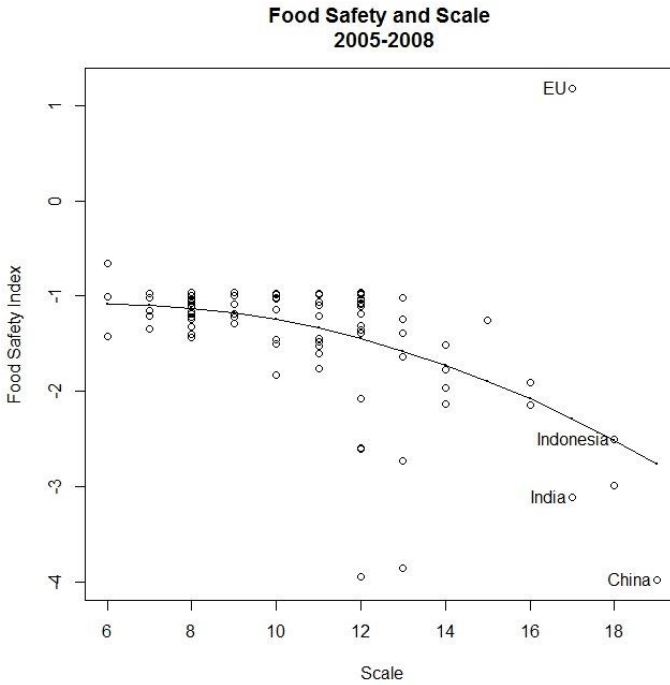


Figure 1. The Relationship Between Food Safety and Scale

ture how policymakers diagnose problems, develop solutions, and resolve regulatory conflict between national and subnational units (Termeer et al. 2010). The MGF determines which level of government is empowered to address a problem: in unitary systems, the national government dictates policy, whereas federal and multilevel systems share policymaking responsibilities at different levels.

A MGF also establishes how decisions made at different levels of government relate to one another horizontally and vertically, providing a template for integrated governance. The functioning of an MGF is particularly consequential for large-scale polities, where often thousands of regulators must be coordinated across multiple levels of government and subnational units.

In this article, I show how MGFs can ameliorate or aggravate regulatory politics as national food safety systems are established. China, India, the EU, and the United States adopted a relatively uniform food safety template: (1) a nationalized food safety bureaucracy, (2) a comprehensive food safety law, and (3) new monitoring and information sharing systems (Asian Development Bank 2005; United Nations 2008). However, a variety of regulatory politics emerged as these new institutions interacted with the prevailing MGF. First, in some cases, new regulatory institutions and prerogatives conflict with the overarching MGF. For example, India's federal government has been unsuccessful in integrating state authorities given its overarching decentralized federal MGF. By contrast, the American food safety

system operates within a centralized federal framework in which the federal government has a long history of controlling food safety policymaking and enforcement. Thus, moves towards enhancing national control of the food safety system encountered few difficulties. Second, a lack of clarity in the MGF in terms of articulating vertical and horizontal relationships can complicate regulatory coordination in the system. In China, a fragmented central authority and the constant flux of regulatory authority between central and local governments leads to severe regulatory tensions in its food safety system. Third, persistent regulatory failures can sometimes lead to a fundamental reshaping of the MGF itself. In the EU, failure to address European-wide food safety issues prompted food safety actors to develop a multilevel framework.

Analyses of China's food safety problems have focused on a host of factors, but few have directly examined the regulatory politics that emerge due to the interaction between China's food safety institutions and its overarching MGF. Scholars have shown how bureaucratic politics can stymie effective implementation of policy as agencies vie for influence over the food safety portfolio (Tam and Yang 2005). Other work has shown how a plethora of local governance problems involving corruption, clientelism, and a lack of budgetary allocations exacerbate food safety implementation problems (Calvin et al. 2006; Huang 2012; Yang 2008). Those with a more historical lens contend that socialist institutional legacies prevent the establishment of an effective inde-

pendent regulator (Liu 2010). Another body of literature has explored how the state's control over the media, non-governmental organizations, and consumer groups has hindered regulatory development (Thompson and Hu 2007; Yang 2013; Zhou 2017). Finally, another thread of literature has shown how the food sector's rapid expansion and new production techniques have contributed to China's growing food safety crisis (Xiu and Klein 2010; Yan 2012). Yet an exploration of how China's fragmented unitary system has hindered the development of a national food safety system, in comparison to federal or multilevel systems, has yet to be undertaken.

Scholars are well aware of how China's fragmented unitary system of governance has created problems for its regulatory system, but it is only through a comparison of different MGFs that these dynamics can be brought into sharp relief. Literature on multilevel governance, polycentricism, and intergovernmental relations can provide a different lens to better understand the consequences of China's fragmented unitary system. Work on multilevel governance has explored the policy implications of delegating different degrees of authority across multiple levels of government, and considers the costs and benefits of this approach (Liesbet and Marks 2003). Similarly, a body of scholarship on polycentric governance considers how systems with multiple centers of authority might be able to better respond to emerging policy challenges and better leverage resources throughout the system (Ostrom 2005). In addition, a well-developed literature

on comparative federalism has explored division of powers, institutional design, and symmetrical and asymmetrical arrangements on policy outcomes (Elazar 1993; Rodden 2004).

Before delving into case studies of the EU, India, the US, and China, I first explore the rationale for conducting a nested analysis of these regulatory unions. I then examine the MGF of each case and highlight how it has affected food safety implementation. I then move on to a comparative analysis of each system, and, finally, consider a series of policy recommendations for China.

Nested Designs and Structured Comparisons

I employ what Lieberman (2005) refers to as a “nested analysis” in order to conduct a structured comparison of the EU, India, and China. I then move out of the nested analysis framework to investigate the US food safety system. Most would conclude that due to significant differences in gross domestic product (GDP), levels of corruption, and state capacity among the cases studied that it would be difficult to justify a comparison, but a nested analysis that “nests” a small-N study within a large-N statistical analysis can overcome these limitations.

The large-N analysis establishes general relationships between variables and an outcome of interest. Intensive case studies are then performed to assess the validity of the model, and to tease out causal mechanisms. A point to be emphasized is the focus on regulatory unions rather than on national food safety systems, which is why the EU is included in this study. While each member state in the EU has its own national food safety bureaucracy, these agencies function as part of a European food safety system responsible for auditing, monitoring, and developing standards for the Common Market.

The first step in the nested analysis requires the specification of an Ordinary Least Squares model with the relevant dependent variable (food safety) regressed on the explanatory variable (size and heterogeneity, as a proxy for scale) and other controls to assess the strength of the relationship. Food safety is measured by the Safety Index, which identifies the level of food safety risk that a country poses to the global trading system (Convertino and Liang 2014). A higher Safety Index ratio implies a higher level of food safety. This study uses a logged four-year average (2005–2008) of the Safety Index for 110 countries. Due to data limitations, the United States was dropped in the nested analysis.⁴

4 Due to limitations of the RASSF data used in the model, the United States was dropped from the large-N analysis. The RASSF data adopts a Eurocentric view of food safety. Consequently, food safety warnings issued against the US often reflect qualitative differences between the US and EU regarding what constitutes “safe” food (e.g., GMO rules, hormones in beef), rather than an objective measure of food safety in the United States. This suggests that the RASSF ranking is unfairly biased against the US, which is why the United States’ food safety performance is far lower than expected (on par with Nigeria). In addition, the analysis uses listwise deletion to handle missing data; ~19 percent of observations were removed from the analysis due to missing values on predic-

Table 1. Summary Statistics

Statistics	N	Mean	Std. Dev.	Min	Max
Food Safety Index (log)	89	-1.41	0.72	-3.98	1.183
Scale Index	89	110.80	2.90	6	19
GDP per Capita (log)	89	7.82	1.35	5.42	10.61
Corruption	89	-0.30	0.81	-1.36	2.31
Rule of Law	89	-0.35	0.79	-1.78	1.84
Regulatory Effectiveness	89	-0.22	0.77	-2.10	1.82
Governance Quality	89	-0.24	0.78	-1.51	2.24
Polity	89	13.06	6.02	0	20

To measure the scale of a regulatory union, I constructed a “Scale Index,” which included population, surface area, tiers of administration, level of biodiversity, and agricultural production.⁵ A country was scored from 1 to 4 points for each element of the index, where “1” identifies the country as below the 25th percentile and “4” as above the 75th percentile.

An OLS regression of a country’s Safety Index shows that scale has a negative association with food safety across a variety of specifications (see Table 2). Even when controlling for economic development, various measures of governance quality, and democratic openness, the Scale Index remains a robust predictor of food safety.

After specifying the food safety model, we can then use this large-N

analysis to guide our case selection for a structured comparison. Using the output from this regression, we can plot a regulatory union’s *predicted level* of food safety based on the regression model against its *actual level* of food safety. The plot in Figure 2 highlights a similar picture to that of our initial bivariate plot in Figure 1. The EU performs far better than its predicted value, whereas India and China are better predicted. And, because each of these three regulatory unions have similar scores on their Scale Index (~19), which had the greatest explanatory weight in the model compared to other factors, it raises the question of why scale is highly problematic for some (China), moderately problematic for others (India), and not at all problematic for still others (the EU).⁶

tor variables.

5 Each of these measures is negatively correlated with a country’s food safety. Please see Appendix 1 for a rationale for the index.

6 One might argue, however, that the difference between the EU, China, and India can be attributed to GDP per capita. Undoubtedly, GDP per capita is an important explanatory factor to consider in food safety performance, which is statistically significant across a variety of specifications. But, GDP per capita alone cannot explain this variation for the cases under examination. First, looking

Table 2. OLS Coefficients for Nested Design

OLS	Model I	Model II	Model III	Model IV
Scale Index	-0.11*** (0.02)	-0.12*** (0.02)	-0.11*** (0.03)	-0.12*** (0.02)
GDPpc(log)		-0.73 (0.62)	0.20 (0.97)	0.41 (0.98)
GDP- pc(log) ²		2.01** (0.62)	2.59*** (0.71)	2.77*** (0.74)
Corruption			0.24 (0.26)	0.22 (0.26)
Rule of Law			-0.47 (0.28)	-0.47 (0.28)
Regulatory Effective- ness			0.52* (0.22)	0.44 (0.23)
Governance Effective- ness			-0.47 (0.27)	-0.44 (0.27)
Polity score				0.01 (0.01)
Intercept	-0.27 (0.34)	-0.14 (0.25)	-0.27 (0.26)	-0.42 (0.30)
Adjusted R-squared	0.19	0.27	0.31	0.31
n=	89	89	89	89

*=.05; **=.01; ***=.001

As discussed previously, a reasonable first step in theory building about governing in large-scale contexts is to consider a country's MGF. The model is used to justify the case com-

parison, and should not be viewed as a comprehensive modeling of the correlates of food safety. Lieberman (2003, 2005) notes that a nested analysis is an iterative process between model testing

at the added-variable plots of GDP per capita, the EU and to a lesser extent India and China are still significant outliers with respect to their provision of food safety (Appendix 2). Second, India still outperforms China in terms of food safety despite its lower GDP per capita. Third, when using a basic measure of relative importance developed by Silber et al. (1995), scale is found to contribute more to the variation in the dependent variable than GDP per capita in Model 4.

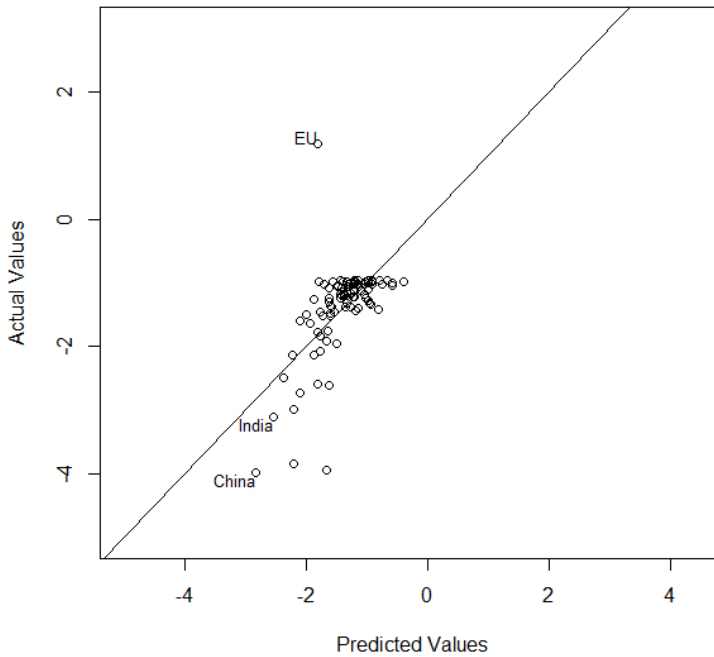


Figure 2. Structured Comparison Case Selection Plot

and model building. For a model that emphasizes the importance of scale relative to a number of other predictors, we seek to examine the causal mechanism—in this instance, the regulatory politics that result from the overarching MGF—to help us understand why scale is problematic for some countries and not others. The next section analyzes the EU’s multilevel system, followed by India’s decentralized federal system, and then China’s fragmented unitary system. The United States’ centralized federal system is then explored as another contrasting case.

The European Union Multilevel System

The EU’s food safety system operates according to a multilevel governing logic. The system is

credited with being one of the strongest regulatory systems in the world in terms of responsiveness, regulatory stringency, and the low incidence of mass food contaminations (Vogel 2012). Experts claim that the EU has “solved the problem of scale” by employing a regulatory framework of multilevel governance (Alemanno 2011). One would expect that bureaucratic politics in the EU food safety system would be severe because of the size and complexity of its food market, in addition to the constant jockeying of influence between the EU’s commissions and its twenty-eight member states. Despite these challenges, the EU has successfully avoided the more debilitating types of regulatory politics plaguing other systems.

The genesis and framework of the EU’s multilevel governing system could be understood to be a structured

response to the fundamental problem of scale in governance. The EU case highlights how frequent food safety challenges emerging from conflicts arising from food safety policies and the prevailing MGF, and a lack of clarity in terms of its horizontal and vertical relations ultimately led to a fundamental restructuring of the MGF.

From Decentralized to Multilevel Integration

Initially, the lack of a clear template for regulatory integration in the 1960s led to substantial conflict between member states and the evolving European system of regulatory governance. At the outset, European Commissions were primarily focused on eliminating obstructions to market integration, not food safety. Member states, however, were more concerned with protecting their own standards, regardless of the consequences for market integration. In some instances, member states would deny regulatory equivalence to other member states. And, because EU harmonization of food safety laws required a unanimous vote, attempts at building a fully integrated food safety system were stymied. By the 1970s, food safety standards across member states had developed into serious barriers to intra-European trade, and were often used as a pretext for protectionist behavior.

The establishment of a key guiding principle of the EU's integrated, multilevel regulatory system, "mutual recognition," provided the basis for a macro-governing solution to the paralyzing bureaucratic conflicts that had

emerged. In 1979, the European Court of Justice ruled on the now famous *Cassis de Dijon* case concerning the use of food safety as a non-tariff based barrier to trade. The European Court of Justice ruled that member states can only insist on different standards if they can demonstrate that the divergence satisfies an urgent need.

Following the ruling, member states were required to adopt a policy of mutual recognition of their food safety regulations. The resulting system created a clear template for how the regulatory systems of member states relate to one another—that is, a product deemed to be safe for circulation by one member state should be considered safe by all (Ansell and Vogel 2006). This basic principle of mutuality enabled the creation of an internal market for food products while preserving the national regulatory traditions of each member state. In effect, the mutual recognition mechanism preserved the primacy of the member state but also created a framework by which European authorities could adjudicate food safety conflicts.

The emphasis on mutual recognition, however, limited the authority of European actors to take regulatory action as food safety problems began to emerge at the European-wide scale, as was the case in the *bovine spongiform encephalitis* (BSE) outbreak in the 1990s. And, because of the primacy of the member state in the European food safety system, from 1986–2000, the EU was not able to introduce legislation to manage the risk of BSE because member states blocked reforms (Krapohl 2007). British interests dominated the

Scientific Veterinary Committee at the European level and played down risks of BSE for human health (Krapohl 2007). By the time the UK government announced the presence of BSE in its livestock in 1996, the European public experienced a collapse in trust in regulatory authorities (Ansell and Vogel 2006). A new committee was then established in the form of the Scientific Steering Committee, but regulatory proposals were still blocked by member states. BSE's Europeanization highlighted the need for a new MGF.

How to Preempt Conflict and Integrate Governance

The development of food safety controls at the European-level required a renegotiation of governance processes, and was reflective of new multilevel measures taking place in other policy arenas. As a matter of jurisdiction, the EU recognized the fundamental importance of various traditions in food safety and provided substantial leeway for member states to develop their own systems and participate in decision-making at the European level.

In effect, the multilevel system clarified vertical and horizontal relations within the regulatory union. The EU developed a baseline food safety law that highlighted broad principles by which member states were to develop their own national food safety systems. Member states still retained the right to manage food safety, but they also had to comply with a more comprehensive bill on general food regulations. The newly established Directorate General for

Health and Food Safety (DG SANCO) in 1999, which was placed in charge of implementing EU food safety laws across Europe, ensured standardization by auditing member states and examining whether their national statutes were in compliance with EU food safety laws. In emergency situations, DG SANCO was given the authority to intervene in member state systems and force recalls. However, this authority is only invoked in highly specific instances against a particular product, or geographical area. The European Courts of Justice also adjudicate between European and member state interests in food safety.

Europe watchers assert that the EU is still in the beginning stages of multilevel governance. Institutional compromises have led to only partial solutions that address food safety differences between authorities at different levels (Ansell and Vogel 2006). The balance of power between European and member states is still in search of a jurisdictional resolution. Some observers speculate that as the authorities at the European level gain power at the expense of member states, member states may begin to challenge the legitimacy of the EU food safety system. But, thus far, the EU's multilevel framework has successfully mitigated bureaucratic politics in food safety by providing clear institutional forums for regulatory actors to respond and reform the prevailing MGF. It is an exemplary case of how tensions between regulatory actors and the prevailing MGF can be productively resolved and lead to positive food safety outcomes.

India and Decentralized Federalism in Food Safety

Regulatory politics in India's food safety system are more problematic. India's food safety institutions are embedded in a decentralized federalist framework in which the state government plays the dominant role in solving food safety problems. As the central government in New Delhi sought to re-assert itself in food safety—that is, challenge the overarching logic of the MGF—state resistance has led to severe bureaucratic politics.

The Development of a Decentralized Federal System

India's federal system was originally established as a highly centralized system of governance. Prior to the 1990s, states exercised far less power relative to the center: India's governmental revenue collection system was managed entirely by the central government, state boundaries could be redrawn by simple majority of parliament, and presidential rule gave New Delhi the right to dissolve state governments during perceived crises (Parikh and Weingast 1997). It has been broadly observed that the guiding logic of the system was that a strong central government was needed to prevent destructive interstate disputes and to address regional inequalities (Parikh and Weingast 1997).

Beginning in the 1990s, the MGF changed as states began to exercise primary authority over industrial and economic policies (Sinha 2005). In 1994, the Indian Supreme Court set limits for presidential rule, which ef-

fectively prevented centralized action from New Delhi (Manor 2001). Local governance was also strengthened with the establishment of Panchayats and other municipal bodies, which created new political resources at the local scale (Mitra 2001). This new framework has led to “creative management” between center and localities dependent on carrots and sticks (Manor 2001). The bargaining system is not equal for all states, with some receiving extensive privileges from Delhi and others less extensive privileges, complicating vertical and horizontal relations (Sinha 2003).

India's food safety system in the 1990s was highly fragmented at the national level. During this period, food safety regulations were scattered over eight different acts of parliament and involved four different ministries (Jha 2013). These enactments and operating procedures were meant to complement and supplement each other in order to achieve total food safety and quality standards, but, instead, led to an overly complex regulatory system (Palthur et al. 2009). In 1998, a new food safety bill was proposed that repealed conflicting acts and orders, defined standards, accredited laboratories, and established a licensing system for food businesses (Umali-Deininger and Sur 2007).

A complex web of controls below the federal level impeded the jurisdictional integration of states into a common framework of governance. All agricultural commodities were required to be sold through wholesale markets controlled by state governments. In 2005, there were eight hundred regulated markets in the country

(Umali-Deininger and Sur 2007). In addition, laws restricting the processing of certain commodities to small-scale workshops led to highly fragmented markets. The unintended consequence of these regulations created significant legal barriers to developing a coherent regulatory system at the national level.

Pressures for further food safety reforms erupted in the early 2000s following a major soft drink scandal involving Pepsi and other distributors who had used contaminated water in their products. In 2006, the Indian government moved forward with a fundamental restructuring of the system. At its helm, the federal government established the Food Safety Standards Authority of India (FSSAI), which was to serve as the single point of contact for all regulators in the system, shifting food safety governance to the national level. The FSSAI was to provide scientific advice and technical support for central and state governments, create an information network, and establish standards for the country (Palthur et al. 2009). The agency ambitiously declared, “the act aims to establish a single reference point for all matters relating to food safety and standards, by moving from multilevel, multi-departmental control to a single line of command” (FSSAI ACT).

Conflicts between the FSSAI and the Macro-Governing Framework

Implementing a centralized food safety governance system in the context of India’s decentralized federalism has created a number of challenges. First, the federal structure lacks clear linkages to state regulatory machinery, creating

problems for the system as it attempts to coordinate food safety interventions. Second, a tradition of center-state bargaining encourages states to bargain for exemptions to food safety laws developed at the national level, thwarting attempts at standardization to govern food safety for the country as a whole.

As the new food safety system was implemented in 2011, significant contestation over regulatory authority emerged between the federal and state governments. Despite the move towards a “single line” command system, the FSSAI was highly dependent on sub-national acquiescence. The new food safety act requires state governments to establish food safety systems at the state level. A state food safety commissioner then designates officers at the district level and food safety officers at the sub-district level (Dhar 2012). Although the FSSAI created a forum at the national level in the form of a central advisory committee with state representation to monitor implementation of the law, many states felt disenfranchised by this new system. As a result, through 2012, several states were still not in compliance with the law. Kashmir had not appointed a commissioner or implemented new food safety regulations (More 2012). Maharashtra challenged the new FSSAI in a Bombay High Court, arguing that it was the prerogative of states to legislate on alcohol, and that there were already state laws governing the manufacture and sale of liquor (Ghosh 2012). In Kerala, the state government asserted that a resource crunch, staff shortages, and lack of infrastructure made it impossible to

implement the new food safety provisions (Nair and Antony 2012).

Federal attempts to re-assert control over states failed. In a letter to the states, K. Chandramouli, the FSSAI Director, implored governments to implement the new laws quickly (Dhar 2012). State governments rejected federal authority in food safety across the board. For example, in 2012, state governments spoke out against an FSSAI audit report on milk adulteration, denying the severity of the problem in their own regions. By 2014, states still had not established food safety tribunals as required by the law. The FSSAI chastised state food safety officials for failing to implement the law and insisted that states should learn from other states in compliance with the law (Singh 2014).

State governments, producer associations, and traders have argued that the new federal-led food safety system benefitted large-scale multinationals over local food producer networks, and unfairly favored food safety knowledge developed by transnational players. New laws requiring the licensing of all food vendors and small businesses have been criticized as “impractical, undemocratic, and dictatorial” and as a “mere copy of food safety laws prevalent in developed countries” (Sharma 2012). Merchants associations rallied at protests across nineteen states, asserting that new food quality standards were based on US and European laws and did not account for local climactic differences and the significant soil pollution that has occurred since the 1950s (More 2012). In Tamil Nadu, the Madras High Court also sided with the Tamil Nadu

Hotels Association, which argued that the commissioner of Tamil Nadu did not have the right to enforce provisions of the new law (Parekh 2012).

The allegations of state governments were not necessarily unfounded concerning the new law’s lack of sensitivity towards the local level needs. The basic laws for the new food safety system were initially proposed by major players in the food-processing sector, who sought to reform India’s overly complex system as a way to make the sector more competitive globally. In 2002, the Prime Minister’s taskforce suggested that a major goal was to align Indian food safety with new international standards.

India’s decentralized federalism poses significant problems for the establishment of a centralized food safety system. Reconfiguring the food safety system toward the federal level has led to significant contention. State governments in India have challenged the authority of the FSSAI in terms of standards setting, licensing policies, and monitoring. The federal system in India, however, institutionalizes state representation in multiple forums, helping to structure the bargaining process. While states are engaging in obstructionist activity, at least they are using their power as a bargaining tactic to effect real change in national laws.

China’s Fragmented Unitary System

China’s fragmented unitary framework of governance, however, has engendered the fiercest

regulatory politics throughout its food safety system, with dire consequences for food safety provision. Unlike Europe or India, China lacks a template for integrating governance across different levels of government. China is neither federal nor multilevel, but is a *de jure* unitary state in which state authority is vested in the central government and then delegated to local governments. In reality, the system is fragmented across various ministries and across different levels of government, often undergoing periodic waves of centralization and decentralization.

Macro-Governing Framework in Flux

The lack of a clear, stable framework for vertical and horizontal relations has led to significant tensions in the food safety system. As authority constantly shifts from local to central, it shifts power relations, inhibits institution building, and complicates coordinated regulatory action. Policies developed at one level of governance are sometimes forced on systems at other levels, which operate according to different time frames, managerial practices, and knowledge generation processes, given their different scales of operation. There is no clear mechanism by which the interests of subnational units are communicated to governing systems at higher levels.⁷ Unlike the United States, for example, which grants states with guaranteed policymaking powers and a clear legislative template for challenging federal policies, provinces bargain, evade, or fight with central authorities across a range of policy sectors.

This complex background of central-local relations has had a profound effect on China's food safety system. Beginning in the 1990s, central ministries, including the Ministry of Agriculture; Ministry of Health; General Administration for Quality, Supervision, Inspection, and Quarantine; and Ministry of Commerce, were in charge of various aspects of food safety. As new standards and rules were developed at the center, the implementation of these policies was delegated to local governments. However, owing to massive food safety scandals in the early 2000s, food safety authorities were then re-configured in 2004, with the new State Food and Drug Administration (SFDA) piloting a largely top-down food safety apparatus. The most recent reform involves the creation of a single super ministry, the State Administration for Market Supervision, which has been mandated to control food safety from the center through its local agencies. However, each new sequence of reforms has failed to clarify in practical terms how central and local governments are to function as part of a regulatory whole. In effect, we can observe how China's fragmented unitary MGF complicates the implementation of regulatory policies. The lack of clarity in vertical and horizontal relations in the MGF leads to severe coordination problems.

Regulatory Conflict and Confusion

Cycles of centralization and decentralization generate significant tensions as the Chinese seek to build an integrated system. This lack of a definition of

⁷ Tam and Yang (2005) provide a lengthy discussion of these problems.

which level of government should be placed in charge of implementing food safety rules, unclear horizontal regulatory relations, and a conflicting mix of initiatives have created significant problems. A deeper look at the use of coordinating bodies (a centralizing initiative) highlights the consequences of a loosely defined MGF for regulatory coordination.

Since the early 2000s, China has created several coordination bodies to establish centralized control over its fragmented food safety bureaucracy. In 2003, the SFDA was formed to coordinate China's food safety regulatory bodies by reinforcing hierarchical control and coordinating local food safety enforcement across multiple agencies. However, owing to a series of failures involving information flow, bureaucratic competition, and corruption, the SFDA was swept away in favor of other coordinating bodies.⁸ In 2007, the State Council formed a special committee to address food safety challenges led by Vice Premier Wu Yi. Then, in 2009, the Ministry of Health was designated as the new lead ministry in charge of coordinating regulatory activity. Later, in 2010, a National Food Safety Commission was established and led by Vice Premier Li Keqiang, which led food safety committees (FSC) established at each level of government to coordinate regulatory activities. This was followed by the China Food and Drug Administration (CFDA), which was created in 2013, and reports indicate that the

agency faced similar challenges in establishing its authority. Then, in 2018, massive state restructuring established the State Administration for Market Supervision.

Local regulators in China often contend that the centralization of food safety management through these coordinating bodies has the practical effect of disempowering local actors. This, they say, is unfortunate because it is local players who have the necessary knowledge to monitor production networks effectively. One specialist has put the point this way: "committees at the central level are not competent and are too far removed from the ground ... no one wants to take responsibility" (Interview 1). Husbandry officials in one county, for example, complained that few of the new Food Safety Committees (FSCs) understood the major risks involved in pig farming and have little experience in monitoring local distribution networks. Moreover, given the limited staffing of these FSCs, monitoring must still be directed by local agencies. One Chinese official asserted, "these guys have no idea what they are doing. They don't do any of the real regulatory work. They have to depend on the 20 other agencies involved in developing food safety." He then cited an example: "When the clenbuterol campaign started, they didn't do anything" (Interview 2).

Alienated local officials highlight how the lack of a statutory basis for the coordination bodies in food safe-

⁸ The SFDA has struggled to coordinate the food safety system since its establishment. In 2007, the SFDA's head, Zheng Xiaoyu, was executed for corruption, which led to a reshuffling of the SFDA's portfolio. By 2008, the MOH had acquired much of the SFDA's former food safety roles.

ty further exacerbates tensions. New regulatory bodies have been formed, but none of the pre-existing agencies have written mission directives or detailed by-laws governing how to plan coordinated food safety regulation, interact with other agencies, and adjudicate conflicts between ministries and different levels of government (Balzano 2011). For example, when the new SFDA was developed, individual bureaucrats simply did not understand how to interact and redirect their workflows in the new system. A former director of the central-level SFDA described what happened this way: “It was frustrating because, of course, we have ‘food’ in our agency name, so people expect us to be in control, but no one listened to us. We took all the blame from the public, but were never empowered to do our job” (Interview 3).

The constant evanescent of power from center to locality has also complicated regulatory goal setting. During moments of crisis, the center often will direct food safety in a top-down fashion, only to then delegate regulatory control back to the localities when the issue is resolved. But officials complain that this leads to difficulties in handling day-to-day food safety activities. The ad hoc nature of campaigns contributes to regulatory uncertainty, as food safety goals are constantly changed. One official complained, “we are at a loss as to how to handle food safety, there are standards, but with campaigns, these might change or move on” (Interview 3).

In many ways, the Chinese food safety system highlights how broader

patterns of governance can limit the effectiveness of new food safety institutions. By most standards, China’s institutional food safety reforms have been lauded by policy experts as steps in the right direction. However, a lack of a clear template of regulatory governance due to its fragmented unitary system has led directly to bureaucratic tensions that inhibit regulatory coordination.

Another Note on Federalism: The United States

The United States is, of course, another large and heterogeneous polity that may lend comparative insight in the development of a more effective food safety regulatory regime in China. The US suffered from major food safety disasters in the early twentieth century, and even in recent years, scandalous microbial contaminations, such as the deadly 2008 salmonella-tainted peanut butter misadventure, continue to be uncovered in its food supply system (CNN 2008). However, the United States is considered to be generally recognized as safe by most experts. Food Sentry, Economist Intelligence Unit, and OECD studies rank the United States higher than India and China, but less safe than the EU.

In contrast to India, the US food safety system developed under a centralized federal framework in which the national level dominates policymaking to ensure safe food for its citizens. Federal governing bodies are involved in setting policy, coordinating regulatory inspections across jurisdictions, and

monitoring food producers. States have largely acquiesced to federal control. The preponderance of US federal agencies involved in food safety is derived from the government's role in regulating interstate commerce. States play a role in the management of food safety for retail distribution and in eating establishments within their jurisdictions, and are permitted to devise state protocols, provided they are in line with federal guidelines.

Operating in a Centralized Federal Framework

The US food safety system is not without its problems, however. Despite clear federal oversight of the national food safety system, the federal level has long been criticized as being a highly fragmented system (Strauss 2011). In evaluating the institutional arrangements regarding site-based inspection and certification for the US, it is important to recognize that the US actually has (at least) two systems of food safety governance: a US Department of Agriculture (USDA)-led system and a Food and Drug Administration (FDA)-led system. Today, the FDA manages over 150,000 food facilities, 1 million restaurants, 2 million farms, and over \$10.15 billion USD of food imports (Strauss 2011). The USDA is in charge of over 6,000 large-scale slaughtering facilities. Food safety monitoring is also conducted by the Environmental Protection Agency, the Centers for Disease Control, and a host of other agencies.

Overlapping authority, scarce resources, and unclear regulations due to haphazard policymaking have led

to severe fragmentation at the national level. Like other regulatory systems, the US food safety system emerged as a response to crisis rather than as part of a comprehensive program. In the 1860s, the USDA was primarily focused on expanding production for the country's growing population. Following the publication of Upton Sinclair's *The Jungle*, the federal government moved swiftly to implement the Pure Food Act of 1906 and the Meat Inspection Act of 1906 (Endres and Johnson 2011). All food safety inspection was conducted primarily under the jurisdiction of the USDA until 1940, when the FDA was transferred to the Federal Security Agency. The split FDA-USDA system then continued to develop, with the USDA acquiring primary jurisdiction over meat, poultry, and egg production, and the FDA focusing on seafood and processed foods. As other issues emerged regarding pesticide usage, environmental protection, and land usage, food safety portfolios were parceled out to other new agencies. The result of proliferating regulations and regulators was a highly complex regime at the federal level.

Since the 1960s, no national legislative committee or executive oversight body has been able to unify the US food safety system at the federal level. In 1977, a study led by Senator Ribicoff represented a federal effort to consolidate food safety under the FDA, but this initiative failed to produce concrete regulatory reform. An attempt to unify the system again in 1998 also proved unsuccessful despite evidence showing that the US system would be better

served under a single central authority at the national level. The effort to develop a centralized, integrated system was constantly stymied by other interested parties who advocated a multi-agency coordinated system, citing the difficulties of implementing a single-agency model. Proponents of the multi-agency model argued that because both the USDA and FDA had developed independently of each other for one hundred years, it would require a multiyear implementation period to eliminate duplication, resolve turf battles, and harmonize differences in organizational culture (Pape et al. 2004).

Integrating Governance

Despite problems with fragmentation within the federal food safety system, and in direct contrast to the Indian case, the US system has relatively fewer problems in terms of federal and state relations, and state governments have largely acquiesced to federal dominance in food safety. The federal-state contracting arrangement, for example, helps coordinate food safety activities across multiple levels, leveraging system resources given their scale of governance. Each year, the FDA specifies a certain number of inspections that state inspectors conduct on behalf of the federal government. The federal government then audits state systems and certifies that they are capable of carrying out the federal inspection regimen. In this way, the federal government can standardize the implementation of policy, conserve its own resources, and better utilize state inspectors with better knowledge regarding local circum-

stances. The federal government also provides expert guidance on technical issues and standards through broad food codes for certain products (Taylor 1997).

Because of the historical presence of the federal food safety system at the state level, states have developed their systems to better integrate with federal standards and regulations. When states seek to develop their own protocols for food safety, they model their own inspection and monitoring systems on federal food safety policies. For example, twenty-five states operate USDA-approved meat and poultry inspection programs (Hammond 2004; Merrill and Francer 2000). Safety standards are relatively similar from state-to-state, enabling interstate collaborative ventures, such as the Interstate Milk Shippers Conference. In this instance, a centralized federalist framework provides a clear framework within which governing systems at lower levels can coordinate with higher-level authorities.

Recently, persistent and well-publicized food safety problems have again resulted in a push for a massive overhaul of the US regulatory system that has remained unchanged for almost thirty years. Concerns about the substantial influx of foreign food imports, the increasing frequency of widespread microbial contaminations, and weak monitoring standards in an ever-growing food production sector led to the enactment of the Food Safety Modernization Act of 2010. The new law now strengthens FDA control over food safety and preserves the primacy

of the national level in food safety regulation in the US. The new law substantially increases the power of the FDA in manpower, regulatory reach, and information collection. Specific provisions of the new law include a new FDA mandate to regulate all food safety measures from the farm level, establish hazard access critical control points in all food processing facilities, develop regulation for safe transport of food, and have immediate recall authority (Endres and Johnson 2011; Strauss 2011). State governments have largely accepted the expanded powers of the FDA, but have also requested that federal agents

refrain from intervening in food safety matters of small-scale, local producers.

Critics of the US food safety system still contend that the new law does not address the fundamental question of coordination at the federal level. Debates about the merits of developing a unified agency persist (Hammonds 2004). However, in comparison to India's decentralized federalism, the US MGF provides a more congenial relationship between the federal and local governments, which can explain why the US has been more adept at managing the scale of its governance system.

Comparative Analysis of Four Regulatory Giants

Table 3. Macro-Governance Frameworks Across Countries

	China	India	US	EU
Macro Framework	Fragmented Unitary	Decentralized Federal	Centralized Federal	Multilevel
Interaction Issues	Unclear MGF complicates food safety implementation	Conflict with prevailing MGF	Less conflict with prevailing MGF	Mediative relationship
Problems/Conflicts	Uncoordinated policy and poor institution building due to a mix of centralizing/ decentralizing policies	States resist federal food safety measures	States acquiesce to federal food safety system; however, fragmentation at top creates issues	Initial resistance to EU overreach, but accommodations facilitated integration
Food Safety Coordination	Lowest	Low	Moderate	High

The MGFs of the EU, India, China, and the United States have important consequences for

each country's food safety development trajectories. The EU's multilevel model appears to be the most successful

in addressing regulatory coordination problems. Multiple forums facilitate negotiations about safety standards between member states and European authorities. In addition, jurisdictional clarity encourages the coordinated participation of governing communities operating at supranational, national, and regional levels. The centralized federal approach of the US to food safety provides a clear coordinating template for the entire system, with state governments converging on the federal view of food safety. India's decentralized federalist system is nominally centralized, but in practice, it is highly dependent on state governments for the implementation of food safety policies. Food safety policies developed by the federal government are unable to be implemented in governing systems operating at the sub-national level. However, resistance is still more constructive than obstructive, as states seek to actively amend the system in ways that are more amenable to their more parochial state-level interests. China's fragmented unitary system provides a weak template for coordinating governance among its regulatory institutions, leading to poor food safety outcomes.

Highlighting the MGFs brings into focus the interaction effects between food safety policies and their broader governing context. In the case of federal systems, federal legacies in food safety management matter. The United States secured the federal government's role in managing food safety at an early stage. State systems were co-opted into the federal regulatory system and federal field offices were established and

conducted much of the inspections. This early setup led to the accumulation of substantial local knowledge of food safety conditions and prevented significant anti-federal food safety politics from developing. This system contrasts with India's decentralized federalist system where state regulators had previously managed their own food markets independent of New Delhi. The imposition of the new top-down regime met with stiff resistance at lower levels due to a lack of familiarity with operating within the new regime or ability to do so. In the case of the EU, because member states had developed their own food safety systems, the EU had to actively incorporate views from member states and formally acknowledge the role of national regulatory systems. This form of multilevel accommodation is distinct from India's unsuccessful attempt to centralize food safety to the federal level without adequate state support.

In many ways, China's fragmented unitary framework is akin to India's decentralized federal approach to food safety governance. While central policy has long guided food safety regulation, in practice, local governments were in charge of managing food safety. In China, as in the case of India, the central government's attempts to centralize the system without clarifying vertical and horizontal relations has led to increased fragmentation.

Conclusion

Food safety regulators, policymakers, and technical experts have converged on a remarkably sim-

ilar set of regulatory policy fixes for ailing food safety systems: (1) the enactment of comprehensive food safety laws, (2) the establishment of a national food safety agency, and (3) the implementation of multi-level monitoring and information collection systems. However, this article has shown how these regulatory institutions interact with broader MGFs and can lead to sub-optimal outcomes. In some cases, a regulatory solution may conflict with the overarching logic of an MGF. In other instances, the overall lack of clarity between vertical and horizontal relations in the MGF can lead to regulatory confusion. In cases where a more mediative relationship obtains, conflicts between the overarching MGF and regulatory imperatives can lead to new institutional arrangements.

What lessons do the regulatory experiences of other large, heterogeneous polities offer China? While the analysis points in the direction of adopting a more federal or multilevel MGF, the Chinese government has reiterated that such a move would be politically impractical and unsuited to China's conditions, given the country's centrifugal tendencies (Naughton and Yang 2004). However, while a *de jure* establishment of a multilevel model might be unfeasible, China might still be able to develop *de facto* multilevel institutions to correct the shortcomings of its fragmented unitary system. This is less a case of requiring regime change, and more about reconsidering and defining the various regulatory relationships within the Chinese system.⁹

On Multi-level Coordination

Under the current fragmented unitary system, policymakers largely diagnose regulatory issues as a result of too much or too little centralization. However, the reality of food production and distribution in a large, heterogeneous system is that governing systems must work in concert at every level, from farm to table. A food safety issue rarely involves either local malfeasance or a national shortcoming, but is typically a result of multiple failings as food moves from production, processing, and distribution at multiple levels. As such, diagnosing a problem as a single-level issue is misguided.

Ultimately, a multilevel forum in which regulators at different levels can freely deliberate and discuss emerging problems needs to be developed. In addition, regulators at the same level of government should be encouraged to meet and discuss the challenges they face, and share successful and unsuccessful approaches to food safety.

Delegating Authority

Chinese policymakers may find that the EU's multilevel approach to food safety provides guidance for the effective management of China's regulatory problems. As in the EU, a similar approach in China would focus the authority of the central government on managing the "Chinese common market," while facilitating positive integration of provincial food safety systems. Provinces would be empowered to develop their own food safety systems, but

⁹ More detailed policy prescriptions can be found in Yasuda (2017).

would have to comply with minimum national food standards before engaging in commerce in other provincial markets. Lagging provinces would then face competitive pressures to improve food safety for fear of losing access to the national market.¹⁰ Under this approach, provinces would have representation in central-level decision-making bodies concerning the development of common market standards, risk assessments, and enforcement policies.

Integrating Governance

Beyond developing an institutional framework for multilevel governance, however, policymakers must also understand the challenges for integrating governance across levels. This entails a three-fold process: (1) an assessment of

the strengths and weaknesses of each level of government, (2) the development of a concrete plan leveraging the strengths of each level of government in certain food safety activities, and (3) the establishment of a credible dispute-settling mechanism as regulatory disputes arise between different levels.

The urgency of China's food safety problems requires a fundamental rethinking about how MGFs influence regulatory decision-making. While the design of the food safety regime is important, we must recognize that these institutions do not operate in a vacuum. Food safety regulators operate in a broader governing context that informs how they define problems, devise solutions, and integrate governance.

10 As of August 2016, Beijing engaged in a process of benchmarking food safety performance across provinces, municipalities, and other localities, presumably as a way to create competitive pressures to improve regulatory oversight (Balzano 2016).

APPENDIX 1

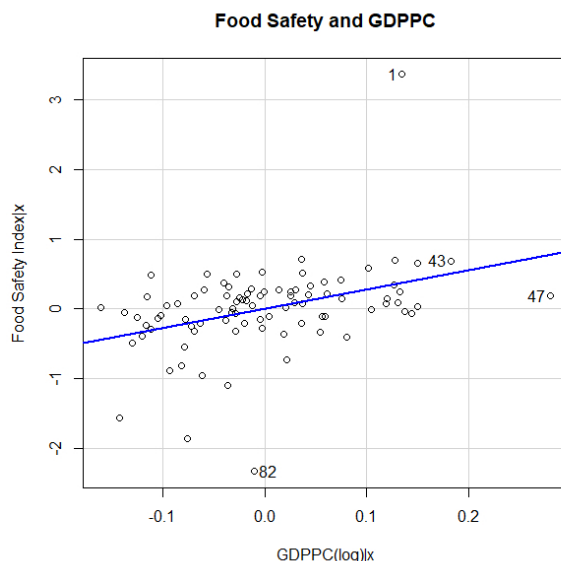
The study creates a Scale Index from several indicators: population, surface area, tiers of administration, level of biodiversity, and agricultural production. A country is scored from 1 (25th Percentile) to 4 (100th Percentile) points for each element of the Scale Index, for a total of 20 points. Each individual element attempts to capture elements of size and heterogeneity relevant to food safety management and scale politics. In addition to population and surface area, I also added tiers of administration to capture the size of government and administrative complexity. The biodiversity measure is from a World Bank study that scores a country's ecological complexity from 1–100. Biodiversity seeks to capture the heterogeneity of the agricultural production system. The volume of agricultural production is a proxy for the length of supply chains and size of food markets in a country. Each of these measures themselves is negatively correlated with a country's Food Safety Index.

	Population	Tiers	Ag Prod.	Biodiversity	Area
Coefficient	-0.18*** (0.05)	-0.3872** (0.12)	-0.12* (0.05)	-0.302*** (0.090)	-0.234*** (0.053)
Intercept	1.94*	0.541	0.9034	-0.72***	0.31
Adjusted R ²	0.08	0.07	0.72	0.25	0.12
N	142	125	137	139	132

APPENDIX 2

Added-Variable Plot for Large-N Analysis Model

The added-variable plots, also known as partial regression plots, show the effect of adding another variable to a model conditioned by other independent variables. The plots are particularly useful in identifying potential outliers, in this case, the EU (=1).



Data Sources

Variable	Detail	Source
Population	Total	World Bank
Tiers	Levels of Government	Treisman (2008)
Ag Production	Million tons; 2004–2007	FAOSTAT
Biodiversity	Scored 0–100	World Bank; GEF
Surface Area	Km ²	Treisman (2008)
Food Safety Index (log)	DI/TI	Convertino et al. (2013)
GDP per Capita (log)	USD	World Bank
Corruption	Scored -2.5 to 2.5	World Bank; Worldwide Governance Indicators
Government Performance	Scored -2.5 to 2.5	World Bank; Worldwide Governance Indicators
Regulatory Effectiveness	Scored -2.5 to 2.5	World Bank; Worldwide Governance Indicators
Rule of Law	Scored -2.5 to 2.5	World Bank; Worldwide Governance Indicators
Polity	Scored -10–10 (Rescaled to 0–20)	Polity Score

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