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The Scale Problem: Food Safety, Scale Politics, and Coherence Deficits in China

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Publication Date
2013

Peer reviewed|Thesis/dissertation
The Scale Problem:
Food Safety, Scale Politics, and Coherence Deficits in China

By

John Kojiro Yasuda

A dissertation submitted in partial satisfaction of the
requirements for the degree of
Doctor of Philosophy
in
Political Science
in the
Graduate Division
of the
University of California, Berkeley

Committee in Charge:

Professor Kevin O’Brien, Chair
Professor Chris Ansell
Professor Rachel Stern
Professor Peter Lorentzen
Professor Kevin Chen

Fall 2013
THE SCALE PROBLEM:
FOOD SAFETY, SCALE POLITICS, AND COHERENCE DEFICITS IN CHINA

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By: John Kojiro Yasuda
Abstract
The Scale Problem: Food Safety, Scale Politics, and Coherence Deficits in China

By
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University of California, Berkeley

Professor Kevin O’Brien, Chair

Why do food safety problems in China continue to emerge at an alarming rate? Central and local government officials are highly incentivized to address food safety, but officials have struggled to develop multilevel governance solutions to address the crisis. Contrary to studies that suggest that poor governance outcomes in China are often due to bureaucratic fragmentation, this dissertation highlights the policy challenges that emerge as a result of a contentious process of integrating a fragmented system of governance. For policy issues that are trans-regional and govern a common market, such as food safety, actors understand policy coordination is essential because regulatory failures in one locality can quickly spread to others. However, despite the felt need for an integrated governance approach, regulators, producers, and civic organizations fiercely contest the means to ensure food safety, leading to regulatory incoherence.

The dissertation asserts that the inability of actors to develop a system of integrated food safety governance is directly related to a scale problem. First, actors must overcome a structural scale problem in which millions of actors must coordinate regulatory activity in a multilevel, multi-scale context. In addition to spatial (patch to globe) and jurisdictional (village to intergovernmental) scales, governance must be coordinated on network (family to trans-society), knowledge (local knowledge to universal law), and temporal (short to long-term) scales, among others. Policies can be poorly coordinated which creates scale mismatches. For example, long-term national policies may conflict with local short-term initiatives (jurisdictional and temporal mismatch). Mismatches persist due to different actors’ political commitments to particular food safety approaches, which leads to contentious scale politics regarding food safety. Second, actors must also address a policy scale problem. A national food safety system requires a large-scale, non-incremental policy solution. However, due to fierce scale politics, China has adopted small-scale, gradualist policies that have only exacerbated regulatory incoherence.

The study draws from over 170 interviews with food producers and government regulators in nine counties. The dissertation studies community governance food safety solutions in the Community Supported Agriculture market; foreign-controlled farms in the export sector; co-regulatory initiatives through farmers’ cooperatives and dragonhead enterprises; and state-led food safety initiatives in the domestic sector.
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LIST OF ABBREVIATIONS

APB   Agriculture Production Base
AQSIQ General Administration for Quality Inspection and Supervision
BRC   British Retail Consortium
CIQ   China Entry-Exit Inspection and Quarantine Bureau
CNCA  China Certification and Accreditation Administration
CSA   Community-Supported Agriculture
CURA  Chengdu Urban River Association
DGSANCO Directorate-General for Health and Consumer Protection
EUCTP EU-China Trade Project
FDA   United States Food and Drug Administration
FSC   Food Safety Committee
FSL   Food Safety Law
GAP   Good Agricultural Practice
GMP   Good Manufacturing Practice
HACCP Hazard-Access Critical Control Point System
ISO   International Standards Organization
MOA   Ministry of Agriculture
MOC   Ministry of Commerce
MOH   Ministry of Health
QS    Quality Safe Certification
QTSB  Quality Technical Supervision Bureau
SAIC  State Administration for Industry and Commerce
SFDA  State Food and Drug Administration
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ACKNOWLEDGEMENTS

The crafting of this dissertation faced its own “scale problem”: it was large, unwieldy, with multiple moving parts. At times, it felt like this day would never come, and I must thank the many individuals who helped bring into focus my thoughts on food safety and scale. I am deeply grateful to my committee members – Kevin O’Brien, Chris Ansell, Peter Lorentzen, Rachel Stern, and Kevin Chen. My chair, Kevin O’Brien, has been a first-rate mentor. I am thankful for his insightful perspective on Chinese politics, sage advice on conducting fieldwork, and editorial expertise. I will always be grateful for our frequent chats in his office, home, and over skype. When I lost my way, Kevin always helped point me in the right direction. Chris Ansell introduced me to new literatures that have fundamentally changed the way I think about governance and scale. It is largely due to Chris’s influence, that I turned to Europe in search of solutions to China’s scale problem. Peter Lorentzen added a much needed political economic perspective to the project. I must thank Rachel Stern for her comments on the overall framing of the dissertation, and for helpful discussions on the development of risk regulation in China. Kevin Chen provided invaluable in-country support, sharing his contacts and guiding my research design in China.

I was extraordinarily fortunate to meet a number of individuals in China who provided me with their expertise and time. To Roger Skinner, who took interest in this project and taught me my first lessons on the state of food safety in China– thank you. I am indebted to Philippa Kelly, director of China Policy, who directed me to Kevin Chen, and who also introduced me to a network of food safety experts in the diplomatic community in Beijing. John Chapple, who is fighting the good fight for food safety in China, provided technical expertise and organized interviews with exporters throughout Shandong. Yuehua Zhang at Zhejiang University shared his research site in Zhejiang province where I was able to conduct a number of important interviews. Donghui Yang and Suping Shen at Yunnan Normal University played an instrumental role in organizing my fieldwork in Yunnan. I am also thankful for my colleagues at the International Center for Agricultural and Rural Development at the Chinese Academy of Agricultural Sciences for fruitful discussions on rural issues, methodology, and survey research. My research on China’s fascinating Community Supported Agriculture (CSA) movement would not have been possible without the support of individuals at the Social Resources Institute, specifically Chen Wu. Tianle Chang also played an important role in introducing me to a host of CSA producers in Beijing, Shanghai, and Chengdu.

I must also thank the countless individuals who agreed to be interviewed for this project. While all interviews are referenced by code, each represents someone who has been working tirelessly to address the food safety crisis in China. To the government officials, who invited me to their localities to conduct research on a politically sensitive topic, I cannot express my gratitude enough. Without their substantial support and much needed sponsorship, I would not have been able to meet the producers, processors, and state regulators, whose words fill the pages
of this dissertation. I will not forget the countless conversations shared over meals throughout China with food processing executives, farmers, and NGO leaders. To reporters and diplomats who have been covering food safety developments in China for the last decade, I hope this dissertation will aid you in your efforts to ensure that all people in China have access to safe food.

Research for this dissertation was made possible through funding from several grant organizations. The Center for Chinese Studies provided summer funding, which enabled me to conduct much of the preparatory work for this project. The Fulbright-Hays Fellowship, NSEP Boren Fellowship, and NSF provided substantial funding for over 15 months of fieldwork.

This project is a culmination of my academic experiences to date. I was fortunate to be surrounded by a nurturing academic community at Berkeley. Laura Stoker provided comments on my grant proposals and initial research design. Steve Vogel directed me to important literature in the political economy of development. Tom Gold, Stanley Lubman, Rosie Hsueh, and Lynn White gave useful feedback on chapters of the dissertation. To my colleagues Seungyoun Oh, Rongbin Han, Julia Chuang, Alexsia Chan, Suzanne Scoggins, who read and commented on earlier drafts of chapters, I cannot thank you enough. I will sorely miss our dinners and post-conference chats. I must also acknowledge my former teachers, Vivienne Shue, Elizabeth Perry, and Roderick Macfarquhar, whose intellect and wisdom have been a source of much inspiration over the years. Most of all, I must thank William Kirby for convincing me to start studying Chinese politics during my freshman year at Harvard.

I am also thankful for my friends who helped usher me across the finish line. These were the individuals who proofread grant proposals, reminded me to eat, and forced me to go on vacation from time-to-time: Eddie Ahn, David and Celina Chao, CT and Aileen Chin, Frank Lee, Jason and Jane Lee, Jerry Lee, Rachel Lee, Ted and Jennifer Lim, Albert Luo, David Muehlke, Gordon Scharf, Philip Song, Daniel Song, Jonathan Tang, Dan and Cathy Tsai, Alexander Tsai, Alex Woo, Allie Yen, and Eugene Yi.

I dedicate this dissertation to my loving family who provided much needed emotional and intellectual support. My father, my first teacher and editor, read every single page I have written on the subject of food safety. Some of our many late night chats have been included in this dissertation. To my mother who fed me and prayed for me during dark turns in the dissertation writing process, I would not have survived without you. Jeff and Celeste plied me with good food and drink, and opened their home to me. To my niece, Sophie, and my nephews, Cole and Zach, whom Uncle John has neglected for far too long, I will be coming over to play soon.

Finally, I give thanks to Him who is more than able to do immeasurably more than we ask. Soli Deo Gloria.

John K Yasuda
Beijing, China
Chapter 1. China’s Scale Problem and Scale Politics

“The apparent success of the ‘Big Thirteenth’ Congress of the Chinese Communist party in October 1987 doesn’t explain the mystery of how a billion Chinese live together under the dictatorship of a party whose forty-six million members equal the population of one of our European allies. How can so big a polity cohere? The scale is beyond our experience if not imagination. We may grow accustomed to imagining gene-splicing at one end of the material scene and whole clusters of galaxies at the other, but the Chinese behemoth visible every day just across the Pacific remains an equal mystery of a psychopolitical kind.”


The first axiom presented to students of Chinese politics is this: China is a large and populous country. References to the country’s complexity, vast geographical landscape, enormous population, and sizable markets are commonplace. Yet for most scholars, China’s scale is treated as if it is “beyond our experience if not imagination,” and always hovers in the background of our analyses, but rarely serves as our primary focus. The objective of this dissertation is to bring scale to the forefront and to consider how China’s scale has deeply influenced its politics.

The importance of scale in governance is a subject that has been examined in the study of ecological management, but remains under-theorized in other critical governance literature, such as that on social regulation (Andersson & Ostrom 2008; Cash et al 2006; Temeer et al 2010). Unpacking the concept of scale forces us to immediately address what one scholar has called the “consequences of giantism” (Lewis 1991) and directly consider the challenges of capturing the benefits of institutional diversity under a framework of unified governance. Whether it concerns central control over localities, coordinating policies for many actors, or building systems of accountability for China’s vast bureaucracy, China’s scale serves as the rich soil from which much of its political life sprouts.

Learning to govern with scale is not a uniquely “Chinese” problem. Other polities have had to consider how to integrate institutional diversity under a common framework of governance. In the United States, the development of federalism was its response to scale, striking a balance between state’s rights and national concerns for security, inter-state commerce, and fiscal control. In India, the creation of a centralized elite civil service helped to bring distant localities under the firm grip of the British Raj (Lewis 1991). For over 30 years, the European Union has tried to develop a system of governance that respects the sovereignty of member states while building common ground to deal with “European” problems (Jacoby 2004; Ansell & Vogel 2006). It is important to note that scale, in addition to implying geographic size and population, also encompasses complexity. Switzerland’s “consociationalist” solution (Lijphart 1969) to substantial ethnic fragmentation serves as a notable example of how even smaller countries must contend with issues of scale. Governing with scale is a fundamental endeavor of most polities.

This dissertation examines China’s food safety governance failures as a way to cast light on the implications of governing with scale. China’s food production system includes over 240 million farmers, 1 million processors, and thousands of distributors with vastly different
capacities to provide safe food. Thus, China’s food safety regime provides a rich starting point to understand the challenges of integrating a multitude of actors while crafting comprehensive policy solutions.

The development of a national food safety system is daunting for any country since it must unify local food safety standards, ensure all producers abide by the same rules, and also comply with transnational food safety practices (Ansell & Vogel 2006; Coglianese et al 2009). National monitoring points must be established and traceability systems put in place to facilitate national recalls of contaminated food. The primary challenge in the development of a national food safety system is to integrate actors at multiple levels into a coherent framework of governance. Government regulators, local officials, and producers in China realize that they cannot go it alone because of the sheer magnitude of the undertaking and the interconnected nature of the market - problems in one locality can quickly spread to other areas. How do you integrate these participants into a comprehensive governance system to solve serious food safety issues? What kind of problems emerge as new policies are debated, designed, and implemented among many actors with different views about food safety?

China’s decade long food safety crisis suggests that the process of integrating actors into a coherent system of governance has been largely ineffective. Central state policy initiatives in the 2000s, culminating in the implementation of a new Food Safety Law in 2009, have not prevented a multitude of food safety incidents in China. Public confidence in China’s food safety regulation has plummeted. According to a recent Pew Research Center (2012) survey, China’s food safety problems now represent one of the top three governance concerns of its population, along with inequality and government corruption.

**Table 1.1. Selected Food Safety Incidents by Year**

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<tr>
<th>Major Food Safety Incidents by Year</th>
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<tr>
<td>Jinhua Ham Soaked in Pesticides</td>
<td>2003</td>
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<td>Fuyang Baby Formula Incident</td>
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<td>Carcinogetic Pickled Vegetables</td>
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<td>Soy sauce made from Human Hair</td>
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<tr>
<td>Sudan Red Dye in Foods</td>
<td>2005</td>
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<tr>
<td>Turbot Fish Antibiotic Scandal</td>
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<td>Illegal Pesticides on Vegetables</td>
<td>2006</td>
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<tr>
<td>Meningitis Snail Meat</td>
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<td>Poisonous Mushrooms</td>
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<td>Carcinogenic Cooking Oil</td>
<td>2007</td>
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<tr>
<td>Melamine laced Wheat Gluten</td>
<td>2007</td>
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<tr>
<td>Sewage laced Tofu</td>
<td>2007</td>
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<tr>
<td>Infant Melamine Incident</td>
<td>2008</td>
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<tr>
<td>Insecticide laced Dumplings</td>
<td>2008</td>
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<tr>
<td>Contaminated Ginger</td>
<td>2008</td>
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<tr>
<td>Contaminated Eggs</td>
<td>2008</td>
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<td>Plastic Tapioca</td>
<td>2009</td>
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<tr>
<td>Pesticide laced Buns</td>
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<td>Gutter Oil</td>
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<td>Fake Green Peas</td>
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<tr>
<td>Clenbuterol Poisoning</td>
<td>2011</td>
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<td>Glowing Pork Scandal</td>
<td>2011</td>
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<tr>
<td>Chlorine Tainted Cola</td>
<td>2012</td>
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<tr>
<td>Cadmium laced Rice</td>
<td>2013</td>
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What follows is a presentation of a new way to understand how scale poses significant challenges to integrated food safety governance in China. I will show that China’s on-going food safety crisis results from a *politics of scale* that emerges while integrating actors within a multilevel, multi-scale governance system.

1. The Puzzle
This dissertation is about government officials, civic organizations, and producers that try to improve rather than subvert food safety governance in China. Our current understanding of the country’s well-publicized food safety problems has been largely influenced by numerous media accounts that profile corrupt food safety officials as being in collusion with willing corporate actors. This is not to say that these accounts of official corruption and bureaucratic malfeasance are incorrect. Indeed, in 2007, Zheng Xiaoyu, former commissioner of China’s State Food and Drug Administration was charged with corruption and sentenced to death. But this characterization of China’s food safety management as corrupt or subject to bureaucratic abuse is too simplistic. There is a less sinister but important systemic basis for China’s wide-spread food safety problems that must be explored that has less to do with corruption and more to do with politics.

Some would say that food safety is not considered to be strategically important relative to other sectors such as energy and telecommunications (Hsueh 2011). But central and local officials are highly incentivized to address food safety. Government officials are vitally concerned by increasing social unrest caused by food safety incidents. Moreover, recent problems with Chinese products in the global food trade have placed enormous pressures on central officials to ensure that China is not exporting its regulatory problems to the world. The Party has already created two special commissions led by senior leaders to address the issue. In 2007, Vice Premier Wu Yi was placed in charge of a food safety commission and promptly launched a major campaign that resulted in the arrest of over 774 producers and the disciplining of a large number of officials (Dyer 2007). Later, in 2009, another special commission was formed and led by Vice Premier Li Keqiang (Hu & Hou 2009). Finally, in 2013, the central government moved forward with plans to establish a food safety super ministry in spite of significant bureaucratic opposition (Roberts 2013).

Local officials have also been highly incentivized to address food safety. In most studies that focus on the central-local paradigm, the local bureaucrat is considered to be largely uninterested in central policy mandates that are not directly tied to his own advancement in government hierarchy or personal enrichment (Gobel 2011; Edin 2003; O’Brien & Li 1999). In food safety, however, local officials face strong top-down pressures as they are increasingly evaluated on how they have tried to prevent a food safety incident, and they also face equally strong bottom-up pressures from NGOs, media, and regular citizens reacting to widely-reported incidents (Roberts 2012; Greenpeace 2010). Officials at the township, county, and provincial levels of government are highly committed to addressing food safety and are extremely disturbed by the risk of a major outbreak. A single food safety incident can wipe out nearly 20% of an official’s food safety review score, and a “massive incident” (teda 特大事件) would immediately reduce a score by 60% and lead to disciplinary action from the Party (State Council 2012).

Provincial, county, and township officials have worked tirelessly to address food safety problems in accordance with central state directives, a reality which does not comport with those pointing to China’s obstructionist local officials as the primary reason for China’s food safety failures (Tam & Yang 2005; Liu 2010). Provincial governments have developed innovative solutions to improve food safety. Ningxia has established over 30 production zones with state of the art food safety facilities, and established a number of model food safety counties (SFDA 2007; Commerce 2008). County and township officials have also devoted significant resources to prevent food safety scandals. In one county, the leadership launched four major campaigns in a single year to address food safety problems. Township officials are dispatched three times a week to address veterinary concerns, observe harvests, and conduct spot inspections.
The examination of China’s food safety failures does not follow the usual narrative of actors opting out of or seeking to abuse the absence of coordination to create regulatory fiefdoms and collect rents. Instead, the explanation is one of actors trying to move toward an integrated system of governance. It is about governance problems emerging from a process of “opting in” rather than “opting out.” Participants seek to have their views represented in new food safety legislation. Government officials need to cooperate to ensure that dangerous food in one area does not circulate in other markets.

The puzzle then to be explored in this dissertation is why food safety problems have not been resolved when the overwhelming majority of actors, the producers, distributors, and regulators, are vitally concerned about food safety.

2. The Scale Problem

China’s inability to address food safety governance is a reflection of China’s scale problem. We must get beyond the basic observation that large and populous countries are difficult to govern, and consider the mechanisms at work when governing with scale. The “scale problem” needs to be unpacked and analyzed in two dimensions: (1) the structural scale of a governance system and (2) the appropriate policy scale utilized to address governance issues, such as food safety.

2.1. The Elements of Structural Scale and the Politics of Scale

A system’s structural scale defines the framework of governance in which food safety actors operate. Recent attention regarding the importance of scale in governance highlights six different multilevel scales that governments must take into consideration when crafting policies: 1. spatial (patch to globe); 2. temporal (short-term to long-term); 3. jurisdictional (village to national); 4. managerial (informal rules to established procedures); 5. knowledge (local knowledge to scientific law); and 6. networks (traders to multinational corporations) (Cash et al 2006). On a jurisdictional scale, for example, each level is organized from the village to transnational governance structures. On a knowledge scale, each level is organized from local, contextual knowledge to global best practices.

Figure 1.1. A Selection of Structural Scale Parameters
The structural scale of a governance system in Figure 1.1. exemplifies (1) the type of scales that are relevant to actors and (2) the number of levels in a system. In some systems, actors may primarily be concerned about governance issues related to the size of a system (spatial), the type of networks involved (network-related), and the type of knowledge that should be utilized (knowledge). A food safety governance system may involve multiple levels of a scale, or just one level. For example, in concrete terms, a fishing village (single-level) may focus on defining the acceptable size of a fishing area (spatial), to whom members may sell fish (network-related), and what types of local knowledge may best assist community members (knowledge-related). By contrast, other governance systems, such as a national food safety system, may involve multiple levels and many more varieties of scales.

Multilevel systems are always more difficult to govern than single-level systems. For purposes of clarity, let us assume that, in contrast to the single-level fishing village, there is a multilevel food safety system in which actors are only concerned about the knowledge-related scale (e.g. food safety standards, local food safety practices, etc.). At the highest level of the knowledge-related scale are global food safety best practices. At the bottom of the scale are locally-derived food safety techniques that are highly context specific. In a well-functioning multilevel system, policies must scale-up and scale-down. Local farmers must be able to adapt their food safety practices to global standards (scaling-up). However, these globally-accepted food safety practices need to also be transmitted down the scale to individual farms and made applicable to local circumstances (scaling-down). In the process of scaling-up and scaling-down, all actors adjust their practices to better coordinate with different levels.

Scaling-up and scaling-down describes a different process than China’s more typical governance strategy of centralization or decentralization. Studies on central-local relations have analyzed the effects of centralization and decentralization in policy areas such as finance (Heilmann 2005), industrial policy (Hsueh 2011), and public utilities management (Mertha 2005). Centralization, on the one extreme, and decentralization, on the other, imposes the views of actors at a single-level in the governance system on all other actors, whereas scaling policy is a multilevel, collaborative process.

The exclusivity of focus of either central or local government action fails to view regulatory activity as part of a multilevel whole (Cash et al 2006; Termeer et al 2010; Andersson & Ostrom 2008; Hooghe & Marks 2003). Rather than viewing governance as either being centrally or locally driven, we must observe how central and local government activities must work in concert to address food safety challenges. Little, however, has been written on the practical trade-offs between a single-level and multilevel approach.

Scaling policies in a multilevel, multi-scale setting is no easy task. Policies may produce mismatches between levels (Cash et al 2006). For example, short-term local policies may conflict with broader long-term policies (Young 2003). In addition, cross-scale mismatches between different types of scales may occur. For example, a common mismatch between scales occurs when the spatial scale of a problem does not correspond with its jurisdictional scale. Environmental pollution may affect a large expanse covering several jurisdictions, but no coordinating body may exist to address this problem (Young 2003; Dietz et al 2003). The key to addressing governance challenges brought on by scale is therefore to realign mismatches.

The primary problem is that scale mismatches are often the result of underlying political tensions that are particularly severe in a multilevel, multi-scale context. Because there are more actors involved in a system there is greater potential for disagreement regarding how to define governance problems – thus, a “politics of scale” emerges. The metaphor of a “politics of scale”
has been used broadly to describe a scenario in which actors will define the governance problem in terms of certain “scales,” leading to contestation over the definition of a problem, the means to fix it, and how to measure its effectiveness (Cash et al. 2006; Leitner 2004; Lebel et al. 2005). For example, scientists may contend that addressing mismatches on the knowledge scale is most important, while government officers may argue that jurisdictional issues are the most fundamental issues to be resolved. Others may emphasize a certain level within a scale as key to addressing a governance crisis. Central and local actors may contest who is best positioned to address food safety problems, the speed of implementation, and the methods employed.

For food safety in China, where scale politics are fierce, it is increasingly difficult to coordinate the activities of state regulators, producers, and local government officials at multiple levels; many individuals refuse to expend resources to work with other agencies to address food safety. Instead, actors prefer to define their own terms for food safety management that best utilizes their resources and expertise; and they expect other agencies to adjust their routines accordingly. Few actors are willing to risk precious resources to cooperate with agencies that they do not trust or believe to be competent in the task of food safety regulation. As a result, coordination of food safety activities is challenging.

For China scholars, conceptually, the politics of scale takes as its starting point where Lieberthal and Oksenberg’s (1988) “fragmented authoritarianism” leaves us. The fragmented authoritarianism framework, which continues to dominate the study of Chinese politics, highlights how actors responding to China’s fragmented governance system alter central policies to suit their particular institutional interests with the effect that fragmentation begets more fragmentation. A key difference to my approach is that the politics of scale describes a contentious process of integration rather than fragmentation. The challenges of integrating actors in a regulatory system may be even more contentious than a system in which actors manipulate the fragmentation of authority to their own ends.

Analyzing China’s current policy problems as a result of scale politics brought on by its multi-scale and multilevel “scale problem” engages an on-going debate as to whether governance strategies that China employed successfully in the past are still effective today. Particularly as the structural scale has expanded to include global issues and standards (understood as additional levels and scales), one cannot be certain that strategies employed at the outset of reform will remain effective. For example, to address problems such as food safety, unlike in the 1980s and 90s where food circulated in local markets, China must now implement uniformly accepted, science-based risk regulation that encompasses a complex marketplace with transnational linkages.

In summary, the “politics of scale” emerges as a result of efforts to integrate actors in a multilevel, multi-scale system (the structural scale of the system). Local level initiatives and actors must be connected to global best practices and both must feedback into one another to prevent persistent mismatches. Policies must be understood, implemented, and coordinated across all levels of government and varieties of scale.

2.2. The Policy Scale Problem: All-or-nothing vs. Incremental

In addition to the scale politics that can emerge due to system’s structural scale, the policy scale of a governance solution also has implications for integrated governance. The crux

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1 See Ong (2012), Lin (2012), and Heilmann & Perry (2011) who explore whether China’s governance strategies have been effective in an increasingly multilevel, social, political and economic environment.
of the policy scale problem is to determine whether a solution must be “all-or-nothing” or if incremental solutions will be effective. Policymakers can opt for either a comprehensive policy, or may choose to address governance challenges in a small-scale fashion by implementing incremental solutions. A large-scale, comprehensive policy refers to those policies that completely restructure procedures for all actors within a system. In general, such policies also involve substantial investment in infrastructure, technical support, and personnel. By contrast, small-scale policies are incremental adjustments to a pre-existing policy system. Changes may only affect a certain number of actors. Small-scale policies may also be adopted in an ad-hoc, informal manner.

The policy scale of a governance solution has important consequences for regulatory development. Scholars have shown that some policies are best approached non-incrementally. Schulman (1975) who studied the development of the NASA program in the United States contends that large-scale policies may be necessary to overcome a “sink-hole” effect. Due to the previous layering of ineffective policies, it may be necessary for a large-scale investment to completely re-orient actors towards new goals. Otherwise, new policies simply get buried in the incoherence of a pre-existing system. Additive partial advancements may fail because the benefits of a particular policy are only realized when all actors abide by the same rules. Therefore, an entire system must reform; otherwise no gains will be realized. Moreover, Schulman (1975) highlights that to realize certain goals, one needs to consolidate government actors in a single agency, conduct interdisciplinary research, invest in instrumentation, and acquire new facilities, all of which requires a significant investment of resources and commitment by all actors.

By contrast, other systems are better suited towards small-scale adjustments. Particularly, in highly dynamic environments, constant small-scale policymaking may lend itself to higher levels of adaptability (Ostrom 2005). In local systems, community members may prefer informal governance approaches that are less binding and more dependent on social trust. Standardization may not be appropriate for systems in which environmental circumstances are highly variable and producer capacities are different. Large scale policy solutions in this circumstance may fail to take into account local informal practices, leading to a collapse of the governance system. Scott (1999) cautions policymakers who adopt large-scale policy solutions, highlighting a series of significant policy disasters that resulted from large-scale policies emphasizing standardization and uniformity. Instead, informal adjustments may be preferable that emphasize contextual knowledge.

The key decision policymakers must make is to decide which type of policy scale is suited to a particular circumstance. Failure to choose the appropriate policy scale may render a policy ineffective, or exacerbate an already severe governance crisis.

The structural scale of a system has important implications for the political feasibility of certain policy scales. Comprehensive policies are often difficult to implement because they affect the interests of a significant number of actors (Pierson 1996; Orren & Skowronek 2004). Political resistance can be quite severe, especially when new policies reallocate resources and redistribute authority. When the structural scale of a system involves multiple levels and scales, the implementation of a comprehensive policy becomes even more challenging. As a result, some actors implement gradualist solutions that adjust a pre-existing system, rather than spending precious political capital pushing for a full-scale restructuring of a policy.

A vicious cycle, however, can quickly emerge. Because the development of a comprehensive policy has proven difficult due to the structural scale of a system, actors at
various levels implement a host of incremental policies that satisfy the interests of particular agents. These policies, however, may only exacerbate scale politics, which in turn makes the development of a comprehensive food safety solution even more difficult.

**Figure 1.2. Structural Scale and Policy Scale Feedback Loop**

The interdependence of a system’s structural scale and policy scale in implementing a coherent governance solution informs our understanding of the difficulties of policymaking in China due to the “scale problem” and ensuing scale politics. Similar to other work done on endogenous institutional adaptation in China (Tsai 2006), the structural scale and the policy scale approaches taken constitute a powerful feedback mechanism in institutional development. As a result, actors in the Chinese system may fall victim to a broader scale dynamic that obtains despite their individual commitment to address food safety.

2.3. The Regulatory Consequences of the Scale Problem and Coherence Deficits

China’s food safety scale problem is ultimately a political problem. Scale mismatches that might otherwise be addressed face political obstacles due to different perspectives on how best to deal with food safety challenges. In order to understand the effect of scale politics on actual food safety outcomes, I identify specific aspects of a “coherence deficit” in which actors are unable to coordinate their actions to realize regulatory goals.

A coherence deficit emerges as a result of contradicting and conflicting logics resulting from policies overemphasizing certain scales, or where such policy solutions ignore some scales entirely. In terms of food safety regulation, there are four observable characteristics of a coherence deficit: (1) a disequilibrium of interests emerges among the participating actors regarding how food safety must be provided; (2) new regulatory standards are not legible to participants and cannot be implemented; (3) enforcement mechanisms are not sensitive to on-the-ground conditions; and (4) implementation of regulation is uneven and spotty.

This dissertation argues that in food safety governance in China assessments of the regulatory consequences of scale, and possible solutions, can only be advanced by (1) unpacking the multilevel and varieties of scale at issue, (2) analyzing the gradualist or comprehensive approach taken to address scale, and (3) determining the nature and effect of the coherence deficits at work.

3. Research Design
To investigate how scale impacts food safety governance in China, the dissertation examines three different markets (Community-supported Agriculture market, Export Sector, and Domestic Sector). I perform a within-case, cross-case analysis to determine where and when coherence deficits are more likely to occur, and how scale informs food safety governance.

The dissertation focuses on three food markets, which provide variation in terms of structural scale and policy scale. The Community Supported Agriculture (CSA) market is a new emerging food product market that emphasizes production of local, organic, and safe food. The CSA sector has one of the highest levels of food safety and consumers pay high prices for what they believe to be quality food. This is a sector with a limited structural scale emphasizing the local. Jurisdictionally, these CSA markets involve county, township, and village governments. Networks are delimited to the local community and their direct consumers, who engage in face-to-face exchanges. Producers focus on localized, traditional food production practices, disregarding more advanced production methods and rejecting national certification programs.

In terms of policy scale, the CSA sector has employed small-scale, gradualist policies to address food safety concerns.

Table 1.2. Sectoral Variation by Scale

<table>
<thead>
<tr>
<th>Sectoral Variation by Scale</th>
<th>CSA</th>
<th>Export</th>
<th>Domestic (Co-regulation)</th>
<th>Domestic (State Initiatives)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural scale</td>
<td>Small</td>
<td>Small</td>
<td>Large</td>
<td>Large</td>
</tr>
<tr>
<td>Policy scale</td>
<td>Small</td>
<td>Large</td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>Food Safety Outcome</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
<td>Poor</td>
</tr>
</tbody>
</table>

The export sector serves as China’s elite food production sector credited with relatively high levels of food safety provision. The General Administration for Quality Inspection and Supervision (AQSIQ) estimated that 99% of exported food products are safe (State Council 2007). The export market also involves a limited number of levels, but in contrast to the CSA market, the export sector is geared towards a global audience (top part of a scale). Food production networks are limited to large, dragonhead enterprises that manage their own production bases. Jurisdictionally, all export safety certification is managed by AQSIQ, which interfaces with international food safety authorities. In terms of knowledge scales, firms focus on complying with globally accepted best practices for food safety. This sector employs a large-scale policy with strict certification and inspection protocols that are enforced for all producers.

Finally, China’s domestic sector highlights the difficulties of implementing national food safety policies in a multilevel, multi-scale context. Specifically, the dissertation examines two broad food safety governance strategies: (1) a co-regulatory effort pursued by China’s largest food producers to reorganize China’s household farmers into larger production units; (2) China’s state-led efforts to reform current regulatory structures and to strengthen enforcement mechanisms. Both policies encounter significant problems in a multilevel, multi-scale context.

In terms of policy scale, China’s co-regulatory program employed an incremental, ad-hoc collection of policies implemented in fits and spurts. The policy scale of the state’s food safety reform program was comprehensive in conception but small-gradualist in implementation. While government reformers sought to implement a comprehensive food safety plan, in its
execution the plan has effectively been reduced to small-scale adjustments to the pre-existing structure.

Together, the three sectors studied provide variation on both the structural scale and policy scale dimensions of the scale problem. The CSA and export sectors highlight how incremental or comprehensive policies can operate effectively in systems with limited structural scales. The dissertation then examines what happens to these same policies when they scale-up or scale-down to a multilevel context. The domestic sector examines the effects of policies in an expanded structural scale and assesses the consequences of a gradualist approach to food safety.

The dissertation draws from over 170 interviews with food safety regulators, food producers, and technical advisors gathered over 15-months of fieldwork. My research on the CSA market utilizes over 25 interviews and 15 site visits conducted over a 3-month period. Research on the CSA market was conducted in Beijing, Chengdu, and Shanghai, which serve as the primary nodes of the CSA network. NGOs active in establishing CSA markets across the country also provided archival evidence of their activities including internal communications, op-eds, and journal articles.

Research on China’s food export sector involved discussions with export producers, third-party auditors, and members of the diplomatic community involved in food safety: 30 interviews and 10 site visits were conducted over a 5-month period. Most of the field research was conducted in Shandong province, one of China’s largest exporting provinces for fruits and vegetables, and a select number of interviews were conducted in Zhejiang, Sichuan, and Ningxia. I selected Chinese, Japanese, European, and American exporters to observe variation in the effectiveness of food safety approaches employed by these firms. Japanese exporters are viewed as the most successful, Europeans moderately successful, and the Americans least successful. Diplomatic officials provided information on the safety of exports, the results of recent audits, and their general perceptions of China’s export controls. The EU-China Trade Project was particularly helpful and shared preparatory documents for their reports. The head of the Asia Development Bank food safety project also provided materials from their extensive audit of the Chinese food safety system.

For the domestic sector, I conducted approximately 130 interviews and visited four counties to develop a broader view of food safety. The Chinese government does not permit researchers free rein to select research sites. Sites were selected purposively based upon the relationships of my sponsoring research institute with local county governments. I stratified counties to maximize variance on degree of regulatory risk and market development which may have effects on food safety irrespective of scale. Scholars assert that areas with more advanced food markets are likely to have higher levels of food safety. Supermarkets, specialty stores, and global distribution chains have stronger monitoring capacities and are thus more likely to provide safe food. Consumers are also likely to be more willing to pay for higher quality food and to punish non-compliant firms in the market. In addition, advanced food markets are typically in areas in which government regulatory capacity is more developed. In terms of regulatory risks, some products are inherently more difficult to regulate than others due to the nature of the production process. Aquaculture and meat products are at high risk of microbial contamination. Processing procedures can be technical, complex, and capital intensive. Deviations from procedures can lead to significant food safety risks. By contrast, vegetable production is far less complicated. Pesticide residues may lead to chronic health problems but will only rarely lead to sudden death.
Level of food market development was approximated by GDP per capita in each county (high, medium, low). Level of regulatory risk was approximated by focusing on three different food types, each with a qualitatively differing level of risk: vegetables, which represent the lowest risk; pork, which represents moderate risk; and aquatic products, which represent the highest risk. The unit of analysis, therefore, is a county/food sector (e.g., Zhuguang county/aquaculture).

Studies of the domestic sector were conducted in Zhuguang county in Sichuan province, Yunlong county in Yunnan province, and Dinghe and Caotian counties in Zhejiang province. Three types of food production were investigated in each county. The counties selected represent the range of market development from low to high: Yunlong county, a low level of market development; Zhuguang, a moderate level; and, Dinghe, a high level. For each site/food sector, I conducted approximately 15 interviews with food producers, producer associations, distributors, and civic groups. In each county, officials from AQSIQ, the husbandry bureau, the agricultural bureau, the state administration for industry and commerce, township food safety offices, and village food safety offices were interviewed. All interviews were conducted using pre-tested interview guides. Group observations were conducted at the farm-level. Provincial-level interviews included officials from the Agricultural Bureau and Food Safety Commission in two provinces. At the central-level, interviews were conducted with two food safety officials.

The dissertation also draws from a significant archival base. In addition to publicly available material on food safety in Chinese newspapers, academic journal articles, and county yearbooks, I also consulted internal government records. Government officials provided over 600-pages of internal food safety documents, which discuss the major food safety activities conducted in each county, provide information on government strengths and capacities, and detail any type of food safety problems identified. Food producers provided farming records, food safety manuals and procedures, and annual reports where possible.

4. Dissertation Roadmap

This dissertation looks at the realities of China’s food safety problems in terms of scale. Part I explores the development of China’s food safety system. Part II focuses on the Community Supported Agriculture movement and export sectors and examines the strategies that can be employed in sectors with limited structural scale. This section will demonstrate how strategies based on social trust and direct adaptable control address regulatory coherence deficits brought on by scale. Particular attention is paid to the challenges of scaling-up and scaling-down successful governance strategies that are derived from sectors with a limited structural scale.

Part III examines co-regulatory and state-led initiatives to address food safety and how they are affected by scale. It will show how co-regulatory efforts that use “dragonhead” enterprises and farmer’s cooperatives have fallen victim to the negative effects of implementing incremental policies where a comprehensive policy approach is needed. State initiatives will also be explored to consider how coordinating bodies, food safety campaigns, and the use of model production zones address food safety issues. These chapters show that increasingly in politically salient issue areas, government officials do have views about how to solve policy problems in a multilevel context. However, this increased commitment to coordinated governance creates significant coordination problems as individuals refuse to cooperate with

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2 The names of the counties are coded to protect informants’ identities.
other scale levels where regulators or producers have different views regarding the cost and benefits of certain food safety approaches.

Part IV presents potential solutions to China’s scale problem. The cost and benefits of various solutions are examined and the extent to which they are politically feasible in China is assessed. Observations may be instructive for scholars who study scale problems of other countries and seek solutions.

Together these chapters demonstrate how China’s food safety problem is rooted in its fundamental scale problem and scale politics. Countries with pronounced multilevel, multi-scale problems face unique governance challenges. Since national systems must contend with the free flow of food products, diverse markets, and the globalization of standards, development of food safety policies that can scale-up and scale-down across a variety of scales becomes ever more important, together with further and detailed consideration whether gradualist or comprehensive policy scales should be implemented. China’s food safety failures must be corrected because an estimated 300 million people are affected by contaminated food products each year (ADB 2005). Research on how to address the scale problem is pressing, and this dissertation seeks to make a contribution to that endeavor.
Chapter 2. A Brief History of the Scale Problem in Three Food Sectors

The CSA market, export sector, and domestic sector each demonstrate different baseline levels of food safety in China. While the limited structural scale of the CSA market and export sectors has reduced regulatory incoherence, the domestic sector’s structural scale has outpaced its regulatory development, resulting in severe food safety problems. How did these systems develop? What is the history of their scales? How does this impact food safety?

As the scales of a regulatory system expand to include more actors, integrate different types of knowledge, and reach new markets, complexity is the norm. New policies are superimposed on pre-existing bureaucratic arrangements. Government agencies must mediate a variety of interests and pursue multiple goals. Power relations are recalibrated and street-level bureaucrats must try to navigate a complicated accretion of rules.

Initial conditions, sequencing, and historical legacies have been shown to have an important effect on the development of institutions (Thelen 1999; Krapohl 2007; Wallsten 2002). In the case of food safety, the sequencing of two countervailing forces - market facilitating and market constraining policies - has played an important role in determining the structural scale of different food sectors and their corresponding level of regulatory coherence. Market facilitating policies refer to policies that seek to expand the scale of a market by increasing production volumes, the number of participants, and the global reach of production. For example, in terms of network scales, supply chains may move from a system of local traders and farmers to vertically-integrated, multinational agro-processing industries. By contrast, market constraining policies are those that seek to constrain the scale of a system by imposing stringent food safety standards and market entry requirements.

The interaction of these countervailing forces within a system has important consequences for the resulting regulatory coherence of a sector. In food safety, actors must make informed decisions whether to prioritize market facilitation or market constraining activities, which can complicate food safety management. In most cases, due to entrenched bureaucratic interests a fundamental restructuring of regulatory responsibilities cannot be implemented and, instead, policy entrepreneurs seek to change the prevailing institutional structure incrementally by layering new laws (Schickler 2001). New actors may be recruited in the policy process creating conflicts due to differing professional traditions, temporal origins, or policy legacies (Thornton & Ocasio 1999; Mahoney & Thelen 2010). As a practical matter, market facilitating and market constraining logics often co-exist within a single system. However, it is the sequencing of the dominant thrust of these policies that determines the extent to which tensions between these countervailing forces can be resolved to produce regulatory coherence.

When the major thrust of market facilitating policies precede market constraining policies, scales expand with little or no constraint, and lead to severe regulatory incoherence. During this process, the scale of a system is expanded rapidly with little regard for regulatory capacity. The rapid development of scales can produce significant contention over food production and food safety practices.

A different sequencing of market development policies can lead to more positive regulatory outcomes. When both market facilitating and market constraining policies are implemented concurrently, the scale of the system develops in step with regulatory capacity. As a result, the coherence deficit is less severe. When market constraining policies are pursued first,
the scale of the system is intentionally limited to facilitate realization of regulatory goals. The resulting scale dynamics serve as the baseline framework for food safety governance.

This chapter explores the relationship between the sequencing of major market development policies, a system’s scale, and its resulting coherence deficit. In the previous chapter, it was shown that if scale mismatches persist due to the underlying political commitments of actors to certain food safety strategies, a coherence deficit emerges. The empirical implications of a coherence deficit are observable in four distinct areas: misaligned interests, illegible standards, insensitive enforcement mechanisms, and uneven implementation.

This chapter establishes the origins of the scale dynamics for three distinct food production sectors. Part one explores the origins of the coherence deficit in the domestic sector, providing a brief history of the development of the food production and food safety systems. Part two shows how the CSA sector’s baseline regulatory coherence is due to an emphasis on market constraint and limited scale. Part three presents the export sector and shows that a coherence deficit can be moderated by pursuing market facilitating and market constraining policies at the same time.

1. The Domestic Sector

Beginning in 1978, the rapid expansion of the food production system’s scale in combination with a thin commitment to food safety led to significant scale mismatches, which contributed to a serious coherence deficit. In China’s domestic sector, the urgent need to feed over a billion people prompted the government to pursue a policy of market facilitation in food production for a 30-year period. Prior to the 1980s, China faced constant food shortages. In 1978, China’s average per capita food availability was as low as an entire generation before, and over 100 million people suffered from recurrent food shortages (Smil 1995). In Sichuan from 1965-1976, for example, the annual rate of food output growth was at 0.7%, whereas annual population growth was close to 3%, leading to a decline in per capita agricultural output (Bramall 1995). Even as late as the early 1990s, at least 100 million people in China’s poorest provinces did not have access to at least 2200 calories per day (Smil 1995). China’s leadership had been aware that food productivity was well behind other nations. Chen Yun, senior economic specialist in the party, warned that if food shortages were not addressed, a massive wave of peasants would flood into the cities to demand food (Fewsmith 1994). As Deng Xiaoping, Zhao Ziyang, and Wan Li, the major architects for rural reform, consolidated their power base in Beijing, government ministries were put to the task of expanding food production. China’s particular course of regulatory development was driven largely by historical necessity. Due to severe food shortages at the outset of the 1980s, China needed to implement market facilitating policies in order to feed its people. Food safety issues were far less important initially, and only shifted to the forefront of the policymaking agenda when massive poisonings began to occur with frequency in the 1990s.

1.1. Market Facilitation and the Expansion of Scales

A key component of China’s food production strategy was the implementation of the household responsibility system, which effectively decollectivized agriculture, triggering the spectacular growth in agricultural production. Beginning in 1978, a new policy line was developing in agricultural production, which would link income to productivity in order to
increase the quantity and quality of agricultural output. Other senior officials in the Party hierarchy, such as Wan Li, party secretary of Anhui province, slowly introduced the use of household contracts in lieu of the previous Dazhai work point form of remuneration. Under the new system, peasants would be required to sell a particular amount of their production to the state and any output above quota could be sold on the market. Leaders permitted reforms to advance more rapidly in more mountainous and remote areas of the country (Weersink & Rozelle 1997). By 1984, 99% of rural households had adopted the household responsibility system (Fan 1997). The number of products required for state procurement was reduced from 113 to 38, and by 1993, 90% of all agricultural produce was sold at market determined prices (Fan 1997).

**Figure 2.1. The Consumption of Fertilizer and Electricity, 1975-2010**

China also made substantial investments in agricultural technology and input production, fundamentally altering the knowledge-related scale of the system regarding food production techniques. In the 1970s, the state moved investment from steel production and machine building towards water conservancy and chemical fertilizer production (Bramall 1995). Investments in fertilizer production sky-rocketed. In 1973-1974, the government moved forward by purchasing 13 large synthetic ammonia and urea factories abroad (Naughton 2004). In Sichuan alone, 130 fertilizer plants were built over this period. From 1971-1975, the government invested 1350 million RMB in pesticide production up from 452 million RMB expended from 1966-1970 (Bramall 1995). Between 1978-1996, China’s fertilizer supply quadrupled (Naughton 2006).

The use of pesticides was promoted by agricultural research stations established to disseminate new growing techniques. Pesticide was priced below the market to increase consumption (Weersink & Rozelle 1997). Agricultural research stations were established across the country to promote the use of new high-yield variety of seeds. In addition, the mechanization of irrigation helped to provide more precise water control.
Taken together, advancements in irrigation, agricultural chemical inputs, and high yielding variety of seeds, amounted to a second green revolution in China’s agricultural development. From 1979 to 1995, agricultural production increased on average 6.5% per annum (Fan 1997). By the mid-1990s, China made the transition from being in short supply of major agricultural products to being self-sufficient and, in some product types in surplus. During the 1990s, the sowing area for vegetables rose from 10.491 mm hectares to 17.353 mm hectares, averaging 8.75% growth per year. Vegetable production increased from 223.2 mm tons to 528.6 mm tons. Fruit output doubled over the same period as did production for aquatic foods (FAO 2004).

The Chinese government pushed forward a series of initiatives to develop the infrastructure for new markets, that dramatically altered the spatial and network related scales of production. Food production had previously been controlled by several government ministries. In an effort to stimulate productivity and innovation in the food sector, during the 1980s food production was decentralized to local governments spurring local investment in food processing (Hsueh 2011). In 1982, the national Ministry of Food and the National Supply and Marketing Cooperative were restructured as agencies within the Ministry of Commerce (MOC). By 1990, the food industry was the 3rd largest industrial sector in China valued at 144.7 billion RMB (Liu 2010). In 2001, industrial output of food was valued at 954.6 billion RMB (Wei 2001). As of 2007, there were approximately 1 million food processors, 70% of them having less than 10 employees (Thompson & Hu 2007).

Previously, the retail distribution of food had been monopolized by the various ministries involved in food production (Hsueh 2011). During the 1990s, the distribution arms of these ministries were detached and liberalized, replaced by a new urban retail outlets and small scale traders. Later in 1993, local government farm bureaus were further restructured into integrated agricultural businesses that soon diversified into supermarkets and pharmaceutical companies. In some areas, local governments merged food companies with small scale livestock and agricultural farms into large-scale vertically integrated companies. By 2010, food sales in China reached 2.8 trillion RMB. These new retail outlets replaced or competed with state-owned
monopolies and other SOEs in national cereals, oils, and food stuffs, and import-export corporations.

1.2. Market Constraining Policies: Building a Food Safety System

Attempts to setup a “unified” food safety regime only began in the late 1990s, following after the significant expansion of the food production system’s structural scale. Established networks of producers, regulators, and consumers had grown accustomed to a system based on market facilitation. Superimposing a thin food safety system on a food production system of significant structural scale was highly challenging.

Table 2.1. Major Food Safety Reforms

<table>
<thead>
<tr>
<th>Year</th>
<th>Major Law/Regulatory Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>Provisional Food Hygiene Law</td>
</tr>
<tr>
<td>1995</td>
<td>Food Hygiene Law</td>
</tr>
<tr>
<td>2001</td>
<td>Market Access Regulations</td>
</tr>
<tr>
<td>2003</td>
<td>Creation of the SFDA</td>
</tr>
<tr>
<td>2004</td>
<td>State Council Decision on Enhancing Food Safety</td>
</tr>
<tr>
<td>2006</td>
<td>Agricultural Product Quality and Safety Law</td>
</tr>
<tr>
<td>2007</td>
<td>State Council Leading Group on Product Quality and Food Safety</td>
</tr>
<tr>
<td>2009</td>
<td>Food Safety Law</td>
</tr>
<tr>
<td>2013</td>
<td>Proposal for General Food and Drug Administration</td>
</tr>
</tbody>
</table>

Beginning in the 1990s, a nascent, but still fragmented, regulatory “system” began to take form (Table 2.1.). As administrative reforms in the broader economy decoupled food production from the state enterprise system, regulatory control began to concentrate in particular nodes in China’s vast state bureaucracy. In 1995, the Food Hygiene Law was promulgated, which firmly placed the Ministry of Health (MOH) in an authoritative position regarding the management of Food Hygiene. New food safety procedures involved licensing food production and distribution enterprises, monitoring their compliance with food hygiene standards, and training regulators (Tam & Yang 2007). The Ministry of Agriculture (MOA) remained chiefly responsible for limits on pesticide residues in agricultural products and the quality of agricultural inputs. The 1993 Product Quality Law gave AQSIQ the authority to regulate food processors and producers with respect to manufacturing, packaging, and labeling. The Ministry of Commerce could amend standards and rules regarding processing, package, storage, transportation and sales (Tam & Yang 2007).

Due to bureaucratic conflicts and persistent overlap of regulatory responsibilities, food safety incidents continued to escalate in the early 2000s, prompting the State Council to move forward with plans to streamline the food safety system. In 2003, the State Council established the State Food and Drug Administration (SFDA) to serve as the central coordinating body for food safety enforcement in the country. The new body would draft laws and implement regulations for food safety. Two of its departments, the Food Safety Coordination Office and the Food Safety Supervision would spearhead coordination efforts between ministries and lead enforcement campaigns around the country (Tam & Yang 2005).
In 2004, the State Council issued the “Decision on Further Enhancing Food Safety Management,” which established the basis for a food safety system based on segmented supervision of the production-distribution chain by five different ministries (State Council 2004). The MOA would monitor and enforce food safety on agricultural production and its inputs. AQSIQ would regulate food production and processing. State Administration for Industry and Commerce (SAIC) would monitor retail distribution of food. The MOH would now only focus on catering establishments. The SFDA was appointed as the primary coordinator of the food safety establishment. The segmented management system, however, only fueled inter-ministry rivalries and information asymmetries, leading to poor food safety outcomes.

Efforts at centralization and coordination of the food safety system were largely unsuccessful, prompting another round of bureaucratic restructuring. The SFDA failed to consolidate its position as a coordinating body within the regulatory system because of bureaucratic entrenchment and a series of scandals involving its top leadership. In addition, there were no regulations regarding the analysis of food safety risks, food recall procedures, and the governance of food additives (Liu 2010). In September 2004, the legal office of the State Council moved forward with a proposal for a new food safety law, which was eventually passed in 2009. Under the new legislation, the MOH replaced the SFDA as the central actor in food safety regulation. A major change to the existing system was the creation of the National Food Safety Commission, a ministry-level agency of the State Council, which would coordinate regulatory activities of the multiple agencies. In 2010, the FSC was established and Li Keqiang, Vice Premier of the State Council was appointed its director, providing the new agency with significant political clout.

Market constraining policies were largely an afterthought in the history of the domestic sector. The history of China’s food safety system was one of constant restructuring, fragmentation, and bureaucratic competition. As a result, the structural scale of the food production system continued to expand with little regard to food safety.

1.3. The Consequences of Expanding Scales and The Coherence Deficit

The severity of the coherence deficit in the domestic sector is evident when assessing four major components: (1) misaligned interests; (2) illegible standards; (3) laws insensitive to local conditions; and, (4) a lack of regulatory scope.

1.3.1. Misaligned interests.

When market facilitation precedes the development of a food safety system, the misaligned interests of government officials, producers, and consumers regarding food safety is severe. Government officials struggled to realign their interests in accordance with new food safety goals. Producers and consumers want safe food, but neither of them are prepared to pay for it. As a result, interests regarding food safety and food production are misaligned.

State officials must balance their emphasis on food safety with local economic development. As food production was increasingly decentralized during the 1980s, local governments invested in the development of local processing firms as a means to foster economic development and to address employment issues. As a result, the state sought to address food safety while also pursuing a policy of agricultural modernization.
Given that producers had functioned largely under a system emphasizing production, it has been difficult to reorient producers towards food safety. Producers’ interests are still divided between the countervailing forces and competing logics of maximizing production to increase incomes, and investing in food safety. Farmers often rely on the heavy use of chemicals to produce food under extremely challenging conditions (Calvin et al 2006). To deal with significant pest pressures, farmers apply four times the recommended amount of pesticide to boost yields (Yan 2012). Produce is often laced with hazardous chemical residues. In 2001, 2110 samples of produce were inspected in 14 provincial cities in wealthier areas of China and it was found that 31.1% of vegetables had pesticide residues violating established maximum residue limits (Han 2007). Similarly, in meat production, farmers have administered significant amounts of antibiotics to prevent the spread of disease. In one study of 60 pig farming households, only 55.8% of households were found to comply with food safety laws (Yan 2012).

Food producers have struggled to transition to safer food production processes due to high costs. Food safety regulations impose tangible costs on concentrated groups of individuals, while only delivering generalized benefits (Pierson 1999). Incentives to free-ride on the efforts of compliant producers are strong. Although vegetable and fruit producers do earn price premiums of 20-30% for “pollution-free” vegetables, they must also purchase more expensive chemicals and pay for new certification requirements (Calvin et al 2006). As a result, conversion to “non-pollution” and “green food” production schemes remain low at 6% and 1% respectively (Calvin et al 2006). In August 2002, local governments attempted to force workshops to upgrade their production, but few producers were willing to invest in new food safety equipment. In Guangxi, for example, some small businesses were required to spend 100,000 RMB to upgrade equipment to acquire a proper license (Tam & Yang 2005). Many businesses preferred to operate underground rather than make the necessary modifications to their production processes. In 2002, AQSIQ conducted a sample of food for 60 companies, and only 59.9% passed, 2/3 did not have proper licensing, and 4/5 had no testing equipment (Han 2007).

The primary reason that food producers have not invested in food safety in the domestic sector was not lack of consumer demand for food safety, but rather the unwillingness of consumers to pay for it. Pew Surveys indicate that food safety has become increasingly cited as a major concern. In 2008, 12% of respondents cited food safety as major problem. In 2012, the percentage of concerned respondents increased dramatically to 41%. The China Consumer Association has recorded yearly increases. For example, in 2010, the CCA registered more than 10,000 complaints, 22% more than they had received in the same period the previous year (Zhou 2011).

Despite the increase in importance of food safety for the general populace, this has not translated into the willingness of most consumers to pay for it. Consumers are still operating under a logic of market facilitation in which they seek to purchase large volumes of food at low prices. According to one survey, key determinants for purchasing were product freshness, convenience, and competitive pricing, with only 30% of respondents citing product quality as an important factor in their purchasing behavior (Revell 2008). Moreover, consumer willingness to pay is highly contingent upon their level of trust in a retailer and food safety labels. McKinsey’s 2008 consumer behavior study showed that, while 91% of consumers surveyed were concerned by food and beverage safety, 44% of respondents would pay no premium, 30% would pay a less than 5% premium, and 26% would pay a premium of no more than 20%. Such modest price premiums for food quality are unlikely to induce a change in producer behavior.
A prolonged period of market facilitation and scale expansion has made it difficult for government officials, producers, and consumers within the domestic sector to move towards a governing logic of market constraint based on food safety. The current system has failed to properly address significant divergent interests as they relate to the food safety problem.

1.3.2. Legibility of Standards

The legibility of standards refers to what extent producers and the officials who enforce them understand food safety standards. A standard becomes legible when individuals understand regulatory goals and the rationale of enforcement mechanisms. Under a regime dominated by the forces of market facilitation, scales expanded with little or no reference to a food safety system. As a result, the shift in policy focus to the imposition of new food safety procedures has led to significant confusion for both producers and government officials. As the scale of food production expanded, food safety measures were adopted in an ad-hoc fashion, which contributed to regulatory fatigue among the regulated. At the same time, new food safety methods often conflicted with the current level of understanding of food safety governance by the regulators.

Producers also find the new emphasis on food safety difficult to understand. Farmers have little knowledge regarding how to use chemicals properly. For example, many fail to observe the technically specified waiting period following the application of pesticides before harvest (Calvin et al 2006). Such basic information regarding food safety practices was rarely conveyed to farmers and over 10,000 Chinese farmers died of pesticide poisoning every year in the 1990s (Yan 2012). Food safety experts contend that the scientific knowledge required is simply too complicated for most farmers (Han 2007). The sheer number of conflicting standards also makes it difficult for producers to understand regulations. Due to the complexity of the system, most farmers resorted to previous production techniques that were not compliant with current regulations. Moreover, the frequency of changes to rules makes it difficult for producers to keep pace with regulation. For example, clenbuterol, the additive involved in the recent Shuanghui food safety scandal, was previously permitted in pig production, but then was later banned.

Government officials appreciate the importance of food safety and have actively sought to avoid food safety scandals, but they also have difficulty comprehending increasingly technical food safety enforcement measures themselves. China’s standards are considered to be overly complex and often require the use of specific equipment that officials do not know how to use. The absence of a comprehensive plan adds to the confusion regarding individual departmental responsibilities (Han 2007). Difficulties stemming from lack of organizational clarity throughout the food production system are aggravated by the fact that food safety measures often are dictated as unfunded mandates from Beijing without clear instructions or coupled with the sufficient means to enforce them (Thompson & Hu 2007).

As scales expanded rapidly, the addition of ad-hoc food safety measures resulted in additional incoherence in the system regarding legibility of standards.

1.3.3. Sensitivity to On-the-Ground Conditions

Because the development of the food production system took place independently of food safety concerns, the creation of a coherent food safety regime to complement the scale of the
system has been difficult. The food safety regime is largely viewed as incongruent with on-the-ground conditions in terms of government capacity and methods of food production.

Experts contend that the current food safety regime sets unrealistic goals for local government authorities. Despite significant investments in governmental apparatus, China’s regulatory capacity is still lacking and struggling to keep pace with the food production system’s growth. The MOH has approximately 35,000 inspectors, who receive little guidance from national health authorities (ADB 2005). Moreover, inspectors at the prefectural and county levels are not food safety specialists but must also conduct inspections of cosmetics, water quality, occupational hazards, and other areas of health regulation extending beyond food safety (ADB 2005). As of 2010, only half of the counties in China had food safety laboratories, and according to one survey, only 14.6% of townships had food safety offices to conduct food safety inspections (Yang et al 2012).

The technical capacity of inspectors is also inadequate. In 2002, a shortage of food safety specialists prompted the creation of a technical course in higher education on food product quality control. In 2004, 24 institutes of higher education were approved to commence teaching courses on food product safety. The first graduates specializing in food safety were deployed to various centers, but still required an additional 3 years to become competent. In fact, the ADB (2005) contends that this training regimen is still not sufficient.

As the food production system expanded, developing a comprehensive food safety plan that could accurately reflect the capacities of all producers has been challenging. The Chinese regulatory system oversees a massive food and agricultural production sector that simply cannot comply with new standards. The vast majority of food processors are small, ill-equipped, unhygienic, and non-licensed, which makes the implementation of food safety challenging (Han 2007; Liu 2010; Yan 2012). In 75.4% of municipalities surveyed, fewer than 100 processors kept production records, and only 1 in 7 complied with food production rules (Yang et al 2012). Experts contend that China’s food production sector is plagued by low levels of industrialization, and a lack of investment in research and development (Liang 2010). There is also a cited absence of infrastructure for distribution, packaging, storage, and transportation, which conditions often lead to secondary contamination (Han 2007).

The system must monitor over 240 million farmers, who mostly farm only 1 to 2 acres of land. Unlike the observed model of EU food safety, that heavily influenced the Chinese FSL, China does not have a professional class of large farmers, which makes the dissemination of information regarding food safety virtually impossible. In a survey of 507 farmers in Zhejiang province, the average age of farmers was 49.66 years old and the average education was 5.35 years. Older farmers found it difficult to change to new, safer pesticides because they could not understand the instructions on how to utilize them (Zhou & Jin 2009). In addition, because of China’s challenging production context with high levels of pest infestation and over cultivated soil, a movement towards organic production is prohibitively expensive. Given low rural incomes and farmers’ high dependence on the market, the use of safer, but less effective inputs that lower production, makes it difficult for farmers to employ safer techniques.

1.3.4. Uneven Implementation of Food Safety Policies

The largely unchecked scale expansion of food production system has led to significant variation in terms of the implementation of food safety. In a coherent system, the regulatory apparatus operates on a relatively uniform basis across different sectors and in different
geographic contexts. Since food circulates in a common market, food produced under weak regulatory conditions will have an impact on the food supply even in those markets where regulatory oversight is strong. If food safety is weak in one province, it poses significant hazards to others. The recent lean pork powder scandal occurred in Henan, but its tainted pork was discovered in markets throughout the country.

In incoherent systems, the implementation of food safety is highly uneven across geographical region and food-type. In China, the level of food safety is subject to regional disparities. Areas in Eastern China have established the strongest food control systems and have the highest implementation rates in recognized procedures: 80% of municipalities established a certification system, 83.1% conducted quantitative analysis of food safety incidents, and 155 products were managed under the food safety certification system. By contrast, in areas in the center of China only 53.9% had established certification systems, 61% conducted quantitative analysis, and only 66 products were managed under the food safety certification system (Yang et al 2012). Results in Northeastern China and Western China were worse.

There is also significant variation in food sectors by type. In 2003, in terms of serious food poisonings, animal products posed a higher risk with 11367 poisonings, whereas those poisoned for plant products totaled 7693 (MOH 2004). Hygiene inspection results reflect a similar pattern with a meat and meat-related product pass rate of 87.6%, lagging behind other food types such as aquatic products (94%) and fruits and vegetables (93.7%) (MOH 2009).

In summary, incoherence in the domestic sector stems from the sequencing of dominant market facilitating policies prior to those emphasizing market constraints. By the time a food safety system had been established, producers and government officials had grown accustomed to, and have vested interests, a system emphasizing food production. The transition to food safety has, thus, been wrought with difficulty. As a result, the state has failed to create a food safety system with standards that are legible to producers and government officials; sensitive to on-the-ground capacities of producers; and evenly implemented throughout the country and in different sectors of food production.
### Box 1. Case Study: China’s Dairy Sector

China’s dairy sector provides a clear demonstration of the pernicious effects of unrestrained market facilitation on a system’s scale and its negative consequences for regulatory development. From 2001 to 2009, China’s consumption of milk quadrupled from 10 million metric tons to 39 million tons, making China the third largest milk producer in the world (Xiu & Klein 2010). The spectacular growth of the dairy industry was the result of massive state investment in milk production. At the outset, the government sought to concentrate production in four firms, which eventually developed into regional monopolies that together sell nearly half of China’s dairy production. The sheer economic clout of these companies created a dense network of government officials, milk collection stations, dairy farmers, and distributors aimed towards strengthening the dairy sector. By 2007, the central government had 8 policies in place to facilitate the sector’s development.1

Despite the concentration of economic power, the supply chains of these massive firms extended far into the countryside, employing thousands of small producers without the necessary training and know-how for dairy farming. Multinationals engaged in aggressive recruitment. Sanlu, for example, offered loans to dairy farmers to purchase their own cows and would also offer technical assistance for free (Xiu & Klein 2010). As a result, a large number of farmers which had previously cultivated wheat, rice, sorghum, and soybeans, moved into dairy farming. These farmers often lacked the necessary capital to invest in product quality and safety. For example, the average price of a cow was equivalent to the yearly income of three members of a household. Given the size of their initial investment and rising costs of inputs, farmers developed numerous techniques to cut costs. During this period of expansion, the central government failed to implement comprehensive standards for milk production. Instead, the government opted for a strategy of industry self-regulation. When production standards were implemented, all major dairy processors were exempt from inspection. Government regulators in charge of monitoring milk quality were unfamiliar with testing techniques. Pei et al (2010) assert that freezing point depression, specific gravity analysis, and fat content analysis would have been able to detect substandard milk, but that government officials did not have the knowhow to carry out the tests. There are 447 accredited labs in China with 1000 chemists dedicated to monitoring the dairy sector, but most of them have not been certified for the latest standards.

The development of the dairy sector serves as a cautionary tale in regulatory development. Expanding the scale of dairy production has made it difficult to establish a coherent regulatory system. The 2008 infant formula in which 300,000 infants were hospitalized and six died was not simply a result of deliberate corporate malfeasance, but a consequence of a broader regulatory dynamic.

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2. CSA Sector: Market Constraint followed by Market Facilitation

In direct contrast to the sequencing of market development policies in the domestic sector, the Community Supported Agriculture sector is a system that emphasized market constraint before facilitation. Under this framework, the scale of the system is deliberately constrained in order to facilitate the realization of regulatory goals. That is, market behavior adapts to the regulatory system, rather than regulation trying to catch-up and pre-empt non-compliance in the market. Food producer participation in the market is conditioned on meeting stringent pre-market approval requirements.

Food safety served as one of the organizing principles of CSA market pioneers in the early 2000s. The CSA market is an initiative that brings urban consumers and rural producers together in a mutually beneficial relationship. CSA farms are typically located around major urban areas and commit to organic production principles, and sell their goods in farmer’s markets or through farm direct sales to the consumer.
The CSA market evolved in response to the failures of the broader food safety system, and developed according to a self-regulating, self-constraining logic. The architecture of the CSA market provides ideal baseline conditions for a system that orients all actors in the system to maximize food safety outcomes.

Farmers in this niche market emphasize the importance of limited production, which they believe to be the critical factor to overall ecological sustainability and maintenance of food safety (Yang 2011). Most producers in this market believe that food safety problems emerge as farmers seek to artificially increase food production by the heavy application of pesticides and other inputs (Gale & Buzby 2009). When farmers turn to cheaper, more hazardous pesticides to increase their profit margins, the consequences can be lethal. In 2007, for example, Qingdao city reported that over 500 individuals suffered severe food poisoning as a result of high levels of carbendazym residues. CSA farmers, by contrast, do not seek high levels of production and have a strong aversion to entering markets where high volumes are expected: “We need to develop a rhythm with the land. One you get too big and it becomes unsustainable and once you become marketized, you have to adapt your farm to the market, which in turn transforms the nature of the farm” (CSA 1).

A commitment to sustainable development also ensures that the scale of the system is constrained. CSA farmers seek to gradually improve the environmental quality of their farms (Dan 2011). Many employ cyclical farming practices, in which animal waste is converted to fertilizer, and methane tanks are used to heat homes and power irrigation pumps. Farms have seen a significant improvement in soil and water quality as a result of these practices: “The overall production conditions have improved since beginning cultivation. The pH level of our water has gone down from 8 to 7 and the humus content of the soil has increased from 1.3 to 2.4” (CSA 3). Improvements in baseline conditions allow farmers to use fewer inputs which reduce costs and the risk of food safety incidents (Sun 2011).

The result of this system based on market constraint has been a coherent food safety system: producer interests are aligned regarding food safety; production standards are legible to all participants; the self-regulatory system is sensitive to on-the-ground conditions; and, the implementation of the food safety system is uniform within a community.

2.1. Aligned Interests

Through the established consensus of local actors participating in the CSA system, the self-constraining design of the market prevails and safe food is provided. Farmer incomes are significantly higher in the CSA market because their produce is of higher quality, prices are higher and there is no middleman. CSA products are estimated to cost about 4 to 10 times the price of products from conventional agriculture (Sun 2011; Gale 2011). While producers acknowledge they could charge more for their food, they understand that they are investing in a long term relationship with consumers.

Although limited production results in higher costs that are ultimately passed onto consumers, buyers remain committed supporters of CSA producers. Many volunteer their own time to aid farmers during harvest, or help to introduce farms to potential customers. In addition to volunteering their labor and collaborative price setting, consumers also seek to facilitate the integration of farmers into the broader society. In Anlong village, consumers donate computers to teach farmers about the internet (CSA 2). These programs seek to establish a “mutual aid
mechanism” (hudongjizhi 互动机制) in which both farmers and consumers continually seek to improve one another’s lives through mutual exchange and training.

2.2. Legible Standards

Standards are highly legible to participants in the CSA sector. Local CSA markets establish the standards for food safety. Participants decide what the conditions of entry are for participation in the system. As such, actors are highly aware of the rules of the game and norms, which are conveyed through charters, standards of conduct, and participatory guidelines: “(1) openness and transparency of information, and a willingness to share all aspects of production with consumers; (2) sustainable production and operation, representing concern for human and environmental health; (3) a commitment to cooperation, among farmers and consumer alike; (4) true product traceability” (Beijing FM Guidelines). These informal agreements provide a flexible framework of interaction and support to keep actors focused on responsible, public-oriented behavior.

2.3. Sensitivity to On-the-Ground Conditions

The regulatory system employed in the CSA sector is highly sensitive to on-the-ground conditions of production. At the outset of the planting season, farmers and consumers meet to discuss the year’s overall expected costs of production. In Chengdu, a town hall-style meeting is convened each growing season for individuals to discuss new risks and challenges and to negotiate reasonable prices for produce (CSA 2). In addition, the system can also react to changing social dynamics that potentially threaten regulatory coherence. For example, when the Gao Farm in Anlong village grew significantly larger than other farms in the village, the NGO supporting CSA development in the area had to reconfigure funding and assistance more evenly to other farms: “We have to be vigilant that no farm develops a monopolistic position in the village. When NGOs get involved we can sometimes alter normal development trajectory. When Mr. Gao started he had 0.3 hectares and now he cultivates 1.5 hectares and hires additional farmers. We’ve had to move our support to another farmer to even out development” (CSA 2).

Because the CSA sector developed as a response to the food safety failures in the broader market, food safety is paramount. Conditions that could harm regulatory coherence are dealt with decisively.

2.4. Regulatory Scope/Implementation

The limited scale of the system facilitates high levels of compliance. The dense social ties in the system help to ensure that individuals do not disregard production protocols. While the system is highly informal, and does permit deviations from established practices, CSA participants are quick to sanction individuals who are viewed to violate key aspects of the system. In particular, those who break food safety agreements and engage in competitive marketing behavior are shut-out of the system, and face social consequences in their communities.

In summary, the CSA sector’s emphasis on market constraint has led to the development of an highly effective food safety system. The interests of all actors towards food safety are aligned. The food safety governance regime is also built with the local community in mind and
as a result develops standards legible to participants and is highly sensitive to on-the-ground conditions. Strong social ties ensure that all members abide by food safety rules.

3. The Export Sector: Building a Market and Regulatory System Concurrently

The scale of the food export sector is relatively delimited due to the cartel-like licensing system in place. China has sought to develop its food and agricultural product market cautiously, seeking to prevent massive food safety incidents that could trigger an erosion of consumer confidence in the “Made in China” label. In the export sector, market facilitating pressures to capture global market share are counterbalanced by equally strong constraining pressures to ensure food safety. The scale of the system experience cycles of expansion and contraction.

The state has implemented a closed system to regulate food exporters, which helps to preserve the small size and elite nature of the food export sector. AQSIQ restricts the number of exporters by a strict licensing system and subjects exporting plants to extra inspections. As of 2007, only 12,714 enterprises had been formally registered with the China Entry-Exit Inspection and Quarantine Bureau (CIQ) registration system (State Council 2007). The system is distinct from the domestic regulatory system, which is led by a food safety commission comprised of representatives from five different ministries, where enforcement is comparatively lax (Gale & Buzby 2009).

Other government policies, however, have facilitated the extraordinary growth of the sector and played a role in making China the fourth largest player in the global food trade. The 11th Five-Year Development plan highlights the government’s strategy to promote China’s comparative advantage in the export of low-cost and labor intensive agricultural products. Selected enterprises will be assisted in attaining Good Agricultural Practice (GAP), Hazard-Access Critical Control Point System (HACCP), and Good Manufacturing Practice (GMP) certifications. Support is offered to those firms who invest in new production technologies and conduct research and development. The government established a “Development Fund for Export Brands,” which subsidizes firms in their marketing efforts abroad and to solicit professional assistance in brand development. Training is offered to all export enterprises on a range of areas including technical standards, food safety monitoring, and the attainment of international certifications, among others. For the enterprises deemed viable, the government offers significant support.
In recent years, however, the Chinese government and producers have achieved a shared understanding that the over-expansion of the export system introduces significant food safety risks, which could damage the reputation of the “Made-in-China” brand. Food safety scandals have reduced importer confidence in Chinese food exports. Following the discovery of pesticide residues on Chinese spinach in 2002, Spinach exports to Japan decreased by 20% for two years. The discovery of melamine in Chinese products in 2008 prompted a massive global recall and ban of Chinese dairy products. These major scandals prompted Chinese officials to create additional safeguards for Chinese food exports, and to initiate a nationwide campaign on food safety in 2009.

Because market-facilitating policies are moderated by market-constraining policies, the structural scale of the system has not outpaced regulatory capacity. Producers within the export sector therefore emphasize both food safety and food production. As a result, the potential risks of a coherence deficit due to imbalances in market facilitating and constraining regimes on food safety have been significantly mitigated.

3.1. Moderately-Aligned Interests

Producers understand that the highly exclusive export sector leads to a more efficient and responsive market. Because investments in food safety are significant, export producers depend on selling their produce at a higher price point. In the domestic sector, due to pervasive mistrust of food production and the weakness of the regulatory system, consumers are largely unwilling to pay a premium for quality food because they cannot be sure that the food is in fact safe. In the export sector, producers are policed by government officials and third-party actors, which help to preserve general confidence and keep prices high. The development of an export credit system in which food enterprises discovered to be violating food safety standards or whose shipments are rejected by importing countries are penalized preserve the integrity of the market. Companies are thus more inclined to invest in food safety and food quality.
Importers also support the manageable structural scale of the Chinese export system, preferring to work with an elite set of reliable producers that can supply high quality and safe food. EU companies work directly within China’s export licensing system, refusing any product that does not comply with AQSIQ’s stringent food safety requirements. In fact, EU food safety officials would prefer that the volume of trade from China be reduced in order to ensure higher levels of food safety (EU Interview). Japanese food safety officials permit only a subset of China’s export licensed enterprises to export food to Japan. Importers from Hong Kong and Singapore only conduct business with those firms that have been certified by both China and their respective governments. Limiting the number of suppliers may increase costs, but properly managing structural scale issues significantly reduces food safety risks.

3.2. Sensitivity to Conditions

The use of a closed-export system is highly suited to China’s current stage of development. China’s own domestic standards are less exacting than most of its trading partners, particularly Japan, and creating a separate, controlled system for exports provides China with more flexibility to tailor its sector to importers. For example, China adopts Japanese labeling requirements and also employs Japan’s quality standards for product size, shape, and color for producers shipping products to Japan (Chen et al 2005). The closed-system also enables AQSIQ to closely monitor a select number of licensed farmers, rather than to expend its limited resources on over 200 million farmers who often use non-standard production methods. Moreover, a completely separate export sector regulatory regime also allows for focused and direct investment in food safety for products that are high-value.

3.3. Evenness of Policy Implementation?

Food safety is implemented uniformly in the export sector. In 2007, the Chinese issued a white paper, “China’s Food Quality and Safety,” which outlines a management framework, “One Pattern and Ten Systems,” that emphasizes elite production and strict licensing. The “One-Pattern” structure refers to the inclusion of food enterprises with an industrialized, modern supply chain, effectively excluding over 90% of China’s food producers. The typical food export enterprise is a large, government designated “dragonhead” enterprise, which can attain significant production volume and has substantial registered capital. These enterprises operate their own “production bases” with on-site inspection teams and monitoring facilities. Some firms contract farming to township agricultural production bases where township leaders direct farmers under their jurisdiction to produce according to specifications set by the enterprise, and hand over a designated amount of product to the enterprise following harvest. The government asserts that this model “...is an important guarantee for the quality of such food...and the only way for enterprises to aim for scale and intensive development in the international market” (State Council 2007).

By developing a regulatory system that closely follows market development, regulatory coherence in the export sector has been preserved. While some contaminated food products have emerged from China’s export producers, the sector exhibits high food safety pass rates. Foreign border inspections have also reported that less than 1% of total food imports from China are rejected.
4. Discussion and Conclusion

Table 2.2. Sector Comparison of Sequencing and Effect on Regulatory Coherence

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<th>SECTOR</th>
<th>CSA</th>
<th>EXPORT</th>
<th>DOMESTIC</th>
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<td>STEP 1</td>
<td>Market Constraining</td>
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<td>Market Facilitating</td>
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<td>STEP 2</td>
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<td>Regulatory Coherence Deficit</td>
<td>Low</td>
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Differences in the severity of coherence deficits in the CSA, export sector, and domestic market are directly linked to the sequencing of market development policies (Table 2.2.). While institutional layering always promotes some degree of incoherence, the timing of market constraining and market facilitating policies determines to what extent a coherence deficit emerges. These policies have an important implication for the scale dynamics of a developing system.

When market facilitating policies precede market constraining policies, as is the case for China’s domestic sector, a severe regulatory coherence deficit results: interests between state officials, producers, and consumers are misaligned; producers and government do not understand new food safety standards; the food safety system is incompatible with local conditions; and implementation of food safety laws is highly uneven. As scales expand rapidly, it is difficult to develop a coherent approach to food safety. In the export market, because market constraining and market facilitating institutions developed concurrently, regulatory coherence is moderate. The CSA market, by contrast, was established to preserve food safety as its primary focus, and market expansion is actively resisted by the sector’s participants.

The chapter shows that the structural scale of a system and its baseline level of regulatory coherence is largely a consequence of history. In an ideal world, regulatory systems would set the template for market development. However, in most cases regulatory systems are always a step behind markets. Moreover, pressing priorities of governance often are the key determinate in regulatory development. In the domestic sector, the dominant pressure on the state was to provide food quickly and cheaply to feed its population. Initial conditions, however, have important consequences for regulatory coherence.

This chapter has offered a history of the “variety of scales” in the CSA, the export, and the domestic sectors. The resulting differences in the scale dynamics of the systems studied provide the baseline framework for food safety governance. Not all starting points in the Chinese food production system are the same. In the following chapters, the dissertation will explore how the scale problem determines the effectiveness of governance strategies in addressing a food safety coherence deficit in the CSA, export, and domestic sectors.
Chapter 3. CSA Markets: “I Don’t Sell Vegetables, I Sell Trust”

In September 2010, vendors from local farms surrounding Beijing arrived at a small venue in Chaoyang District to sell “safe, healthy, and local food.” A small group of 160 food safety conscious consumers, distressed by increasing food safety scandals, anxiously shopped at the various vendor stalls. Unlike organic food consumers in the US who visit farmer’s markets to avoid unspecified, long-term health effects from consuming conventionally produced food, China’s CSA consumers fear falling victim to one of China’s oft reported food safety scandals. Alarmed by regulatory failures and modern agricultural methods, these consumers had taken food safety into their own hands: buyers questioned farmers on pesticide usage; they requested production site visits; inquired about planting conditions, and the types of seed and fertilizer administered. Produce and meat prices were on average three times the price of products that could be purchased at supermarkets, but there was little haggling. Consumers were willing to pay high prices due to the severity of the food safety problems in the broader market. Most could recall the 2008 infant formula scandal which led to at least 6 infant deaths and sickened 300,000 others. Relationships continued beyond the physical marketplace as consumers travelled outside Beijing to inspect production, to help farmers with harvest, or to donate much-needed equipment. Two months later, over 2000 individuals attended the second farmer’s market. Participants were well aware that the farmer’s market was more than a retail distribution point, but served as a new model of food safety regulation.

The Beijing Farmer’s Market is but a small part of a growing CSA movement in China aimed at ensuring food safety outside the usual regulatory system for food production (Yu 2011; Xu 2012). Currently, due to significantly higher prices and geographical constraints, most consumers are upper middle class urbanites. The CSA movement seeks to develop an alternative food market that emphasizes safety, sustainable development, and close ties between producers and consumers. Unofficial estimates of the number of CSA projects, which include multiple producers, range from less than 100 (Gale 2011) to several hundred (CSA 2). They are primarily concentrated around large metropolitan centers such as Beijing, Shanghai, Tianjin, Chongqing, Chengdu, and Guangzhou (Gale 2011). Other, smaller sites are located in Henan and Anhui (Day 2008). Farmer’s markets, the primary distribution channel for CSA producers, are growing in popularity. Since its establishment in September 2010, the Beijing Farmer’s Market has convened over 40 times with an average of 4000 individuals in attendance (Wu 2012). Shanghai’s farmer’s markets began operating soon afterwards in May 2011. Markets have since spread throughout the country.

The CSA system in China is credited with relatively high levels of food safety by scholars (Shi et al 2011), journalists (Yu 2012; Xu 2012; Macleod 2011), and NGOs (Greenpeace; Center for Food Safety; CURA). CSA produced food is low risk due to strict rules prohibiting the use of conventional inputs such as chemical fertilizers, non-organic pesticides, and growth hormones (Goland 2002; Jarosz 2000; Murdoch & Miele 1999). Compliance with food safety rules is high and Chinese consumers of CSA food view it to be safe (Shi et al 2011). Although the CSA market constitutes only a tiny fraction of China’s food supply, its influence as a model for food safety continues to grow.

In China, experiments in self-regulation are relatively new, which makes the CSA experiment particularly notable. Some self-regulatory initiatives have emerged in environmental protection (Christmann & Taylor 2001), financial regulation (Green 2004) and the
healthcare industry (Hui 2010). Self-regulation refers to the use of “internal control systems that assure product quality where the system participants set, monitor, and self-certify the control parameters” (Henson & Caswell 1999: 594). The CSA self-regulated system is also a reflection of “informal politics” in that agreements, procedures, and rules are not codified, and the system stands distinct from the “formal” regulatory apparatus (Radnitz 2011). Scholars assert that as the state transitions out of its central role in coordinating governance (Braithwaite 2008), informal, self-regulation provides a way forward to address market failures and common pool resource problems (Ostrom 2006). Self-regulation leads to the development of systems that are flexible (Cogliano & Lazer 2003), and better utilize expert knowledge (Provost 2010). Some critics argue that self-regulation leads to a “hollowing out of the state,” weakening a central state’s ability to coordinate policy, standardize regulation, and maintain public oversight of private actors (Bevir 2007; Klijn 2002). However, an examination of CSA governance of food safety suggests that self-regulation performs a much-needed function when state food regulation has been viewed to be ineffective.

**Figure 3.1. CSA System Structural Scale Parameters**

The CSA self-regulatory system operates as a small-scale system. The CSA sector is a locally-centered regulatory system in terms of its spatial presence, networks, and knowledge-base. It can be considered “small-scale” because it involves only a few levels rather than the full scale (e.g. village to global). In terms of its spatial scale, the system is primarily centered on villages around major municipalities. Supply chain networks may bridge the rural-urban divide, but do not involve a large number of individuals. Farmer clientele does not usually exceed more than 100 persons. If the farmer does not market his own goods, he is likely to operate through a single vendor, or an established farmer’s market. Knowledge regarding food safety practices is adapted to local conditions and emphasizes traditional agricultural methods. Farmers trust knowledge that is familiar and well-adapted to local conditions.

The limited scale facilitates frequent face-to-face interaction, opportunities for collaboration, and clear channels for information exchange. As a result, the politics of scale enable the development of a unified understanding of food safety.

The strong consensus regarding food safety has enabled the adoption of a policy scale that is incremental and based on social trust. Individuals in the CSA market have rejected a comprehensive, standardized approach to food safety development. They view top-down, all-
encompassing strategies as not being in the interests of the local community and inflexible. The movement as a whole may be guided by broad, general policies regarding organic food production, food safety, and producer-consumer relations but in practice these policies are always adapted to local circumstance. Participants develop new strategies as local conditions change. As a result, CSA markets across the country exhibit a high degree of variation in terms of organizational style, food safety practices, and marketing behavior.

Figure 3.2. Social Trust Cycle

The combination of the CSA system’s localized scale and informal, incremental policy creates a virtuous cycle in which social trust is enhanced. Local producers and consumers interact on a face-to-face basis throughout the production year. As new contingencies arise, such as inclement weather or logistical problems, farmers and consumers may adopt new procedures to address the problem. The lack of a formalized approach to policymaking creates a high degree of flexibility for participants to amend the system as they see fit. Because the system is better suited to local conditions, the local scale of the system is preserved. The high responsiveness to local needs enhances social trust in the local community, which in turn strengthens social ties and reinforces group solidarity.

The social trust produced as a result of the interaction between the system’s small-scale and informal, incremental food safety strategies can create the conditions for high levels of compliance in self-regulatory CSA systems. Social trust serves as the basis of regulatory legitimacy and authority within the system. It explains why individuals submit to regulatory authority; how the system is maintained; and why compliance is high. This dynamic is best captured by a statement made by a market organizer: “I don’t sell vegetables, I sell trust” (CSA 11). The CSA market represents more than simple commodity exchange but offers participants a guarantee of food safety based on social trust. The fact that the cost of CSA produced food can be 3 to 10 times higher than that sold at other convenient retail outlets (Gale 2011), indicates that the monetary value of trust is high. The system of trust is reinforced by a self-regulating, dense network of actors with strong mutual obligations, high levels of reciprocity, and a shared identity (Brown & Miller 2008; Goland 2002).

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3 Gale (2011) shows how Little Donkey’s Farm’s cabbage costs nearly 10 times that of cabbage in regular produce markets, and that the price of pork is three times that of pork in supermarkets.
The importance of social trust in governance is well-documented (Rothstein 2011; Fukuyama 2004; Putnam 1992). In terms of other types of regulation (i.e. non self-regulatory systems), social trust is associated with higher rates of voluntary compliance (Braithwaite & Makkai 2010; Gunningham & Sinclair 2009), lower monitoring and enforcement costs (Knack 2002), and fostering positive attitudes towards regulatory control (Boix & Posner 1998). Social trust facilitates good governance in a variety of ways: it orients individuals towards community concerns, reduces transaction costs, and facilitates learning (Paraskevopoulos 2010). Friedberg (2004) shows that a high level of social trust enables actors to coordinate activities in supply chains while preserving food safety.

In China, the emergence of associational pockets of regulatory coherence based on social trust is highly unusual. The Chinese polity has been characterized as having extremely low levels of social trust (Fukuyama 1995; Teets 2009). By contrast, the CSA market has been able to mitigate food safety risks, align consumer-producer interests regarding food safety, and promote inter-producer collaboration. The high level of food safety in the CSA market thus serves as a “least-likely” case, showing how social trust within a self-regulatory system can still overcome significant regulatory shortfalls and ensure the provision of safe food. Provided that CSA systems retain their local focus across spatial, network, and knowledge-related scales and employ incremental, informal policies, food safety is ensured. In the introduction, I identified the four elements of a coherence deficit: competing logics; illegibility of standards to actors; insensitivity to local conditions; and uneven implementation. Given the high levels of social trust, the study of the CSA movement in China offers a useful vantage point to chart the causal pathway from scale to social trust to regulatory coherence. This chapter first explores mechanisms that build trust. After establishing how social trust is engendered at local scales, I then focus on how this social trust addresses the four elements of the coherence deficit. The problem of how to scale this system will be dealt with in later chapters.

1. Trust-Building Mechanisms in the CSA Market

How then does trust develop among local food producers, consumers, and retailers? Since these actors come from distinct societal groups, what mechanisms exist to foster social trust? Scholars assert that the determinants of social trust are rooted in a variety of factors such as associational life in civil society, the quality of state institutions, racial homogeneity, and the level of communication among members (Paraskevopoulos 2010; Rothstein 2011). Within this sector, I highlight the main trust-building mechanisms that operate in the CSA market that are a result of its local-scale: its nature as a locally-based social movement, producer-consumer transparency, and the perceived integrity and independence of its embedded gatekeepers.

1.1. A Market Embedded in a Social Movement

CSA Participants view themselves as part of a distinct social movement (社会运动 shehui yundong), which promotes a high level of local solidarity that engenders social trust. Diani (1997) shows that social movements create new linkages throughout society, and sustained mobilization engenders a sentiment of mutual trust and obligation among participating actors. CSA farming can be characterized as a social movement because it meets the following criteria of engagement. First, social movements must have an explicit target. Michelsen (2001) contends that organic farming in many countries is not simply a market activity, but also serves
as a socio-political critique of conventional farming. In China, CSA farmers state explicitly that they oppose conventional agriculture. Second, the movement brings together social groupings that are on the periphery of mainstream agriculture. In Europe, established organic movements brought together consumers, academics, researchers, and environmentalists, each with their own stake in a new development model based on sustainable agriculture and safe food (Michelsen 2001: 64). Similarly, the CSA movement in China brings together wealthy urbanites, farmers, and NGOs united by a clear set of values. Academics and policymakers affiliated with the Rural Reconstruction Movement have also expressed their support of CSA agriculture. Third, social movements must be based on distinct values (Michelsen 2001; Tarrow 1998). CSA farmers in China commit themselves to sustainable agriculture, organic production, and safe food. The rules of the game and norms are conveyed through charters, standards of conduct, and participatory guidelines: “(1) openness and transparency of information, and a willingness to share all aspects of production with consumers; (2) sustainable production and operation, representing concern for human and environmental health; (3) a commitment to cooperation, among farmers and consumer alike; (4) true product traceability” (Beijing FM Guidelines). The ultimate goal for many CSA farms is to facilitate a shift in consumer preferences for sustainable agriculture. In Sichuan, CSA farms and organizations have helped to develop the “green consumer alliance” to promote the ideal of limited production. A leader in the association presents this view most clearly: “A large part of the CSA movement is to promote an idea of ‘restricted consumerism.’ People need to be alright with less. [The food industry] has created an unhealthy atmosphere where everyone feels like it is their right to purchase and eat all that they want (CSA 2).”

It should be noted that the CSA movement is not monolithic. While CSA participants broadly espouse the values of sustainable agriculture and limited production, three distinct groups have emerged as sponsors of CSA initiatives. Corporations, government, and NGOs play an important role in the movement’s development and have different objectives. Corporations strive to develop the CSA movement into a profitable business model, while the government has tried to co-opt the CSA movement to operate within its own formal organic certification system. NGOs seek to integrate CSA farms into broader transnational networks while preserving the market’s local nature.

Participants in local CSA movements in China are strongly committed to support one another in their pursuit of CSA values (sustainable agriculture, organic production, safe food). The CSA system derives its core strength from the fact that the market is embedded within a social movement. Local market participants are willing to make sacrifices for the development of community solidarity. Consumers pay significantly higher prices for CSA food. Farmers refuse to use synthetic inputs and, as a result, must spend longer hours in the CSA fields and produce smaller quantities of food. Larger CSA farms assist smaller producers. These attitudes and actions generate high levels of social trust.

1.2. Transparency and Trust

All CSA farms have some form of “open surveillance” (kaifang jiandu 开放监督) in which consumers are invited to inspect production and participate at significant junctures in the agricultural season such as planting and harvest. This is only possible because of the close spatial proximity between producers and their consumers. Many farms are on the periphery of major cities; consumers need only to drive a few hours in order to visit their supplier farms.
Farms commit to transparency, providing customers with information on seed type, plant management, production volumes, cost structures, and their personal finances. The Dreamland Eco-Farm in Chongming County, Shanghai, states in its governing manifesto that “during the delivery period, the customer has the right to bring [his or her] family to observe farm production” (Ecoland). Consumers are invited to monthly town hall style meetings in which producers present information on new developments on their farms. Some farms also run educational activities with nearby schools. For example, Biofarm has organized a program called “roots and shoots” to teach students about organic farming and community farming (BioFarm Website). By opening the blackbox of production, producers seek to engender trust with their consumers: “We work hard to publicize our efforts through our newsletter and we have a network of farms and an online forum about farming. We build social capital by engaging the public through multiple public-private partnerships…” (CSA 10). Transparency builds social trust among participants who require knowledge about food production.

1.3. The Role of Organic Markets as Institutionalized Purveyors of Trust

The local organic farmer’s market plays an important role as an institutional purveyor of trust by nominating knowledgeable and independent gatekeepers to establish conditions of entry. As in the case of traditional local butchers in Europe, the farmer’s markets are relied upon as institutions to help to distinguish food quality and safety on behalf of consumers. The embedded participants are relied upon for their specialized expertise and familiarity with producers (Brown & Miller 2008). The organic market committee in Beijing, for example, helps select producer participants on the basis of the committee members’ personal experiences with these producers, which convinced the committee and a market as a whole that they were “ethical,” “trustworthy,” and “were not entirely driven by a profit motive” (CSA 11). Repeated interactions help to foster trust between the farmers’ markets and their consumers. The CSA organizers seek to develop the market at a measured pace free from the influence of large corporations and focus on building trust-relationships between local farmers and consumers: “Right now the system is built on trust and that must be garnered over time. We don’t want to get too close to big companies because they will want to try to control us. We enjoy our independence. We will continue to work with individuals who want to establish friendships with sellers, and build trust networks” (CSA11).

In summary, a sense of solidarity as members of local social movements confers high levels of trust, which creates leads to less contention over the means of regulation. A commitment to local rural development creates a sense of mutual obligation among producers and consumers. Practices such as “open surveillance” instill confidence in consumers that producers are abiding by food safety principles. Finally, farmer’s markets facilitate face-to-face connections between buyers and sellers based on expertise, integrity, and independence. These venues enable frequent interactions between among country and urban dwellers, narrowing the social distance between farm and consumer. Taken together, these three mechanisms enhance social trust within the local CSA system.

2. Social Trust and the Coherence Deficit

A virtuous cycle of local-scale and incremental policy reinforces social trust. Social trust plays a key role in strengthening the regulatory authority of actors within the system, leading to
high levels of compliance. This section now explores the broad concept of social trust more specifically to consider how trust overcomes key elements of the regulatory coherence deficit that currently obtain with respect to food safety in China’s larger, national food market: (1) the tendency of individuals to maximize their private utility at the expense of the public good; (2) food safety standards that appear irrational and ineffective to actors; (3) a lack of sensitivity to on-the-ground conditions; (4) highly uneven implementation.

2.1. Re-Aligning Interests as a Dynamic Process

The first factor of the coherence deficit that is overcome by social trust is the misalignment of interests. In the CSA system, social trust operating in a localized context incentivizes individuals to promote the public good and serves as the basis of legitimacy for the self-regulatory system. Because of the system’s limited structural scale, the politics of scale is less severe. Instead, producers and consumers are able to develop a governance structure that reflects their shared interests.

Social trust between producers and consumers is based on a system of shared regulatory responsibility, which is facilitated by their close proximity, enabling frequent face-to-face interaction. Committed CSA producers believe that they are protecting public health. One producer, a former business executive, who is now a CSA farmer sells 10 RMB vegetables out of his Mercedes Benz and tells his consumers that he is “giving them their health” (CSA 11). Consumers themselves seek to contribute to farmer livelihood and production. This sense of mutual responsibility is reinforced through several operating principles. First, CSA farms participate in risk-sharing with their consumers. Consumers must commit to purchasing a certain volume of produce before the planting season. A portion of the purchase money is paid up front. In the event of a poor harvest due to weather conditions, consumers pay for a portion of the farmer’s loss. Second, food prices reflect not only the amount of labor and costs to the producers, but also labor contributions from consumers, reflecting a sense of shared burdens. Particularly, in the case of small CSA farmers, organic production can be extremely labor intensive – consumer labor contributions are absolutely necessary: “My produce is still the cheapest in the organic market. We really need to build good relations with consumers…we depend on them to come out to help at harvest so things can be cheaper” (CSA 4). Third, farmers depend on their customers to help them find additional buyers in the cities, which evidences a sense of shared opportunity. Despite operating at a continuous loss for three years, for example, one farmer observed that it was the social network that was important: “We really like the CSA model. It’s good for business and I get to meet a lot of new people... and my customers come and take care of my farm” (CSA 6).

CSA farmers must also trust other producers to prevent excessive and counter-productive competition. Farmers feel a sense of obligation towards other producers in their local community. There is a generally accepted consensus among CSA producers that they are building an alternative market, which is collaborative and geared towards the preservation of food safety. Many realize that, if any individual CSA producer sells unsafe food, the broader CSA market will be discredited (CSA 3; CSA 6; CSA 8). The failure of China’s formal organic certification scheme serves as a cautionary tale to CSA producers who understand that it only takes one cheater to destroy the market (Macleod 2011). Producers view other farmers as collaborators rather than as competitors. This sense of solidarity among producers is reinforced by transnational CSA organizations that provide support to CSA producers (Luo 2011).
Japan Organic Society and International Federation of Agricultural Movements regularly provide technical assistance to farms and promote dialogue among CSA farms. CSA farms do not have corporate secrets, or try to poach consumers from other producers. They form associations and share best practices with one another: “We formed a little producer association and there are about six of us that go and tour other farms and we try to learn from one another. We need to break through the isolation. We need to increase trust between ourselves so we can then impart that same feeling of trust to our consumers” (CSA 1). This high level of social trust, based on an alignment of producer interests, enables individual farms to work together during difficult times such as market downturns or inclement weather. Producers can invest in food safety because they can trust that other producers are not seeking to drive them out of the market.

CSA farmers do not seek to drive other producers out of the market by increasing production to unsustainable levels, or through aggressive pricing. In China, most producers do not view the organic market as being over-saturated, and are confident of the market’s growth potential (Zhao 2011; CSA 8; CSA 16). Since producers have a committed group of consumers, most are not concerned by competition. In fact, CSA farms of all sizes, those with customer bases of over 8000 clients and others with less than 100 clients, view the introduction of additional players as a positive development for the organic market. In Sichuan, CSA farms and organizers have helped spread the concept to Yuantian, Yunqiao, Jianyang villages and to Chifeng and Xuankan townships (CSA 2). Collaborative efforts seek to effect a change in consumer culture, attract new customers, and encourage the spread of the CSA concept throughout the country (Jiang 2011).

The legitimacy of a system which is based on shared interests, however, is fragile. The overarching social nature of the CSA food system “softens” the economic incentives of producers, but does not altogether eliminate the profit motive. Hinrichs (2000) cautions that researchers should not become too enamored by the strong sense of community and quaintness of localized exchange and overlook the demands of the market. Notwithstanding broad consensus about the desirability of cooperative, trusting market behavior, producers, consumers, and distributors face significant pressures to lower costs, expand production, and engage in destructive over-competitive behavior. Despite the supportive governing structures of the CSA market, food producers still face a classic common pool resource dilemma in which the incentives to defect and free-ride are high. A bad harvest or difficult season may induce producers to seek shortcuts in production and use unauthorized inputs. Producers may even seek to return to conventional farming if they feel that consumers are not paying a “fair price” for their products.

Consumers also face strong pressures to leave the CSA system for the convenience of the broader food market. A common grievance among consumers is that the CSA market is inconvenient. First, consumers complain about a lack of choice in the CSA food supply. Certain foods are only available during a particular growing season. Second, supply can be erratic. Depending on growing conditions, consumers may be supplied with too much or too little food. As a result, some consumers lose interest in CSA production and may renege on commitments to purchase food from farmers. The CSA marketplace is not a static system and competing interests must be constantly realigned.

CSA farming is extremely labor intensive and few farms are able to cope with the high start-up costs. Farms previously under conventional agricultural cultivation must first go through “withdrawal.” Over time, chemical fertilizers cause soil to lose its ability to retain water and nutrients. Prolonged pesticide usage results in highly resistant pests that can overwhelm
entire fields when stronger dosages or new pesticides are not administered. The withdrawal process can take as long as two to three years, which is prohibitively costly for small farmers: “In 2007, when I started out, we faced a number of significant challenges in ecological farming. The pests ate everything…the soil was in the process of changing. I couldn’t grow anything…” (CSA 6). For some, the use of pesticides and chemical fertilizers was a necessary compensation for the chronic agricultural labor shortage in the countryside: “For a lot of homes around here…everyone is working in the city. The high use of inputs helps to cut down on the amount of work” (CSA 6). Many farmers have to return to conventional agriculture because CSA farming is not economically feasible. Only the most ideologically committed can survive.

Some CSA farms have become larger, approaching the upper limits of CSA production, which some experts measure at 6.7 hectares. While these larger farms assert they are simply trying to develop the market to better promote the CSA concept, some question their motives.

Actors in the CSA system must still be vigilant to constrain the profit-oriented behavior of certain farmers. The realignment of interests requires a period of acculturation so that farmers can internalize a new logic of market behavior based on social trust. Having operated in a hypercompetitive system for a prolonged period, it is sometimes difficult for farmers to change their practices. The local scale of the sector, which promotes frequent interactions with their consumers and support from NGOs and other CSA farmers help orient them towards providing safe food. Given countervailing market pressures, an overriding norm of social trust is necessary and serves as a collaborative dynamic to realign interests that need continual reinforcement.

2.2. Legibility of Standards

As interests are realigned, it is important to provide producers with food safety standards that they can understand in order to overcome the second factor of the coherence deficit: illegibility of standards. Even as farmers seek to contribute to and maintain the public good, it is necessary to guide them in realizing this dynamic goal in terms they can understand and accept. Actors within this limited structural scale system emphasize the importance of local knowledge to facilitate producer acceptance of regulatory authority in the self-regulatory system (knowledge-related scale). On the whole, farmers have a strong preference for informal, incremental policy changes and have rejected top-down imposition of policies from the central food safety regime.

Scholars have shown that standards and rules developed by members of a community are more likely to be accepted than those imposed from above (Rees 1988). CSA farming standards are developed by trusted fellow producers and thus standards are viewed as rational and well-suited to the demands of ecological farming. If producers do not view standards as reasonable, they are less likely to comply. The CSA system has been able to develop its own standards independent of central food safety directives. As a result, CSA farmers are more inclined to comply.

Most CSA farmers only trust other standard-setting farmers who espouse traditional, organic farming techniques. They reject methods that they view as prohibitively expensive or technically complex. For example, advanced, modern agricultural techniques, such as hydroponics or drip irrigation, are considered to be unsuitable due to the high input costs and the technical know-how required. “We do not want to work with new, high technology techniques. It’s an admission that sustainable, traditional agriculture is not possible” (CSA 2). Instead, they invest in techniques that are “traditional” and that “seek balance with nature” (CSA 3). A major
emphasis of CSA farms is to create cyclical economies in which water is re-used, fertilizer is
produced locally, and bio-diversity is utilized as a means to combat pests and disease. CSA
farmers assert that they must revive techniques that have been underemphasized during the era of
industrialized agricultural production. NGO supporters say that farmers are now not only “word-
blind” (wenmang), but have become increasingly “agriculturally blind” (nongmang). CSA farms
seek to recover these “traditional” techniques: “Our methods are old. People who are 40-50
years old are familiar with these old methods. Remember, China has a 4000-5000 year history of
agricultural production” (CSA 13).

Large-scale, comprehensive policies to address food safety have been rejected by CSA
producers. State attempts to promote a formal “organic” certification program among CSA
farmers have largely failed because farmers believe that the state system of regulation actively
disempowers farmers, and farmers prefer informal, ad-hoc approaches to address food safety as
problems emerge. Most importantly, they believe that it is most important that these standards
are developed by other farmers whom they trust.

China established its first organic standard in 1992, the “green food AA standard,” which
was managed by the Ministry of Agriculture. In 1994, organic certification responsibility was
moved to the National Bureau of Environmental Protection. In 2005, China established its most
detailed standards and rules for organic production, which were set by the General
Administration for Quality, Supervision, Inspection and Quarantine (AQSIQ). The Chinese
government has actively promoted its organic certification scheme, seeing organic farming as a
significant area for growth in agriculture. In 2006, China’s organic exports were valued at USD
350 million, less than 0.05% of global market share. By 2015 Chinese experts hope to capture
nearly 5% of global market share in organic produce (UCTP 2008: 5). Domestically, in 2007,
domestic sales of organic production were approximately USD 1.13 billion. As of 2007, 2500
producers were certified to market their products as organic.

The main objection to the state sponsored certification system is that many CSA farmers
feel the objective of the formal organic provisions is slanted towards the development of
modernized agriculture, which would effectively bar CSA producers from the standard setting
process and move the CSA system away from its localized focus. It actively seeks to alter the
system’s reliance on social trust and transition it to industrialized, depersonalized agriculture.
The organic certification program, for example, involves the use of techniques that cannot be
employed by most farmers and creates a dependence on expensive state-certified “organic”
inputs.

Instead of the formal organic certification, CSA farmers prefer to use the terms
“ecological (shengtai 生态),” “natural (ziran 自然),” or “biodynamic (shengwuhuoli 生物活力)”
to describe their farming practices.4 On its face, the CSA movement’s agricultural policies are
not diametrically opposed to the formal organic legislation. Both the CSA system and the formal
organic certification program seek the production of safe food on a sustainable basis. For
example, the organic regulations and CSA provisions both encourage the use of dried rice husks
to cover fallow soil to preserve nutrients and discourage monoculture. Many CSA farmers,
however, suggest that the profit motive becomes paramount in the state-sponsored organic
system and thus reject the state’s regulatory authority: “Our development models are too
different. We want to expand slowly and [the official organic cooperatives] want big production
and aren’t concerned about the negative consequences of their production style” (CSA 5).

4 These terms were used on websites of the Phoenix Hills Commune, Dream Land Eco-Farm, and Little Donkey
Farm.
CSA farmers believe that an overriding profit-motive is the root cause of a rash of scandals related to the organic certification system. Farmers have used a number of under-handed or illegal tactics to market their products as organic: (1) using expired organic labels (Wang 2012); (2) gaining certification for one particular production base, but using organic labels on all produce (Gale & Buzby 2009); (3) using counterfeit labels (Kim 2011); (4) bribing certifiers and auditors (Neumann & Barboza 2010). Supermarkets have also been known to place non-organic items on organic shelves to confuse consumers (AP 2011). CSA farmers do not want to be affiliated with the certification scheme because they fear that their reputation will become tainted by association.

Thus, an increasingly competitive relationship has emerged between the government and CSA farmers, which has only aggravated feelings of mutual distrust. Some state officials do not support the emergence of the CSA movement as an alternative system. They charge that CSA farmers are inappropriately using the term “organic” to market their food, and that farmer’s markets are “getting dangerously close to the edge” of legality (Xinhua 2012). However, thus far, the state has made no overt attempts to regulate the emerging sector.

Instead, CSA farmers opt for locally-based, informally enforced standards contributing to group solidarity and enhancing social trust. Local CSA councils develop new food safety procedures in accordance with local circumstances. Producers believe that those who are involved in developing standards share their common vision for safe food and are similarly committed to sustainable agricultural practices. By contrast, state attempts to support its top-down “organic” model have been viewed as a threat to the CSA mode of production. Without social trust, new standard-setting rules are likely to be disregarded or worse manipulated to advance private ends. To overcome the coherence deficit in food safety, issues of legibility must be resolved.

2.3. Sensitivity to Changing On-the-ground Conditions

Social trust helps to realign interests, and makes standards legible. How does the localized system fare in terms of the third factor of the coherence deficit - sensitivity to changing conditions? The key to the system’s resilience is its policy scale - the incremental, adaptive approach producers and consumers have utilized to address emerging food safety risks. CSA farmers employ an enforcement and surveillance mechanism that is implemented by local CSA agents to implement food safety practices. These informal regulators in the CSA system entrust local farm leaders with a high level of autonomy to police their own farms. Bi-directional trust enables farmers and local informal regulators to respond directly and quickly to changing conditions on the ground. While lacking regulatory uniformity, this mode of small-scale regulatory practice ensures a better fit between policies and its local environment, engendering trust, which further empowers these informal regulators. Because these individuals are not backed by state authority, their legitimacy is based upon the level of trust farmers have in them. Regulatory authority is decentered and shared between producers and consumers. There are two categories of informal regulators: (1) producer associations and (2) individual consumers.

In the broader literature, self-enforcement arrangements are viewed as effective because inspectors share the same attitudes and understanding of production as those whom they inspect (Provost 2010; Rees 1988), and because they are viewed as problem-solvers rather than enforcement officials (Prakash 2000). In the CSA context in China, producers have formed “green associations” in which farmers visit other members in a CSA network on a monthly basis.
to observe production and to offer advice. This roving group of local participants in the self-regulated system disseminates best practices, updates production standards to evolving local conditions, and enforces food safety rules. Because these associations are drawn from local farming communities, these informal regulators are more committed and vigilant: “We have to be responsible for our neighbors. You can’t let them get away with stuff, otherwise it will come back to haunt you, too (CSA 6).”

CSA farms are encouraged to experiment with a mix of incentive-based reward systems and enforcement mechanisms based on their local conditions, which helps to empower regulated members to be proactive in monitoring food safety. In turn, this further ties producers and consumers to preserving the CSA’s local-scales. In one CSA farm in Pudong, production is monitored by locally-nominated production team leaders. Other CSA projects incentivize farmers through novel reward schemes. At the Little Donkey Farm in Haidian, Beijing, farmers are rewarded for their level of participation in community activities as well as the quality of their produce. Individuals who have worked with the farm receive a small subsidy for length of service. Those who use good cultivation techniques are awarded a larger subsidy. The highest reward, a rent-free parcel of land, is given to those who contribute and train other CSA members.

Inter-producer trust among informal regulators and committed participants is also key to maintaining the necessary flexibility in the enforcement system. Producers trust that farmer associations act in the interest of preserving the integrity of the community. First, CSA producers feel that other producers take into account the challenges of transitioning to ecological farming techniques (CSA 1; CSA 6). Rather than fixating on profits, CSA enforcement mechanisms seek to assess technique and establish correct starting conditions. Second, the horizontal nature of CSA producer relationships promotes a dynamic, collaborative framework for enforcement. CSA producers understand that conditions may change. There is no established protocol, and rules can be adjusted. There are no contracts or binding legal agreements, which facilitates flexibility (CSA 3; CSA 11). Third, leaders within the system rotate positions of authority in order to prevent the accumulation of power by a single participant and to encourage dynamism in decision-making. In one producer association, the leadership structure was changed to have two rather than one team leader to prevent uneven development among producers (CSA 2).

Consumers also play an important role in this system as informal regulators. Producers trust that their consumers will not place unreasonable food safety demands on them. Farms employ a flexible open production policy in which consumers are permitted to visit and inspect produce at their convenience (CSA 6). Some consumers sample produce and send it to a laboratory for testing. Records are kept for planting and harvest, and are publicly available for consumers to audit. Producers are willing to disclose as much information as necessary to engender consumer trust in their product (CSA 13). Some CSA farms have a work-share program, in which customers can rent a portion of the land and farm it themselves (CSA 10; CSA 3). Most CSA farmers elect to forego certification because they do not believe that it is necessary to use labels to assure consumers that CSA production is safe. Instead, they believe that their “face-to-face” interactions serve as their guarantee of trust: “In our organic market model, people feel as long as they can visit the farm they are assured of the safety of their food. Consumers then take up ownership of their own food” (CSA 11).

By contrast, CSA farmers are particularly averse to joining industrial supply chains with their seemingly non-local, inflexible, top-down monitoring system. CSA farmers do not trust downstream management, believing that such supply chains are fundamentally driven by a profit
motive rather than a commitment to farmer livelihood and food safety (CSA 10). Certified organic producers are typically integrated into modern, agricultural supply chains led by a major corporation referred to as a “dragonhead enterprise.” These companies establish large production bases as their primary site of production and then contract out farming. The corporation pays for certification and provides inputs for supplies. They operate their own internal inspections and maintain “express” testing centers on their bases.

Private and state-owned companies alike endorse the Enterprise + Base + Farmer model. Yet, farmers who participate in this model complain about the significant power asymmetry between downstream buyers and farms. There is a general lack of flexibility in the production standards enforced by enterprise quality teams. CSA farmers believe that standardization means less sensitivity to conditions on the ground, leaving farmers with little leeway to make necessary adjustments to how farms are managed. The unilateral, top-down control structure often places unreasonable demands on farmers, which inevitably leads to food safety problems. For example, a common complaint is that dragonhead enterprises operate as monopsonies, arbitrarily setting prices for products and having unrealistic expectations for controlling costs, which drive many farmers to cheat: “The basic premise is that a company has some of its own production under their direct control, but a decent portion of it is sent out to other smaller finders and other production units. These units are often less capable of maintaining quality/safety in their food production processes. The large producer often unilaterally decides that they want to sell the product at a lower price, which is transmitted down this unmanaged chain in the form of cost cutting in every way possible, which results in illegal food safety behavior” (NYT Interview).

In summary, the mode of governance utilized by the CSA system is policed by local producers and consumers and its incremental, adaptive food safety approach engenders social trust. CSA producers trust that consumers and other producers who also serve as regulators will be sensitive to changing conditions on-the-ground, and will not impose rigid rules from above that are not responsive to local circumstances. When rules and standards are imposed by distant standard-setters, they become irrelevant and induce producers to disregard standards altogether. Social trust among actors permits the CSA system to be responsive to changing local conditions.

2.4. Evenness of Policy Implementation

There is no national standard or association for CSA members on which to ensure the standardization of the system. A high level of social trust, the basis for the system’s legitimacy, is largely preserved by the local nature of CSA systems, which leads to significant variation. CSA farms are loosely affiliated through national CSA conferences or transnational NGOs, but most producer associations are locally-oriented. For example, the Little Donkey Farm helps organize conferences among CSA farms around Beijing and the CSA Green Alliance organizes farmers in southern Sichuan. Farmer’s markets in different cities adopt different standards for their suppliers. For example, the Shanghai market has a stronger anti-capitalist orientation, refusing to allow larger, more corporate farms from participating (CSA 11). Producers interpret what constitutes “community-supported agriculture” differently. Some contend that a CSA farm that is formally associated with the government organic certification scheme should not be viewed as a traditional CSA farm.

Neither is there a single model of CSA development with farms across the country exhibiting different management structures, ownership models, emphasis on work shares, levels of employment of local farmers, and integration with the local economy. Yimutian Farm in
Shanghai is operated by three investors who operate an e-commerce platform. Little Donkey Farm in Beijing is managed by a consortium of academics and NGOs. The Anlong Village Project in Chengdu operates as part of an environmental sustainability program of an NGO. CSA farms are designed to complement the local communities to which they supply food.

Despite the variation of organizational type, due to the high level of social trust, food safety is ensured. However, the overall lack of standardization will prove challenging when considering how best to scale this system to other contexts.

3. Conclusion: Some Implications and Questions

This chapter observes how a system at local scales employs incremental food safety policies to enhance social trust, which has important consequences for regulatory coherence. Social trust realigns producer and consumer interest towards the public good, facilitates the acceptance of food safety practices as rational and reasonable to all participants, and leads to the development of enforcement strategies that are dynamic and sensitive to local conditions.

Contrary to literature on self-regulatory systems which contend that successful self-regulation is dependent on the presence of a well-functioning state that can intervene if regulation fails (Heritier & Lehmkuhl 2008; Scharpf 1997), successful self-regulation can take hold under certain scale conditions. A self-regulatory system can utilize strong local norms and an informal system of incremental regulation to improve food safety outcomes.

Consideration of the operating dynamics of the CSA system reveals that informal actors can support the regulatory functions of the state by utilizing high levels of social trust. Non-state regulators can help the state in surveillance, provide training to upgrade agricultural production, and improve farmer livelihoods, though not always on the state’s desired terms. Non-state actors can develop substitutes in governance to compensate for the weak rule of law and limited sanctity of contract by using social trust to increase compliance.

The CSA system functions best in local communities near large, urban centers. The high cost of CSA food precludes market expansion to populations with lower incomes. For now, access to safe CSA produced food is limited to isolated pockets of privileged consumers possessing the means to purchase safe food. A system that provides a public good, such as food safety, to a privileged few cannot be considered coherent. Thus, the question remains: What happens to social trust as the CSA system is “scaled up”? To what extent can this model be expanded to the whole of China?
The CSA market operates successfully at localized scales, but what happens when successful, self-contained systems scale-up? The strong performance of community governance has led many to emphasize the spread of local governance models to address national food safety problems. Others are less certain. Ostrom et al (2007) in particular cautions that scholars should not view community governance as panacea to governance problems. Can the CSA market serve as a model for national food safety?

Scaling-up refers to adapting a system to interface with higher levels on multiple scales. The CSA system operates in small, local market areas, but must link to large scale production networks (network scale) and the national certification system (jurisdictional scale) in order to reach a broader population. Local systems based on social trust must somehow codify and routinize procedures that can be understood by consumers and producers that are separated by great distances (spatial scale). Local commitments to food safety standards must interface with global food safety best practices to gain broader market access (knowledge-scale).

The virtuous cycle of the CSA system is premised on a system of a limited, localized structural scale. Because the scale of the CSA market is limited to a few actors, there is little political contestation regarding appropriate food safety governance methods. Individuals employed gradualist, informal food safety strategies to address emerging food safety challenges, which would better suit the local community. As a result, social trust increases improving regulatory coherence and reinforcing the localized scale. By altering the scale of the sector, however, the dynamics of this system change, and have implications for the policy scale that can be employed. As spatial distances increase, the use of informal food safety strategies becomes less practical. Social trust is difficult to engender, which weakens the overall cohesion of the system.

When small structural scale systems scale-up, significant problems can emerge due to a lack of coordination among actors. A politics of scale emerges in which actors challenge each other based on differing conceptions of who is best positioned in the system to carry out regulatory activities, what is considered legitimate regulatory activity, and which methods are the most effective (Leitner 2004; Lebel et al 2005; Vogel & Ansell 2006). Moreover, when a localized system is loosed from its moorings, it is more difficult to preserve a high level of social trust, which is one important way to overcome a regulatory coherence deficit (Ostrom 2007b; Dietz et al 2003).

An increasing number of scholars have begun to question the benefits of local governance in a multilevel world (Berkes 2007; Dressler et al 2010). These scholars suggest that policymakers have failed to heed Ostrom’s (2007b) warning towards the end of her career that local solutions should not be viewed as a panacea. She makes a strong case that in a globalizing world, local communities cannot be shielded from broader trends in the global economy (Ostrom 2005). These local communities must be connected and learn to coordinate with larger political economic subunits (Andersson & Ostrom 2008). Moreover, she highlights that while community governance may prevent local fishing stocks, it is unlikely to serve as a solution for larger problems such as governing the oceans (Ostrom 2005).

The existing literature offers little guidance as to whether the social trust embedded in local, self-regulatory communities is scalable. Dietz et al (2003) highlight local, informal institutional arrangements that effectively govern the commons, but remain uncertain whether
these arrangements can operate at a larger scale and involve non-local influences. Some contend that in larger-scale settings local governance is unlikely to be as effective because resources are not closed-access (Pretty 2003). Despite strongly held norms of behavior in discrete governance settings, individuals are likely to behave differently as groups incorporate additional members and must interact with additional levels (de Oliveira et al. 2009). Scholars contend that social trust is intrinsically tied to local communities, but that a more diffuse form of social trust is also possible at higher levels (Bowles & Gintis 2002; Ostrom 2010). Dietz et al. (2003) offers general principles to guide scaling-up such as, multilevel analytic deliberation, nested institutional arrangements, and a commitment to institutional variety. However, these only serve as general guides to scaling-up, and, for China, do not consider how strategies such as multilevel information channels and power sharing arrangements are possible in a developmental, authoritarian context.

This chapter shows that as the CSA governing framework scales up, social trust begins to deteriorate exacerbating the coherence deficit: Private interests begin to dominate; farmers fail to agree on standards for safety and enforcement; and, enforcement standards fail to take into account local conditions. As farms become larger and more complex, consumers begin to lose their face-to-face communication with their vendors. Consumers become clients rather than partners in production. Larger farms must contend with higher levels of risk due to inclement weather or downturns in the economy, forcing them to consider how to secure greater market share. As this occurs, producers begin to view each other as potential competitors, or begin to exclude farms from participating in CSA producer associations.

Although social trust can realign producer interests towards the public good, produce legible food safety standards, and facilitate enforcement mechanisms sensitive to on-the-ground conditions, the process of scaling-up a CSA model undermines the very social trust that underpins the coherence of the system.

At the heart of this inquiry is a discussion of policy diffusion: to what extent can small-scale functioning systems, expand to include new actors and participants that it was not originally designed to include? Heilmann and Perry (2011) suggest that the key to China’s adaptive governance is China’s use of small-scale policy experiments as a basis to develop broad national models. National agricultural liberalization was preceded by experimentation with household production in select areas during the 1980s. China’s experimentation with market reforms, for example, first began in four special economic zones.

Policy diffusion based on small-scale experimentation can be deceptively compelling. Schulman (1975) observes that policymakers should be careful when trying to expand limited scope trials. Typically, such trials occur in relatively controlled environments with significant amounts of investment and attention, which do not mimic broader realities. As more individuals participate in schemes, power structures are altered and incentives are transformed. Information asymmetries develop and individuals may seek to take advantage of such information flow problems. Global economic forces, which may have been irrelevant to smaller communities, may not comport with a limited system’s internal market logic. Conversely, projects that may fail under small-scale conditions may be more successful in larger contexts because they can take advantage of economies of scale. Indeed, with increased resources and higher levels of participation a failed small-scale project could lead to a major regulatory shift towards compliance.

This chapter will examine what happens to social trust when a localized system is scaled-up. Specifically, it shows how politics over scales creates new dynamics that have important
ramifications for regulatory development and that the manner in which a system scales up has important trade-offs for regulatory coherence.

1. Prototypes and Scale

There are three different models that have been employed in attempts to scale-up the CSA sector. Scaling the CSA model requires the injection of expertise, capital, and labor. The expansion of a CSA farm requires experts who understand how to manage a larger production base. Distribution managers must be hired who understand how to efficiently deliver food to a larger consumer base. Increases in production require capital investments for land reclamation and the purchase of inputs, such as organic fertilizer and seed. Labor must be recruited and trained. As a model spreads, rules of conduct must be established to protect the reputation of all the producers. Enforcement officials must be put in place.

External assistance can come from government, corporations, or NGOs and understanding which actor initiates the scaling-up process has important ramifications for the politics of scale that emerges. Studies assert that, as corporations and governments become involved in governance, they may crowd out social capital (Bowles & Gintis 2002). The attempts to expand organic farming in Europe is instructive because government and corporate schemes have fundamentally altered the original organizational character of the grassroots organic movement (Michelsen et al 2001). In Austria, the national expansion of the organic farming market eventually was coopted by mainstream agricultural producers. In Belgium, the state’s development of the Biogarantie to coordinate all actions were resisted by the smaller organic associations and stunted the organic market’s expansion. In Denmark, the most successful of the cases, the organic market expanded and farmers retain a voice in policy outcomes, but the system now depends largely on certification schemes managed by the government rather than self-regulation.

Within the CSA movement in China, government officials, corporations, and NGOs have attempted to promote CSA farms with different trade-offs. As the structural scale of these systems is altered, a politics of scale emerges between various actors. The first prototype is the corporate CSA model, which involves significant financial backing from entrepreneurs who view the CSA sector as a potentially profitable market in China. Here, on the network scale, large corporate CSAs come into conflict with smaller CSA producer networks regarding food safety processes. The second prototype is the government CSA model, which seeks to promote CSA in the broader context of China’s agricultural development, and to develop a new national standard for ecological farming. Under this scaling model, a jurisdictional challenge emerges as local governance conflicts with formal government agents with a different view regarding the development of the organic market. The third is the NGO sponsored CSA farm, which emphasizes the development of local, sustainable farming. This scaling model is limited by the spatial scale. These scale politics have important consequences for the policy scale employed. This section will compare and contrast these three different attempts to scale the CSA model and explore the consequences on social trust and regulatory coherence.

2. The Corporate CSA

The Corporate CSA farm can be distinguished by its emphasis on market development, high production volume and high capital investment. As corporate CSA farms scale-up to enter
into large distribution chains and more advanced markets, significant mismatches emerge on network-related scales. Other non-corporate CSA farms feel disconnected from these larger farms and are highly suspect of their motives and practices. As a result, Corporate CSAs have been actively excluded from local CSA farmer’s markets, monitoring and surveillance activities, and community support mechanisms.

Corporate CSA farms are primarily concerned with how to make the CSA concept profitable. Investors believe that the recent food safety crises in China provide a unique opportunity to develop a new market for organic, safe food (CSA 3; CSA 16; CSA 8). In order to expand the market, producers seek to increase production volumes and have invested in distribution centers to reach more consumers. One CSA has distribution centers within Beijing to provide customers with the convenience of picking up produce directly within the city (CSA 3). Production bases are large, some bigger than 66.7 hectares, roughly ten times the size of a typical CSA producer. Investments in developing sustainable farming practices have been sizable with some farms spending hundreds of thousands of dollars on integrated pest management facilities, water treatment plants, and research and development labs. As larger producers, they do view themselves as distinct from their smaller counterparts, and consider themselves market leaders paving the way for other organic producers: “We understand that we are a big movement with many participants. But, given the advanced nature of our production techniques and the significant investments we have made, we consider ourselves as walking in front of everyone (CSA 3).”

Food safety is a significant concern for these producers for the purposes of branding and the future development of the market. As such, investments in farm management have been substantial. Farms produce their own organic fertilizer, construct their own nurseries, and maintain private seed banks in order to reduce the risk that off-farm inputs might be contaminated or fake (CSA 14). Prior to cultivation, producers spend large amounts of capital and time ensuring that soil and water are of a certain quality to produce organic food. One farm is in the process of preparing an orchard for cultivation which will take 10 years in order to ensure that the soil has been purged of chemical contaminants and the correct level organic material has been restored (CSA 3). Large farms have a permanent staff to manage production. One farm has organized producers in teams, with each team taking responsibility for a particular parcel of land and is made accountable for any food safety incidents (CSA 4). These farms have testing labs on-site and hire international consultants to advise them on how best to maintain food quality. Taiwanese and Japanese agronomists particularly are in high demand.
CSA network. In fact, the Shanghai Farmer’s Market agreement specifically forbids participants from acquiring the state’s organic certification.\(^6\)

One of the largest corporate sponsored CSA farms is located in Pudong, a suburb of Shanghai, and has over 86.7 hectares of land under cultivation with plans to expand to 116.7 hectares. Total investment in the project was over 300 million RMB, with 200 million RMB from private investors and 100 million RMB from the government (CSA 16). The farm distributes to over 8000 households in Shanghai, 40% of which are expatriates. The farm also operates as part of the “special supply system,” providing guaranteed safe food to over 40 government SOEs and agencies throughout the Shanghai municipality.\(^7\) They operate their own packaging center on-site and deliver approximately 1600, 3 kg boxes of vegetables per day. The production base also has a private recreational club and is constructing a five-star resort to promote agro-tourism.

Unlike other CSA farms, this corporate CSA has significant capital to invest in advanced food safety techniques. The farm employs 300 individuals: 100 are involved in management, distribution, and quality assurance and 200 individuals are involved in production (CSA 16). On site, they employ 4 agronomists from Taiwan to monitor production. They also have an inspection center with 6 to 8 individuals who collect 160 water, soil, and vegetable samples from around farm every day. There are 16 growing fields, 2 fields are equipped with a real-time monitoring technology to assess soil temperature, humidity levels, and water quality. While testing is an important part of food safety assurance, the farm holds that food safety is best protected by investments in the method of production and the quality of inputs. Farmers are trained on weekly basis in new techniques and are organized in production teams to create an internal accountability system. All inputs are carefully processed on the farm. The farm spent 66 million RMB on a water processing center (CSA 16). While they attempted to purchase some inputs from the surrounding community, the management felt that doing so might place the farm at risk of contamination, and instead opted for 100% self-sustainability.

Many assert that large-scale CSA farms violate fundamental principles of the CSA movement, and the model’s legitimacy is a source of tension in the CSA community. One of the major critiques is that despite its commitment to transparency and openness, these corporate CSA farms do not emphasize building personal relationships between consumers and farmers and rely too heavily on brand management (CSA 10). Consumers do not interact with growers on a personal level. They can participate in production, but do not have rights to the land (CSA 3; CSA 10). Smaller CSA farms do not partner with these large farms, viewing their production methods and marketing techniques as highly incompatible with CSA principles: “we reject the large farm model because it is not ecologically sustainable…” (CSA 13). As a result, these large farms do not benefit from collaborating with other CSA farms. Instead, these large farms can only partner with other large organic farms, and remain isolated from the broader movement. They do not participate in the organic farmers markets nor in CSA producer associations.

Corporate CSA farms must pay close attention to the needs of shareholders, which many other CSA producers view as anathema to the CSA movement’s commitment to stakeholders (CSA 4; CSA 9; CSA 10). In order to appease investors, these farms must increase production and market share. The emphasis on shareholder value leads to a crowding out of social trust.

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\(^6\) In addition to prohibiting participants from joining the government organic certification program, the agreement also forbids farmers who are affiliated with corporations and government agencies and ministries.

\(^7\) The large farm operates as part of the “special supply” (tegong) system, which delivers high-quality, safe food to Chinese government offices and SOEs, see Demick (2011).
Production teams are viewed as laborers rather than integral parts of the farm system. One consultant commented that corporate CSAs alienate many of the farmers, which affects their level of commitment: “We need to develop a new model for peasant relations. They really need people to come in and be invested in producing quality food. We should create an employee and employer stockholding agreement” (CSA 14). Rather than develop social trust through community building efforts, corporate CSA farms invest significant amounts of cash to attain certification and then expand production. For example, one farm acquired organic certification from Demeter, which cost them approximately \(2\) mm RMB (CSA 3). Given the primitive stage of market development for organic food, it is nearly impossible to recoup investment. As such, corporate CSA farms have engaged in alternative profitable activities, unrelated to farming. One farm has had to develop a resort in order to help buffer the losses from farm sales: “Currently, we are operating at a loss. We need to make far more money. You can’t make money from simply selling vegetables. Consider the level of investment? We can’t recover it” (CSA14).

Although corporate CSA farms lack social trust, this is not to say that these farms will not produce safe food. As corporate CSA farms expand, their emphasis on social trust lessens as their focus on financial capital intensifies. As such, it can no longer benefit from the regulatory coherence engendered by a system which relies heavily on social trust. In order to maintain food safety, corporate CSA farms must then compensate for the diminished level of social trust by paying for enhanced surveillance, monitoring, and quality inputs.

3. The Government Sponsored CSA

As the CSA sector scales-up via government support, jurisdictional contestation arises between government actors seeking to impose their own “organic” system on the local CSA movement. CSA farms are coerced to adopt government “organic” certification, encouraged to expand production, and threatened by government officials seeking to develop CSA farms into model production zones.

As a baseline, CSA farms do receive support from the government. China’s *State Research and Technical Development Plan (2006-2020)*, for example, emphasizes the increased experimentation of different types of “ecological zones” and to provide infrastructure and capital support to projects (Art II, 1). Sometimes local government directly partners with CSA farms as an investor. In Pudong, officials invested several million dollars to start a special organic farm and were active in management and operations. In most circumstances, the government provides land to CSA farmers as part of broader agricultural development plans. On Chongming island, CSA farms were granted land-use rights as part of the district’s “Good Agricultural Standard” development zone (CSA 8). In Anlong village, Sichuan, CSA farms were subsumed under the “Model Agricultural District” program in 2007 (CSA 5). Government might also serve in a more auxiliary role, offering subsidized inputs, guaranteeing loans, or investing in agricultural infrastructure projects.

The relationship between the CSA movement and the government, however, remains tense due to different perspectives on how the organic market should develop. The government supports the CSA market’s broader goal to provide safe, organic food to China’s consumers, but does not agree with its methods. Nationally, the CSA movement’s commitment to general principles regarding ecological agriculture is viewed as a challenge to the state-run green food and organic certification schemes. At the local level, CSA farms are less than ideal for township cadres: production volumes are low and land that could be otherwise used for lucrative
development projects remains under cultivation. The Chongming County Government’s support plan, for example, only provides subsidies for the construction of cold storage for farms above 20 hectares, which is larger than most CSA farms (Chongming Government 2012: 1.4.). As one farmer notes, “The only thing the local government is focused on is about constructing houses. They can’t make money from agriculture” (CSA5). The only benefit that CSA farms provide is a boost in agro-tourism and as showcase centers for local agriculture. CSA farms do not purchase inputs from the local government’s agricultural extension service centers which sell seeds, fertilizers, and pesticides. The CSA movement does bring media attention to the village, which helps the local party leader’s reputation. Many believe, however, that these reputational gains are only temporary and that when the momentum behind the movement begins to slow village leaders will try to push farmers off the land. Government officials are primarily interested in maximizing the symbolic capital of the CSA movement for their own careers and hope instead to push the movement in the direction of large-scale, modern agriculture that follow global food safety best practices.

**Figure 4.1. Conflicting Views on Food Safety Certification**

Government officials seek to expand the formal green food and organic certification systems, but CSA farms have been highly resistant. CSA Farmers highlight that the green food and organic policies favor large-scale, capital rich, export-oriented production. A survey of 40 certified organic producers shows that on average a producer yields 500 tons of food annually, a volume that is uncommon among traditional CSA farms (EUCTP 2008:15). Approximately 30% of producers surveyed export to Japan, which has one of the strictest food safety standards in the world. 80% supply local supermarkets and nearly 70% supply government agencies, marketing channels that most CSA farms cannot enter into due to their own limited production volumes. Prior to 1999, over 95% of state certified organic producers exported their products to Japan, EU, and the United States (EUCTP 2008:4). Certification can cost up to 18000 RMB and must be renewed annually, creating a significant barrier to entry for the vast majority of small to medium-scale producers (USDA 2010). Moreover, the 2005 Organic Standard sets strict rules for production, which are prohibitively expensive for medium scale producers. The green food standard actually specifies a minimum farm size that well exceeds traditional CSA limits. The standard sets up rules for recording that seem overly complex for CSA farms. The law sets up specific policies about record keeping, data management, and license renewals, which do not correspond to the smaller levels of production for the CSA movement. When an organic farmer’s market started promoting its own “certification,” CNAS officials openly criticized the movement and warned that only accredited bodies could issue certificates (CSA 18).
The government loan system also pushes CSA farms towards higher production. CSA farms are generally strapped for capital and with such high startup costs securing loans is important. Despite the demand for funding, farms prefer to receive financing from other CSA farms or from entrepreneurs who are committed to sustainable levels of production, as opposed to government funding bodies which are aimed toward promoting industrialized agriculture: “We don’t want loans from the government, though. The lending system has the perverse effect of forcing farmers to produce more than they need and to expand at rates that are at odds with ecological farming. All of a sudden, you find that the loan system has farmers locked-in to a vicious cycle in which they have to produce more in order to pay off a loan” (CSA 2). Farmers must then move-into industrialized agriculture using large volumes of pesticides and other chemical inputs to increase production volumes, which have been the cause of many food poisonings in the broad market.

Government involvement in the CSA food system is viewed as threatening to CSA farmer independence. Independence is desired because CSA farms can then dictate who is allowed to participate. The Beijing Farmer’s Market committee notes: “We enjoy our independence. We are very selective who we get to work with. These are all people we have come to trust on a personal level. Once the government or larger companies become involved the market will become more subject to nepotistic behavior. We pride ourselves on impartiality” (CSA 11). These organizers posit that government officials sometimes allow non-compliant producers to join supply networks, which threatens the farmer’s markets ability to enforce quality control standards.

The government largely views the CSA movement as a potential development model and is eager to setup “ecological farming” zones in order to stake their claim as leaders in agricultural development. Many of the projects involve the beautification of farms, but do not actively support the CSA market in terms of building networks among farms, finding new customers, or promoting sustainable farming practices. One farmer reports: “The government really offers no support. I mean, they came and painted our house, and helped to rebuild our pig pen, but they really haven’t done anything substantial…No one from the government cares about what we do” (CSA 6). In one village, the government actively promoted a MOA program to build methane tanks, but failed to educate farmers on its uses-methane tanks must operate as part of a system of sustainable agricultural practice (CSA 2). Other times local government encourages the development of exhibition centers, or the investment of funds in hotels and restaurants to boost agro-tourism.
### Table 4.1. Primary Differences between the Green Food, Organic, and CSA Systems

<table>
<thead>
<tr>
<th>Primary Difference Between the Organic Food System and the CSA System</th>
<th>Green Food</th>
<th>Organic</th>
<th>CSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Large-Scale&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Medium-to-Large Scale</td>
<td>Small-Scale</td>
</tr>
<tr>
<td>Organization</td>
<td>Company-Led</td>
<td>Company-Led/Direct Sales</td>
<td>Household</td>
</tr>
<tr>
<td>Bio Pesticide</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Antibiotic Pesticide</td>
<td>Restricted</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Crop Rotation</td>
<td>NO</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Third-Party/NGO</td>
<td>NO</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Audit</td>
<td>Once every 3 years</td>
<td>Once a year</td>
<td>On-going</td>
</tr>
<tr>
<td>Final Product Testing</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Government intervention has a number of implications for social trust within the CSA system. At times the CSA system comes into direct conflict with the government regarding certification, production volume, and regulatory authority. As a result the government has actively tried to coopt the system via a program of divide and conquer. Because the government favors CSA farms that have higher production, this creates division between small and large producers within the movement. Small and medium producers grow increasingly less inclined to participate with larger producers. Moreover, many farmers fear that as the government coopts the CSA program that it will be largely dominated by large actors: “…We are just nervous that [the increase in the number of industrial players] will squeeze out peasants” (CSA2). The government’s promotion of an organic standard directly conflicts with the more informal practices among CSA farmers, which leads to a breakdown in common understanding of what constitutes fair, sustainable, and safe agricultural practice among CSA members. Government intervention changes the rules of the game for the actors leading to a breakdown in coherence.

The fear is that the government program will force the CSA sector to adopt the same industrialized agricultural practices that have led to wide-spread food poisonings. Higher production volumes require larger amounts of pesticides. If pesticides are too expensive, farmers will have to purchase substandard inputs in order to make a profit. As soil quality deteriorates due to intensive agricultural practices, even more chemical inputs will need to be purchased. Moreover, a move towards high volume production requires substantial investment in cold storage and logistics infrastructure. Failing to do so will increase the risk of microbial contamination. Higher volumes imply higher risks. The CSA market would then simply adopt the very unsafe practices that they sought to avoid when the sector was first organized.

### 4. The NGO-Supported CSA

NGOs seek to scale-up the CSA movement through replication, planting small, local networks of CSA farmers around major municipalities, rather than simply expanding the production volume of farms (Jiang 2011; Luo 2011). However, this model of scaling-up is

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8 Size requirement
limited by the spatial scale. It cannot expand to rural areas that are not in close proximity to municipalities and cannot reach large swaths of China’s rural countryside. While the NGO-system cannot physically reach an increased number of individuals, NGOs seek to scale-up in order to facilitate a symbolic, ideological shift regarding food safety.

In essence, the NGO-supported CSA serves as the ideal typical example of a CSA food safety system. In addition to a commitment to provide safe food, NGOs address the growing rural-urban divide by providing farmers a means to earn higher incomes from agriculture, stemming urban migration, and reinvigorating the local economy. NGO-sponsored CSAs work to transform the common mindset of viewing the countryside as a source of extraction to one emphasized on mutually collaborative growth (Shi et al 2011). Thus, the mode of expansion emphasizes investments in social capital, rebuilding social relations among farmers and between farmers and their urban consumers.

### Table 4.2. The History of CURA and Anlong Village

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>Fu-Nan River Restoration Project, Chengdu</td>
</tr>
<tr>
<td>2002-2004</td>
<td>Agricultural Pollution Investigation</td>
</tr>
<tr>
<td>2004-2005</td>
<td>Establish CSA project in Anlong Village, 20 Households Express Interest</td>
</tr>
<tr>
<td>2006</td>
<td>Four Household Join CSA Network</td>
</tr>
<tr>
<td>Phase I</td>
<td>Clean Energy Project</td>
</tr>
<tr>
<td>Phase II</td>
<td>Ecological Waste Management Project</td>
</tr>
<tr>
<td>Phase III</td>
<td>Sustainable Agricultural Project</td>
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<td>Phase IV</td>
<td>Environmental Education Base Project</td>
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The model example of an NGO supported CSA project is Anlong village in Sichuan, which was sponsored by the Chengdu Urban River Association (CURA). In 1994, CURA was tasked by the Chengdu municipal government to clean up the heavily polluted Dujiang River that runs through the city. Following a major river renewal project that lasted for over a decade, CURA officials still found high levels of pollution in the water. An investigation revealed that the water pollution was a result of agricultural runoff from rural areas located 100 km upstream in Ande township. Following consultations with farmers, government officials, and academic experts, CURA moved forward with an ecological farming project in Anlong village in 2005 based on CSA principles.

The project set up a 33.3 hectare river protection zone in the village, which prohibited the use of chemical fertilizers and pesticides. The project began with the Wang and Gao families and spread slowly in the village to include 22 farms. CURA sought to develop “ecological households,” which would emphasize sustainable farming as part of an ecological lifestyle. Human waste would be recycled and animal waste would be composted for fertilizer. Farmers would use methane tanks for energy. Grey water filtration units would be installed to conserve water usage. Food safety would naturally arise as a result of a commitment to ecological principles.

CURA played a crucial role in facilitating relationships among farmers themselves and also with their urban consumers. Farmers would be brought together for training sessions and to
help one another with transitioning to organic farming. Because many of the peasants did not have connections to individuals in the city, CURA helped to identify families who would be willing to purchase organic produce and supplied farmers with credit to purchase cars and vans to distribute their product. The NGO would also host town hall meetings between farmers and their consumers to foster mutual understanding. Publicizing the project through the media created increased interest among urbanites looking for a source of locally-sourced, safe food. These outreach activities helped foster social trust, creating a dense social network. Farmers, on account of their strong relationship with consumers, felt responsible for providing safe food. In addition, CURA’s attempts to foster solidarity among producers led to the emergence of an esprit de corps among farmers.

CURA believed that in order preserve high levels of social trust and local harmony, producers would have to be relatively similar in size. They feared that larger producers would distort the CSA market by driving out smaller producers, and would lead to hyper competitive behavior among participants. CURA also seeks to serve as a buffer between farmers and local government. When government agencies pressure farmers to expand production, CURA often helps mediate and protect their farmers. Local officials at one point intimidated farmers to give up their land, but skillful maneuvering by CURA led to the establishment of an ecological protection zone, which prevented village officials from expropriating land for developmental use.

NGOs seek to replicate the model to villages around the country, creating local networks of CSA farms. Suitable locations for CSA farm networks, however, are limited. CSA programs are geographically bounded, doing best in areas near to major urban centers. Consumers and farmers must be in close proximity in order to facilitate frequent exchanges between consumers. Given the high prices of produce, CSA farms also require large, upper middle class populations (Shi et al 2011; Gale 2011). As such, the majority of CSA farms are located near major metropolises such as Beijing, Shanghai, Guangzhou, Chengdu, and Chongqing. Thus, expanding to less cosmopolitan areas is not practicable given these constraints. Geographic limitations make it difficult to establish CSA farm networks in all areas of the country. Poorer, less developed areas would likely be excluded from expansion plans. As one NGO director states: “The main issue is that the model can only be extended around cities…of course, we know that we can’t take over the market…” (CSA 2).

Instead, the NGO CSA movement has focused on serving as an ideological counterpoint to the conventional food production system. By producing safe food through ecological farming techniques, NGOs hope to facilitate a shift in consumer preferences for organic food. While a few CSA farms believe that organic farming yields can match those of conventional farming yields (CSA 10; CSA 3), the vast majority of individuals believe that the CSA organic food production will constitute a relatively small part of the overall food market in China. The symbolic impact, they believe, will be more important than the number of people it reaches.
5. Comparing CSA Scaling-up Prototypes

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<th>Table 4.3. Comparing “Scaling-up” Prototypes</th>
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<td><strong>Primary Scale Problem</strong></td>
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<td><strong>Scalable?</strong></td>
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A comparison of the three prototypes and their effect on social trust and regulatory coherence indicate that scaling-up presents significant challenges. Corporate and government sponsorship of CSA producers can expand the reach of CSA producers, but crowd out the social trust that enables the CSA system to avoid other aspects of the coherence deficit. Corporate and government emphasis on expanded production and a formal certification process lead to a decrease in inter-producer and producer-consumer social trust. Corporate CSAs compete with local networks of producers, and become isolated from community governance. Government CSAs face competition on the jurisdictional scale as government plans for expanding the organic market compete with local CSA governance procedures that are informal and locally-tailored. The NGO model of expansion can support a high level social trust, but is largely confined to urban centers. Moreover, a commitment to limited production precludes the possibility of expanding the market.

The lack of scalability of social trust does not necessarily mean that food safety must suffer, but that regulatory coherence in the production system cannot be based on social trust. Each of the farms examined have not had any food safety incidents. The main issue is that as social trust is attenuated or crowded out during the scaling-up process, other governance strategies must be employed to address the coherence deficit. Corporate CSAs must invest in high levels of direct control at significant cost. Government sponsored CSAs become fully integrated in the government organic scheme, depending on subsidies and government technical assistance for further development. The NGO model may be the only model that can maintain social trust as its model is replicated across the country, but its reach is limited.

6. Conclusion

The process of scaling-up is an intensely political process. The dynamics of a localized system emphasizing social trust are fundamentally altered as a system scales up. As a system scales to include different actors each with their own conceptions of food safety, different obligations to their supply chain network, and accountable to their respective governance systems, scale politics emerges. Contrary to views of policy diffusion as a relatively an
apolitical process, this chapter has shown that scaling-up governance of a sector becomes highly contested with each actor seeking to address food safety that best reflects his own interest.

As corporations, government, and NGOs scale-up a small sector there are unique trade-offs in terms regulatory coherence. Scaling-up of systems need not lead to regulatory failure. However, altering the scale of a system may preclude the use of certain strategies. Social trust, for example, may be a less tenable strategy when local communities play a less central role in production and distribution. Instead, strategies of direct control may be more feasible. Governments may seek to impose standardized requirements, rather than operate an informal system of mutual obligation. To preserve social trust, some systems can replicate themselves in different areas around the country, but finding potential sites can be challenging.

Who scales-up the system also has important consequences for regulatory development. Corporate actors with less interest in maximizing social capital and a far greater stake in increasing their financial capital will quickly erode local systems of social trust to gain access to broader distribution channels. Government sponsored systems may conflict with local patterns of governance, requiring compliance with national certification and meeting production volumes to expand to broader markets. NGOs may seek to expand their system only if scaled-up models retain the original characteristics of the original system.

If social trust cannot scale-up, are there other methods to prevent a coherence deficit from emerging? Must solutions always be local? We turn to examine these questions in the next chapter on China’s export sector.
Chapter 5. Scale and the Export Sector

In the last decade, several global food safety scandals brought the weaknesses of China’s food safety system to the world’s attention. Sensationalistic headlines dominated major media publications: “a decade of dangerous imports;” “deadly milk from China;” “poisonous pet food;” “No end in sight for China’s food safety scandals.” From the perspective of its global trading partners, China’s lack of control over food safety in its export sector posed significant risks to domestic food supplies (DeLisle 2009). However, it is important to distinguish between perceptions and on-the-ground realities. Chinese government reports assert that the inspection pass-rates of Chinese food in foreign countries remain high at 99% (State Council 2007). This claim is supported by customs data from foreign governments, with Japan rejecting 0.58% of Chinese food, the EU rejecting 0.2%, and the US rejecting just below 1% in 2007 (UN 2008). This is not to say that concerns regarding China’s food exports are unfounded, but that they are often exaggerated. More importantly, this has caused some analysts to overlook the fact that relative to its own domestic sector, food safety in China’s export sector is surprisingly rationally managed, stringently enforced, and responsive to international food safety demands.

China has emerged as a major participant in the global food trade, ranking fourth largest exporter by value at approximately 44 billion US dollars in 2010 (WTO 2011). From 2005-2010, the average annual global growth of Chinese food exports has been at 15%. In Japan, China is the second largest external supplier of food, accounting for 13.6% of Japan’s food imports in 2010 (JETRO 2011). China’s exports to the United States have tripled in the last decade and were valued at approximately 5 billion US dollars in 2010 (F&W 2011). China supplies over 60% of apple juice, 50% of garlic, and 10-15% of fish and shellfish consumed in the US (Gale & Buzby 2009). Chinese exports to the EU have increased at an average 15% per year from 2001 to 2010 and the current value of bilateral food trade is four times that of 2001 (UN Comtrade).

Experts claim that the level of food safety in the export sector is higher than in its domestic sector for several reasons: (1) food production for export is limited to large, technically proficient enterprises (Gale & Buzby 2009); (2) government regulation and enforcement is more stringent (ADB 2005); (3) third-party certification is high (State Council 2007); and (4) foreign governments and enterprises provide technical assistance and disseminate information on best-practices (Calvin et al 2006).

In terms of scale, the success of China’s export sector is largely due to the combination of three factors: (1) a limited structural scale; (2) a comprehensive policy scale; and (3) a strategy of direct adaptable control. The export sector offers a useful counterpoint to the CSA sector which also operates at a limited structural scale, employs an incremental policy scale, and relies heavily on social trust to ensure regulatory coherence.
The export sector is a small-scale market, and functions primarily at the top of spatial, network, and knowledge-related scales. Similar to the CSA market, the export sector only involves a select number of levels on a variety of scales, but the export sector is oriented towards the global and not the local. Spatially, the export sector is integrated with the global community and involves players down to the municipal level. The sector is primarily located in China’s coastal provinces with major port cities including, Shandong, Guangdong, and Zhejiang provinces. In terms of the network scale, supply chains in the export sector are comprised of multinational distribution companies, national agricultural enterprises, and certified wholesalers. Smaller traders, medium-sized agricultural companies, and township enterprises have largely been excluded from the sector and denied required export certification from China Entry–Exit Inspection and Quarantine Bureaus (CIQ). In terms of knowledge-related scales, producers within the export sector aim to bring production in-line with global best practices.

Because actors at different levels within this sector are geared towards the global marketplace, there is a high level of convergence on how best to ensure food safety in the sector, mitigating scale politics. Multinationals and their quality assurance personnel play an important role in centering the sector on global standards. Transnational third-party certifiers and independent labs also help to train state regulators on new food safety best-practices. The limited structural scale of the market, therefore, keeps politics regarding food safety at bay.

The food safety policy scale employed is comprehensive, a markedly different approach from the small-scale, informal approach of the CSA market. All producers must be export certified by CIQs. Because producers seek to gain and maintain access to the global market, exporters pay close attention to food safety protocols in established markets. Extensive audits by transnational third-party certifiers, testing by independent labs, and the implementation of process protocols such as HACCP is the norm in this sector. Despite China’s difficult production context, agricultural production and food processing must approximate exacting international standards.

In China’s export sector, a governance strategy of direct adaptable control has emerged to address and resolve regulatory incoherence. The practical management of food safety in the export sector is delegated to transnational private actors and, to a lesser extent, foreign government regulators. Importers address regulatory incoherence by directly controlling
producers at the farm and factory-level. The system also adapts to emerging food safety risks. In addition to Chinese export producers, Japanese, European, and American private actors have established their own unique approaches to direct adaptable control driven by consumer demands for food safety in their individual home markets. While market-entry in the export sector is overseen by the Chinese state, the regulatory system is largely guided by transnational developments in food safety management and private actors.

Figure 5.2. Virtuous Cycle of Direct Control

Together, the globally-oriented structural scale of the export sector, comprehensive policy scale, and direct adaptable control operate in a virtuous cycle to improve food safety. Globally-oriented producers, third-party certifiers, and importers operate within a small-scale system and contestation over how best to address food safety is low. Because the structural scale of the sector is limited, it is easier to create, implement, and enforce a comprehensive food safety policy. In order to comply with demands from the global market, exporters invest in extensive monitoring and surveillance programs to enhance direct control. In so doing, exporters further discipline producers to the demands of the global market. Increasing direct control therefore helps to reinforce the globally-oriented scale of the sector. Moreover, the exacting costs of employing a strategy of direct control effectively prevent other less able producers from participating in the export market, limiting the overall scale of the sector.

Previous chapters have identified the four elements of regulatory incoherence in China’s existing food safety regime: misaligned interests, illegibility, lack of sensitivity to changing conditions, and uneven application. The next sections explore how importers and foreign governments utilize this direct and adaptable approach to help China’s food producers overcome the coherence deficit.

1. Background: The Coherence Deficit and Direct Adaptable Control

   In an environment in which importers and exporters exhibit an extreme lack of social trust, direct adaptable control provides an alternative approach to minimize, but not eliminate, food safety risks. How did this strategy emerge? Unlike in the CSA market discussed in the previous chapters, given the transnational nature of food production and consumption, social trust is not a prevailing norm in the export sector. Social trust cannot be engendered when actors are not bound by the same “social contract” and when products pass through multiple
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dic
tions (Coglianese et al 2009).

In a system where face-to-face interaction between producers and consumers and use of informal verbal agreements are not feasible, social trust cannot perform the same coherence building function to ensure food safety as experienced in the CSA market. Importers must contend with China’s problematic export control system, weak food safety controls in relatively complex supply chains, and a technical capacity gap that exists for even China’s most advanced food producers. New food safety incidents highlight ongoing risks and require timely resolution by all actors in the export sector. Direct adaptable control emerged as a practical response to China’s food safety problems in the export sector.

Because importers cannot rely on China’s state-run export control system, they must implement their own control mechanisms to ensure food safety (EX 5; EX 9). Local CIQ bureaus are responsible for issuing export licenses to Chinese food producers. The licensing system is decentralized to the municipal level with some geographic areas having more stringent standards for export certification than others. The lack of standardization is problematic when attempting to establish a uniform level of food safety compliance (EX 8). Some importers doubt the reliability of the Chinese licensing system due to allegations of corruption and official incompetence (Godfrey 2012). Others claim that the CIQ regulatory system still does not follow food safety best practices. When problems arise, the CIQ will sometimes issue a complete ban on a particular product, penalizing all producers. One exporter comments: “They are at times scrambling to get up to speed. There are knee-jerk reactions such as these major bans…full stops…a [CYA] operation” (EX 3). Instead, importers have developed their own systems to manage and ensure food quality that supplements, and in some cases, supersedes CIQ’s regulatory functions.

Direct control of the supply chain, as opposed to sourcing from suppliers, is essential to avoid food safety incidents. In an environment of low social trust, and faced with exacting global food safety standards, importers cannot delegate food safety responsibility to intermediaries or farmers. Trust may develop over time, but due to legal liabilities at home requiring importers to show that all means necessary were taken to ensure safe food, tight control remains the norm. Firms that depend on local agents who operate through their personal networks face significant risks. Local agents often defer to the strength of their relationship with a supplier over an importer’s commitment to food safety (EX 4). Even when importers purchase produce directly from farms, there is still a risk that unmonitored suppliers will source from the open market, whose food safety standards are much lower than food specifically produced for export. One importer comments on the wide-spread practice of sourcing from the open market: “The other alternative is going onto the open market, but there are huge food safety issues. Chinese companies are flying beneath the radar and can get around these rules…I know for a fact that other Chinese exporters purchase from the open market…and this presents real risks” (EX 3). Many producers supply food to both the domestic and export markets, and experts believe that lower quality food produced for the domestic market is likely to be intermingled with food destined for export. Therefore, in order to manage the export supply chain in China, establishing direct control through on-site management at larger production bases is paramount.

The lack of food safety expertise among the vast majority of producers in China also makes delegation problematic. Farmers in the countryside have only received varying levels of a

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9 Friedberg (2004) does show how some social networks can extend beyond national boundaries. In her study on the French-African green bean trade, Friedberg observes that food safety in a supply chain is preserved by a high degree of social trust. However, in Friedberg’s cases, supply chains are relatively simple compared to China where multiple actors are involved in a highly complex institutional environment.
primary school education which is associated with unsafe agricultural practices (Zhou & Jin 2009). Notions of record keeping, carefully monitored pesticide usage, and quality assurance are not well understood. Factory managers are not food production specialists with strong technical expertise: “These factory owners are an interesting lot...they are mostly old officials or connected to money...they aren’t farmers or in the food business. They don’t read ‘food processor weekly’” (EX 1). Without direct control, food safety compliance is largely superficial and product quality deteriorates.

The importance of a strategy that is also adaptable is self-evident given the constantly evolving global food trade environment and dynamic local conditions. In the early 2000s, an increasing number of international food scandals highlighted the weaknesses of China’s food safety monitoring system. In 2002, high levels of pesticide residue were identified on spinach from China after dozens of Japanese consumers fell ill (Fackler 2007). That same year the EU discovered residues of chloramphenicol, an antibiotic with a lethal side effect on humans, in seafood from China, leading to a blanket ban on all imports of animal origin. In 2008, melamine, an additive which causes kidney stones when consumed, was identified in Chinese dairy products. Later, melamine was discovered in products from major food producers such as Heinz, Mars, Unilever, and Cadbury sourcing from China (F&W 2011). Food safety monitors in Hong Kong have identified trace residues of clenbuterol in pork imports, an additive which promotes a higher ratio of lean meat but poisons the human cardiovascular system.

These widely-publicized food safety incidents prompted the Chinese government, importers, and foreign governments to collaborate to strengthen the export control system, reconfigure supply chains, and modify strategies of direct control. These changes have contributed to reducing the coherence deficit.

2.1. Realigning Interests through Direct Control

Within a limited structural scale, direct importer control of food production operating according to a comprehensive food safety policy disciplines producers and offers fewer opportunities for evasion, thereby realigning interests. As such, in the export sector, the politics of scale is less severe regarding how best to handle food safety. Moreover, because all actors are subject to a comprehensive food safety policy, expectations are clearly set for producers.
On-site management of production helps to realign interests of food producers to conform to more exacting requirements of importers. Liability concerns in home markets incentivize importers who source from China to monitor their supply chains closely (See Box 1). Importers institute their own quality assessment standards, place permanent staff at sites of production, and conduct regular tests on food produce to ensure safety standards are met. This heavy-handed management style provides few opportunities for producers to engage in non-compliant activities. Importers observe that direct control has led to a change in producer attitudes towards food safety over time (EX 3; EX 4; EX 6).

Importers have a number of tools available to sanction non-compliance by food producers, which provides incentives to closely adhere to the comprehensive food safety governance system. Non-compliance has been met with requests for outright contractions of the export sector, comprehensive trade bans, and the implementation of even stricter border controls, which substantially raises food safety costs (Calvin et al 2006). Even following the resolution of a food safety scandal, suppliers note that it is difficult to regain the trust of importers. When Chloramphenicol was discovered in shrimp exported to the EU in 2002, shrimp exports immediately dropped by nearly 10% (UN Comtrade). The Japanese are particularly notorious

BOX 1. “Liability Concerns in Home Markets”

In the EU, the 1996 BSE crisis and subsequent dioxin contamination scare led to a complete loss of consumer confidence in the European food safety system. In response to these problems, the EU changed its policy placing primary responsibility for producing safe food on industry and suppliers through the implementation of HAACP (Vos 2000). The move towards increased producer responsibility was pursued earlier in the United Kingdom. The Food Safety Act of 1990 created a due diligence requirement for suppliers, shifting legal responsibility downstream. Prior to the reform, companies could claim the “warranty defense” which only necessitated that the company proves food was safe while under its direct control (Hobbs et al 2002). The new legislation mandated that a food producer take “all reasonable steps” to ensure that food from upstream suppliers is safe. Upstream suppliers would also bear the burden of demonstrating to downstream buyers that they were handling food correctly (Hobbs et al 2002).

Japanese importers and retailers face significant legal pressures regarding food safety at home. The discovery of pesticide residues on Chinese imported spinach in 2002 decimated consumer confidence and prompted the government to amend the Food Sanitation Law in late 2002, which imposed a series of stringent food safety regulations and increased the penalties for importers who failed to ensure the food safety of products from abroad. In addition to Japan’s food safety laws, Japanese firms are also subject to the 1994 Product Liability Law (Jonker et al 2004). Although enforcement of the law has been inconsistent, the mere threat of prosecution is considered significant enough to ensure compliance. The law states that importers are absolutely liable for the consequences of a food safety incident and that a retailer is entirely exempt provided contamination does not occur while food is under direct control of the retailer. The importer must pay for the costs of any recall, dispose of any defective food products, and compensate the victims. Companies that are found to violate food safety laws are viewed as high risk and become socially ostracized; suppliers and partners quickly dissociate with violators, often cancelling contracts immediately (Jonkers et al 2004).

Companies seeking to import food to the United States from China faced the least pressures to exert on-site direct control. Prior to major food safety reforms in the US, importers were not required by law to directly ensure that food imported complied with US food safety standards. Instead, importers could operate through agents who would attest to the compliance of food producers.
for their severe responses towards non-compliant Chinese suppliers (Fackler 2007). A major eel exporter to Japan notes, “During 2006-2008, our [Japanese] clients became incredibly skeptical about the safety of Chinese products in general…we had to spend a great deal of reassuring our products were safe…of course we still experienced a significant reduction in sales” (ZJ 19).

While investment in food safety management is expensive, one export producer that supplies the Japanese market comments, “We conduct soil investigations, examine pesticide residues, and at the time of purchase we conduct additional inspections. Sino-Analytica conducts five-spot testing…In the end we have to be more strict. I have to do this for the long-term…if one thing happens, I lose my credibility and I’ll be shut out of the market…” (EX 9).

Foreign government inspections also police the sector conducting additional audits on exporting companies. Inspectors from Japan, the United State, Europe, and Hong Kong frequently conduct audits of local companies and the regulatory system. Japan and Hong Kong in particular operate a stringent monitoring and inspection protocol for Chinese exporters including on-site inspections, certifications, and technical assistance. One pork export to Hong Kong notes, “Before selling our pigs to Hong Kong, they would check for additives and veterinary drug residues. The Hong Kong government would sometimes send inspectors and they would test each pig even before we could finalize a sale” (ZJ 11).

A strategy of direct control sensitizes parties to both the loss of opportunity and risk, and, thereby, realigns consumer and producer interests regarding food safety. In due course, direct control leads to a change in producer attitudes towards food safety, and facilitate the transmission of food safety knowledge. One vegetable producer notes that after learning how to meet Taiwanese safety standards, he upgraded his production to meet even more stringent Japanese standards (ZJ 17). However, this strategy is particularly effective when operating within a limited structural scale and within the context of a comprehensive policy scale.

2.2. Legibility and Direct Control

A strategy of direct, adaptable control also helps to diminish the second factor of the coherence deficit: the illegibility of standards. To ensure that exacting food safety standards are legible to producers, importers impose strict supply chain management practices at the farm-level. Importers cannot incur the risk that food producers will pick and choose from a menu of food safety standards, selecting food safety provisions that suit their production conditions. Unlike CSA producers who employ natural, organic techniques that allow for some flexibility in production (Chapter 3), food producers in the export sector apply more conventional farming methods where the use of pesticides and additives is permissible but also poses higher risks to consumers. In order to make global food safety standards legible to producers, importers enforce direct control on supply chains, require third-party certification, and demand that producers submit food samples to independent testing laboratories. Over time, export producers learn and internalize these practices themselves.

The ability to implement a strategy of direct control of production sites is contingent on the system’s limited structural scale and comprehensive policy scale. On the whole, limiting the sector to more developed regions with advanced producers attuned to global food safety demands makes it easier to train producers. In addition, a comprehensive food safety policy scale ensures that all producers face relatively similar expectations from their foreign customers,

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10 The process of making standards “legible” means actors are able to recognize and internalize new knowledge, thus making standards “readable” (Scott 1999).
involving certification, testing, and vigilant monitoring. As a result, a standard industry practice has evolved in which producers have been acclimated to a clear set of food safety rules.

The process of direct control involves careful management of the entire supply chain from inputs, production, and distribution. Importers provide inputs to their suppliers to mitigate food safety risks. With the wide-spread availability of substandard seeds, pesticides, and fertilizer in the market, importers believe that controlling or supplying quality inputs is critical to assert their control over production (EX 6; EX 9). A major importer located in Shandong imports all their inputs from abroad, including seedlings, pesticides, and herbicides (EX 6).

Importers also carefully examine the initial growing conditions of fields. Soil conditions are highly variable throughout China and in some areas the soil has been contaminated from industrial pollution. Lipton, a major tea producer found traces of toxic rare earths in its tea leaves because of the soil, and had to recall its products (Anderlini 2011). One importer comments: “…we conduct soil investigations, examine pesticide usage….but our main concern is always with the soil… (EX 9).” In order to ensure that soil quality is fit for production, importers invest in expensive soil regeneration programs, one large firm estimates that managing their fields costs nearly 100 to 200 million RMB a year (EX 6).

Larger importers have cleaning and testing facilities on-site to establish an additional level of food safety protection. For those importing higher risk food products, such as freeze dried food, investment in testing facilities is necessary: “The freeze dried business is very difficult because it concentrates pesticides as agricultural product is dried…we have a large cleaning facility near the port and also a lab (EX 3).” Other firms may partner with external testing laboratories to examine soil and water conditions (EX 6; EX 7).

However, because direct control is not always practicable, importers sometimes source from local township production bases. Such importers adopt a bifurcated strategy where a portion of their total production is from their own production base and the other portion is supplied through contract farming (EX 5). In order to ensure that contracted producers understand food safety requirements, importers recruit food producers who are young and open to new management techniques: “We like young guys with a business to grow… (EX 3).” As an additional precaution, importers will hire their own agronomists to conduct internal audits of farms to ensure they are compliant with international standards. Contracts vary from annual to multi-year commitments. Those who emphasize multi-year contracts believe that stable, long-term relationships encourage producers to invest in training. The multi-year contracts also provide protection from market fluctuations. Importers contend that by providing security to producers it incentivizes farmers to produce according to international standards (EX 6). Others believe that shorter term contracts provide importers with greater leverage to manage producers because they can use the threat of cancellation to discipline producers (EX 5).

Employing contract farmers, however, opens up political contention regarding appropriate food safety controls because they must coordinate activities with local officials. Importers hold that operating through township officials and large-scale dragonhead enterprises compromises their direct control, and that these individuals have difficulty understanding the importance of food safety. Township officials are primarily interested in large scale importers as sources of investment. The government officials are unreliable because they themselves are unclear about the requirements of standardized production (EX 8). Some officials also request that importers source from agricultural cooperatives, which importers typically avoid because they lack technical competence and are unable to provide high production volumes (EX 6). As a result, sourcing from townships is the least favored option for importers: “Townships always
want to protect their own producers, so at the end of the day we vertically integrated our own bases and got out of the coordinated production game entirely” (ZZ 30).

Third-party certifiers play an important role in facilitating supply chain management and ensuring that international food standards are made legible to China’s food producers. In the EU, third-party certification primarily serves as a legal requirement to prove that all procedures were observed to ensure food safety. In China, auditors also provide important regulatory advice and technical assistance. Third-party auditors help to navigate local controls while assisting producers in meeting international food safety standards. They provide a coherent alternative food safety standard in a fragmented system: “In the export sector, we aren’t just providing a legal service, we really are the main regulators…we bring a unified standard, have standard checks for risk, and are entirely accountable to consumers, which creates a very different dynamic than simply being tied to protecting a government standard” (EX 8).

Auditors believe that the training they provide to farmers and food factory producers is essential. Often a county leader will discover that a new standard could open new markets for a local product and seek auditor assistance to acquire certification. Due to the leader’s lack of knowledge and CIQ’s overextended regulatory system, third party auditors must provide assistance: “Some guy in a village wants to build a [food] factory and get it to standard…CIQ doesn’t want to send their people out…so we end up going…” (EX8).

Independent laboratory testing is also an important mechanism of control employed by importers to ensure the safety of products. Laboratories provide a range of services that include tests for pesticide residues, soil and water quality, veterinary drug residues, microbiological contamination, and food additives. These labs provide assistance to farmers by teaching them how to comply with multiple food safety standards. Laboratories also offer consulting services to farmers when problems are identified through testing.

Scale politics, however, cannot be completely avoided as there has been some contention that has arisen between third party certifiers and independent labs, and national state regulators that have different views regarding food safety. The CIQ licensing system coexists uncomfortably with independent testing laboratories and third-party certifiers. CIQ officials view independent testing laboratories to be an unnecessary and burdensome addition to the formal regulatory apparatus. The head of an independent testing laboratory notes, “CIQ has always been very skeptical of our work…they believe that because they were already here…there was no need for anyone else…food safety in China must at some level be done by private auditors. It’s impossible for a single agency to handle everything” (EX 4). Also, CIQ often creates restrictions as to how food safety information collected by third-party certifiers can be used and disseminated, and sometimes declare certain types of food safety data to be “state secrets” (EX 4). Auditors also complain that global safety standards come into conflict with local CIQs that may privilege local food safety standards. One exporter comments, for example, “the CIQ system is subject to unhelpful regionalization, with local agencies establishing different protocols for pesticide residues and microbial contamination” (EX 8).

However, AQSIQ over time has grown accustomed to the role that third-party-certifiers perform in training farmers on international food safety standards, particularly because now it can also secure rents from the certification business. In the last decade, AQSIQ has engaged in productive benchmarking projects with GlobalGAP and the Global Food Safety Initiative (GFSI) to upgrade food safety standards in the export sector (CNCA 2009). In 2003, the China Certification and Accreditation Administration (CNCA) sought to establish its own domestic certification based on GAP principles and began collecting appropriate materials for consultation.
China developed its own national standard, ChinaGAP. Based largely on the GlobalGAP standard, beginning in 2006, CNCA adopted a pilot scheme in 18 provinces and by 2009 the program established 552 pilot sites (Song et al 2010). As of 2009, following a three-year benchmarking process, ChinaGAP gained recognition by GlobalGAP. As of 2009, 603 ChinaGAP certificates have been issued and 15 certification bodies with 435 inspectors have been approved.

In summary, third-party certifiers and independent testing laboratories serve as agents of legibility. These actors work together with importers to teach producers about food safety and to ensure that producers understand the value of complying with comprehensive food safety standards.

2.2.1. The Japanese Model of Direct Control

Among foreign importers in China, the Japanese model of import management provides an almost ideal typical representation of using direct control to ensure the legibility of standards. Japanese companies are intimately involved in making food safety standards legible to farmers. Japanese importers follow what is commonly referred to in the Japanese literature as a “Development Import” strategy, in which an importer attempts to vertically integrate suppliers rather than depend on a system of contracts (Iwata 1995 in Chen et al 2005:111). Japanese trading companies, for example, regularly provide seeds, spores, and pesticides to farmers in China. Most Japanese food companies monitor the type, quantity, and number of applications of pesticide usage (Jonker et al 2004). Importers also invest in production facilities to improve food safety monitoring and surveillance capacity. In many cases, Japanese firms will embed resident staff at Chinese farms to manage and oversee production. Often Japanese importers purchase a supplier’s entire production to encourage producers to tailor their entire facility to meet the demands of the importer (EX 3).

Chinese producers note that the Japanese are extraordinarily hands-on in their management of suppliers: “Our Japanese buyers come to China often to manage everything. They conduct onsite inspections and teach new techniques. They have standards for everything even for color, shape, and size. They are extremely careful when it comes to quality management” (EX 5). Due to strict requirements many exporters comment that the Japanese approach serves as a model for “best-practice” management of the export sector. However, the cost of adopting a Japanese approach is prohibitively expensive, and supported by a Japanese consumer base willing to pay higher prices. Yet compared to other export management models, one specialist comments, “The Japanese are better in their ability to organize their own production networks…most of them send their own technicians that remain on-site to supervise their producers and help them to comply with food safety requirements” (EX 1).

2.3. Local Adaptability to Global Concerns

In terms of addressing the third component of regulatory coherence, sensitivity to changing conditions, direct adaptable control works in concert with the export sector’s limited scale to sensitize the export sector to the changing nature of food safety risks both globally and on-the-ground. The limited scale of the sector facilitates adaptability towards global demands for food safety in two distinct ways: (1) all actors are oriented towards international food safety standards and are strongly tied to foreign consumer bases; (2) the limited number of actors permits a high degree of export customization.
In the export sector, local actors and government actors have been surprisingly attuned to changes in the global food safety market. A high level of adaptability in the export sector optimizes regulatory management, enabling private and public regulators to identify new risks and to close loopholes. Third-party certifications are updated every two to three years. The BRC regulatory standard is now on its 6th edition and GlobalGAP is printing its 4th edition. Food importers constantly reconfigure their supply chains to increase efficiency and mitigate risks. China interacts regularly with its trading partners to re-negotiate food safety agreements, seek technical assistance, and legislate new food safety requirements.

China’s closed system enables the government to tailor the sector to the needs of trading partners without overhauling its entire regulatory apparatus. For example, implementing an HACCP protocol in the domestic sector would be impossible given costs and the technical capacity of China’s producers, but it is possible among China’s best export producers.

**Figure 5.3. Different Country Adaptations to Address Food Safety**

![Diagram of different country adaptations](image)

Because of the aforementioned scale conditions, China’s is perhaps the world’s most adaptable food safety system. Each of China’s major trading partners has responded to food safety incidents by modifying and supporting their systems of direct control in different ways. Specifically, each exporter addressed a perceived scale mismatch in a distinct manner. Japan has responded to food safety problems by further reducing the scale of China’s export sector. The EU favors a more multilevel, indirect approach by facilitating information flows up and down scales. The US had previously adapted to food safety crises by strengthening its FDA border inspection system, which focused on a single level of the scale. Now the US has mandated a multilevel system of importer responsibility to encourage direct control of onsite production.

2.3.1. Sino-Japan: Scale Reduction

Japan’s adaptation strategy emphasizes further reducing the network scale of China’s export sector to highly proficient food producers. Following two major food safety crises in 2002 and 2008, Japan and China successfully concluded a series of negotiations to rectify perceived weaknesses in the export sector in China. China responded by placing increased
controls on its export sector and Japan demanded more direct involvement in food safety regulation on the Chinese mainland to exclude non-compliant producers.

This style of adaptation is best reflected in the Sino-Japanese spinach crisis of 2002. After Japanese authorities discovered containers of frozen spinach laced with an insecticide barred in Japan, the Japanese moved swiftly to strengthen its border controls and directly intervene in China’s export management system. The incident prompted the Japanese to amend the Food Sanitation Law in 2002 and implement a more stringent “positive list” system as a means to strengthen inspections at the border to which the Chinese acquiesced. In addition to new border controls, the Japanese government demanded that the Chinese strengthen its closed agricultural export system by instituting a health certification program and further restricting the number of export certificates issued to firms seeking to export to Japan (Jonker et al. 2004). Chinese and Japanese authorities approved a scheme in which the Japanese government conducted a series of yearly inspections of all processing plants for certain foods produced in China (USHRCEC 2007). For spinach, the Japanese and Chinese agreed to license 45 Chinese companies, and specified that these farmers could only grow spinach on their own plots and not buy from other producers (Fackler 2007). Spinach producers were subject to additional inspections by Japanese officials prior to gaining export approval.

**Figure 5.4. Sino-Japanese Frozen Vegetable Trade, 1998-2010**

![Graph showing Sino-Japanese Frozen Vegetable Trade, 1998-2010](image)

2.3.2. Sino-EU: Multilevel Information Flows

Compared to the Japanese, the EU has adapted its import system to emergent food safety risks by a multilevel approach to addressing food safety risks and facilitates the information transfer up and down the scale of the export sector. The EU-China food safety system experienced two major shocks: in 2002, when EU member states discovered residues of the antibiotic, chloramphenicol, in several products from China, and in 2008, following the
identification of melamine in a number of dairy products. Consultation between both
governments occurred immediately after both incidents, and the EU and Chinese authorities
formed a joint study group to address European food safety concerns.

Graph 5.5. Sino-European Shrimp Trade, 2000-2010

In response to the crises, the EU began facilitating the transfer of information regarding
food safety through the EU-China Trade Project (EUCTP), an ongoing European commitment to
China to assist China’s entry to the WTO. The food safety office of the EUCTP held workshops
with Chinese officials and producers at various levels of the Chinese government on food safety
best practices and the development of food safety standards. From 2004 to 2009, the EU
conducted ten training programs with officials and food producers, three workshops and
conferences, two study visits to the EU, published three manuals and guidance papers, and a joint
study on the organic food and seafood product safety (EUCTP 2009). Phase II of the EUCTP
will continue to provide support to help the Chinese development its traceability management
and pesticide control, scientific risk assessment, and food contact material safety. A
memorandum of understanding (MOU) on administrative cooperation was also signed between
AQSIQ and DG SANCO in 2006 (DGSANCO 2006). The MOU details an agreement to
exchange information, to conduct annual working meetings, to create contact points, and to keep
shared information on unsafe products confidential.

2.3.3. Sino-US: From Single Level to Multilevel Solutions

The bilateral US-China food safety relationship is particularly instructive because the US
has changed its strategy of adaptation from one relying primarily on border inspections (single-
level) to one emphasizing importer responsibility and private regulation (multilevel). Before
2011, the US relied primarily on border inspections as the frontline of its food safety regime, a
single-level scale solution. The US conducts a low number of border inspections, examining
roughly 1% of all food imports (Bottemiller 2012). By contrast, the Japanese inspect 15% of all food containers at its ports (US Subcommittee 2007). The FDA also operated abroad through the Foreign Food Inspection Program in which inspectors were sent to foreign countries to inspect food production, but the scope of these inspections were extremely narrow. The inspection program focused primarily on high risk establishments due to a lack of qualified personnel (Gale & Buzby 2009). This regime was found extraordinarily lacking by food safety experts worldwide.

The 2011 Food Safety Modernization Act represented a fundamental shift in the American approach to import safety, instituting a multilevel approach. The FDA now mandates that importers adopt an interventionist stance with respect to their Chinese suppliers. Importers must now certify that products entering the United States comply with American standards and must ensure that suppliers have established a risk-based Foreign Supplier Verification Program (FSMA Sec 301). Foreign importers in China are establishing quality assurance programs at the farm and factory-level. As a result, leading American importers, such as Del Monte, are now stationing permanent staff in China to monitor food quality and safety. Firms no longer seek to operate through agents and are actively seeking to simplify and streamline supply chains to reduce food safety risks.

In summary, given the changing nature of food safety risks as global food trade expands, regulatory systems based on control must continually adjust to respond to new conditions. Because of its scale, China’s export sector is highly amenable to change and can accommodate different adaptive strategies based on national preferences of regulatory style. As new food safety risks surface, new solutions can be devised and implemented.

2.4. Even Implementation

The uniformity of implementation in China’s export sector by country is due to the sector’s limited-scale and adoption of a comprehensive food safety policy. As of 2008, approximately 12,000 out of 600,000 enterprises, and 380,000 out of 121 million hectares of land were licensed for export (Gale & Buzby 2009). The closed export system is theoretically restricted to China’s best producers with high levels of technical capacity and managerial experience. Provided exporters concentrated production on licensed production bases that are insulated from the domestic market, one can expect relatively uniform standards in terms of export food safety.

3. Conclusion: Scale Still Matters

China’s export sector benefits from two scale conditions: (1) limited, globally focused scale; (2) comprehensive food safety policy. Because the sector is limited to China’s best food producers, which aim to gain market access in global markets, a consensus on what constitutes appropriate food safety control emerges. In addition, the global food safety regime imposes a comprehensive standardized approach to food safety, which helps to align producer interests by exacting heavy costs on the whole sector due to non-compliance of a single actor. To adequately comply with the global food safety regime, producers employ a strategy of direct adaptable control. This strategy in turn reinforces the global orientation of producers.

The combination of a limited structural scale, comprehensive food safety policy scale, and direct adaptable control creates conditions to overcome a coherence deficit. Direct control
helps to align the interests of importers and producers to pursue food safety. Direct control also enhances the legibility of global standards. A commitment to regulatory adaptability prevents rules from becoming rigid and ill-suited to new developments and emerging food safety risks. Finally, policies are evenly implemented throughout the system.

Food safety governance based on a system of direct adaptable control is a pragmatic response to China’s poor food safety record in its broader domestic sector (to be discussed in later chapters) and its deepening integration in the global food trading system. In recent years, there has been an internationalization of food safety practices through the WTO’s Codex Alimentarius Commission (Ansell & Vogel 2006). The increased food trade between developed and developing countries has resulted in the diffusion of food safety “best practices” worldwide and harmonization of food safety standards. Countries that fail to meet global food safety standards are unable to sustain a robust and growing food export sector.

China’s experience in terms of securing export sector food safety will prove instructive for other developing countries that seek to increase their share of the global food trade. Nigeria has worked tirelessly to establish export safety practices in their fishery sectors (Maclareen et al 2004; Bagumire et al 2009). Brazil and India have bifurcated food production into export and domestic sectors, using stringent licensing or specialized trading firms to manage food exports. Taking note of China’s employment of a strategy of direct adaptable control may help to improve food safety performance.

Yet food safety experts should pause before rushing to conclude that the export sector provides a model for domestic food safety. The broader domestic sector presents significantly different scale conditions, including a more diverse producer base, different types of knowledge, and unclear jurisdictions regarding food safety management. The pressing question must be asked: Can practices in China’s export sector be successfully scaled-down to meet the food safety challenges in the domestic sector?
Chapter 6. The Challenges of Scaling-Down

In 2011, a team of European food distributors toured an export agro-processor in Qingdao that was showcased by government officials as the “future of China’s domestic food industry.” The team was impressed by the large production complex with its advanced facilities and numerous food safety certifications. But given that much of China’s food is produced by household farms cultivating less than a hectare of land and processed by small unregulated workshops, it was apparent that if this processor represented the future of China’s food industry, it was a distant one. When the agro-processor executive was asked whether he believed that other domestic producers could emulate the exporter’s example, he smiled, “It’s not likely…[government officials] call us a model…but the truth is…our standards are far higher than anything you can find domestically” (EX 16).

Food safety reports often contend that the export sector can serve as a model for China’s domestic food safety system (ADB 2005; UN 2008; Calvin et al 2006). The arguments are compelling: (1) knowledge and best practices can be gradually diffused into the broader market; (2) export-oriented producers can eventually begin to supply the domestic market, driving out substandard producers; and (3) domestic consumers will begin to demand export quality goods for consumption. However, these purported mechanisms for policy diffusion are often only asserted in policy reports and not empirically assessed. To assess the validity of these arguments, the question of scale again must be raised: To what extent can the export regulatory food safety model, a limited-scale system, be extended to the domestic food safety regime? What happens to effective export food safety practices when they are employed in a different scale context?

The export food safety management system operates at a limited structural scale, and is global in orientation. Food producers in this sector are large-scale, modern enterprises that are integrated with major global markets. Supply chains are limited to well-established agricultural bases that are cordoned off from domestic markets where food safety management is weaker. Firms are up-to-date with the most recent global food safety practices and are typically GAP, GMP, BRC, and ISO certified.

Regulatory coherence is built on a virtuous cycle premised on the export sector’s limited structural scale, comprehensive policy scale, and direct adaptable control. The limited size of the sector and the global orientation of its actors (structural scale) create the political conditions to enable the adoption of a comprehensive food safety policy (policy scale). To come into compliance with a global, standardized food safety regime, actors within the sector employ a strategy of direct adaptable control. The result of this virtuous cycle in terms of regulatory coherence is the alignment of actor interests, legibility of standards, sensitivity to changing conditions, and uniform implementation.

Because the system operates at the top of jurisdictional, knowledge, and network-related scales, expanding the export sector involves a process of “scaling-down.” Uvin (1995) describes scaling-down as a process whereby global organizations alter their structure and modes of operation to allow for meaningful interaction and integration with actors on lower scales. In terms of networks, food safety companies must now consider extending supply chains to include local production networks and village production bases that are excluded from the export sector. In terms of knowledge scales, global food safety best practices must now be adapted to China’s local production context. Jurisdictionally, actors must move from a single agency jurisdiction
under AQSIQ in the export sector to one that must contend with multiple ministries and multiple levels of government each with their own understanding of food safety.

One observes two challenges when scaling-down the export sector governance system. First, incorporating scales at lower levels alters the structural scale of the system, which has ramifications for scale politics. Specifically, actors with a strong, local orientation resist regulatory approaches imposed by global food safety players. The challenges of scaling-down resemble many of the struggles often cited in the literature on China’s impenetrable localism with a few important differences (Ong 2011; Fewsmith 2010; Unger & Chan 1999). In the case of scaling-down, the struggle is less about the preservation of local autonomy, and more about how local actors are to function as part of a broader system of governance. Localities understand that they are part of and responsible to the broader food market. Contention is less about relinquishing power to these large exporters, and more a negotiation about the appropriate measures to be taken to address food safety.

Second, policies that were effective under a limited structural scale are likely to operate differently in more complex, multilevel settings. Scholars have shown how best practices in one system can be completely ineffective in other contexts. Rodrik (2008), for example, cautions how the effects of best practice institutions under different conditions of market and government failure are likely to diverge from expectations. Food safety in the export sector operates as part of a comprehensive system of rules that coordinates regulatory behavior among a select group of actors. To scale-down successfully, these same strategies, which were so effective in the export sector, must also overcome local policy sinkhole effects - broader incentive structures that distort the operation of policies.

This chapter first considers the effect of expanding the structural scale of a system, highlighting challenges that exporting companies face as they scale-down to expand operations outside the export sector. Specifically, it explores scale politics on the jurisdictional, knowledge-related, and network-related scales. Second, it will examine how effective policies employed in a globally-oriented sector cannot overcome local policy sinkhole effects and, in some cases, can exacerbate food safety problems at local levels. Significant attention is paid to the lack of investment in food safety monitoring techniques and the negative effects of third-party certification in the domestic market.

2. Scaling-down the Structural Scale: Corporate Expansion

Export producers, such as Chaucer Foods, Nestle, and Del Monte, are increasingly engaging in a dual production model, in which they continue to supply foreign partners and also distribute products locally. To do this, these companies and distribution houses must actively scale-down their operations along jurisdictional, network, and knowledge-related scales. The politics of scale can be fierce, leading to persistent mismatches along these scales, as actors seek to preserve their own approach to food safety that best represents their interests. As such, it becomes increasingly more difficult to implement a strategy of direct adaptable control, which requires high levels of coordination among actors.

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11 This is also a problem of scaling-up, as discussed in Chapter 4.
2.1 Jurisdictional Challenges

Scaling-down the export sector, faces significant challenges on the jurisdictional scale. In the export sector, producers primarily interact with CIQ bureaus, which are responsible for granting export certification approval. By contrast, regulatory authority in the domestic sector is fragmented and is delegated among five ministries which manage different segments of the food supply chain. The Ministry of Agriculture manages food safety prior to the farm-gate. Processed foods are licensed by Quality Technical Supervision Bureaus (QTSB). Food distribution is handled largely by SAIC. The State Food and Drug Administration oversees restaurants and catering. While the Ministry of Health was statutorily identified as the lead ministry to facilitate coordination, it has largely fallen by the wayside following the promulgation of the 2009 Food Safety Law (Shan 2013). Food Safety Committees (FSC) were established to aid in coordination, but these were a superficial addition to an already complex regulatory structure (ZZ FSC). As export producers expand their operations in the domestic sector, jurisdictional complexity makes it difficult for producers to understand which standards to follow and to whom they are accountable.

In particular, export companies highlight significant jurisdictional tensions with the QTSB, which manages the domestic food safety certification program known as QS. Especially because these companies are already certified by CIQ, corporate quality control managers are often dumbfounded when products certified as safe for export do not meet domestic standards for consumption.

Exporters object to the QTSB’s administration of food safety on several fronts. First, exporters find the domestic certification process to be unnecessarily lengthy and costly. To acquire the QS certification necessary for the distribution of products in the domestic sector, companies must pass audits at the municipal and provincial levels, and each audit, which costs 20,000 RMB, can only include 2 to 3 products (EX 6). Given that many producers may have as many as 50 or more different product-types, the audit procedure can be prohibitively expensive.

Second, QTSB officials are usually less educated than their CIQ counterparts and are unfamiliar with best practices. Exporters contend that the QTSB is far less professionalized compared to its CIQ counterpart in the export sector (EX 1; EX 3; EX 6). In many cases, QS officials will set unrealistically high food safety standards for products which with they are unfamiliar. Given the significant risks of a food safety incident, QTSB officials are highly suspect of new products even from reputable producers. One exporter comments, “They aren’t that well trained and so they create unrealistic standards to protect themselves” (EX 6). One company cited how QTSB required a company to use high levels of irradiation technology to prevent microbial contamination of a product, however, using those levels of radiation would render the food unsafe in other ways (EX 6). Quality control managers were presented with an unpalatable situation in which they must knowingly violate global standards to comply with local ones, or be barred from the Chinese market.

Third, many suspect that QTSB’s heavy-handed approach is especially targeted towards foreign food producers and distributors. Walmart, for example, was forced to close all 13 stores in Chongqing for food safety violations, whereas local retailers were not punished (AP 2011). Export companies that seek to establish a domestic presence also struggle with local township officials who impose additional requirements on companies operating in their
jurisdiction. Township officials are primarily concerned with increasing production volumes and soliciting additional investment from multinational companies (EX 1; EX 8). At times this may conflict with internal company food safety goals. High production volumes can lead to compromises in quality control. Companies may also become ensnared in local development plans for agricultural development. Townships often request firms to employ more workers, or to help produce a specialty fruit, complicating management procedures. These additional politically motivated demands make it difficult for firms to assert direct control.

2.2. Knowledge-related Problems

In the process of scaling-down, another key challenge is to facilitate the transfer of knowledge from the top of the scale to those further down. Significant tensions can emerge when global best practices come into conflict with the government’s own understandings regarding food safety risk management. The export sector’s producers have long operated in a regulatory environment in which scientific processes and standards are used to adjudicate food safety risk. Producers spend significant time performing tests on soil content, water quality, and pesticide residues. Even smaller exporters regularly submit reports to independent labs, third party certifiers, and government regulators. Producers, auditors, and AQSIQ government regulators are well-integrated in the global food safety knowledge production regime and attend global conferences on food safety and quality. The Global Food Safety Initiative, for example, has played an important role in influencing food safety practices in China’s export sector.\(^{13}\)

In the domestic sector, the government’s own view regarding a scientific, risk-based system is less certain. Officials do support a “scientific” approach to regulation. However, food safety experts assert that the state is still somewhat uncomfortable with relinquishing complete control to technocratic experts. Exporters have complained that local government officials in the domestic sector do not respect the impartiality of scientists. One food safety auditor complained: “More must be done to ensure that standard setting is based on scientific, risk analysis, and the integrity of testing procedures is protected” (EX 4). While food safety risk assessments may reveal weaknesses in a food production system, this type of information should be welcomed by administrative officials rather than regarded as subversive (Balzano 2012). The Shanghai SFDA has now developed a reputation for being a highly specialized agency that has given greater autonomy to its technical staff. On account of this, the agency has been credited with a strong reputation in the global food safety community (ADB 2005; Brewer 2012). However, many local agencies have yet to setup procedures and a culture towards science that are similarly committed to independent scientific analysis.

A cucumber poisoning incident in Qingdao illustrates the government’s conflicted views regarding scientific assessments of risk. In 2006, several hundred people in Qingdao were hospitalized after consuming cucumbers laced with a poisonous insecticide (QDZB 2006). The government immediately text messaged the city, warning that cucumbers should not be consumed. Government officials provided samples to an independent lab for testing. Upon discovering that cucumbers had residues of carbendazym that were near lethal levels, cucumbers were pulled from several wholesale markets. The less known story, however, is that the official who brought the sample to the lab was summarily disciplined (EX 10). One may use science to adjudicate food safety risks, but one must also be prepared to face the political consequences.

\(^{13}\) For conference details please visit: [http://www.chinafoodsafety.com/](http://www.chinafoodsafety.com/)
Despite the prominent risk management and risk assessment provisions in the 2009 Food Safety Law, Balzano (2012), who writes on socialist jurisprudence, contends that risk management as a concept is not well understood in socialist governance. Whereas in the west, risk regulation acknowledges that a certain amount of risk is acceptable, in China the acceptance of risk constitutes an acceptance of non-compliant behavior, which Chinese officials have difficulty understanding.

This incoherent attitude towards risk management and science is also compounded by a lack of technical capacity. Exporters often assert that regulators lack technical expertise and can often overlook serious loopholes. Given the expense of testing, some officials do not subject all samples to testing. Sometimes labs will test for a limited selection of pesticides (EX 1). To be sure, some contend this is because officials purposefully do not test for pesticides most commonly found on produce to inflate inspection pass rates (EX 4). Yet other food safety experts contend this is less a result of overt political manipulation, but simply a result of a lack of knowledge regarding testing techniques: “Major issues have to do with testing, you can use oven testing or calberbings titration to test for moisture. Results can be very different and the interpretation is just as difficult” (EX 10). Moreover, despite significant investment in recent years, China’s network of laboratories still remains thin. Few townships have labs that farmers can use. While most county offices are now equipped with sufficient laboratory capacity to test food, more complicated cases are still sent to the prefectural and provincial levels (Han 2007).

The differing attitudes towards risk and science-based technique make the scaling-down of global food safety knowledge highly challenging.

2.3. Network-Related Scale Politics

The final obstacle to scaling-down presents itself in the form of significant scale politics on the network-related scale. Many exporters face significant opposition from local production networks, and are hesitant to integrate domestic producers into their supply chains.

The effectiveness of the export system is predicated on its limited structural scale, which excludes smaller, less modernized producers. Yet, the barriers that enable these companies to maintain high levels of food safety in the export sector also disincentivize the same companies from linking to broader production networks from which they were initially separated.

Corporations express reservations about extending their supply chains to off-base production sites and local networks due to heavy resistance regarding food safety practices (EX 3; EX 6; EX 16). Executives cite low levels of education, lack of exposure to global food safety knowledge, and the lack of experience with supply chain management among domestic producers (EX 9). Given the short shelf-life of certain food products, and the high risk of microbial contamination, farmers need to operate according to strict schedules and standardized procedures. Local producers resent what they perceive to be the overbearing, ill-informed, and costly monitoring and surveillance programs of these large multinationals, and sometimes actively subvert food safety protocols. As such, export managers say export practices are difficult to replicate in the uncontrolled setting of the domestic sector. One exporter comments, “…the domestic market is not really capable of meeting such standards…pursuing standards would bankrupt the vast majority of farmers…so the real bleed over into the domestic sector is not possible” (EX 9).
Table 6.1. “F” Exporting Company Profile

<table>
<thead>
<tr>
<th>“F” Company Profile</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Established</td>
<td>1986 (Main Center established 2009)</td>
</tr>
<tr>
<td>Global Sales Network</td>
<td>32 Countries Worldwide</td>
</tr>
<tr>
<td>Listed</td>
<td>HKSE, Singapore,</td>
</tr>
<tr>
<td>Processing Capacity</td>
<td>100,000 tons</td>
</tr>
<tr>
<td>Size of Processing Complex</td>
<td>333,000 m2</td>
</tr>
<tr>
<td>Employees</td>
<td>6000</td>
</tr>
<tr>
<td>Food Safety Certifications</td>
<td>HACCP, BRC, ISO 22000</td>
</tr>
<tr>
<td>Integrated Locally?</td>
<td>No, Closed-Loop System</td>
</tr>
</tbody>
</table>

Exporters prefer to source from large agro-processing bases in major ports to develop their businesses. These centers are on par with production bases found in developed countries. I focus on the “F” company to highlight how one exemplar of the export sector operates, and its hesitance to scale-down on the network scale. The F company employs over 6000 individuals and exports over 100,000 tons of fish a year. Due to food safety concerns, F company imports all of its raw materials. Each employee is trained through an established series of lectures, classroom activities, and on the job training, which occurs over a 3 month period. Given the grueling nature of the work, individuals are typically employed for 3-4 years after which workers are recycled.

The processing center functions as part of an integrated production process, which they term as a “sea to fork” protocol. Trawlers bring in fish from the North Pacific. Each crate has a certificate specifying the area in which the fish were farmed, which boats they were handled by, and information regarding the overall fish population. Each step in the entire production process utilizes electromagnetic tracking. The company views itself as a global player in the fish production business and has acquired numerous food safety certifications. The processing center has BRC, GAP, and GMP certifications. Management is also compliant with the ISO 9001, 14001, and 22000 standards.

Despite being the largest supplier of frozen fish to China, they have chosen not to integrate themselves with local fisheries due to the significant risks they pose. An executive asserted that because their company is listed in three markets, any malfeasance or supply chain mismanagement would have significant ramifications on their share price. Independent auditors have also commented that the F company does not serve as a practical model for other domestic producers given the domestic sector’s highly fragmented producer networks.

Aside from Company F, other exporters highlight they do not want to become tainted by association by other non-compliant producers in the domestic market. One seafood company said that when eels from another producer were found to be contaminated, their export partners grew nervous and subsequently it affected their sales. Consequently, the company decided to exit the market entirely to preserve its reputation.

These large export facilities may offer a model for China’s future, but, thus far, are closed-off from the domestic market. Raw materials come from outside of China to ensure food safety, and they are then promptly shipped out to foreign buyers. One executive mentioned that, at least for now, many firms in the export sector simply view China as a major labor resource for
processing export foods, and will reconsider entering the Chinese market only in the future (EX 16). Ironically, those firms that are in the best position to modernize China’s food production sector are the firms least motivated to do so.

Significant contestation on jurisdictional, knowledge, and network-related scales leads to regulatory incoherence. As export producers try to scale-down food safety management systems, they find it difficult to address these mismatches. Due to high levels of regulatory incoherence, many have opted to maintain only a minimal presence in the domestic market.

Table 6.2. Major Challenges to Scaling-down for Export Corporations

<table>
<thead>
<tr>
<th>Scale Challenges</th>
<th>Export Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jurisdictional</td>
<td>Conflicts with QTSB and fragmented bureaucratic structure</td>
</tr>
<tr>
<td></td>
<td>Local governments emphasize production volume and investment. Quality management is more challenging.</td>
</tr>
<tr>
<td>Knowledge-Related</td>
<td>Independence of “scientific analysis” is questionable</td>
</tr>
<tr>
<td></td>
<td>Unfamiliar with risk analysis</td>
</tr>
<tr>
<td>Network-Related</td>
<td>Off-base production difficult to monitor</td>
</tr>
<tr>
<td></td>
<td>Supply chain management incongruent with local conditions</td>
</tr>
</tbody>
</table>

3. Strategies that do not fit

In addition to the increased scale politics that emerge when scaling-down, another challenge of scaling down concerns how the effectiveness of export sector strategies change when they are applied at local scales. In the domestic sector, the state has promoted the adoption of the direct adaptable control model, particularly, its emphasis on on-site monitoring and surveillance techniques and third-party certification. However, the effect of scaling-down these food safety strategies has been ineffective and in some cases deleterious for national food safety development. These policies succumb to significant policy sinkhole effects in which strategies do not alter producer incentive structures, but are subsumed under the broader incoherent logic of the domestic sector.

3.1. The Cost of Monitoring and Surveillance

In China’s export sector, large, modern enterprises employ stringent monitoring and surveillance protocols. By contrast, domestic food production consists of over 240 million farmers, one million food processors, many of which have no incentive to invest in food safety. Frequent food safety scandals have led to a complete collapse of the price mechanism as an indicator for quality and safety. As the export sector monitoring and surveillance practices are scaled-down it must contend with serious policy sinkhole effects due to market failure.

Producers are only willing to invest in expensive monitoring and surveillance when they are able to recoup costs in the market. Exporters receive higher payments for their food because
consumers in foreign countries are willing to import food so as long as food is cheaper than a good of the same quality in the home market. Given that a significant portion of this consumer base is from developed countries, the demand and, consequently, the willingness to pay for food safety, are also higher. Export producers make a substantial premium from sales made to foreign consumers (ZJ 19; EX 3; EX 9). Similarly, because importers commit to purchasing higher volumes of food, exporters find it in their interests to comply with food quality and safety demands. In many cases, an exporter will serve as the primary supplier to an importer, and is integrated with the internal quality assurance program of an importer (EX 3). As a result, exporters are incentivized to invest in new equipment, food safety protocols, and constant inspections.

In the domestic sector, monitoring and surveillance practices have fallen victim to the system’s broader market failures. Most consumers have no trust in food production companies’ commitments to food safety. Domestic producers explain that few of them seek to employ export-grade monitoring and surveillance techniques because prices rarely reflect the actual investment in food safety. It is also important to note that even within the export sector, smaller producers already face razor-thin margins. Exporting producers must invest a significant portion of their capital on food safety. Maintaining on-site personnel, developing sensitive surveillance systems, conducting tests for microbial contamination, and certification are expensive.\(^\text{14}\) If export producers are already experiencing cost pressures, what of domestic producers whose revenues are much smaller.

Given the small premiums that extensive monitoring and surveillance provide food producers, many rely on cost-effective, mix of traditional food safety monitoring practices and science-based monitoring and surveillance procedures. Many farmers use a series of organoleptic, visual inspections to assess the safety of food, in addition to the occasional lab test. Pig farmers, for example, will observe a pig’s gait, skin color, and eye pigmentation to determine whether a pig is healthy. Following slaughter, butchers will look at the amount of water in the meat and the color of the flesh to determine if a farmer has used illegal additives. During campaigns, farmers may conduct lab tests on urine samples. For vegetable produce, processors may use an express MRL test, or will depend on visual aids. At best, this mix and matching of monitoring and surveillance techniques is highly ineffective, and at worst creates a false sense of confidence in faulty food safety measures.

Food safety scandals continue to erode consumer confidence in even China’s best producers claiming to employ globally-accepted monitoring and surveillance techniques. Because consumers are unwilling to pay higher prices for safe food, producers are even less incentivized to invest in monitoring and surveillance systems.

3.2. The Failure of Third-Party Certification

A significant reason for the lack of willingness to pay in the domestic sector is because there are few credible agencies to depend on for grading the quality and safety of products. Government certification schemes are viewed to be highly suspect. Yet, private third-party schemes have fared no better with consumers. Because of allegations of the sale of food safety certifications, few consumers are willing to pay higher prices for “certified” food products. While experts believe that a combination of independent labs and private auditing used in the

\(^{14}\) The minimum cost for the ChinaGAP certification is 12500 RMB, but larger farms may pay upwards of several 100000 RMB.
export sector will help to address this governance deficit, there have been a number of problems with scaling-down a system of third-party certification.

In the export sector, third-party certification plays a prominent role in the food safety regime by enhancing the system of adaptable, direct control. Third-party certifiers are responsible to importers who are themselves liable to end-users of their products. Importers require exporters to acquire third-party certification verifying that product, production grounds, and protocols are compliant with global standards. Third-party certification is valued because they are viewed to be an independent authority of food safety and are entirely accountable to the importer (Meidinger 2009). In the instance a third-party certifier is found to have failed to have performed its job, and unsafe food is found, the third-party certifier is likely to lose credibility among importers and be forced to exit the market.

In the domestic sector, however, the scaling-down of third-party certification quickly encounters a structural barrier: most domestic producers lack the technical capacity and the capital to invest in global certification. The minimum cost of GlobalGAP certification is approximately 12000 RMB, which includes application costs, on-site inspection, licensing and registration, monitoring and examination costs, and an annual fee. Larger farms and production sites located further in the interior incur even higher costs. Some experts estimate the average audit may cost as much as 18000 RMB, which is extraordinarily high considering that in Europe audits cost approximately 3000 RMB (EX 1). Given that the average Chinese farmer’s annual net income in 2010 was 5919 RMB the use of such certification schemes in the broader market are not tenable (China Statistics 2010).

As a result of prohibitively high costs, local governments have become the primary financial sponsors of certification, which alters the accountability mechanism. While in the export sector, third-party certification is driven by private actors, in the domestic sector, governments play a role in directing and promoting third-party certification (EX 8; EX 1; Fan et al 2009). Local government officials will often hire auditors on behalf of local producers (USDA 2010).

A government driven third-party certification regime creates significant problems. Because there is no end-user accountability, third-party certifiers have little incentive to make certain that food is safe. While certification bodies may eventually develop a reputation for malfeasance, the accountability mechanism is less direct than a system in which a certification body is accountable to a buyer. One expert comments, “consultants are employed [by local governments], at great expense, to pass the audit, not to tackle the underlying issues” (SA Handout). Many times auditors will visit a locality once, and then delegate future monitoring to local authorities, which may or may not have the capacity to ensure food safety (Clapp 2010). This can become highly problematic when local governments may hold a commercial stake in the state farms being audited. In 2010, the USDA had to ban the Organic Crop Improvement Association when it found that it delegated auditing authority to government officials monitoring state-owned farms (Neuman & Barboza, 2010).

In other areas, a more insidious problem has been the rent-seeking that has emerged through the third-party system. In this scenario, it is not government financial sponsorship that leads to sub-optimal regulatory outcomes, but state predation. Local agencies may setup audits for food producers and are paid a fee for its finder services. This incentivizes government agencies to push food producers towards certification even if the food producers have no way to comply because they can collect finder fee rents (EX 10). These behaviors severely damage the credibility of third-party certification in the domestic market.
Table 6.3. Difference in Third-Party Certification in the Export and Domestic Sectors

<table>
<thead>
<tr>
<th>Domestic Sector vs. Export Sector</th>
<th>Domestic Sector</th>
<th>Export Sector</th>
</tr>
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<tbody>
<tr>
<td>Accountability Structure</td>
<td>Government-Driven</td>
<td>Consumer-Driven</td>
</tr>
<tr>
<td>Frequency of Audits</td>
<td>Initial Certification</td>
<td>Purchasing Season</td>
</tr>
<tr>
<td>Regulatory Goal</td>
<td>Market Access + Food Safety</td>
<td>Food Safety</td>
</tr>
<tr>
<td>Conflict of Interest</td>
<td>Third-party certifiers are not accountable to consumers. Could be incentivized to simply sell certificates.</td>
<td>None</td>
</tr>
</tbody>
</table>

Another problem for scaling-down third-party certification in the broader domestic system is that currently most certification schemes are not tailored specifically to the domestic market. Most certification systems, such as GAP, were created in western countries with well-developed food markets and for a small, professional class of farmers with high levels of education and large production yields. European farming conditions are milder with more land per person, moderate climates, greater access to water, and far less pest pressure (SA Handout). For many Chinese farmers, discussions of energy conservation, environmental protection, and the appropriate use of mechanized agriculture are not relevant. In the export sector, where producers have larger facilities and access to capital, implementing a certification is difficult, but in the domestic sector farmers are often ill-equipped to maintain the food production standards following the audit. Nominal compliance with certification has been the norm.

Increasingly, food safety experts are championing more basic food safety trainings on pesticide usage and soil management that can yield immediate food safety results rather than have domestic producers strive for unreasonable food safety certification. Experts are more favorably inclined to the ChinaGAP II standard, which has fewer critical control points and was written to assist China’s farmers to transition to modernized agricultural production (EX 10).

Scaling-down third-party certification has only contributed to the regulatory incoherence of the market. There is a significant sink-hole effect in which third party certification has become perverted due to the economic realities of farmers in China. Because producers cannot afford third-party certification, third-party certification must depend on governments as their primary source of revenues. However, after acquiring certification, governments have little incentive to ensure that producers uphold their standards.

4. Conclusion

Scaling-down the export sector has proven challenging. First, in terms of structural scale, as more levels are added to a system contestation over governance is more pronounced. Globally-oriented actors struggle with local production networks and government officials with a different assessment of the relative costs and benefits of certain food safety strategies. Second, as export sector practices are scaled-down, that is, applied to local circumstances, they fail to overcome significant sinkhole effects. Third-party certifiers and global best practices in monitoring and surveillance are designed to operate in specialized systems, but are less effective when applied at the local level.
It should be emphasized that the successful diffusion of best practices of an export sector to the domestic market in developing countries is not common. China’s experience is not dissimilar to those of Brazil, India, or Kenya, among others. In Brazil, export oriented fisheries were required to acquire HACCP certification from the government. Fisheries were managed by a specialized office in the Ministry of Agriculture and training was provided to producers in the export sector. Studies indicate that HACCP certification in Brazil has not diffused to the broader domestic-oriented fisheries (Donoval et al 2001). Producers commented that they could not recoup costs by selling export-grade products in the domestic market, which is largely consonant with comments made by Chinese food exporters. In India, a strict bifurcation of the domestic and export sectors are still in place (Umali-Deininger & Sur 2007). The Kenyan Nile perch export trade has not led to major changes in food safety for the domestic market (Henson & Mittulah 2004).

Expert assertions that the export sector can serve as a “model of food safety” for domestic production ring hollow. When examining the challenges of policy diffusion, the applicability of export sector practices to the full scale of food production is less obvious: global best practices cannot be easily diffused; export producers struggle to survive in the domestic sector; and, domestic consumer demand for export grade food safety is not met with an equal willingness to pay. The export sector may serve as a model for the broader market, but only in terms of providing a clear image of a possible regulatory future. It may offer a stark contrast to domestic sector food safety practices, but, if it cannot scale-down, substantive changes in food safety management in the domestic sector are unlikely. To be fair, the scale conditions of the domestic sector prove a challenge for any food safety policy, not just export safety practices. The next chapter examines policies employed in the domestic sector and the scale problems they must face.
Chapter 7. Re-organizing the Small Farmer: Co-Regulation and China’s Scale Problem

In China’s domestic sector, food safety officials must contend with an unmitigated scale problem. China’s regulators must monitor a large, diverse, and unorganized production base. Unlike the export and CSA sectors with their hand-picked producers, in the domestic sector, food safety officials must manage millions of “small farmers” (xiaononghu 小农户) that they describe as “backward (luohou 落后),” guided by “a peasant consciousness (nongminyishi 农民意识),” with a “quality problem (suzhiwenti 素质问题).” To address food safety reform, government officials believe that China’s food producers, particularly its small farmers, must be re-organized to fit into “scientific (kexue 科学),” “modern (xiandai 现代),” and “standardized (guifan 规范)” supply chains. Accordingly, the government has mobilized large producers to train and transform these farmers into producers capable of complying with national food safety standards.

“Dragonhead” enterprises (longtouqiye 龙头企业) and farmers’ cooperatives (nongminzhuanyehezuoshe 农民专业合作社) have been given the task of rationalizing food production and transmitting food safety knowledge to China’s producers. Dragonhead enterprises, which are large-scale agro-processors, have been employed to vertically integrate China’s producers into advanced supply chains from the top-down. Farmer’s cooperatives have been established to develop more local solutions by organizing local farmers into larger production units from the grassroots. In addition to monitoring their own supply chains, dragonheads and cooperatives are also responsible for “leading and stimulating” (daidong 带动) other nearby producers in food safety reform by providing training courses, technical assistance, and quality inputs.

China’s enlistment of dragonheads and cooperatives in food safety regulation can be viewed as a co-regulatory approach to food safety. Co-regulation refers to collaborative regulatory efforts between the state and industry in which the state sets broad standards for production quality and enlists industry to self-police (Martinez et al 2007). By including state authorities, business, and civic groups in regulation, co-regulation better aligns incentives and lowers the surveillance costs of the state (Martinez et al 2007; Loader 1999). In theory, co-regulation combines the strengths of self-regulation with the benefits of state oversight. Direct participation of stakeholders in the regulatory process helps to create responsive rules that reflect producer concerns (Eijlander 2005). State backing for these codes of practice provides predictability and the threat of sanction for non-compliance (Martinez et al 2007).

How co-regulatory strategies can be applied to deal with China’s small farmers has been understudied. The inclusion of private actors as co-regulators in China’s food safety system is an important initiative in governance for a single-party, authoritarian regime. However, the establishment of a co-regulatory regime often requires a statutory framework for state-business interaction, a strong rule of law, and vibrant producer associations, which are lacking in China (Martinez et al 2007).

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15 For a more in-depth discussion of “suzhi” as it relates to social and political hierarchies in China see Kipnis (2006).
16 Please see Huang (2011) for an in-depth history of the development of both organizations of production.
17 In China, however, these new arrangements do not have a statutory basis, and can thus only be considered a quasi-co-regulatory policy.
18 Private-actors largely refer to non-state owned entities.
Studies from other developing countries have shown that vertical integration and the development of farmers’ cooperatives have led to improved outcomes in food quality and safety (Okello & Swinton 2007; Volrey et al 2007; Mousteria et al 2010). But these studies have largely been conducted in countries with different structural scale conditions than China’s where supply chains encompass multiple levels of producers with uneven and diverse understanding of food safety rules and standards (i.e., a multilevel, multi-scale governing system).

The scale problem has impacted the implementation of China’s co-regulatory policies in two ways. First, in a multilevel context, cooperatives and dragonheads engage in significant scale politics as they scale-up and scale-down on knowledge and network-related scales. Second, dragonheads and cooperatives face a policy scale problem, in which a lack of a comprehensive policy scale has led to conflict between both cooperatives and dragonheads.

This chapter considers the challenge of reorganizing China’s small farmers in three parts. First, the problems of scaling dragonhead enterprises and cooperatives along the knowledge and network-related scales are explored. Second, the policy scale problem is examined and highlights the competitive relationship between the cooperative and dragonhead models leading to a breakdown in regulatory coordination. The chapter concludes with a potential solution to China’s scale problem in co-regulation, and discusses the challenges of implementing co-regulation in systems with large structural scale.

1. Dragonheads and Scaling-Down

Dragonhead enterprises operate at the higher levels of knowledge and network-related scales and must scale-down to integrate local production networks. These corporations are referred to as “dragonhead enterprises” because the headquarters of the company, the “dragon’s head,” vertically integrates suppliers along its “tail.” Dragonhead enterprises emerged in the mid-1990s as part of a government effort to industrialize the agricultural sector (Zhang & Donaldson 2012). In 1996, there were only 5381 firms, but this number has grown to over 61,286 by 2006 (Huang 2011). In terms of networks, these large-scale, government-supported agro-processors have extensive supply chains, including producers and processors from multiple provinces, and are also well-integrated with global markets. As far as the knowledge-related scale, dragonheads primarily are guided by the state’s national food safety certification program and global food safety best practices.

As the beneficiary of state subsidies, preferential loans, and tax breaks, the dragonhead is expected to facilitate economic development and increase regulatory compliance of food safety standards as they scale-down. In terms of networks, dragonheads have established supplier relations with local production networks. Strict quality control regimes are imposed through production contracts and periodic on-site inspections (ZZ 35). Agricultural products are graded and priced by firms, helping farmers to better understand the relationship between price and food safety (YL 23). Dragonhead firms also provide suppliers with high quality inputs at subsidized prices which help to eliminate risks arising from the use of substandard or counterfeit products. If discovered, farmers who run afoul of their production contracts are severely penalized: they are liable for the cost of all inputs provided by the company and must sell their products at half their value.

In terms of scaling-down on the knowledge-related scale, dragonheads have initiated local development projects that help to upgrade agricultural production. Programs have included the building of schools and training centers for peasants, poverty relief efforts, and infrastructural...
investments. One dragonhead enterprise, for example, has established a school and model farming areas that works in parallel with the local government’s agricultural training network: Hongmei Horticulture in Shandong province trains 300 agronomists a year, and provides technical assistance to thousands of farmers (EX 11).

Studies, however, reveal the shortfalls in the ability of dragonheads to vertically integrate household producers that are further upstream (Jia et al 2010; Huang 2007). This is largely because dragonhead firms engage in scale politics while scaling-down on both the network and knowledge-related scales. First, while these firms have a government mandate to vertically integrate local producers into their supply chains, dragonheads face challenges managing their suppliers, particularly regarding production schedules and food safety (NX 4; ZZ 35). Second, despite their technical capacity to address food safety, dragonhead firms find it difficult to transmit food safety practices down their supply chains. Dragonheads also struggle to integrate local knowledge with their own standard production procedures.

Scale mismatches contribute to significant incoherence up and down the supply chain, leading to misaligned interests, illegible standards, a lack of sensitivity to emerging conditions, and uneven implementation of food safety standards.

1.1. Misaligned Interests

As dragonheads attempt to scale-down to include local production networks, interests between dragonhead enterprises and their suppliers become increasingly misaligned. Because of their status as outsiders, dragonhead quality control technicians complain that their suppliers, particularly small farmers, are highly uncooperative in adopting new production standards (NX 3, NX 4; EX 11; ZZ 35; ZZ 36). One government official that works closely with dragonhead producer comments, “Small farmers are difficult to handle. We can’t control them and we can’t get them to listen. Since our capital is incredibly tight, we simply cannot invest in managing [them]…” (ZZ 56). As a result, some dragonheads try to avoid small farmers, and focus on larger producers.

From the perspective of local farmers, many believe dragonhead enterprises are trying to extract high quality product at below market prices. A majority of the farmers view their produce as being safe enough for their families to consume and, thus, do not understand why dragonhead agents provide a lower price point: “I don’t like working through [dragonheads] because they always purchase at a lower price. We are at a loss how prices are worked out because the processing center is a mystery” (ZZ 18). Farmers complain that even though they abide by their contracts and provide safe products, that the enterprise safety grading system is highly arbitrary. Accordingly, local producers view company representatives as predatory agents. Many believe that when dragonheads enforce food safety, they do so only in the interests of their downstream clients in the global marketplace, with little interest in the local community.

1.2. Legibility

The divergence of interests is driven by the second factor of a coherence deficit: a lack of legibility on the part of both producers and the dragonhead regarding food safety standards. Farmers frame food safety issues in local terms, whereas dragonheads emphasize global demands. Many farmers admit that they do not understand the terms of their contracts and were unclear about how contract conditions related to “food safety” more generally. They viewed contract commitments as “production” matters, which were unrelated to food safety: “…We don’t know what we are doing in terms of food safety… we just follow what is specified in the
contract. We don’t ‘get’ food safety in that we don’t understand the laws or anything of that sort…it’s a production matter, not a question of safety…” (YL21). Rather than viewing food safety specifications as binding, these farmers prefer to understand them as recommended guidelines, which frustrates dragonhead quality control personnel.

Food safety technicians from the head company struggle to manage farmers who resist the adoption of new techniques. Exasperated control staff claims that resistance is largely a result of farmers having a “peasant consciousness” and being unwilling to change. Dragonhead technicians complain that local officials and producers insist that their products meet company standards, but that most of these actors have little understanding about the real science behind food safety rules: “The major problem is lack of agricultural knowledge. 40-60 year olds have no idea about agricultural best practices, and are trying to lead the way, yet they themselves know nothing about safe techniques” (NX 4). One executive believes this is a result of the underdeveloped food market at the county level and below: “The [lack of understanding] is due to the lack of exposure to high quality products” (ZZ 30). Farmers have a weak conception of food safety and are less likely to accept new standards (NX 4).

1.3. Lack of Sensitivity to On-the-Ground Conditions

In terms, of the third factor of the coherence deficit - sensitivity to emerging conditions - dragonhead enterprises are relatively detached from on-the-ground production conditions, exacerbating tensions along network and knowledge-related scales. Many head offices are not located within the provinces in which production takes place. One dragonhead, for example, operates all of its eel farms in Guangdong province but is headquartered in Zhejiang province (ZJ 19). Local producers argue that integrating with dragonheads has been challenging because head offices implement policies without understanding local growing conditions. One farmer comments: “we don’t like the dragonhead model because the company isn’t close to the ground…they don’t understand the real situation and that can cause significant problems…” (JS 1). Dragonhead executives, however, comment that because they manage large supply networks, they cannot possibly integrate all local practices in their standard operating procedures.

Farmers enumerate the lack of sensitivity of dragonheads to their local production environment in the following ways. First, individuals find that inputs purchased from the dragonhead firm are prohibitively expensive, and while farmers may fetch higher prices by selling to dragonheads, the costs of inputs quickly erode profits (Calvin et al 2006). Second, strict production rules imposed from above make it difficult to respond to changing conditions on the ground. For example, given wide-spread pest conditions that farmers face, dragonhead stipulations specifying a certain amount of pesticide usage may prove inadequate leading to widespread infestations. Third, certification schemes imposed by dragonheads such as Global GAP are ill-suited to Chinese farming conditions; requirements concerning “energy-saving” and “environmentally friendly” agricultural techniques seem irrelevant to Chinese farmers who face harsh production environments (EX 1).

The lack of feedback between dragonheads and their local-level producers is exacerbated by asymmetries in economic power. Farmers have little ability to negotiate the terms of their contracts, or to participate in decision-making concerning food production. Decisions are made unilaterally by head offices that specify the volume and quality grade of production. When dragonheads lower purchasing prices, producers have no choice but to cut costs by using inferior inputs that can lead to food safety problems. In addition, a lack of open dialogue fosters significant mistrust between contract farmers and the dragonhead: “If you join a dragonhead
enterprise, you lose your voice and are kept out of the decision making process” (ZZ 58). Farmers cannot communicate their concerns to dragonhead agents, impeding information flows, and promoting widespread non-compliance.

1.4. Uneven Implementation

Finally, implementation of co-regulation through dragonheads has led to highly uneven regulatory outcomes. It is important to note there is a difference between food safety conditions on-base production run by dragonheads and off-base production. On-base production avoids most regulatory incoherence arising from scale politics. Similar to export production bases, dragonhead bases have on-site management and producers are hand-picked. A production base can range in size from 10 to 1000 hectares. The base may also have an on-site or readily available testing laboratory and basic processing facilities. Farmers who work on base are subject to extensive training. Under these conditions, food safety processes are well understood by employees, and on-site management can address problems that emerge in real time.

Due to restrictions on land-use, however, most dragonhead firms are unable to source exclusively from production bases and must also procure crops through unregulated production networks. Company procurement officers are sent out during harvest to purchase products on the spot market (Zhou 2011). Due to the dragonhead’s inability to provide on-site guidance and monitoring throughout the growing period, regulatory incoherence can be severe.

In summary, scale politics emerge as dragonhead enterprises scale-down. Resistance from local production networks makes it difficult for dragonheads to assert control over producers and food safety practices cannot be disseminated. As a result, dragonhead co-regulatory policies have largely failed and have led to misaligned interests, the illegibility of standards, insensitivity to local conditions, and uneven implementation of policies.

2. Cooperatives and the Challenges of Scaling-Up

As a response to the challenges that dragonhead enterprises face in integrating farmers in their supply chains, the central government advanced a bottom-up co-regulatory effort involving farmers’ cooperatives in the 2000s (Jia et al 2010). While farmer’s cooperatives had emerged as early as the 1980s, the national government only began systematically promoting the cooperative model beginning in 2004 (World Bank 2006). Farmers’ cooperatives are voluntary associations in which farmers collaborate to establish common standards, increase production volumes, and gain increased market share for their products (Zachernuk 2008). As of 2010, the State Administration for Industry and Commerce estimated that 311,700 cooperatives had been established, with nearly 10% of China’s farmer population participating in them (Chen & Zhao 2010).

In direct contrast to dragonhead firms, cooperatives operate at the lower-end of both the knowledge and network-related scales and scale-up by entering new marketing channels and adopting advanced food safety practices. In terms of knowledge, the cooperative provides basic guidelines for safe food production. In most cases, the emphasis is on addressing local food safety issues, and not on seeking compliance with national food safety certifications. In terms of networks, cooperatives are locally-based organizations composed of farmers from neighboring communities. Typically, the cooperative is led by wealthy producers or cadres who are
considered local leaders. Some cooperatives also benefit from a shared history of collectivized agricultural production during the Maoist period. When cooperatives are successful, the organization can serve as the center of associational life. Frequent face-to-face interactions lead to the creation of high levels of social trust among producers, which lends itself to better food safety outcomes.

However, studies indicate that cooperatives in China have failed to enter non-local marketing channels (Jia et al 2010) and that few cooperatives have been able to adopt more advanced food safety practices (Zhou & Jin 2009). These negative outcomes are a result of significant scale politics that cooperatives face as they scale-up on the network and knowledge-related scales. While cooperatives are favored by local actors, they face opposition from downstream buyers because of their insufficient knowledge and a lack of organizational capacity. Moreover, cooperative members themselves often resist scaling-up. In effect, the cooperative’s struggles are an up-ended mirror image of the challenges that dragonheads face due to the consequences of scale.

2.1. Misaligned Interests

When farmer’s cooperatives remain locally-oriented, interests regarding food safety and cooperative development are strongly aligned. However, cooperatives themselves have resisted scaling-up because entering new markets place undue burdens on its producers in terms of food safety and production volumes that they believe are not in their interests. At the local-level, frequent interaction and social ties among producers create strong pressures to comply with food safety rules. Participants are encouraged to abide by production standards in order to help the cooperative develop: “investing in food safety will help our cooperative develop faster and improve the livelihood of our village community” (YL 22). Members explain that they are willing to invest in food safety because this translates into higher selling prices and strengthens the cooperative’s brand (ZZ 49; ZZ 50; ZZ 3; ZZ 45). Residents also view successful cooperatives as a vehicle for local growth more generally. As a result, cooperatives observe a higher level of commitment to food safety and quality control.

Producers are also incentivized to join cooperatives and follow production standards because doing so offers tangible benefits to members in the form of small subsidies, and information on market conditions. One cooperative, for example, offers discounted feed to coop members, dispatches technical teams at regular intervals to assist farmers with production, and provides farmers with information on market prices (ZZ 10). As a result, farmers obtain higher prices in local food markets: “Inputs were cheaper and we could spread our risk and control for price fluctuations…we learned techniques for fertilizer and got experience from the outside…our incomes increased by almost 30%.” (ZZ 46).

A majority of cooperative leaders, however, are unwilling to scale-up in terms of knowledge and networks. Cooperatives are generally more focused on local market development and do not foresee local markets demanding food safety standards beyond the basic provision of food that uses high quality inputs. Leaders assert that seeking certifications or adopting new best practices does not serve the interests of the local cooperative. They are averse to joining advanced marketing channels because requirements imposed by higher-end distributors involve significant investments in new machinery and food safety certifications, which most cooperative leaders believe will not be recouped. In the end, the major obstacle to
scaling-up comes down to price. As one cooperative leader says, “Investments in food safety are not always reflected in higher prices” (ZZ 58).

2.2. Illegibility of Standards

In terms of legibility, cooperative members understand and implement food safety measures that reflect local production concerns, such as pest infestations, water supplies, and weather patterns. However, as cooperatives scale-up to incorporate food safety best practices developed for the broader market, producers struggle to comply.

Unlike dragonheads, food safety practices employed by cooperatives are based on context specific knowledge. Most cooperatives adopt a basic code of practice that requires members to purchase inputs from the cooperative, submit to cooperative management, follow a single food safety standard, and sell at the same time. This “unified management” (tongyiguangli 统一管理) model reflects baseline food safety concerns that local farmers face on a daily basis, rather than specify technical food safety requirements. For example, the reason why cooperatives emphasize purchasing inputs from a single, approved distributor is because a major concern issue is the quality of feed, pesticides, seeds, and veterinary drugs available in local markets. In one county, middlemen had been discovered adding concrete, sand, and other cheap material to feed to increase its weight.

However, as cooperative production networks scale-up and seek to coordinate with agro-processors that impose stringent food safety demands, cooperatives struggle to comply. First, cooperative leadership point to difficulties in implementation of new food safety standards due to a lack of education of members. One cooperative leader comments, “Too many people are illiterate and our knowledge-base is weak…we can’t implement complicated standards” (YL9). Second, scaling-up entails complying with downstream buyers demands for higher volumes, which complicates management of cooperative members. Larger production networks make frequent interactions more difficult, weakening social ties among farmers and compromising the ability for cooperatives to monitor and train producers. Third, interviews reveal that larger cooperatives face a paradox – while their size and production volume makes them more amenable to adopting “green” or “organic” certification, they are less able to control their farmers to make standards legible.

2.3. Sensitivity to Emerging Conditions?

Cooperatives are highly sensitive to changing conditions on-the-ground, but struggle to respond to changes on higher levels of network and knowledge-related scales. At the local-level, cooperatives hold bi-monthly training sessions and visit farms a few times a month, which help to facilitate the transfer of knowledge among producers (ZZ 14). Farmers are invited to contact their representatives as new problems emerge. Cooperatives also employ a whistleblower (jubao 举报) system in which farmers can monitor and report on one another to the cooperative leadership. Farmers do not feel that they have the legal authority to impose restrictions on their neighbors, but many comment that if a neighbor’s practices endangered their local community, they would immediately alert the authorities (ZZ 60). One farmer comments, “We need to look out for each other. Otherwise, it come back and haunt us in the form of lower prices or hurt our reputation” (YL 22).
Scaling-up, however, requires that cooperatives are also sensitive to developments in broader markets. When asked to what extent food safety incidents in out-of-province markets affected them, the majority of the respondents selected “somewhat,” implying weaker connections to non-local markets. By contrast, interviewees noted that if a food safety incident originated locally, sale volumes would “drop precipitously.” Few of the cooperatives sought to acquire organic food safety certification. One cooperative that was interested in acquiring certification in the future stated that it needed to first establish unified management and focus on standardization (YL 9). This insensitivity to non-local food safety developments is due to a lack of linkages to the broader market. Out of 32 cooperatives interviewed, only 1 supplied an export-oriented producer, 5 supplied supermarkets, and 7 sold food out-of-province. Carrefour, a major retail chain, has begun to purchase products from cooperatives, but this practice is not widespread (Hu 2010).

2.4. Uneven Implementation

Finally, regarding the last factor of the coherence deficit, uneven implementation, cooperatives have exhibited a high level of variation in terms of regulatory outcomes. In general, a host of fiscal and coordination problems plague cooperatives, inhibiting the development of contract employment relations that could facilitate scaling-up the network-related scale. Despite initial enthusiasm for the cooperative development model, one bureau director estimated in 2011 that nearly 40% of its cooperatives would exit the market. The same official remarked that these now-defunct cooperatives constituted “the initial victims of the county’s blind push for cooperative development.”

Bureau officials explained that cooperatives were unlikely to scale-up in terms of knowledge or networks due to weak management skills of cooperative leadership: “Most of them have significant capital flow problems and don’t understand how best to operate…Cooperative management is weak. They lack the facilities and cannot coordinate production…only processing firms can expand production in the way to develop the county” (ZZ 21).

In summary, cooperatives face significant challenges scaling-up. The strengths conferred upon cooperatives due to its local orientation, also serve as weaknesses as these organizations interact with other downstream actors in a supply chain. As different perspectives clash regarding the appropriate food safety approach, regulatory coordination suffers.

3. A Policy Scale Problem: Competitive Regulatory Relationships

In addition to the challenges cooperatives and dragonheads face while scaling-up or scaling-down, China’s co-regulatory practices also fall victim to the consequences of a policy scale problem. The establishment of dragonheads and cooperatives represent an incremental, ad-hoc approach to re-organizing agricultural production and food safety. During the early 2000s, when the deficiencies of the dragonhead model became apparent, the central government began to actively promote cooperatives. It is notable that cooperatives emerged as a response to the failures of dragonhead enterprises, not as part of a comprehensive plan to supplement or assist dragonheads in integrating China’s producers into modern supply chains. While the government began to advocate a model of integrated production known as the “Company + Cooperative + Household” (qiye + hezuoshe + nonghu 企业+合作社+农户) model, procedures for coordinating production were left unspecified. Because each model represents an opposite view
of agricultural development based on different positions on the knowledge and network-related scales, coordination has been difficult.

In some areas, a lack of coordination has escalated into open conflict between officials advocating cooperative development and those in support of dragonheads. Officials who oppose the expansion of cooperatives view cooperatives as only providing an intermediate step towards addressing food safety problems, and refuse to invest in what they view to be a failed co-regulatory initiative. Their main objection to the further spread of cooperatives is that the model is ill-equipped to facilitate a transition to industrialized agriculture: “Cooperatives are good for the initial development, but dragonhead enterprises are better at setting standards and moving towards a “规范” development model…” (ZZ 56). Provincial level officials, in particular, prefer dragonhead companies that can develop agricultural production bases focused on a single product (ZJ 3). By contrast, they view cooperatives to be “lack organizational capacity,” “lack techniques,” and “incapable of meeting higher standards” (YL3; NX 1; NX 2).

In many cases, government opposition toward cooperatives is displayed as much through a lack of support than outright prohibitions. For example, some government officials have simply not promoted the cooperative model in their locality. Other times governments have provided only meager financial support and training to registered cooperatives. In one county in Sichuan, the vast majority of cooperatives were entirely funded by contributions from participating farmers. Lack of state support, in the form of substantial subsidies, state-backed loans, or technical assistance, forced several cooperatives to exit the market. As one failed cooperative farmer explained, “The small subsidies the government provided were not enough to make up for the initial costs [of setting up the cooperative]. No one wanted to participate after a while” (ZZ 17).

Dragonhead enterprises, however, can also face significant opposition from government officials, especially at the township-level. First, some townships refuse to allow dragonheads to source from their farms because they view them as predatory, whereas cooperatives are viewed as promoting inclusive growth (ZZ 19; YL 16; YL 17). Second, other township officials block dragonhead entry into local markets because they are difficult to govern. One township official argued that dragonhead enterprises were difficult to regulate because of their economic clout and technical expertise, and implied cooperatives were easier to manage: “Everyone thinks that these dragonhead firms can improve food safety, but in the end I’d rather have several small cooperatives that do not comply with food safety due to ignorance than one large company that actively uses science to get around the food safety law” (YL 3). Third, high quality products from the dragonhead are sometimes not permitted to circulate in the local market. One dragonhead corporation claimed that local officials believe that allowing dragonheads to sell products in townships would effectively drive out local products and would have a deleterious effect on local development (ZZ 30).

When dragonhead corporations do manage to establish operations in a locality, government intervention complicates operations on-the-ground. Dragonheads are often required to cultivate a specialty product in the township that is selected by government officials (ZZ 30; NX 4). Government officials may also require dragonheads to employ local agronomists, which may have very different perspectives on cultivation. In one case, a company from Shandong attempted to setup “Shandong-style Warm houses” to which local Ningxia agronomists refused to certify as meeting the provincial standard (NX 4). Unhelpful government intervention in operations makes scaling-down unattractive to dragonhead executives.
The lack of a comprehensive plan for integrated production has led to conflict between those advancing the dragonhead production model, and those preferring a more grassroots approach. Incremental policymaking does not always lead to scale politics, but it does increase the likelihood of conflict, and can contribute to regulatory incoherence.

4. A Potential Solution?

Innovative approaches to address scale politics have emerged to better coordinate dragonheads and cooperatives in their co-regulatory efforts. Increasingly, dragonhead enterprises have established their own cooperatives to manage upstream farmers (ZZ 30; NX 2; NX 3). Although this production model is designed specifically to lower transaction costs between enterprise and producers, this strategy has the added benefit of mitigating scale politics.  

Cooperatives established by dragonheads can serve as “scale bridging organizations” (Cash et al 2006). That is, an intermediary organization that corrects scale mismatches and facilitates coordination within and across scales. Integrating cooperatives and dragonheads into a single chain can help to reduce the challenges of scaling-up and scaling-down, respectively on network and knowledge-related scales. First, dragonhead enterprises provide high level technical training to cooperative leadership, invest in cooperative production facilities, and link cooperatives to advanced consumer channels. Second, cooperatives then transmit and translate new food safety information into an understandable format for farmers to understand. Third, due to the cooperatives’ local presence, they can more easily disseminate new production practices, and local networks can be employed to improve monitoring and surveillance. Cooperatives are sometimes seen as “agents” of the dragonhead company, but more often their elevated local status and position within the community helps to engender trust, which leads to higher levels of compliance.

Most significantly, the cooperative can facilitate communication between local producers and the dragonhead when conflicts emerge as how best to address food safety issues. Farmers can raise concerns with the cooperative and these can then be passed on to the company. Because the cooperative is accountable to its cooperative members and the company, they are viewed by all participants as a credible mediator acting in the interests of both parties.  

This scale solution, however, does have its limitations in addressing scale politics. Studies regarding this production arrangement show that there is still a significant power asymmetry between company and farmer, even with the presence of an intermediary organization (Chen & Zhao 2010). Due to the sheer economic influence that dragonheads wield, cooperatives sometimes find themselves unable to effectively negotiate with their corporate sponsors. As a result cooperatives sometimes are captured by corporate elites who simply view cooperatives as corporate agents rather than as representatives of local production networks. Yet despite its limitations, the model does mitigate scale politics and provides a potential path to integrate cooperatives and dragonheads in a unified co-regulatory strategy.

5. Conclusion

19 Investing in cooperatives also provide dragonheads with a number of advantages that are unavailable to them when contracting farmers directly, the most important being the acquisition of land through cooperatives.
### Table 7.1. Scale Politics for Dragonheads and Cooperatives

<table>
<thead>
<tr>
<th>Scale Problem</th>
<th>Cooperatives</th>
<th>Dragonheads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale Problem</td>
<td>Scaling-up</td>
<td>Scaling-down</td>
</tr>
<tr>
<td>Interests</td>
<td>Misaligned with downstream supply chain actors</td>
<td>Local actors view dragonheads as predatory</td>
</tr>
<tr>
<td>Legibility</td>
<td>Focused on the local, not the global</td>
<td>Local producers struggle to understand certifications</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Detached from food safety concerns in non-local markets</td>
<td>Detached from local producers. No feedback mechanisms</td>
</tr>
<tr>
<td>Policy Implementation</td>
<td>Highly uneven due to poor management and lack of capital</td>
<td>Off-base production is does not fall under company monitoring and surveillance.</td>
</tr>
</tbody>
</table>

China’s co-regulatory policies to address food safety challenges face a significant scale problem. Despite the best intentions of upstream and downstream producers, and government officials, different views regarding food safety have led to severe scale politics. Government initiatives to use farmers’ cooperatives and dragonhead enterprises to integrate agricultural production into “modern” and “scientific” supply chains to enforce food safety standards have fallen short.

The chapter reveals how the inability to scale up and down the knowledge and network-related scales has led to a misalignment of interests, illegibility of standards, lack of sensitivity to on-the-ground conditions, and uneven implementation regarding food safety. The cooperative operates most effectively in local communities, and can be sensitive to emerging food safety risks and challenges at the local level. A major concern, however, is the cooperative’s inability to move beyond basic food safety procedures and to comply with food safety demands that come from beyond the local market. To be sure, cooperatives do provide modest improvements in food safety, but the question remains how to transition from this intermediate level to advanced food safety provision. Dragonheads face problems in the opposite direction. Dragonheads operate in large national production networks and follow scientific best practices for food safety. Yet their primary difficulty relates to enforcing their production standards on upstream producers who find dragonhead integration methods to be predatory and irrelevant.

China’s co-regulatory strategy also faces a policy scale problem in which an uncoordinated, *incremental* approach has unintentionally fostered conflict between those who advocate cooperative development and those who support industrialization through dragonheads. In certain areas, government officials actively resist cooperative development, whereas in others officials undermine the activities of dragonhead firms. While a potential solution has emerged in which dragonheads establish local cooperatives, scale problems can still get in the way. Cooperatives do run the risk of becoming corporate tools of dragonhead management, which can generate resentment among local suppliers. The uneasy arrangements may suggest a fundamental incongruence between organizations that depend on social trust to coordinate activities and those that are largely guided by price.

Focusing on the problem of scale offers an important vantage point regarding why some co-regulatory schemes are effective and others are not. Even when producers possess a genuine commitment to sound regulatory objectives and have the technical capacity to improve food
safety, it remains a challenge for them to overcome regulatory *coherence deficits*. This chapter suggests that co-regulation advocates should consider the strengths and weaknesses of certain co-regulators as they scale-up and scale-down on knowledge and network-related scales. The Chinese experience of co-regulation suggests that policymakers reassess the structure of supply chains, the types of co-regulators available, and the nature of state-industry coordination in terms of structural and policy scales and coherence deficits before advancing co-regulatory solutions.

If co-regulatory efforts have failed on account of scale, could strong state initiatives offer a better solution? How does the state fare in addressing food safety coherence deficits? Could coordinating bodies, food safety campaigns, and model production zones succeed where China’s co-regulatory efforts have failed? The next chapter considers these state-initiatives and their effect on food safety.
Chapter 8. Failed State Initiatives: Coordinating Bodies, Campaigns, and Model Production Zones

As the food safety crisis unfolded in the 2000s, concerned Chinese citizens turned to the government for solutions. However, despite efforts to address food safety through state-led initiatives, such as the establishment of coordinating bodies, model production zones, and frequent campaigns, scandals involving poisonous and counterfeit food continued to emerge. Increasingly, consumer anxiety has given way to frustration and a lack of confidence in the state. Some pundits in the popular press now openly discuss how China’s food safety crisis is challenging the very credibility of its new leaders. What was once viewed as a technical regulatory problem has evolved into a more serious critique - the Chinese state’s inability to govern a modern, complex market society.

Some scholars have highlighted the shortcomings of state-centered regulation (Sinclair 1997; Bevir & Rhodes 2004; Greer 2011). Those favoring “new governance” approaches based upon non-state centered regulation, have argued that state-led initiatives are costly, ineffective, focused on end-of-the pipe solutions, and lack sufficient flexibility to address complex regulatory situations (Nash & Ehrenfield 1996). However, China’s experience with state-led governance has been largely positive in many sectors calling for needed oversight, particularly in fiscal reform (Zhang 1999), financial regulation (Heilmann 2005), and aviation safety (Chung 2003; Suttmeier 2008).

In fact, food safety specialists and scholars who have noted the effectiveness of China’s state-led initiatives to address other governance problems remain puzzled by its continuing policy shortfalls in food safety management. Coordinating bodies, food safety campaigns, and model production zones which have formed the core of China’s state-led food safety strategy have proven ineffective. The prediction that increased centralization and the establishment of coordinating bodies would enhance regulatory control (Yang 2010) is yet to be borne out, and has in fact led to greater fragmentation of the food safety system. Unlike the successful “managed campaigns” noted by scholars in other sectors (Heilmann & Perry, 2011), China’s food safety campaigns have so far done little to invigorate the bureaucracy or reduce the frequency of food safety incidents. In fact, campaigns have hindered the institutionalization of standard regulatory procedures. Using model production zones to diffuse food safety best practices (Han 2007) has not yet proved to be effective.

This chapter shows that the ineffectiveness of current state policies has less to do with degree of state involvement, and more to do with the severe scale politics that emerge as central policy initiatives are scaled down. The establishment of coordinating bodies exacerbates tensions along the jurisdictional scale, as they face-off against other food safety agencies at the provincial, county, and township-levels. Food safety campaigns pit officials seeking long-term food safety gains against those seeking to restore confidence in the food safety system through short-term campaigns, leading to scale politics on the temporal scale. The state’s model production zone policy faces challenges on the knowledge-related scale, as those championing capital intensive production procedures clash with those who hold that such production techniques are ill-suited to the Chinese agricultural context.

The incremental policy scale of state solutions to address food safety has also been problematic. Rather than expend political capital on comprehensive food safety reforms, these small-scale changes to the system, through coordinating bodies, food safety campaigns, and
model production zones, have led to further fragmentation and incoherence in the regulatory system, fueling already severe scale politics regarding food safety.

Together the structural scale and policy scale of these state initiatives have led to a significant lack of regulatory coordination among officials. Specifically, these policies have produced regulatory incoherence in terms of misaligned interests, illegibility of government policy, lack of sensitivity to local regulatory conditions, and uneven policy implementation.

The chapter proceeds as follows: first, it will examine the failure of coordinating bodies in their management of food safety; second, the problems of food safety campaigns will be explored; third, China’s model production zones will be analyzed. The chapter will conclude with some observations on the challenges of state-led initiatives and the scale problem.

1. Hardworking Officials in Food Safety

Often the lackluster performance of state policies is viewed to be a consequence of obstructionism or a lack of technical capacity at the local level (Li 2010). Yet, local officials in China have been tireless in their attempts to address food safety through extensive monitoring, market surveillance, and the upgrading of food safety facilities. The Gongmin Township Food Safety Plan, for example, instructs officials to “ensure 100% vaccination, 100% disinfection of production sites, and no major disease outbreak,” “advance the ‘Four No’s and One Clean-up,’” “prepare reports on major campaigns against swine flu, rabies, H1N1,” among a series of other activities (FSDOC29). Township officials in another county explain that each food safety official manages a docket of well over 20 processing firms (YL 11). While food safety experts report on disturbing levels of corruption, most assert that local governments at all levels are obsessed with preventing a food safety incident (EX 8; EX 1).

Especially, after the institution of food safety evaluation measures, officials have strived to meet targets specified in their responsibility contracts with higher levels of government. For 2010, officials in Zhuguang County were instructed to make certain “100% of producers did not use melamine,” “the use of clenbuterol was at 0%,” and “inspection pass rates increased by 0.35%” (FSDOC44). Implementing measures of the 2009 Food Safety Law state clear penalties for food safety incidents:

“When the local people’s government at or above county level fails to perform its statutory duty for food safety supervision and management and gives rise to severe food safety incident or causes serious social impact in the region, the responsible office and other directly responsible personnel shall be punished by a special demerit, demotion, removal from office or dismissal” (Article 61).

Local officials emphasize that persistent food safety failures are less a result of local obstruction, and more because they do not know how best to integrate with a regulatory system that disregards local concerns, constantly reconfigures standards, and switches regulatory goals. Top-down initiatives from the central state, they argue, have done more to complicate an integrated food safety approach than they have to ameliorate the effects of fragmented governance.

2. Coordinating Bodies

State discourse on China’s food safety problem highlights government fragmentation as the primary cause of weak regulatory outcomes. To facilitate integration, the central government has established coordination bodies to ensure that all regulatory players are following a unified
food safety plan. “Coordination” (xiétiào 协调) entails setting annual work plans for all ministries involved in food safety, facilitating communication between different ministries, and resolving disputes arising from bureaucratic turf wars.

Since the early 2000s, China has created several coordination bodies, all of which have failed in their mandate to streamline the food safety bureaucracy. In 2003, the State Food and Drug Administration (SFDA) was formed to coordinate China’s food safety regulatory bodies by facilitating information sharing and clarifying regulatory responsibilities. Due to a series of failures involving information flow problems, bureaucratic competition, and corruption, the SFDA was swept away in favor of other coordinating bodies (Tam & Yang 2005). 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 (MOH) was appointed 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 would lead Food Safety Committees (FSC) established at each level of government to coordinate regulatory actions. As China’s food safety crisis worsened, the central government announced plans in early 2013 to establish another super-ministry that would strip food safety portfolios from other ministries, and serve as the new nexus in food safety management (Haas & Wang 2013).

New coordinating bodies face significant scale politics on the jurisdictional scale. These agencies must contend with China’s multilevel fragmented structural scale to balance interests, reallocate resources, and re-establish standards. The mandate of the SFDA and the FSCs that followed was to reallocate the portfolios of each ministry and require other ministries to report on emerging problems in a timely fashion. However, ministries refused to comply. Other issues pertain to the reallocation of resources. For example, the FSCs have struggled to gain control of personnel from other ministries. In addition, local government officials have actively resisted the establishment of coordinating bodies, which they view as incompetent and disconnected from on-the-ground regulatory realities.

The severity of scale politics due to coordinating bodies is exacerbated by its incremental policy scale that further fragments rather than streamlines the food safety regulatory system. Coordinating bodies have served only as an organizational palliative laid on top of a fundamentally fragmented regulatory system. To avoid significant bureaucratic conflict, the state has eschewed comprehensive regulatory reform in favor of establishing small-scale agencies often without the research and infrastructural support necessary to succeed. Each round of food safety reform has intensified the politics of scale by adding new regulatory actors to the system at multiple levels. For example, even though by 2006 the SFDA was effectively stripped of most of its food safety portfolio, it remained as an additional powerbroker in the food safety regulatory reforms of 2009 (Figure 8.1.).

**Figure 8.1 Increased Fragmentation of the Food Safety System**
The combination of significant contestation along the jurisdictional scale and incremental policy changes has led to a severe regulatory coherence deficit. In particular, the establishment of coordinating bodies has failed to realign interests among government officials (misaligned interests), complicated regulatory workflows (illegibility of policy), and does not address local food safety challenges (lack of sensitivity).

2.1. Misaligned Interests

In a multilevel governance context, food safety coordinating bodies have more often led to the increased fragmentation of interests concerning food safety as they scale-down. The creation of coordinating bodies largely reflects central government interests. In a series of food safety notifications, plans, and circulars, local governments were instructed by central government ministries to form “leading small groups” and “coordinating bodies.” Food safety authorities were to develop “organizational strength and leadership” and set “clear responsibility arrangements” through coordinating bodies. In the Center’s annual food safety assessment of food safety work at the provincial level, over 70 out of 100 points were related to forming a coordinating body and restructuring food safety management in line with central policy aims (Table 8.1). This mandate is echoed in county-level assessments of food safety management at the township level in which the formation of an operating FSC represented 50 out of 100 points of its evaluation (Table 8.2).

| National Food Safety Work and Reorganization Assessment (Provincial Level) |
|-----------------------------|------------------|
| Evaluation Item             | Points           |
| Organization and System’s Building | 15 Points       |
| Government Restructuring Measures | 55 Points       |
| Develop Corporate Responsibility | 20 Points       |
| Effect of Government Restructuring Measures | 10 Points     |
| Extra Credit                | 10 Points        |
| Penalties (Major Food Safety Incident) | -20 Points    |

For in-depth discussions of the cadre-evaluation system and its effect on policy implementation see Landry (2008), Edin (2003), Whiting (2000).
Table 8.2. Township Food Safety Evaluation Point Allocation

<table>
<thead>
<tr>
<th>Township Food Safety Assessment</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Leadership/Organization Evaluation</td>
<td>50 Points</td>
</tr>
<tr>
<td>Leadership Committee Formed/Research</td>
<td>10 Points</td>
</tr>
<tr>
<td>Districts have FSC</td>
<td>20 Points</td>
</tr>
<tr>
<td>FSC Targets Established</td>
<td>20 Points</td>
</tr>
<tr>
<td>Work Situation</td>
<td>50 Points</td>
</tr>
<tr>
<td>Coordination</td>
<td>10 Points</td>
</tr>
<tr>
<td>Education Work</td>
<td>10 Points</td>
</tr>
<tr>
<td>Monitoring Work</td>
<td>10 Points</td>
</tr>
<tr>
<td>Meets County FSC Plan Targets</td>
<td>10 Points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 Points</strong></td>
</tr>
</tbody>
</table>

County and township officials, however, view government restructuring as not representative of their interests in terms of food safety management. The establishment of an additional organizational unit creates significant paperwork and reporting requirements for officials. Some county officials commented that the reports that they prepare for coordinating bodies are largely “politically driven,” emphasizing targets and development goals that fail to address true food safety concerns (ZZ 56). In order to prevent a food safety event, involved officials contend that local governments should instead focus on strengthening local monitoring and surveillance work and investing in a network of local laboratories, rather than emphasizing coordinating activities (YL11).

2.2. Lack of legibility

Due to scale politics and its incremental policy scale, officials at all levels of government struggle to understand the broader purpose of coordinating bodies in food safety governance. There is uncertainty regarding the meaning of the term “coordination” in practical terms. Ningxia provincial officials assert that one of the major challenges in facilitating coordination among different food safety agencies is that it is a “soft target” (NX 3). While inspections, penalties, and food safety campaigns can be counted and recorded in food safety reports, coordination in practical terms is more difficult to assess. Officials explain it is challenging to evaluate whether they are facilitating “clear lines of communication,” “inter-ministerial contact,” and “inter-level planning” (NX 3). Aside from the physical establishment of committees, and instituting new reporting requirements, most regulatory officials have no real sense of how to actually coordinate food safety activities.

This problem is exacerbated by the lack of a statutory basis for coordinated activities. Although new bodies are formed, none of the pre-existing agencies have written mission statements or by-laws governing how to plan coordinated food safety regulation, interact with other agencies on a routine basis, and adjudicate conflicts between ministries and different levels of government (Balzano 2012). For example, when the new SFDA was developed, individuals did not understand how to interact and redirect their workflows in the new system. A former director of the central-level SFDA described the scenario as follows: “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” (CC 1).

Particularly at local levels of government, officials confess they do not understand how best to integrate new coordinating bodies within the pre-existing regulatory framework. First, because coordinating bodies do not actually replace pre-existing ministries, it has not alleviated inter-agency tensions or streamlined regulatory activities. Most local agencies did not understand the newly formed FSC’s role in regulation and questioned its legitimacy. Even after the establishment of food safety offices, officials contend that the number of agencies involved in food safety remains high: “It is difficult to work with other regulators…There are far too many players in the game and once something leaves our purview we really can’t manage it (YL11).” A nationwide survey of food safety systems in municipalities showed that while 60% of cities had established a new food safety coordination body, 85% of these cities continued to manage food safety through individual agencies (Yang et al 2012).

2.3. Lack of sensitivity

Government officials also disagree on the extent to which new coordinating bodies address on-the-ground regulatory realities in terms of workloads, technical capacities, and funding. One researcher noted: “committees at the provincial and county level are not competent and too far removed from the ground…no one wants to take responsibility” (ZJ 40). Most officials argue that the recent 2009 Food Safety Law, which established the FSCs, reflected central-level bureaucratic struggles rather than local food safety concerns (ZJ 3). Local officials assert that the real business of food safety involves constant monitoring, transitioning to modern forms of agricultural production, and training local farmers, not establishing coordination bodies (ZZ FSC).

Many of the coordinating bodies do not have the technical capacity to address local food safety problems. Husbandry officials in one county, for example, complained that few of the FSCs understood the major risks involved in pork farming and had little experience in monitoring local distribution networks. Moreover, given the FSCs’ limited staff, monitoring is still directed by local agencies. One official asserts, “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. When the clenbuterol campaign started they didn’t do anything” (ZZ FSC). Agriculture and Aquaculture Bureau officials reflected the same concerns, describing the FSC as a mere “reporting body” (ZZ55; ZZ 56). As a physical indicator of the irrelevance of FSCs, officials highlighted that laboratories and technical equipment remain embedded within their individual agencies rather than at the FSC. In one county, the husbandry bureau purchased a 3 million RMB laboratory, which is staffed by its own technical personnel: “The county has a 3 million RMB food safety laboratory, and it’s in the husbandry bureau, not the FSC. What does that tell you about the FSC’s use?” (ZZ FSC)

Many FSCs are “empty conference rooms” for most of the year, aside from planning and reporting periods. One food safety director likened it to the “Japanese Emperor” on account of its high visibility, but limited legal authority (ZZ FSC). In one township in Sichuan, half of the township food safety officials’ evaluation is determined by their attempts at coordination and operating through a leading food safety group; officials, however, confessed that they had little understanding as to how such a new food safety group would actually improve on the ground conditions.
In a multilevel context, coordinating bodies have only intensified scale politics regarding jurisdictional concerns about food safety. Coordinating bodies serve as an incremental reform to a regulatory system that requires a comprehensive restructuring. As a result, the institution of coordinating bodies has only contributed to the complexity and fragmentation of the regulatory system. The lack of coordination among officials regarding coordinating bodies have failed to realign interests, remain illegible to officials, and lack sensitivity to the felt needs of local regulators.

3. Food Safety Campaigns

The frequent state response to food poisoning scandals is the announcement of new campaigns to “strike hard” (yanda 严打) at unscrupulous producers and malfeasant bureaucrats. Campaigns have been a common feature of Chinese-style governance as an inherited revolutionary tradition from the country’s Maoist past. However, unlike the demonstrated effectiveness of China’s “managed campaigns” in other contexts (Heilmann & Perry 2011), food safety campaigns have had a negative effect on governance. Officials engage in significant scale politics on the temporal scale. Some officials advocate the use of short-term campaigns to instill consumer confidence. However, many more officials argue that campaigns are an obstacle to the institutionalization of regulatory norms and procedures, and have more often harmed than helped.

Food safety campaigns can be broadly categorized into three types: (1) “strike hard” campaigns (yandaxingdong 严打行动); (2) government rectification campaigns (zhengzhixingdong 整治行动); (3) holiday investigation campaigns (jierixunchxingdong 节日巡查行动). Strike hard campaigns are typically initiated at the central and provincial-levels and focus on recent food scandals. In 2011, for example, a nationwide campaign was launched following the discovery of gutter oil, and clenbuterol in pig feed (Xinhua 2012a). These campaigns serve a dual purpose by restoring faith in government regulators and also instilling confidence among consumers (JS 1; Xinhua 2011). A typical strike-hard campaign involves the arrests of food safety perpetrators, food company executives, and unlicensed producers (Yao 2012). Targets feature prominently in the annual work plans of local governments. For example, following the 2008 melamine scandal, inspections of all milk stations for melamine within Zhuguang County were highlighted as a key task in the annual food safety plan (FSDOC).

Government rectification campaigns may also coincide with strike-hard campaigns but with a specific focus on government officials. Officials found to be in collusion with food safety enterprises, or who fail to punish non-compliant companies are disciplined. In 2012, the CDIC investigated over 300,000 cases related to food safety, and 40,000 officials were disciplined for negligence (Xinhua 2012b). During one recent campaign, evaluators were instructed to make certain that “officials follow all procedures, did not simplify procedures, did not recognize certifications from other counties, and kept thorough records” (FSDOC87). Government officials found to be in error were to be disciplined.

Finally, holiday investigation campaigns focus on distribution points and dining establishments prior to significant holidays during the calendar year when consumption of food is expected to dramatically increase. In September, one county’s husbandry officials visited

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21 For a discussion regarding the potentially negative effects of campaigns see Wedeman (2005); on campaign governance and its competitive role with institutionalization of a professionalized bureaucracy see Trevaskes (2002).
major points in their regulatory system, including township slaughterhouses, cold storage facilities, wholesale markets, and meat manufacturers. In addition to inspections, officers promoted food safety by passing out information pamphlets and making public food safety announcements (FSDOC82).

This section focuses particularly on the effects of strike-hard and rectification campaigns which have led to significant scale politics on the temporal scale. It also highlights the deleterious effects of government actions with a short-term policy scale. Food safety campaigns are narrowly focused and do not seek to comprehensively restructure food safety activities. Ad-hoc food safety campaigns have been launched with increasing frequency, but have further complicated the process of setting institutional procedures and converging on a unified view of food safety. As a result, campaigns have often only led to increased regulatory incoherence particularly in terms of illegibility and lack of sensitivity to on-the-ground conditions.

3.1. Illegibility of Campaigns

Many officials struggle to understand the purpose of campaigns, as campaigns have grown increasingly ineffective and work against the long-term institutionalization of regulatory procedures. Officials assert that producers know that campaigns intensify inspections only for a short period of time (YL9; WSJ 2011). In many cases, non-compliant food processors simply move to another location and continue to produce substandard foods. Moreover, officials know that producers are well-aware that they will once again fall out of government surveillance after a campaign. Officials contend that producers have now grown accustomed to this cycle. One producer confesses, “…the government usually offers no real help…but [during a campaign]…they come around and inspect and make you do a lot of paper work…” (ZZ 50). Many officials are at a loss as to why the government still initiates food safety campaigns with such a high level of frequency.

Given the constant barrage of new food safety campaigns, on-the-ground officers are finding it difficult to prioritize regulatory goals (ZZ FSC; YL 11). Many feel overworked and lack the manpower and sufficient funds to address daily food safety issues let alone special campaigns (ZZ 1). An official in one county explained that for many campaigns the government does not have the necessary equipment and samples need to be sent up to the provincial level for examination, which is costly (YL11). During the recent clenbuterol campaign, officials in another county, stopped day-to-day regulatory monitoring activities to conduct urine tests of all farms with more than 50 pigs, which included several thousand farms. Because new food safety implementation laws are still being written, food safety campaigns continue to take precedence rather than upholding the new Food Safety Law. 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…” (YL11).

Food safety experts also highlight how the logic of food safety campaigns stands in contrast to that of building a risk-based food safety system, which the Food Safety Law aspires to establish. A risk-based food safety system recognizes that food poisoning incidents are unavoidable, and that the key to developing an effective system is to assess weak points within a system and create procedures to ameliorate those risks (Balzano 2012). Campaigns, however, focus on arresting non-compliant individuals and blaming food safety incidents on “immoral” behavior, rather than instituting clear regulatory procedures for eliminating risks. A clear example of this logic at work is when Sudan Red Dye was banned by Chinese authorities in 1996:
a series of arrests were made, but clear implementation measures were not established until ten years later after the dye resurfaced (Hu 2005). Food safety experts argue that criminalizing regulatory failure simply drives non-compliant behavior underground (USDA Interview). While one cannot stop those who are intentionally circumventing regulatory procedures, a risk-based system provides the opportunity to guide and redirect uncertain producers without criminalizing them.

Rather than making the food safety system more understandable to officials, campaigns have led to regulatory confusion. Short-term targets conflict with long-term goals. Moreover, officials have increasingly come to question the purpose of campaigns as they have grown increasingly less effective over time.

3.2. Lack of Sensitivity

Local government officials are concerned by the one size fits all nature of campaigns often referred to as “one single cut” policies (yidaqie 一刀切). Often these kneejerk reactions from the central government following food safety scandals do not reflect local food safety concerns. Following a poisoning incident, the central government sends investigation teams to various localities in which a food safety problem has been identified. Food safety monitoring bodies in other localities are instructed to carry-out parallel investigations in their own jurisdictions. In recent years, food safety campaigns have targeted the use of clenbuterol in pig feed, melamine in dairy products, gutter oil, and counterfeit food products, among others. Officials are then required to arrest non-compliant individuals (Xinhua 2012a). Local officials assert that they have a better understanding of the food safety risks in their communities and argue that campaigns rarely address local food safety problems. For example, during the latest pork safety campaign, officials in one county complained that because their farmers were poor it was highly unlikely that clenbuterol had been used in production (YL 3).

County and township officials highlight that instead of short-term food safety campaigns, implementing measures of the 2009 Food Safety Law should be re-examined. In particular, officials in several counties assert that the current penalties for non-compliance are too low (ZJ 3). As a result, even when non-compliant activity is identified and the individual fined, these producers appear again later, and engage in similar non-compliant behavior. Other officials point to the need of investing in capacity building and increasing the salaries of local regulators, rather than focus on campaigns (ZZ 1; ZJ 8).

Food safety campaigns feature prominently in China’s state-led food safety strategy. Central and provincial officials use campaigns frequently to address emerging food safety crises, much to the chagrin of local officials who are put in charge of implementing them. While campaigns may address short-term goals, they lead to negative consequences for the long-term institutionalization of food safety procedures.

4. Model Production Zones

The third prong of the state’s food safety initiatives has been the development of model food production zones. State officials view modernization of the agricultural sector as key to addressing China’s food safety crisis (State Council 2007; Calvin et al 2006). In the last 9 years, agricultural development has featured prominently in the State Council’s Document Number 1, which lays out the primary goals of the central government for the legislative year. In addition, the 12th Five-Year Plan highlights the establishment of production bases as a top priority for the
central government (MOA 2011). The belief is that as farms become larger, adopt scientific procedures, and abide by global food safety standards, food safety problems will be resolved. Unlike the co-regulatory efforts explored before, model production zones are government-run projects to re-organize farmers into modern production units.

To this end, the government has established agricultural production bases (APBs) (nongyeshengchanjidi 农业生产基地) which serve as model production sites where farmers can learn new techniques and be easily monitored by government regulators (RMRB 2012). As of 2007, there were 24,600 hazard-free production bases, 593 central-level demonstration zones, 100 demonstration counties, and 3500 provincial level demonstration zones (State Council 2007). Bases are typically over 25 acres in size and specialize in a select number of cash crops. According to a policy of “one village, one product,” (yipin, yicun 一品一村) provincial and county governments select villages to produce a high-value crop, which is often a part of an agricultural branding effort (Han 2007). Training facilities are built in townships where farmers learn cultivation techniques and food safety procedures. In addition, basic food safety testing facilities are established on-site.

Local government investment in APBs is significant. In Changshu County, the government invested over 100 million RMB to establish 122 APBs (Huang 2012). In Gongmin Township, the establishment of a single pork production base cost the government 3 million RMB. First, in order for modern production facilities to be built, farmers must be cleared from their land and rehoused. Second, new bases require the installation of modern facilities. In more isolated areas, governments must also invest in basic infrastructure such as roads, power transmission, and irrigation. Third, farmers that work on these bases are entitled to various subsidies to purchase higher quality inputs such as fertilizers, feed, and new breeds. In one county, for example, farmers receive an 8000 RMB subsidy for using higher quality pig breeds and feed (ZZ21). Many governments may work with corporate partners to secure much-needed capital to develop a base. In other cases, local governments may apply for financial transfers from higher levels of government (YL1; ZZ1).

The APB policy has led to significant contention on the knowledge-related scale. Officials have different perspectives regarding the appropriate course of agricultural development, and to what extent APBs can actively disseminate new food safety practices to the broader food production population. Provincial level officials view APBs as an effective model that can both address food safety problems and food security needs simultaneously (ZZ42; ZZ55). Provincial governments have had the strongest interest in developing APBs as part of a drive to create provincial agricultural brands (ZJ 4; ZJ 15; SD 1). For example, in Ningxia Province, the provincial government has established 120 Agricultural Model Bases (xiandai nongye shifanjidi 现代农业示范基地) to produce 13 “specialized” products designated by the provincial agricultural authorities (NX 2). In addition, provincial governments APBs also provide a way to promote national food safety certification schemes.

County and township officials view APB development in less positive terms. APBs do offer increased market access for local produce, and have substantially improved farmer incomes (ZZ 56). APBs have also made food safety monitoring much easier for regulators. Concentrating farmers in a single area enables regulators to enforce standards across a production base (ZZ 38). The specialization of particular crops also helps to focus training sessions (ZJ 15). When farmers follow uniform planting schedules, pesticide applications, and harvest at the same time, regulators can more easily identify problems while not overextending their resources. However, local officials believe that the APB represents an unattainable ideal of
industrialized agriculture that is ill-suited to China’s farming context (YL 10; YL 17). These Local cadres do not view APBs as an inclusive development model that can incorporate the vast majority of food producers (ZJ 8). The benefits of high levels of investment are only enjoyed by a select group of producers. As a result of their limited reach, APBs do not drastically reduce food safety risks in the locality.

In addition, the regulatory effect of the APB model is necessarily limited due to its incremental policy scale. APBs do not incorporate all farmers within a locality. Typically, only young, well-educated, and capital endowed producers are selected to participate on a production base. In theory, the bases are to serve as training grounds for off-base producers, but in reality smaller producers are often ignored. As a result, APBs fail to facilitate a broad-based transition to safer food production is compromised. More problematically, APBs compete for resources from other development models, which may incorporate larger numbers of producers.

While there are a number of successful APBs that have been effective in addressing food safety problems, there are many others which have only contributed to regulatory incoherence. I focus specifically on APBs that have been established despite local opposition. Regulatory incoherence results as the APB model remains illegible to government officials, lacks sensitivity to local regulatory needs, and leads to uneven policy implementation.

4.1. Illegibility of the APB Model

Food safety observers have noted that many localities do not understand how to properly operate an APB. Officials often mistake an increase in production volumes as commensurate with the modernization of agricultural production. Modernization, however, entails more than the increased production of food, and requires investment in new, safer techniques and technology. One agricultural producer laments, “It’s not about industrialization. It is about modernization, and these are very different concepts. Only intelligent farming through modern technology and safer techniques will lead to food safety gains” (NX 4). In many APBs, government officials are unfamiliar with food safety best-practices. For example, in Ningxia, local agronomists were unfamiliar with developing modern warm houses and were hostile to outside experts seeking to reconfigure bases to adopt new technologies: “…of course, the local agronomists didn’t like the fact that I had entered into their territory. They had their own greenhouses, but they did not work” (NX 4).

When the APB model is forced on localities that do not understand their overall purpose in food safety development, APBs are often used to serve more political aims than they are to disseminate food safety knowledge. Some governments use APBs to develop “glamour products” to attract attention from higher levels of government. Experts have reported that in Gansu, several townships have tried to cultivate lily bulbs, which take over seven years for the first harvest (EX 1). In other areas, APBs are built around large agricultural exhibition centers to showcase local products. One agricultural expert comments, “They waste so much money…pouring money into useless demonstration farms or large bases…it’s all for show. They build large exhibition halls of they try to plant a [fancy] vegetable in the wrong place” (NX 4).

4.2. Sensitivity to local conditions

Regulators at different levels of government disagree on the extent to which APBs are sufficiently sensitive to on-the-ground conditions in terms of knowledge-practices. Provincial government officials are largely in favor of establishing APBs to facilitate a shift towards
modernized agriculture and improvements in food safety. Their argument is that APBs are not meant to be sensitive to local conditions because they are supposed to represent a new production model.

County and township governments hold that the APB model should only be established in areas with suitable logistical support and infrastructure (YL16; YL17). Developing an APB in isolated, poorly developed regions can lead to more food safety problems. Government officials from a mountainous county in Yunnan where there are few large tracts of land to build an APB, asserted that an APB would create significant problems for them. First, the lack of infrastructure makes the movement of food products in a safe, efficient manner highly challenging. Lacking appropriate cold storage and express roadways to transport fresh produce increases the likelihood of microbial contamination after the farm gate. Second, certain areas do not have the organizational capacity to train farmers to produce for large production bases. Government regulators struggle to maintain producer discipline on APBs. One official comments, “most farmers do not know how to coordinate production and to operate as part of a team” (YL10). Officials propose that cooperatives may offer a more flexible alternative to transition farmers to safer food safety practices.

Local regulators are skeptical to the extent to which many small farmers and processors can be absorbed into the formal regulatory system based on APB models. Many farming households consist of illiterate, elderly people who find safe farming techniques to be burdensome, and difficult to learn. Elderly farmers on one base assert that they are rarely invited to the training sessions on the base and that government officials largely leave them alone during the planting season. A rural NGO comments, “…large production bases tend to include only a select few farmers and at best can only address a small part of the overall agricultural production structure” (NX 5). Often regulators contend that the suzhi of these farmers is low and they are not receptive to change (YL3; YL12). A dilemma for enforcement emerges. Integrating these producers into advanced markets exposes the broader population to food safety risks, but excluding such farmers from the market provides little incentive for such individuals to adopt new food safety practices.

4.3. Uneven Policy Implementation

Local officials have complained that higher level officials obsessed with industrialized agriculture have forced them to establish APBs despite unsuitable local conditions. In such situations, local officials must expend time and resources to develop production zones that train a fraction of their producer base, while excluding the vast majority of farmers who are too old or poorly educated to operate on an APB. A bifurcated regulatory structure has emerged in which on-base production is integrated into the national system of regulation, and off-base production occurs in a regulatory grey-zone with minimal government intervention.

For those who do not operate on an APB, government surveillance is thin and food safety training minimal. Government regulators confess that because of their limited resources they are incapable of managing small farmers and household workshops. Small farmers often see government officials no more than three times a year during campaigns, or in the case of pig farmers, vaccination periods (ZZ 39; ZZ 40; ZZ 57; ZJ 21). As one farmer notes, “we rarely communicate with government officials…we are too small to matter” (YL4). In terms of off-base food processors, AQSIQ officials assert that they are unable to close all non-compliant workshops. Even during more thorough government crackdowns, small processors will re-open their operations in another area until the next major campaign (ZJ 3). As a coping mechanism,
officials try to concentrate problematic producers in certain areas in order to facilitate monitoring. While they cannot force them to stop production, they can limit their distribution channels (YL 11).

The implementation of the APB model has only contributed to regulatory incoherence. Scale politics can be severe with higher levels of government forcing lower level officials to implement a model that they are unfamiliar with in production contexts for which the model is not suited. The incremental nature of the APB initiative has led to a bifurcated regulatory structure, which excludes the vast majority of China’s producers.

5. Discussion

Table 8.3. State Initiatives, Scale Politics, and Regulatory Incoherence

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<thead>
<tr>
<th>Scale Politics</th>
<th>Coordinating Bodies</th>
<th>Campaigns</th>
<th>Model Zones</th>
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<td>Regulatory Coherence</td>
<td>Jurisdictional</td>
<td>Temporal</td>
<td>Knowledge-related</td>
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<tr>
<td>Misaligned interests, illegibility of standards, lack of sensitivity</td>
<td>Illegibility of standards, lack of sensitivity</td>
<td>Illegibility of standards, lack of sensitivity, uneven policy implementation</td>
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The domestic sector faces a serious scale problem. Because of its complex, multilevel structural scale, officials engage in intense scale politics leading to significant contention regarding the efficacy of coordinating bodies, food safety campaigns, and the creation of APBs. Although coordinating bodies are expected to streamline food safety management and realign interests across ministries, they have only contributed to more friction along the jurisdictional scale. Food safety campaigns pit officials seeking short-term fixes to China’s food safety problems, against those who advocate long-term institutionalization of regulatory norms. Model APBs which seek to disseminate best practices, struggle with officials who do not agree that APBs are the best model for training China’s farmers.

Due to intense scale politics, the policy scale of state initiatives has been incremental. None of these policies seek to fundamentally uproot the pre-existing system, nor do they function as part of a broad-based comprehensive food safety plan. Coordinating bodies were to promote “coordination” among ministries, but concrete measures for facilitating “coordination” were left unwritten due to bureaucratic turf wars. Food safety campaigns were to help focus government regulators on emerging problems, but have not been coordinated to assist regulators in institutionalizing provisions of the new Food Safety Law. APBs were to serve as a potential model for agricultural production and food safety, but their size and reach have failed to address food safety challenges in the broader market. As a result, these new policies have only led to increased regulatory incoherence in terms of misaligned interests, illegibility of standards, lack of sensitivity, and uneven policy implementation.

State initiatives to address food safety have proven ineffective. Because of the scale problem, food safety poses a uniquely different type of challenge requiring a coordinated, multilevel solution. Whereas in the past, the central government could either address governance deficits through delegating control to lower levels of government or through centralizing control to a single level of governance, scaling-down central food safety policies requires the
coordination of government regulators at multiple levels. As a result, the potential for conflict regarding the means of regulation can be severe.

The ineffectiveness of incremental policies in ameliorating scale politics points to the need for implementing comprehensive food safety reform. Coordinating bodies should be discarded in favor of a fundamental restructuring of the food safety system. Food safety campaigns should play a less prominent role in food safety management, and institutionalization of rules and procedures should be emphasized. APBs may serve as models for food safety, but if these models represent unreachable ideals for the vast majority of uneducated farmers, another more broad-based approach should be embraced.

China’s Food Safety Law took over 6 years of deliberation before being passed in the National People’s Congress (Thompson & Hu 2007). Even now the law is being challenged by producer groups, government officials, and consumers. Implementing measures are still being written. Many are highly skeptical that the FSL will serve as the template for coherent food safety governance. A comprehensive food safety reform package must be developed with appreciation for the intense scale politics involved in policy solutions directed towards integrated governance.

Are there other ways in which China can manage its scale problem? To address food safety in China, can new frameworks of governance be developed to attenuate the politics of scale and to make the adoption of comprehensive policy more feasible? Must China’s entire system of food safety governance be altered to address the scale problem? These questions will be addressed in the concluding chapter.
Chapter 9. In Search of Solutions to the Scale Problem

China’s scale has proven to be a significant challenge as it tries to develop a national food safety regime. Even as actors seek to work with one another to create an integrated, coherent regulatory system, the lack of a clear solution to address China’s embedded “scale problem” poses a serious impediment to effective governance.

Previous chapters discussed the limitations of producers developing a self-regulatory system based on social trust in the CSA market; export sector participants building an elite regulatory system emphasizing direct adaptable control; state-industry partnerships integrating small farmers in advanced supply chains; and state-led initiatives to integrate China's vast food safety bureaucracy. In the CSA and export systems, food safety governance solutions worked well. However, scaling-up and scaling-down these successful, but limited, structural scale systems proved inadequate. Particularly, in the domestic sector where policies needed to be coordinated in a multilevel context across jurisdictional, spatial, temporal, and knowledge-related scales, participants could not develop a unified view about how to address food safety on a comprehensive, country-wide basis. As a result, a coherence deficit emerged in which policies led to misaligned interests, illegibility of standards, insensitivity to on-the-ground conditions, and uneven policy implementation.

The scale problem in food safety was presented in two dimensions. First, China faces a structural scale problem. Given the country’s highly fragmented, multilevel governance system, China has not been able to coordinate an ever-increasing number of actors, each with their own views regarding food safety. The second major aspect of the scale problem concerns how to establish a regulatory regime with a comprehensive policy scale that fundamentally restructures incentives to address food safety. In essence, the scale problem in food safety relates to a broader question about how to embrace institutional diversity, while at the same time establishing a common framework to coordinate the activities of many participants. Does China have the tools to coordinate actors within and across scales to deal with its food safety problems? Is there a solution to China’s overarching scale problem?

When framing the problem in terms of a multilevel, multi-scale polity, one could argue that the “scale problem” has been at the heart of China’s governance challenge for centuries. The Chinese behemoth has long been concerned about how to establish control of her distant localities, while maintaining, at least, the semblance of a unified polity (Fairbank 1973; Schwartz 1973). As the imperial system fell into disarray at the turn of the 20th century, other approaches for organizing the state, such as federalist arrangements, were fiercely debated by Chinese intellectuals such as Chen Duxiu, founder of the Chinese Communist Party, and Hu Shi, a Republican era public intellectual (Waldron 1990). Ultimately, a firm view regarding the need for a strong central state to prevent the disintegration of the polity took hold. The Chinese Communist Party inherited this tradition of centralized governance. While the designers of the new government did not explicitly address a “scale problem,” they sought to develop a framework in which a highly heterogeneous system could converge on a single, unified aim of socialist reconstruction. Within that context, scholars have shown that China has always been a highly fragmented system (Lieberthal & Oksenberg 1988; Mertha 2009).

In previous chapters, I focused on the challenges that China’s regulators, producers, and civic organizations encounter as they transition from a fragmented to an integrated approach to governance. This chapter seeks to end on a more hopeful note by extending the discussion “in search of” multilevel solutions to the scale problem in food safety.
Effective transition to multilevel governance is based on the premise that “modern governance (should be) dispersed across multiple centers of authority” (Hooghe & Marks 2003). Scholars have put forward a host of new governance frameworks, including networked governance, federalist solutions, and confederations. Polycentricity, as opposed to monocentric forms of governance, refers to a framework of multiple authorities with overlapping jurisdictions: “Each unit exercises considerable independence to make and enforce rules within a circumscribed domain of authority for a specified geographical area” (Ostrom 2005). Polycentric frameworks can generate more relevant information at multiple scales. When local systems fail, larger systems can intervene to restore stability and ensure common standards among actors. These systems reflect a collaborative approach to governance involving multiple levels.

In the broader governance literature, scholars are increasingly moving away from models that focus on top-down (centralization) or bottom-up (decentralization) approaches to governance. These approaches emphasize situating authority at either the central or local levels of governance – a single-level solution. Although decentralized systems do confer the benefits of local knowledge, better adapted rules, and lower enforcement costs, they are often ill-equipped to address large-scale problems that affect multiple communities (Andersson & Ostrom 2008). By contrast, centralization may streamline governance, but often adopt policies that ignore local traditions, which results in high levels of non-compliance (Dietz et al 2003). The challenge therefore is to develop a multilevel framework that combines the strengths of both approaches, and mitigates the effects of their respective weaknesses.

China has not developed a multilevel solution to its scale problem, but it has adopted many strategies to try to reduce the consequences of scale on governance. Part one of this concluding chapter will examine why China’s use of centralization and decentralization, and regulatory segmentation, has grown increasingly ineffective to address problems within and across multiple scales. Part two will consider lessons from China’s notable success in safety regulation in its aviation sector. Part three will present potential strategies to address the scale problem and the feasibility of their implementation in China. Finally, the dissertation concludes with some thoughts on the future of food safety in China.

1. A deeper look at Centralization/Decentralization and Regulatory Segmentation

To address the scale problem, the Chinese state has turned to centralization and regulatory segmentation. Both approaches emphasize the simplification of scale as a way to facilitate integrated governance. Centralization addresses complexity by imposing a single view on all actors in the polity, while regulatory segmentation seeks to bring coherence to one sector at a time. Neither of these governance approaches are multilevel solutions.

To understand the rationale for centralization and decentralization in the Chinese system, we must examine China’s basic governance framework. China developed a system of governance based on a unitary state adopting the “line and block” (条块 tiaokuai) system. The “lines” (条 tiao) refer to central ministries that are represented at each level of government. The “blocks” (块 kuai) refer to local governments. Central directives are to be transferred down the tiao and implemented in accordance with the needs of the kuai. The primary challenge of the state is to determine the appropriate level of centralization for policies to balance the needs of the center and localities.
Although the *tiāo-kuai* system is organized on multiple levels, it is *not* a multilevel governance framework in which power is dispersed across multiple centers of authority. In China, the authority to govern is always delegated by the center, which can retract that power at any time. This system emphasizes a unidirectional form of governance in which the center enforces policy from the top-down, with few formal channels by which local initiatives can scale-up. When they are scaled-up, it is by central fiat, in which the center selects a “local” model that has to be implemented nationwide, often at the expense of other local initiatives. Local autonomy is fleeting as governments frequently alter policies on the basis of a new policy line extending from the center.

While the primary coordinating mechanism of governance in China has been the use of centralization and decentralization, in the last 30 years, China has experienced waves of “releasing” (*fang* 放) authority to local governments and “gathering” (*shōu* 收) power back to the central level. At the outset of reform, localities were granted fiscal control and encouraged to pursue their own course of development, which unleashed rural markets from state planning facilitating a fundamental transformation of the rural economy in a decade (Oi 2004). However, when the center went nearly bankrupt in the 1990s, the center “re-centralized” control of fiscal policy (Zhang 1999). This scenario of devolving and centralizing control has been played out in other policy areas. The government has experimented with soft-centralization, and placed control of personnel and funding allocations at the provincial level (Mertha 2005). Party organizations in the financial sector have been employed to control local officials (Heilmann 2005). In terms of industrial policy, the central state has “re-regulated” strategically important industries, placing them directly under central control (Hsueh 2011).

Scaling-up and scaling-down, however, describes a different process than China’s more typical governance strategy of centralization or decentralization. Centralization and decentralization impose the views of actors at a single-level in the governance system on all other actors, whereas scaling policy is a multilevel, collaborative process. In terms of food safety, for example, centralization involves eliminating all local food safety standards in favor of a unified food safety law that is conceived and designed by the center with little input from other localities. A multilevel solution would seek to create a framework that preserves local laws but ensures their compliance with a common food safety standard.

From the perspective of multilevel, multi-scale governance, alternating centralization or decentralization approaches to governance is ineffective in addressing multilevel problems, and often exacerbates coherence deficits. For example, (1) centralization, enforcing policies from the top-down, or decentralization which emphasizes a bottom-up approach, typically reflect the interests of a single-level of government; (2) top-down approaches cannot accommodate institutional diversity and will often run roughshod over local interests; and (3) bottom-up approaches fail to provide solutions at higher levels and can lead to increased fragmentation.

In the case of food safety, one requires a multilevel approach. A central level authority must govern the common market, setting standards for all players. There can be little deviation from these standards. This is particularly true in food safety where not only the outcomes must be standardized, but the food safety processes themselves must meet technically verified and widely accepted standards. However, central government actors cannot manage food safety as the primary monitors of food safety compliance. Central government regulators lack the local knowledge to develop sensitive regulations. Control must be delegated to local level regulators who must be given the authority to develop their own solutions to address regulatory problems but, in the case of food safety, comply with a baseline national standard.
Many food safety experts, however, have advocated a top-down approach to regulation, focusing exclusively on state capacity building and the benefits of centralization on food safety outcomes (Tam & Yang 2005). In other words, they have largely emphasized a single-level solution rather than a multilevel one. For example, a 2005 policy report by the Asian Development Bank highlights the need for increased regulatory centralization and implementation of coherent food safety standards. Scholars have generated other policy papers on government food traceability systems, meat safety protocols, and punishment protocols for non-compliers (Li et al 2009; Xie et al 2009; and, Tang et al 2009).

As the chapters on the domestic sector have shown, food safety policies must scale-up and scale-down on a variety of scales, otherwise coordination fails. Information must be communicated up and down each level of government. When conflicts arise between various actors, mechanisms must be established to reconcile differences. Local actors must understand how their actions have ramifications for the development of the entire system. Central actors can steer local governments, but should leave actual governance to street-level bureaucrats. The pursuit of short-term goals at the central level cannot obstruct the development of long-term institutions locally. This system is not without its drawbacks; it is more complex than a centralized system, and coordination costs can be high (Termee et al 2010; McGinnis 2005).

Polycentric, multilevel systems have the ability to harness diversity while pursuing a course of integrated governance, in a way that centralized governance cannot. Scholars have shown how multilevel policing arrangements in the United States (Ostrom 2010) and forestry management systems in Latin America (Andersson & Ostrom 2008) have successfully followed key principles of polycentric governance to overcome what are, in effect, problems of scale. Studies on river management policies in the Netherlands have also shown that effective multilevel governance arrangements are possible when a strong state helps to set a broad agenda for reform (Termee et al 2010). These multilevel approaches succeeded where central control has failed.

Another strategy the state has employed to contend with scale is a strategy I call “regulatory segmentation.” Segmentation reduces the cross-level and cross-scale mismatches by limiting the structural scale of a governance system. Rather than developing an encompassing regime, which applies equally to all producers, segmentation enables the state to devote resources to a particular set of producers that are higher risk, or are better able to comply with new rules. The logic behind segmentation is built on a common state practice in which the state experiments and fine-tunes a particular sector’s regulatory practices before rolling out policies on a national scale (Heilmann 2011). This was the approach taken with respect to China’s agricultural liberalization policies in the late 1970s, the establishment of special economic zones as testing sites for market reform in the 1980s, and the promotion of private enterprise in the late 1990s.

Segmentation may be used to gradually implement policies in a sector because comprehensive reform might be impractical given costs and lack of technical capacity. For example, China has created a dual regime in coal mine safety regulation. Large, state-owned mines were subject to a complete overhaul of mine safety protocols, while local, small mines were left largely outside this new system of surveillance (Wright 2004). Segmentation may also reflect the state’s strategic concerns in industrial policy. China’s “commanding heights”—its largest, and most sophisticated firms—are subject to a different regulatory regime from its

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22 Asian Development Bank (2005); the report does discuss allowing civic groups to participate in food safety regulation, but its emphasis was on a reorganization of the state agencies involved in food safety.
broader economy. Enterprises that are part of the state’s industrial policy program are granted
subsidies, tax privileges, and preferential policies (Pearson 2005).

China’s export sector food safety system presented in Chapter 5 may also be viewed as
an example of regulatory segmentation. It is a closed system, which enables the government to
tailor the sector to the food safety demands of trading partners without overhauling its entire
regulatory apparatus. The General Administration for Quality Supervision, Inspection, and
Quarantine (AQSIQ) restricts the number of exporters by a strict licensing system and subjects
exporting plants to extra inspections. The system is distinct from the domestic regulatory system,
which is led by a food safety commission comprised of representatives from five different
ministries, where enforcement is comparatively lax (Gale & Buzby 2009).

Regulatory segmentation helps to address the scale problem by altering the structural
scale of the system and by making a comprehensive policy more feasible. Segmentation delimits
the system to a certain class of producers, who share a relatively unified vision regarding food
safety. Restricting participation to a select group also makes it more likely that producers face
similar incentives, market pressures, and food safety risks. As a result, scale politics are less
severe and mismatches can be easily realigned, and a coherence deficit does not obtain.
Comprehensive policy is also easier to implement under these scale conditions.

However, as Chapters 4 and 6 show, challenges related to scaling-up and scaling-down
suggest that expanding a system through regulatory segmentation is highly problematic. Policies
that work effectively in systems of limited structural scale may not be effective in another setting.
Policies may benefit from high levels of social trust or direct control, which cannot be replicated
in a multilevel, multi-scale context. As a result, such approaches may be subject to significant
policy sinkhole effects in the broader sector.

2. Lessons from a Successful Case?

A brief examination of China’s most notable, and perhaps only, successful experience in
country-wide safety regulation, national aviation safety, may provide guidance on how to solve
China’s scale problem. Suttmeier (2008) explores how China’s Civil Aviation authority
developed into a High Reliability Organization (HRO). Prior to the late 1990s, China’s aviation
safety record was one of the worst in the world. In 1992 alone, 5 major crashes led to over 300
deaths. The regulatory system involved a patchwork of small, municipal airports. Planes were
in disrepair and their pilots lacked formal training. However, beginning in 1998, China quickly
managed to build a first-class aviation system, and now has the second largest aviation system in
the world (WSJ 2013).

To reform and restructure its aviation system, China pursued a strategy of “scale
reduction.” That is, the aviation safety system was deliberately sized down to involve a select
number of levels across a variety of scales. The central government forcibly shutdown non-
compliant companies and slowed the growth of the sector to ensure that it would not outpace
regulatory development. In terms of the jurisdictional scale, aviation standard setting and
controls were vested in the central government and restricted to large municipalities. In terms of
knowledge-related scales, participants were primarily oriented towards global aviation safety
standards; municipal standards and local airport operating procedures were quickly removed. In
terms of networks, the system involved a select number of international airline carriers and large
national aviation companies. Airports in smaller cities were closed and excluded from the new
system. As a result, coordination of activities was far less complicated compared to food safety.
It is important to note, however, that there is now some concern that, as new smaller airports are being built across the country, the expansion of the aviation sector may once again be outpacing regulatory capacity.

The aviation system’s small structural scale enabled the government to implement a large-scale comprehensive aviation safety plan without significant political opposition (Pasztor 2007; Chung 2003). With assistance from the Boeing group, Airbus, and the US Federal Aviation Authority, China engaged in a complete overhaul of its aviation industry. In 1998 new regulations were established. Those who opposed the new regulatory framework were no longer permitted to use the nation’s airways. While large national aviation companies did initially resist new standards, international pressures eventually forced them to accede to the new safety regime.

Pursuing a course of scale reduction would certainly solve many of China’s food safety problems, but it is politically infeasible. First, China cannot simply reduce the size of the food production sector because it must also secure an ample food supply to feed its population. Limiting production to only large, modern units would not be able to meet domestic food demand. Second, many of China’s farmers depend on the sale of their agricultural product for their livelihood. Denying small, widely-dispersed farmers the right to enter agricultural markets would pose serious, and obviously politically unacceptable, consequences.

If the reduction of scale is not a viable solution to China’s food safety problems, are there other potential strategies to contend with scale?

3. Multilevel Solutions in the Making

Despite the state’s preference for centralization, regulatory segmentation, and scale reduction to address governance problems, other institutional innovations may offer a multilevel solution to China’s scale problem in food safety. Specifically, a new approach to inter-provincial relations which resembles a federalist arrangement may help mitigate scale politics and provide a framework for integrated governance.

Formally, China is a unitary state, but it has allowed some experimentation with quasi-federalist solutions in food safety. In 2006, following the discovery of excessive carcinogens in turbot fish from Shandong, the Shanghai, Beijing, Guangzhou, and other provincial governments closed their markets to farm raised fish from Shandong province. The Shanghai FDA sent an investigative team to the province to investigate fish farming practices in Weihai and Rongcheng. During the course of the investigation, the widespread use of nitrofuran and chormycelinin was discovered (Xinhua 2006).

Thompson and Hu (2007) highlight an innovative development in inter-provincial regulatory relations that emerged during the Turbot fish incident. Shandong quickly established bilateral agreements with provinces that had closed their markets to its farmed fish. Agreements between Shandong and other provinces provided for the orderly reopening of markets pending investigations confirming that the Shandong provincial authorities implemented effective food safety measures to monitor fish feed. In 2007, for example, the Shanghai Fisheries Association and the Shandong Fisheries Association took appropriate steps to ensure that Shandong food safety procedures met established standards. Technical assistance was provided and a new supply chain management system was implemented bilaterally. These agreements were brokered without central government intervention, suggesting tacit approval from the central authorities of these new bilateral, interprovincial arrangements to improve food safety.
This arrangement, which could be called “quasi-regulatory federalism,” refers to a framework in which provinces retain regulatory authority within their own markets and can deny market access to producers from other provinces who fail to meet their regulatory standards. In order for provinces to distribute food in other markets, they must develop bilateral agreements to establish common standards. The system helps to address the scale problem by shifting regulatory authority to the provincial level. While this does not eliminate scale politics entirely, it can mitigate its severity. Regulators are closer to the ground and can develop strategies that are better suited to local production conditions. Moreover, provincial level authorities can quickly integrate new information into its food safety management systems. In terms of developing a comprehensive regulatory solution, standardization on a national level is achieved gradually as provinces enter into agreements with one another regarding food safety. The province-by-province approach breaks the scale problem into more manageable parcels.

A major drawback to this system is that there are no formal mechanisms by which to mitigate tensions between provinces. This is a valid concern as demonstrated in the early 1980s when local protectionism balkanized China’s internal market for certain resources (Montinola et al 1995). When such disputes inevitably arise, the central state will be required to adjudicate and determine to what extent quasi-federalist rules are enforceable. Given the central government’s aversion to formal, federalist solutions, this informal system is unlikely to override centralized command-and-control approaches to food safety.

Turning to potential models outside of China, policy-makers may find that the EU’s multilevel approach to food safety has been effective in addressing its scale problem. The 2002 EU Food Safety Law has significantly influenced Chinese policymakers in the drafting of the 2009 Food Safety Law (EU Interview). Despite the EU and China’s obvious differences in terms of market and regulatory development, both polities do face similar scale challenges. First, both the EU and China must coordinate actors at multiple levels in highly complex systems with their own regulatory traditions. Second, both entities govern sub-units with varying levels of regulatory capacity, different supply chain management styles, and highly variable geographical conditions. Finally, both the EU and the Chinese central government must ensure uniformity of standards across the common markets they govern. Consumers must not only be protected from unsafe food in home markets, but also food from other jurisdictions.

The key guiding principle of the EU’s integrated, multilevel regulatory system is the concept of “mutual recognition” in which a product deemed to be safe for circulation by one member state, should be considered safe by all (Ansell & Vogel 2005). 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. Following a series of food scandals in the 1990s, the EU reorganized its food safety regime. Member states still retained the right to manage food safety, but also had to comply with a more comprehensive bill on General Food Regulations, which set a common baseline for food safety. At the EU level, the DG SANCO was established, which would audit member state food safety systems. In addition to new central level bodies, multilevel information systems were established. The EU’s Rapid Alert System for Food and Feed (RASFF) system was put into place in which EU member-states and other third countries would notify RASFF of serious food safety problems. The strengths of different levels of government were harnessed to facilitate information sharing and regulatory coordination.

The EU’s system of regulation addresses the scale problem in the following ways. First, the system emphasizes jurisdictional clarity. Issues regarding the common market are clearly under the jurisdiction of the Commission. Member states, which possess far more local
knowledge than the EU, are in charge of developing their own regulatory systems to monitor food safety. Second, multilevel coordinating bodies have been established to facilitate information flows such as the RASSF, and actively transmit food safety information up and down the knowledge-related scale. Third, member states are represented at each of the EU-level bodies and can actively participate in the development of common market regulatory policies.

By contrast, the Chinese system has adopted a highly centralized approach to food safety, emphasizing the primacy of the central state in not only standardizing, but monitoring, and sanctioning food safety behavior. An important provision in the FSL mandates that localities may only create standards if no central standards on the same issues exist. In addition, while in the EU, DGSANCO is primarily concerned with ensuring harmonization and policing the common market, in China the central government has established new food safety committees at each level of government. As a result, central mandates often conflict with local realities creating unnecessary scale politics.

4. Discussion/Comparison of Solutions

Table 9.1. Comparison of Various Scale Solutions

<table>
<thead>
<tr>
<th>Levels</th>
<th>Centralization/Decentralization</th>
<th>Regulatory Segmentation</th>
<th>Scale Reduction (Aviation Safety)</th>
<th>Quasi-Regulatory Federalism</th>
<th>EU-Multilevel Multilevel Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale Solution</td>
<td>Unified governance based on single-level</td>
<td>Limit structural scale Defined scope of reform.</td>
<td>Scale Reduction</td>
<td>Jurisdictional clarity, informal multilevel agreements</td>
<td>Jurisdictional Clarity, formal multilevel agreements</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>Moderate (?)</td>
<td>High</td>
</tr>
<tr>
<td>Political Feasibility</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Moderate</td>
<td>Low</td>
</tr>
</tbody>
</table>

There will always be trade-offs in dealing with the “scale problem” in all of its complex and interdependent moving parts. In the past, the centralization and decentralization paradigm has served the country well in addressing its scale problem by limiting governance of any issue to a certain level of government. Either the central government intervened and directed cadres to follow central government aims, or cadres were permitted to develop their own innovative solutions for their localities. This approach, however, does not take into account the multilevel nature of food safety policy.

Regulatory segmentation has been highly effective in improving food safety outcomes by focusing regulatory efforts in a sector with limited structural scale. The main trade-off of this approach is that it can only address regulatory challenges in the long-term by gradually transforming one delimited sector at a time. Moreover, there is no assurance that policies that work well at a limited structural scale will be as effective in a multilevel context.

Scale reduction has also provided successful outcomes in facilitating integrated governance. Deliberately slowing down the growth of a market in order for regulatory capacity to develop helps to reduce regulatory incoherence. However, given China’s food security concerns and issues regarding farmer welfare, scale reduction is not a realistic solution to address its food safety problems in the broader polity.
Alternative solutions in the form of quasi-regulatory federalism or multilevel governance arrangements may provide more flexible and effective solutions to the scale problem. Quasi-regulatory federalism enables provinces to develop their own regulatory systems that suit their local conditions. As products circulate in other provinces, provinces can establish informal bilateral agreements to audit one another’s safety systems. However, the central government has always been suspicious of federalism because it could also trigger increased calls for autonomy in other areas of governance that could be politically destabilizing.

The EU model offers the clearest solution to China’s scale problem in food safety, yet it is the most politically infeasible. The multilevel approach would delimit the authority of the central government, which would only govern the “Chinese common market” and actively facilitate positive integration of provincial food safety systems. Provinces would be empowered to develop their own food safety systems, but would have to abide by a minimum national food standard to engage in commerce in other provincial markets. In addition, provinces would be guaranteed representation in central level decision-making bodies concerning the development of common market standards, risk assessments, and enforcement policies. The primary problem, however, is that the multilevel framework would require a reconfiguration of China’s monocentric governance structure. Multilevel governance would in many ways only seem to promote the same fragmentation that Chinese policymakers have actively tried to avoid, even though its effect would be beneficial if the issue of scale politics were addressed.

China’s most recent reform proposal, the creation of the General Food and Drug Administration seeks to consolidate and clarify food safety responsibilities under a single ministry. However, ultimately, the new reform does not address the multilevel scale problem. When looking at this new super ministry through a multiple scale lens, it becomes clear that this latest proposal is just another attempt at centralization. One commentator even suggested that the new ministry could apply “command-and-control” techniques to address “known” problems where the central state could “severely punish” those who broke the law (Xinhua Interview 2013).

Perhaps, during this latest iteration of reform, the state will be able to deploy enough money and manpower to force food safety actors across the diverse polity to heed central commands. However, I suspect that scale politics will once again re-emerge to confound, confuse, and prevent the establishment of a coherent system. Who will staff this ministry at the local level? How will the new central ministry integrate local knowledge to discover emerging problems? Why should officials at other levels of government listen to yet another coordinating body that is unfamiliar with local circumstances?

5. Ending Thoughts

My primary objective has been to diagnose the pathologies of China’s food safety ills, informed by a fundamental governance challenge that has always confronted China – its scale problem. China must attempt to coordinate governance across multiple scales. Addressing mismatches is always challenging, but when government regulators, producers, and consumers attach themselves to particular scales, severe scale politics result, preventing effective policy reform.

China’s struggle to address its scale problem arises from the absence of an effective strategy to address scale politics. Specifically, it does not have a strategy to contend with multilevel governance. Long-held attachments to centralized government make a transition to
effective multilevel solutions in food safety difficult. Attempts to address governance challenges through either centralization or decentralization are likely to grow less effective in this new policy context where the pressures arising out of complex and interdependent market forces call for new policy initiatives. I have tried to move beyond a discussion of the merits of centralization and decentralization, and suggested another approach to multilevel governance in China to develop an effective food safety system for her people based upon a fuller appreciation of the problem of scale.

Scholars working on challenges China faces in other areas, such as environmental governance, resource management, and public health may also see China’s need for a multilevel governance framework. These issue areas pose similar challenges to those of food safety where localities are extremely heterogeneous, but must be governed by a unified standard. The bottom and top of a variety of scales must be seamlessly integrated: local knowledge must be integrated with scientific research; local policy solutions must not disrupt long-term central goal setting; and jurisdictions must accurately map onto the size of a problem. Due to a lack of a multilevel coordinating mechanism, scale politics in these areas have been severe leading to significant tensions between central and local officials.

Food safety is just one of a number of governance problems China will continue to face. Will China be able to develop a new approach involving multi-level management, coordination of large, complex common markets, and compliance with transnational legal regimes? Failing to address the fundamental issue of scale will lead to significant coherence deficits. Even if new laws are written to address new governance problems, these laws are likely to be less effective, and possibly detrimental to existing conditions, if state officials, transnational bodies, and private actors cannot coordinate their actions within and across scales.

John King Fairbank had it right: the Chinese behemoth thus represents the ideal test case for how to govern with scale. While China’s scale has long been its governance “curse,” how China chooses to re-integrate its fragmented system will prove instructive for other multilevel polities such as India, the EU, Russia, and Indonesia, among others. New strategies for scaling-up and scaling-down need to be explored. Mechanisms for ameliorating scale politics should be discussed. How to better determine the appropriate policy scale for a problem needs to be examined.

All interested China watchers hope that China solves its scale problem and soon. A “real-world” consequence of scale is that whatever happens in China has important global ramifications. Few could have predicted that China’s recent infant formula crisis would precipitate a global milk powder shortage, as hundreds of thousands of mainland Chinese tourists are now hoarding cans of milk powder on the shelves of foreign supermarkets.

With Chinese food exports constituting an ever-greater market share of foreign food supplies, China’s food safety problems may quickly become a problem for the rest of the world. Even more significantly for China, the state’s inability to provide its citizens with food that is safe to consume foreshadows a real crisis of governance. Corruption and inequality may constitute a longer term challenge to the Party’s authority. But the lack of food safety, which threatens basic human survival, could be potentially explosive, confirming the basic truth of the old adage that “all nations are but seven meals from revolution.”
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