

The Regulatory Regime of Food Safety in China

A Systemic not Accidental Failure

Guanqi Zhou



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Department of Politics and International Studies
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Abstract

During the previous decade from 2004 to 2013, people in China witnessed both skyrocketing number of food safety crises, and aggregating regulatory initiatives attempting to control these crises. Indeed, numerous food safety crises promoted intuitional reforms and innovations, together with adoption of complex rules and legislation within the regulatory regime of food safety, multiple cycles of “crisis—regulatory efforts”, however, still indicated the systematic incapacity of the food safety regime to tackle with crises. Therefore, the fundamental research problem that structures this thesis is to understand the causes of this systemic failure in the “social foundations” for the regulatory governance of food safety.

The thesis locates the proximate causes of the regulatory failure of food safety regime in China in the regulatory segmentation of the regime. This thesis is supported by the differential impacts of the food regulatory regime on various consumer groups. Through compartmentalised regulatory arrangements, the regulatory segmentation reduced the political incentives for enforcement and compliance of food safety regulations, directly leading to unbalanced distribution of regulatory incentives and resource in which the benefits of the food safety regime were felt mostly by well-connected and affluent consumer groups. Conversely it impacted adversely on poorer and vulnerable consumer groups. Such uneven food safety level has further been intensified through a compound of emerging factors in China: politicised social stratification, deepening economic liberalisation, modernisation of the food industry, food trade, and growing food chain and demand.

This thesis analyses how this system of regulatory segmentation has been historically embedded into the food safety regime in China, and how it has further been stabilised and institutionalised over time. Based on the theoretical framework construction and historical review, the thesis explains how this segmented food safety regime has been delivering benefits and burdens among different sectors of population, unevenly unfortunately, through analysing different aspects of food safety management. A key contribution of this thesis is to identify and locate the social foundation for this segmented regulatory system, which in turn helps to explain the systemic failure of the food safety regime in China.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and, where applicable, any partner institution responsible for the joint-award of this degree. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968. I also give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library catalogue and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

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List of Abbreviations

ACFSMC	All China Federation of Supply and Marketing Cooperatives
ASEAN	Association of Southeast Asian Nations
AQSIQ	Administration of Quality Supervision, Inspection and Quarantine
BMELV	Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz (Federal Ministry of Food, Agriculture and Consumer Protection of Germany)
CAC	Codex Alimentarius Commission
CASS	Chinese Academy of Social Science
CCDC	China Centre for Disease Control
CCP	China Communist Party
CFDA	China Food and Drug Administration
CFIA	Canadian Food Inspection Agency
CFSA	China National Centre for Food Safety Risk Assessment
CFSAN	Centre for Food Safety and Applied Nutrition
CIQ	China Inspection and Quarantine
CNCA	Certification and Accreditation Administration
CNRRI	China National Rice Research Institute
CNY	China Yuan
CQC	China Quality Certification Centre
CSA	Community Supported Agriculture
DAFF	Department of Agriculture, Fishery and Forestry
DEHP	Di 2-Ethyl Hexyl Phthalate
EFSA	European Food Safety Authority
FAO	Food and Agriculture Organisation

FDA	Food and Drug Administration
FSA	Food Standard Agency
FSANZ	Food Standards Australia New Zealand
FSC	Food Safety Commission (of Japan or China)
FSIS	Food Safety Inspection Service
FSL	Food Safety Law of the People's Republic of China
GAC	General Administration of Customs
GAP	Good Agricultural Practice
GDP	Gross Domestic Products
GMP	Good Manufacturing Practice
GMO	Genetically Modified Organism
HACCP	Hazard Analysis and Critical Control Point
ISO	International Standardisation Organisation
LAO	Legislative Affairs Office of the State Council
MAFF	Ministry of Agriculture, Forestry and Fisheries
MEP	Ministry of Environmental Protection
MFA	Ministry of Foreign Affairs
MHLW	Ministry of Health, Labour and Welfare
MIIT	Ministry of Industry and Information
MLR	Ministry of Land Resources
MOA	Ministry of Agriculture
MOC	Ministry of Commerce
MOF	Ministry of Finance
MOFCOM	Ministry of Commerce and Trade
MOH	Ministry of Health
MOS	Ministry of Supervision
MOST	Ministry of Science and Technology
MPS	Ministry of Public Security

MRL	Maximum Residue Limit
NPC	National People’s Congress of PRC
NHFPC	National Health and Family Planning Commission of People’s Republic of China
NDRC	National Development and Reform Commission
NSBC	National Statistics Bureau of China
PBSC	Politburo Standing Committee
PRC	People’s Republic of China
QS	Quality Safety
RMB	Renminbi
SAG	State Administration of Grain
SARF	Social Amplification of Risk Framework
SARS	Severe Acute Respiratory Syndrome
SAT	State Administration of Taxation
SAIC	State Administration for Industry and Commerce
SCIO	State Council Information Office
SFDA	State Food and Drug Administration
SOE	State-owned Enterprise
TBT	Technical Barrier to Trade
TSB	Tri-State Biodiesel
USD	USA Dollar
USDA	United States Department of Agriculture
WFZ	Weisheng Fangyi Zhan (Sanitation and Anti-epidemic Stations)
WHO	World Health Organisation

Introduction

The research problem

In commencing my doctoral program I introduced my research to other PhD candidates as a study of food safety regulations in China. The immediate reaction was to ask: “is there even any food safety regulation in China?”, followed by comments and questions such as: “Chinese students are always going home with suitcases of milk powder”, “are you immune to ‘gutter oil’”¹, and “what should we eat when we travel in China?”. In an attempt to explain the nature of my topic, I pointed out that there were, in fact, regulations governing food safety, and indeed that these regulations have become more stringent over the years. What intrigued me in choosing this topic, as I tried to convey to my fellow students, was the fact that food safety incidents and their impacts were experienced unevenly across different sectors of the population.

Nevertheless, I still found it rather difficult to articulate the reasons for the countless food safety crises that occurred despite new and more rigorous regulations and legislation designed to tackle these crises and, more importantly, why food safety was perceived to be so much worse than it actually was in China. Furthermore, simply attributing China’s food safety problems to widespread “lax enforcement”² and regulatory implementation failure³ does not explain why some food in China is so safe that it can meet the safety standards of the most stringent food importers in the world.⁴

This led me to think about a series of questions: despite the adoption of complex rules and legislation, why the regulatory system demonstrated a systematic incapacity to cope

¹ One food safety crisis in China was the case of cooking oil adulterated with recycled oil. Some of the recycled cooking oil was collected from gutters, so the adulterated oil was generally referred to as ‘gutter oil’.

² Edward I. Broughton and Damian G. Walker, "Policies and Practices for Aquaculture Food Safety in China," *Food Policy* 35, no. 5 (2010): 472.

³ See for example: Hong-Gang Ni and Hui Zeng, "Law Enforcement Is Key to China's Food Safety," *Environmental Pollution* 157, no. 7 (2009).; Hon-Ming Lam et al., "Food Supply and Food Safety Issues in China," *The Lancet* 381, no. 9882 (2013); Yongning Wu and Yan Chen, "Food Safety in China," *Journal of Epidemiology and Community Health* 67, no. 6 (2013). Jiehong Zhou and Shaoshen Jin, *Food Safety Management in China: A Perspective from Food Quality Control System* (London and Hangzhou: World Scientific Publishing Co. Pty. Ltd., 2013); Chenhao Jia and David Jukes, "The National Food Safety Control System of China – a Systematic Review," *Food Control* 32, no. 1 (2013).

⁴ Joanna Bonarriva and Marin Weaver, "China's Agricultural Trade: Competitive Conditions and Effects on US Export," ed. U. S. International Trade Commission (Washington. D.C.: U.S. International Trade Commission, 2011), 21.

with food safety crises in China? What explains the fact that during the previous decade, from 2004 to 2013, people in China witnessed a skyrocketing number of food safety crises in their domestic food market at the same time as ever-accelerating regulatory initiatives attempting to prevent those crises? Why did successive rounds of regulatory efforts prove not only to be ineffectual in dealing with food safety crises, but even oversaw an increase in food safety crises, peaking in 2011 and 2012 after the issuing of the *Food Safety Law of the PRC* in 2009⁵ and the establishment of Food Safety Commission with an unprecedentedly senior leadership in 2010?⁶

Low food safety standards appeared to be a widespread phenomenon, but in reality this appearance masked a more complex and variegated picture of food safety risks. A closer observation of food safety crises in China further indicates that food safety – or rather, vulnerability to food safety risk – is not uniformly distributed amongst consumers of food produced in China. For example, China continued to export food despite negative publicity stemming from a series of food safety crises. In fact, two of the countries with the most rigid import standards, Japan and the EU,⁷ are the major importers of China's food.⁸ This does seem to indicate that different consumer groups – in this case, domestic and overseas consumers – encounter different levels of food safety.

Indeed, some food produced in China can reach high safety benchmarks, such as food for foreign consumers. Furthermore, rich consumers' preference for non-mass-produced food from organically certified farms has become so prevalent that those farms developed quickly adjacent to developed regions. Affluent consumers' demand for safety and high-quality food also boosted China's food imports, such as meat and dairy products imported from Australia.⁹ But meanwhile, domestic consumers – who are neither politically privileged nor have access to abundant economic resources – continued to bear the brunt of food safety crises. This leads to my key question: what

⁵ NPC of PRC, "Food Safety Law of the People's Republic of China," Xinhua News Agency, http://www.gov.cn/flfg/2009-02/28/content_1246367.htm.

⁶ General Office of the State Council (PRC), "Announcement on Establishment of of Food Safety Commission of State Council," http://www.gov.cn/zwjk/2010-02/10/content_1532419.htm.

⁷ John Kojiro Yasuda and Christopher Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles," *Regulation & Governance* (2014).

⁸ Bonarriva and Weaver, "China's Agricultural Trade: Competitive Conditions and Effects on US Export," 21.

⁹ See for example: ANZ, "China's Great Beef Challenge," (Global Agribusiness Research, 2014); Dairy Australia, "Market Brief China," (Dairy Australia Limited, 2014).

are the incentives within the regulatory system that led to this uneven distribution of food risks amongst different sectors of the population?

The coexistence of different levels of food safety suggests that the answer to my central puzzle could lie in the design and the underlying dynamics of China's food safety regulatory governance rather than in the simple institutional failure of the regulation. More specifically, the level of food safety is highly dependent upon the economic and political location of consumer groups. This interdependence led me to the fundamental proposition that the economic and political location of consumers and the associated social interests create incentives for these groups to initiate, perpetuate and entrench the segmented system of food safety regulation, and this segmented system accounted for varying food safety levels in China. Based on this proposition, my research will consider why and how this segmented system operates and its effects on the different sectors of population.

The social foundation of regulatory segmentation

This, in a nutshell, is my argument: the systemic regulatory failure of China's food safety regime can be explained by the segmentation of the regulatory regime. Most crucially, this segmentation, while it is rooted in different institutional forms and systems of regulation, serves to sustain and entrench the different treatments of politically and economically stratified consumer groups. In particular, the thesis argues that the differential incidence of food risks is systematically related to the way in which different consumer groups are situated and treated within the segmented food safety regulatory system. How various consumer groups are treated differently is the core content of the three analytical chapters (five to seven). For instance, food for export is produced in a separate and ring-fenced production system, and subject to a regulatory setting differentiated from that of the domestic food sector. Hence, a key contribution of this thesis is to identify the major factor behind systematic food safety crises that entrenches a particular system of segmented regulatory governance – the social foundation of the food safety regime. In this way, the thesis goes beyond the literature on food safety in China which has sought to locate these failures in the nature of the

regulatory institutions, such as the lack of “a unified regulatory agency”,¹⁰ or the absence of “harmonised regulations”.¹¹

In this thesis “regulatory segmentation” refers to the restriction of the application of regulations to a specific sector, a limited number of actors, a particular region, or a certain group of people and often reflects the state’s strategic concerns and industrial policies.¹² Regulatory segmentation is not unique to China. In even the most liberal market systems beyond China, successful markets can be conditioned by how governments use their regulatory systems.¹³ Segmentation is not a new feature in Chinese regulations either. For example, distinctive patterns of strategic state intervention underpinned the different regulatory patterns in various industrial sectors. As a result, regulatory segmentation occurred between telecommunications and textiles,¹⁴ and between “economic lifeline” industries (strategic industries, such as finance) and others.¹⁵

The Chinese government certainly retains a crucial role in the emerging “regulatory state” regardless of its form.¹⁶ Public administrative reforms in the 1990s facilitated the rise of regulatory agencies in China.¹⁷ Since then, the debate has been open as to whether these emerging regulatory institutions are operating at arm’s length from government and with politically insulated expertise,¹⁸ which is the crucial idea of regulatory state.¹⁹ The core of this debate is how independent these institutions are from

¹⁰ Chen Shumei, "Sham or Shame: Rethinking the China's Milk Powder Scandal from a Legal Perspective," *Journal of Risk Research* 12, no. 6 (2009): 737.

¹¹ Xiumei Liu, "International Perspectives on Food Safety and Regulations – a Need for Harmonized Regulations: Perspectives in China," *Journal of the Science of Food and Agriculture* 94, no. 10 (2014): 1928.

¹² Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles."

¹³ Neil Fligstein, "Markets as Politics: A Political-Cultural Approach to Market Institutions," *American Sociological Review* 61, no. 4 (1996).

¹⁴ Roselyn Hsueh, *China's Regulatory State: A New Strategy for Globalization* (Ithaca and London: Cornell University Press, 2011).

¹⁵ Margaret M. Pearson, "Governing the Chinese Economy: Regulatory Reform in the Service of the State," *Public Administration Review* 67, no. 4 (2007): 719.

¹⁶ "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State," *World Politics* 57, no. 2 (2005).

¹⁷ Lan Xue and Kaibin Zhong, "Domestic Reform and Global Integration: Public Administration Reform in China over the Last 30 Years," *International Review of Administrative Sciences* 78, no. 2 (2012).

¹⁸ Karen Yeung, "The Regulatory State," in *The Oxford Handbook of Regulation*, ed. Robert Baldwin, Martin Cave, and Martin Lodge (Oxford: Oxford University Press, 2010).

¹⁹ See for example: OECD, *OECD Reviews of Regulatory Reform: China 2009* (OECD Publishing); Dali L. Yang, *Remaking the Chinese Leviathan: Market Transition and the Politics of Governance in China* (Stanford and California: Stanford University Press, 2004); Shaoguang Wang, "Regulating Death at Coalmines: Changing Mode of Governance in China," *Journal of Contemporary China* 15, no. 46 (2006).

political interventions in China. In other words, if the decision-making process of these regulatory institutions is subject to political involvement by government or other interest groups, will it lead to different regulatory patterns, or regulatory segmentation?

In the rise of the regulatory state in China, regulatory segmentation indicates the position of regulatory governance on a spectrum. At one end of the spectrum is a “rules-based” world, where “governance challenges and contexts are resolved through the careful and consistent application of rules.”²⁰ The other end is a “deals-based” world, where negotiation, with unconstrained space for deal-making, is the dominant mode.²¹ Studies of industry and sector based regulatory segmentation²² suggest that some industries/sectors were closer to the “rules” end of the spectrum than others, and similarly, urban-rural regulatory segmentation²³ suggested that some regions were closer to the “deals” end in China.

My argument, while resembling aspects of this distinction between rules and deals, seeks to locate the segmentation not in the formality or informality of rules but rather in the differential application and impact of rules on different categories of consumers. The argument here suggests that the segmented regulatory system – far from being the result of technocratic mistakes or a backward system – may indeed be the institutional form of a regulatory state with “Chinese characteristics”. This is the broader aim of the analysis in this thesis: it considers what those characteristics are, and how they impact on the operation of the segmented food safety regime and various consumer groups.

Michael W. Dowdle, "Beyond the Regulatory State: China and "Rule of Law" in a Post-Fordist World," Governance and Globalization Sciences Po in China, <https://hal-sciencespo.archives-ouvertes.fr/file/index/docid/1069424/filename/beyond-the-regulatory-state.pdf>.

²⁰ Navroz K. Dubash and Bronwen Morgan, "The Embedded Regulatory State: Between Rules and Deals," in *The Rise of the Regulatory State of the South*, ed. Navroz K. Dubash and Bronwen Morgan (Oxford University Press, 2013), 280.

²¹ Ibid.

²² See for example: Hsueh, *China's Regulatory State: A New Strategy for Globalization*; Pearson, "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State; "Governing the Chinese Economy: Regulatory Reform in the Service of the State."

²³ See for example: Michael Lipton, *Why Poor People Stay Poor: Urban Bias in World Development* (Cambridge: Harvard University Press, 1977).; Jean Oi, "Reform and Urban Bias in China," *Journal of Development Studies* 29, no. 4 (1993).; Tiejun Cheng and Mark Selden, "The Origin and Social Consequences of China's Hukou System," *The China Quarterly* 139(1994).; Mark W. Skinner, Alun E. Joseph, and Richard G. Kuhn, "Social and Environmental Regulation in Rural China: Bringing the Changing Role of Local Government into Focus," *Geoforum* 34(2003).; Keyong Dong and Xiangfeng Ye, "Social Security System Reform in China," *China Economic Review* 14, no. 4 (2003).; Dali L. Yang, "Economic Transformation and State Rebuilding in China," in *Holding China Together*, ed. Barry J. Naughton and Dali L. Yang (Cambridge, New York, Port Melbourne, Madrid, and Cape Town: Cambridge University Press, 2004).; Fang Cai, "Hukou System and Unification of Rural-Urban Social Welfare," *China & World Economy* 19, no. 3 (2011).

As I observe, this segmented system allows various consumer groups to be treated differently rather than offering a unified application of food safety standards and regulations to all food consumers alike. For example, while food safety information is a public good and is in fact provided to foreign consumers, it is sold to affluent domestic consumers, who pay a premium for food with clear and transparent food safety information. Some domestic customers who are not economically affluent (or politically powerful) could have poor access to risk information concerning their major staple food, rice (the focus of the case study discussed in Chapter Six).

This current system of regulatory segmentation has its historical origins in the establishment of the food safety regime in China in the early 1950s, and has been stabilised and institutionalised over time (as I will show in Chapter Three). Similar to other forms of regulatory segmentation in various industries and sectors in China, the segmentation in the food safety regime reflected redistributive politics²⁴ in which the benefits of food safety management were not evenly spread. The segmented food safety regime led to compartmentalised regulatory arrangements, which further resulted in the unbalanced distribution of regulatory incentives and resources. Consequently, the benefits of the food safety regime were felt mostly by well-connected and affluent consumer groups. Conversely, these policies and the consequent segmentation impacted adversely on poor and vulnerable consumer groups. The distinct effects of the food safety regime upon different consumer groups highlight the relationship between regulatory segmentation and the power and wealth of different social classes. I hypothesise that the social foundation for regulatory segmentation in the food safety regime lies in the social class-based consumer fragmentation in China their associated political and market power.

The concept of social class is controversial in China due to its heavily politicised role in Mao Zedong's triumph over the Nationalists,²⁵ the Cultural Revolution, and its political role in creating and excluding different sectors of the population.²⁶ As a result, the alternative concept "stratum" was instead used to identify various social groups during

²⁴ Dubash and Morgan, "The Rise of the Regulatory State of the South."

²⁵ David Goodman, *Class in Contemporary China* (Cambridge and Malden: Polity Press, 2014).

²⁶ Kelly David, "Between Social Justice and Social Order: The Framing of Inequality," in *Unequal China: The Political Economy and Cultural Politics of Inequality*, ed. Waning Sun and Yingjie Guo (Abingdon: Routledge, 2013).

the period of rapid economic development and social change in the post-Reform era.²⁷ A person's social stratum is fundamental in determining their possession of power, privilege, wealth and their social status, which shapes their lifestyle, consumption patterns and access to resources.²⁸ People from one or several social strata with a similar resource structure and consumption patterns will cluster into the same consumer group. Each consumer group's organizational authority, economic, and cultural resources²⁹ ultimately became the political power and market power they possessed. A key objective of this thesis is to test the proposition that the political and market power of fragmented consumer groups became the social foundation for various groups to create, consolidate and stabilise the regulatory segmentation of the contemporary food safety regime, in which either segmented regulatory arrangements can be shaped by political compulsion, or in which a public good (such as food safety information) can be privatised and purchased.

Food safety levels in China vary across different sectors of food consumers, but the variation is most clear-cut for four main consumer groups: the politically privileged, affluent consumers, ordinary domestic consumers, and foreign consumers. The politically privileged are a group consisting of mainly government cadres above a certain level and a small number of politicised economic elites. This group sits at the top stratum of Chinese society and is politically influential.³⁰ Affluent consumers are the new rich who appeared during and after the Reform period (after 1978)³¹ with increasing economic, social and political influence. It is largely composed of the upper-middle class and has strong purchasing power.³² Ordinary domestic consumers include the vast majority of people, ranging from the middle class to the bottom of Chinese social stratification spectrum. It includes the most vulnerable people, such as rural

²⁷ Xueyi Lu, *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]* (Beijing: Chinese Academy of Social Sciences, 2002).

²⁸ *Ibid.*, 9.

²⁹ *Ibid.*

³⁰ Hanlong Lu and Yanjie Bian, "Inequality in Reform and Social Economy from the Perspective of Citizen Status," in *Social Stratification in China Today*, ed. Peilin Li, Qiang Li, and Liping Sun (Beijing: Social Sciences Academic Press, 2004).; Zhiyong Gao, "Beijing Shi Kunnan Shiqi Shangpin Gongying Zhuiji [Beijing Commodities Supply in Difficult Times]," *Yanhuang Chunqiu*, no. 8 (2007).

³¹ The Third Plenary Session of the 11th Central Committee of the Chinese Communist Party was held in 1978, and it signalled the beginning of marketization and economic liberalisation of China.

³² David Goodman and Xiaowei Zang, "The New Rich in China: The Dimension of Social Change," in *The New Rich in China: Future Rulers, Present Lives*, ed. David Goodman (London and New York: Routledge, 2008).

inhabitants³³ and laid-off workers.³⁴ Foreign consumers are inhabitants of China's trading partners who consume food exported from China. Hence, my segmentation analysis will be mainly based on those four consumer groups.

To test this relationship between regulatory segmentation and food safety crises, I selected the decade from 2004 to 2013 as the key research period. In addition to the availability of data, the reason for studying this period of time is that within this decade I have observed two concurrent trends. One is the successive rounds of regulatory initiatives that were mobilised to address food safety crises after the public administrative reforms of the 1990s. The other is that a record number of food safety crises occurred towards the end of this period after these successive rounds of initiatives.³⁵ Moreover, the outcome of applying food safety regulations was intensified via a combination of emerging factors in China during the period, including quickening marketization, deepening social stratification, modernisation of the food industry, and a rapidly growing food chain. The concurrence of those two trends suggests a systemic failure of the overall food safety regime in China.

The failure of the food safety regime is the failure of a system that aims to regulate, control and manage food risks. In an increasingly lengthy and complicated food chain from farm to fork, risks need to be recognised and assessed, communicated and managed.³⁶ Therefore, food risk regulation itself involves multifaceted dimensions: proper food safety standards should be in place for regulators to recognise and assess food risks; regulators should establish and maintain accessible channels to provide and communicate food risk information; and managing food risks requires proper

³³ Cartier Carolyn and Jessica Rothenberg-Aalami, "Empowering the "Victim", " *The Journal of Geography* 98, no. 6 (1999).; Tan Yan, Graeme Hugo, and Lesley Potter, "Rural Women, Displacement and the Three Gorges Project," *Development and Change* 36, no. 4 (2005).; Yin Zhang and Guanghua Wan, "The Impact of Growth and Inequality on Rural Poverty in China," *Journal of Comparative Economics* 34, no. 4 (2006).

³⁴ Yongshun Cai, "The Resistance of Chinese Laid-Off Workers in the Reform Period," *The China Quarterly* 170(2002).; Dorothy Solinger, "Labour Market Reform and the Plight of the Laid-Off Proletariat," *The China Quarterly* 170(2002).; Mark Wang, "New Urban Poverty in China," *International Development Planning Review* 26, no. 2 (2004).

³⁵ Heng Wu and Volunteer team, "China Food Safety News Database " ZCCW.info, <http://www.zccw.info/index>.

³⁶ See for example: Erik Millstone and Patrick Van Zwanenberg, "The Evolution of Food Safety Policy– Making Institutions in the UK, EU and Codex Alimentarius," *Social Policy & Administration* 36, no. 6 (2002); Erik Millstone, "Science, Risk and Governance: Radical Rhetorics and the Realities of Reform in Food Safety Governance," *Research Policy* 38, no. 4 (2009); Karolina Zurek, "Social Implications of Europeanisation of Risk Regulation and Food Safety: Theoretical Framework for Analysis," *Yearbook of Polish European Studies* 11(2007).

compliance by food producers and effective regulatory implementation by food regulators. This multi-dimensionality is reflected in the risk regulatory regime model suggested by Christopher Hood, Henry Rothstein and Robert Baldwin, who addressed three essential components of any risk regulation regime: standard-setting, information-gathering and behaviour-modification.³⁷

Risk regulatory regime – conceptual framework

This thesis uses the risk regulatory regime model developed by Hood and his colleagues primarily because these three components of standard-setting, information-gathering and behaviour-modification highlight the core dimensions of food risk regulations. Standard-setting is about setting goals, targets and guidelines,³⁸ which is the foundation for recognising and assessing food risks. Information-gathering is about collecting and communicating risk-related information,³⁹ which emphasises food regulators' responsibility in providing the public good of food safety information to all consumers. Behaviour-modification in general refers to the changes of individual and organisational behaviour for improving the regulatory regime,⁴⁰ and it points out the importance of the implementation of food safety standards, regulations and laws by both food producers and regulators. Hood, Rothstein and Baldwin further argued if any of those components fails, this risk control system would fail to keep a preferred subset of all its possible states,⁴¹ which reflects the importance of effective coordination among food regulators who play different roles in managing these three different components.

More importantly, I attempt to use this model to demonstrate the complicated relationship between regulatory segmentation across each of these three components and the fragmented consumer groups. Safety benchmarks followed by food for some consumer groups are higher than for others; some groups have better access than others to food safety information (which itself has varying degrees of reliability); and the implementation of food safety regulations is more effective for some groups than for others. I need to demonstrate this entanglement because it indicates that consumer

³⁷ Christopher Hood, Henry Rothstein, and Robert Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes* (Oxford and New York: Oxford University Press, 2001).

³⁸ *Ibid.*, 26.

³⁹ *Ibid.*, 26-27.

⁴⁰ *Ibid.*

⁴¹ *Ibid.*

groups with strong political and market power secure the benefits of food safety management in these three components through institutionalising the regulatory segmentation, which entrenched the segmented food safety regime.

While this model is useful, it contains some problematic assumptions when applied to the food safety regime in China. First, it assumes a uniform system of regulatory rules and risk management. Second, its heavy institutional emphasis fails to account for the underlying social interests that sustain this regulatory regime.

Hence, I modified these two premises to help the model fit into China's political and economic context and to test my proposition about the relationship between regulatory segmentation and the fragmentation of consumer groups. First, I hypothesise that the food safety regime is not unified. Instead, the segmentation of the regime enabled compartmentalised arrangements for various fragmented consumer groups, such as different levels of access to food safety information. Second, I analyse the distinctive social interests and resources of these four consumer groups because they play a crucial role in compartmentalising the food safety regime and the uneven levels of food safety that follow from this compartmentalisation.

This modified risk regulation model will help me to identify and analyse how the food safety regime has been segmented in all three components and for the four identified consumer groups. I will examine each of these three components throughout Chapters Five to Seven by drawing on three empirical case studies. Based on this model, I will show the intersection of regulatory segmentation across different components of the food safety regime and consumer groups with their distinctive underlying power and influence. This intersection, I argue, is the crux of why successive rounds of regulatory initiatives failed to abate the overall low food safety levels in general, and the uneven impacts of food safety crises upon various groups in particular.

Thesis structure

There are seven chapters in this thesis. After the literature review in Chapter One and the introduction of the modified conceptual framework in Chapter Two, Chapter Three introduces how the contemporary food safety regime was established with special attention paid to the regulatory segmentation in the regime. Chapter Four gives an

overview of the food safety crises that occurred in China in this period, with a focus on how regulatory segmentation affected the distribution of food risks. Chapters Five to Seven analyse the effects of segmentation upon the three components of the food safety regime as suggested by Hood, Rothstein and Baldwin's model, and link them to the segmentation argument. These three chapters all conclude with a case study illustrating regulatory segmentation within the specific regulatory component, and its outcome.

Chapter One reviews the literature on regulation, risk regulation regimes, food safety regulations, the regulatory state and segmentation in China, and the social foundation of the fragmentation of consumer groups. This review will reveal a gap in the regulatory research through segmentation approach among the existing arguments concerning the establishment of the regulatory state in the global South in general and in China in particular. This is a gap which this research will focus on through the case study of the regulatory regime of food safety in China. This review will also reveal and develop the argument that regulatory segmentation based on the fragmentation of consumer groups is the crucial reason for the systemic failure of the food safety regime in China.

Chapter Two introduces and modifies the conceptual framework for the study of food safety as a mode of risk regulation. The framework builds and expands upon the model of risk regulation regimes developed by Christopher Hood and his colleagues⁴² to analyse the three specific components of the food safety regime in China. As explained earlier, I modified this model to emphasize the political and economic context of China in which the food safety regime is embedded. In particular, this chapter examines how social class divisions impacted on the fragmentation of consumer groups through each group's access to economic and political resources. This became the fundamental factor in shaping and stabilising the regulatory segmentation of the food safety regime, and is the core of this research.

Chapter Three analyses how the current food safety regime gradually emerged and how regulatory segmentation has been created, stabilised and streamlined over time. The period from 1949 to 2013 is divided into four stages and each stage is analysed through the key regulatory changes that occurred, with special attention paid to the formation of the regulatory segmentation. This chapter emphasises the regulatory structure of the food safety regime during the last stage from 2004 to 2013 (the main research period to

⁴² Ibid.

be analysed). The key point of this chapter is to argue that the segmentation of regulatory responsibilities has been based on the political and economic situations of consumer groups and that the regulatory segmentation of the food safety regime has been embedded historically and stabilised over time.

Chapter Four reviews the food safety crises that have occurred over the past four decades, with a focus on the decade from 2004 to 2013. This chapter identifies seven categories of food risks that occurred mainly in the domestic food market. The majority of them, both in category and number, had the most impact upon ordinary domestic consumers, especially the vulnerable and the poor from the lower and lower-middle classes in underdeveloped regions. The key point here is that such varying food safety levels and unevenly distributed food risks are effects of regulatory segmentation. In this chapter, the central contention is that food safety crises have differential effects on each of these fragmented consumer groups due to the regulatory segmentation of the food safety regime. It is this differential impact that is at the heart of the research problem in this thesis.

In Chapters Five to Seven I discuss the three different components of the risk regulation framework outlined above. These three chapters highlight the regulatory segmentation in each component and the resulting effects on food safety benchmarks, access to food safety information, and the effectiveness of food safety implementation. Cumulatively, these three chapters describe how regulatory segmentation in each of the three components of risk regulation led to the failure of the food safety regime. A case study at the end of each chapter demonstrates how the concentration of systematic problems within the segmented food safety regime affected ordinary domestic consumers, and illustrates why they are the major victims of food safety crises in China.

Chapter Five starts with the regulatory segmentation of food safety standard-setting. In China, food safety standards have been segmented in respect to the group of foreign consumers and the domestic food sector by way of standards rigidity and the level of protection that is offered to consumers. Food for foreign consumers operates under a different set of safety standards, which are more rigid, elaborate, and offer more protection in most cases. I further support this argument with an illustrative case that compares tea exported from China with tea consumed in domestic food market. This case will demonstrate the substantial gap in the safety benchmarks for tea consumed by

these two different groups. The key proposition of this chapter is that the regulatory segmentation of food safety standard-setting creates a higher safety benchmark for food for foreign consumers than that for the domestic food market.

Chapter Six focuses on that the regulatory segmentation of food risk information-communication has created segmented access to information for the fragmented consumer groups. This has meant better access to this public good for the politically privileged and for foreign consumers, and affluent consumers have been able to opt to purchase the access to food risk information. In comparison, ordinary domestic consumers have had the worst access to food risk information and this has driven them to alternative information sources. The chapter emphasises how the failure in public good provision to ordinary domestic consumers caused fundamental problems of distrust towards food regulators, negative food risk perception, and risk amplification among the group. Each of these problems has added a layer of difficulty in communicating food risk information to this group, and made food regulators' attempts to establish effective communication channels and re-establish trust ineffectual. The case of heavy metal polluted rice that concludes the chapter illustrates how ordinary domestic consumers' lack of access to food risk information is a failure of food risk communication due to segmentation. By demonstrating how some groups had better and more reliable access to information about food risks, this chapter argues that the regulatory segmentation in food risk information-communication changed the nature of food safety and risk information as a public good; rather than being provided to all consumers alike, it became accessible only to some consumer groups.

Chapter Seven analyses the impact of regulatory segmentation on behaviour-modification and how this led to different patterns of implementation depending on the distinctive political and market power of various fragmented consumer groups. This chapter points out that effective implementation of food safety standards and regulations is determined by the interaction between food consumers, producers and regulators. In particular, food consumers can influence the ways that regulators implement food safety regulations through the exercise of their political and economic power. In this chapter I argue that due to regulatory segmentation, various consumer groups could use their political and market power and resources to create distinctive incentive systems which in turn could shape the implementation of food safety regulations by both food

regulators and producers. We will see that food produced for the politically privileged was regulated in an exclusive supply system, and food for foreign consumers was regulated by a single regulator within a closed production system. The group of affluent consumers had strong market power to create incentives for food producers to achieve a high degree of implementation. The group of ordinary domestic consumers, who are politically powerless and economically poor, failed to exert political compulsion or market influence, and failed to influence effective food safety implementation by producers and regulators. As a result, this group faced a series of systematic biases within the segmented implementation of regulations, including corruption, agency fragmentation and low cost of non-compliance. All these biases are discussed by analysing the case of adulterated cooking oil at the end of the chapter. This chapter proposes that the different impacts of regulatory implementation on various consumer groups were sustained by the different incentive systems which these consumer groups created. This chapter concludes that major problems in regulatory implementation were felt mainly by ordinary domestic consumers.

In conclusion, this thesis argues that the historically-embedded and institutionalised regulatory segmentation in the food safety regime is based on the core social foundation—the social class-driven consumer fragmentation, and that fragmentation in turn consolidates regulatory segmentation of the food safety regime. In other words, the failure of the food system is systemic and rooted in the social foundation of the segmented regulatory governance of food safety in China. The conclusion then teases out the implications of my framework for producing better and more effective food safety regulation that takes due cognizance of the social foundation of regulatory segmentation. This thesis – though not located within the literature of law and society – is situated in the emerging literature on the regulatory state in China. Nonetheless, it makes a contribution in both fields by emphasising the importance of understanding regulatory failure in terms of the broader social interests that sustain segmented patterns of regulatory governance in China.

Chapter 1

From Regulation to Systemic Regulatory Failure

This chapter contains a review of literature on regulation, risk regulatory regime, food safety regulations, China's regulatory state and segmentation, and the social foundation for regulatory segmentation in China. The chapter concludes by suggesting that examining the Chinese case provides valuable insight into developing and modifying food safety regulation literature. In particular, this examination builds on existing arguments about establishing a regulatory state in China, industry- (or sector-) based regulatory fragmentation, and urban-rural regulatory segmentation. Through providing another perspective for understanding the regulatory state in China, this literature review highlights the research focus as the relationship between regulatory segmentation and the systemic failure of China's food regulatory regime.

Literature Review

Regulation and markets are inextricably linked, as we do not live in an efficient market—such as the one depicted by Adam Smith. In order to face the outcomes of imperfect market (e.g., conventional market failure,¹ irrationality, and distributive injustice), we require government interventions in the forms of taxation, subsidies, redistribution, public ownership, and regulation.² Although it is difficult to gauge which interventions are better than others, regulation expansion had been observed even in the “era of deregulation”.³ One of many reasons for this is that regulations are designed for an increasingly broad range of purposes: to protect social as well as economic interest⁴ and to restrict or facilitate competition.⁵

¹ Spencer Henson and Bruce Traill, "The Demand for Food Safety: Market Imperfections and the Role of Government," *Food Policy* 18, no. 2 (1993).

² Joseph E. Stiglitz, "Government Failure Vs. Market Failure: Principles of Regulation," in *Government and Markets: Towards a New Theory of Regulation*, ed. Edward J. Balleisen and David A. Moss (Cambridge: Cambridge University Press, 2009).

³ Robert Baldwin, "Regulation Lite: The Rise of Emissions Trading," *Regulation & Governance* 2, no. 2 (2008).

⁴ N. Scott Arnold, *Imposing Values : Liberalism and Regulation* (Cary, NC, USA: Oxford University Press, USA, 2009). 120-35.

⁵ Giandomenico Majone, "From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance," *Journal of Public Policy* 17, no. 02 (1997): 141-46.

Regulation

There are many ways to define *regulation*. For instance, Philip Selznick defines *regulation* as “sustained and focused control exercised by a public agency over activities that are socially valued”⁶. In the meantime, Robert Baldwin and Martin Cave deemphasise “public agency” and generalise *regulation* as “the promulgation of a binding set of rules to be applied by a body devoted to this purpose”⁷, while David Levi-Faur suggests an even more comprehensive definition that covers multiple aspects:

“Regulation is the promulgation of prescriptive rules as well as the monitoring and enforcement of these rules by social, business, and political actors on other social, business, and political actors. These rules will be considered as regulation as long as they are not formulated directly by the legislature (primary law) or the courts (verdict, judgement, ruling and adjudication).⁸

Levi-Faur’s definition covers the cores of regulation – rules-design and enforcement of regulation – and highlights the multiple actors participating in regulation, thus forming *regulation* into a systematic idea. This “system” feature is emphasised by Julia Black⁹, Christopher Hood, Henry Rothstein and Robert Baldwin¹⁰, and other scholars. Hood and his colleagues take a step further and use “regime” to express the complexity of regulation – echoing Krasner’s definition of *regime* as the “principles, norms, rules, and decision-making procedures around which actors’ expectations converge in a given area”¹¹. So, the present research makes use of Levi-Faur’s definition due to its emphasis on multiple regulatory participants – which is the background for food safety regulation in China.

Regulation and market liberalism do not meet in conflict. If market liberalism is divided into modern and classical liberals, and regulations are designed for economic and non-

⁶ Colin Scott, "Privatization and Regulatory Regimes," in *The Oxford Handbook of Public Policy*, ed. Robert E. Goodin, Michael Moran, and Martin Rein (Oxford: Oxford University Press, 2006), 653.

⁷ Robert Baldwin and Martin Cave, *Understanding Regulation: Theory, Strategy and Practice* (Oxford: Oxford University Press, 1999).

⁸ David Levi-Faur, "Regulation & Regulatory Governance," in *Jerusalem Papers in Regulation & Governance* (Mount Scopus and Jerusalem, Israel: The Hebrew University, 2010), 8.

⁹ Julia Black, "Regulatory Conversations," *Journal of Law & Society* 29, no. 1 (2002): 170.

¹⁰ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 12.

¹¹ Stephen D. Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," *International Organization* 36, no. 2 (1982): 185.

economic goals, the compatibility of market and regulations may vary but does not disappear.¹² David Vogel believes that regulations may be used to liberalise trade and profit the public.¹³ Further, social regulations are believed to offer protection for the domestic public,¹⁴ boost necessary political development in the market,¹⁵ and ensure that transactions are voluntary – a key presupposition of market economy.¹⁶ Moreover, in a crisis-prone market, regulations are believed to have frequently saved people from desperation following risks, crises, and disasters. Braithwaite uses the word “cyclical” to describe this feature of regulations,¹⁷ and Fiona Haines explains this cycle as a crisis providing soil for regulation expansion, followed by another crisis.¹⁸ The cycle of crisis-regulation in the market has been observed in different arenas – one of many is the arena of food safety regulation in EU, US, and China.

Regulations are expected to be multifunctional. Regulation is a tool used to control and enforce,¹⁹ to encourage restorative justice,²⁰ and a channel for realising “strategic values”.²¹ Further, regulations are expected to minimise risks, control cost, maintain market order, modify certain behaviours, protect certain groups, and/or promote interests. Regulations can be divided into two general groups: economic regulations aiming to promote *competition*,²² and non-economic regulations aiming to make people’s lives safer by *eliminating or reducing risks* or exposure to risks.²³ Both arenas are vital and often intertwine in reality, with the risk reduction function more noticeable at times – in the post crisis era, for instance. Indeed, understanding regulation is vital for

¹² Arnold, *Imposing Values : Liberalism and Regulation*: 120-35.

¹³ David Vogel, "Social Regulations as Trade Barriers: How Regulatory Reform Can Also Help Liberalize Trade," *Brookings Review* 16(1998).

¹⁴ Alasdair R. Yong and Peter Holmes, "Protection or Protectionism? EU Food Safety and Wto," in *What's the Beef? : The Contested Governance of European Food Safety*, ed. Christopher Ansell and David Vogel (Cambridge, MA, USA: MIT Press, 2006), 281.

¹⁵ Christopher Ansell and David Vogel, "The Contested Governance of European Food Safety Regulation," in *What's the Beef?: The Contested Governance of European Food Safety*, ed. Christopher Ansell and David Vogel (Cambridge, MA, USA: MIT Press, 2006), 5-10.

¹⁶ Arnold, *Imposing Values : Liberalism and Regulation*: 137.

¹⁷ John Braithwaite, *Regulatory Capitalism: How It Works, Ideas for Making It Better* (Cheltenham and Massachusetts: Edward Elgar, 2008). 32.

¹⁸ Fiona Haines, "Regulatory Failures and Regulatory Solutions: A Characteristic Analysis of the Aftermath of Disaster," *Law & Social Inquiry* 34, no. 1 (2009): 31.

¹⁹ Levi-Faur, "Regulation & Regulatory Governance," 2.

²⁰ Ian Ayres and John Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (New York and Oxford: Oxford University Press, 1992).

²¹ George L. Priest, "The Origins of Utility Regulation and the "Theories of Regulation" Debate," *Journal of Law and Economics* 36, no. 1 (1993).

²² Majone, "From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance," 141-46.

²³ Stephen Breyer, *Breaking the Vicious Circle: Toward Effective Risk Regulation* (Cambridge and MA: Harvard University Press, 1993). 3.; and Arnold, *Imposing Values : Liberalism and Regulation*: 120.

China due to China's increasingly frequent use of regulatory tools that gradually replace direct political intervention as a heritage of command economy; understanding regulation may also contribute to the continuously contested scholarly focus about how China's regulatory state differs from that in the North.

Risk regulation

“Regulation is not just about risk”²⁴; however, regulation of risks is growing in popularity and significance. Some scholars argue that a government's ability to identify, assess, and manage risks is becoming a criterion for evaluating government performance²⁵ – indeed, regulation is increasingly regarding risk management.²⁶ Food safety regime in China is no exception – here, regulatory performance is judged by how well food risks are controlled and managed.

There are many ways to define the concept of risk. Hood and his colleagues argue that *risk* is conventionally defined as a probability (not necessarily calculable in practice) of adverse consequences.²⁷ Within the framework of regulation, *risk* is understood as an unwanted by-product of an essentially productive endeavour.²⁸ In the modern world, *risk* has a much wider coverage compared with older dangers.²⁹ For instance, Ulrich Beck's broad definition of *risk* comprehensively covers both traditional and modern risks – describing risks faced by regulators today and reflecting the difficulties and potential failures in today's risk regulation. According to Beck:

“[R]isk may be defined as a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself”; “[risks] are consequences which related to the threatening force of modernization and to its globalization of doubt”; and “[risks are] all radioactivity, which completely evades human perceptive abilities, but also toxins and pollutants

²⁴ Julia Black, "The Role of Risk in Regulatory Processes," in *The Oxford Handbook of Regulation*, ed. Robert Baldwin, Martin Cave, and Martin Lodge (Oxford: Oxford University Press, 2010), 347.

²⁵ Nikolas Rose, *Powers of Freedom: Reframing Political Thought* (Cambridge and New York: Cambridge University Press, 1999).

²⁶ Bridget M. Hutter, *Regulation and Risk: Occupational Health and Safety on the Railways* (Oxford and New York: Oxford University Press, 2001).

²⁷ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 3.

²⁸ Fiona Haines, "Three Risks, One Solution? Exploring the Relationship between Risk and Regulation," *The ANNALS of the American Academy of Political and Social Science* 649, no. 1 (2013): 35.

²⁹ Ulrich Beck, *Risk Society: Towards a New Modernity* (London, Thousand Oaks and New Delhi: Sage Publications, 1992). 19.

in the air, the water and food stuffs, together with the accompanying short- and long-term effects on plants, animals, and people”.³⁰

Regulations are necessary in order to control risks. Anthony Giddens, Beck, and other scholars observe that regulations accompany technological advances so as to manage the risks emerging from those advances.³¹ In fact, risk regulation is applied throughout a wide range of areas – both traditional and modern – such as food safety, work safety, chemicals, pharmaceuticals, transportation, nuclear power, and even financial engineering. Risk regulation for managing modern risks needs to cover areas that produce new risks (e.g., nuclear energy) as well as traditional areas that create sophisticated risks by using modern technologies (e.g., food safety). Development and adaptation of risk regulation has facilitated the development of “risk regulation regime”,³² which Hood defines as “the complex of institutional geography, rules, practice, and animating ideas that are associated with the regulation of a particular risk or hazard”.³³

In the case of food safety management, risk regulation is essential, yet challenging. The traditional concept of food hygiene is overshadowed and complicated by modern food risks³⁴ due to a growing food chain and new processing methods, chemical additives, and gene technologies. In the meantime, food risks – modern ones in particular – are usually without immediate and acute effects, yet often remaining ambiguous and unknown while the coverage of food risk increases.³⁵ Indeed, risk regulation was rendered fundamental for food safety management as the latter supplied a rich source of risks for human beings, with risks developing from “known knowns” to “known

³⁰ Ibid., 21-23.

³¹ Anthony Giddens, *The Consequences of Modernity* (Cambridge: Cambridge University Press, 1990).

³² Black, "The Role of Risk in Regulatory Processes," 305.

³³ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes: 9*.

³⁴ Sandra Buchler, Kiah Smith, and Geoffrey Lawrence, "Food Risks, Old and New: Demographic Characteristics and Perceptions of Food Additives, Regulation and Contamination in Australia," *Journal of Sociology* 46, no. 4 (2010).

³⁵ WHO, "Food Safety," <http://www.who.int/foodsafety/en/index.html>. According to WHO, food safety risks cover: spread of microbiological hazards, new food technologies, chemical food contaminants, management and supervision on food supply chain, adulterated and polluted food, and food safety standard and regulation, and the role of government in food safety supervision domestically and regional or international cooperation.

unknowns”, or even “unknown unknowns”³⁶. In reality, risk regulation has been widely applied in food safety management in many countries, including China.

Risk regulation on food safety

Food safety is an old conundrum.³⁷ Sumar and Ismail mention that the food safety issue probably goes back to the exchange of food for cash or other commodities.³⁸ According to Food and Agriculture Organisation (FAO) and World Health Organisation (WHO), food safety refers to the “assurance that food will not cause harm to consumers when it is prepared and/or eaten according to its intended use”.³⁹ Indeed, Paul L. Knechtges identifies food safety as “the acceptable and tolerable level of risks from food safety”⁴⁰, which echoes Marion Nestle’s description of safe food as “one that does not exceed an acceptable level of risk”.⁴¹ Further, the *Food Safety Law of the PRC 2009* refers to food safety as “claims of special health functions shall not cause acute, sub-acute, or chronic hazard to human body”.⁴² In short, food safety is a scientific discipline that specifies methods for handling, preparing, and storing food in ways that prevent food-borne illnesses.

Consumption of non-safe food may lead to a wide range of deleterious effects that, in turn, may impinge on a community’s health and social well-being – thus, regulation of food risk has always been important. In fact, risk regulation has long been practiced in the food safety arena, starting with ancient Rome and Athens passing laws concerning wines that had been adulterated with flavours and colours.⁴³ In 1820, Frederick Carl Accum published his renowned work *Treatise on Adulterations of Food and Culinary Poisons*, which covered examples of Britain’s adulteration of wine, beer, bread, cream,

³⁶ Donald Rumsfeld, who served as George W. Bush’s Secretary of Defence, had this famous statement on the types of risks: known knowns (such as flood), known unknowns (such as election), unknown knowns (such as earthquake) and unknown unknowns (beyond existing knowledge).

³⁷ Peter Shears, "Food Fraud – a Current Issue but an Old Problem," *British Food Journal* 112, no. 2 (2010): 198.

³⁸ S. Sumar and H. Ismail, "Adulteration of Foods -- Past and Present," *Nutrition & Food Science* 95, no. 4 (1995): 11.

³⁹ FAO and WHO, "Codex Alimentarius Food Hygiene (Basic Texts)," (Rome: FAO and WHO, 2009), 7.

⁴⁰ Paul L. Knechtges, *Food Safety: Theory and Practice* (Burlington MA, Ontario and London: Jones & Bartlett Learning International, 2012). 34-35.

⁴¹ Marion Nestle, *Safe Food: The Politics of Food Safety* (Berkeley, Los Angeles and London: University of California Press, 2010). 16.

⁴² NPC of PRC, "Food Safety Law of the People's Republic of China".

⁴³ Sumar and Ismail, "Adulteration of Foods -- Past and Present."

and counterfeit tea, coffee, pepper, and pickles.⁴⁴ Later on, food safety was addressed via different laws and regulations in several regions – such as Britain’s *Adulteration of Food and Drink Act* in 1860, United States’ *Food, Drug and Cosmetic Act* of 1938, Scotland’s *Food and Drug Act* in 1956, Northern Ireland’s *Food and Drug Act* in 1958, Britain’s *Food Safety Bill* in 1989, and countless contemporary laws, regulations, and Acts in contemporary world.⁴⁵

It is worth noting that, in recent years, food safety risk has attracted increasing attention due to a wide range of factors: globalisation, industrialisation of the food industry, and wide use of chemicals – just to name a few. Consequently, food risk regulation has become a shared and urgent mission for many countries. In the 1990s, the EU had adopted the Precautionary Principle, which addresses risk regulation on food (and other issues);⁴⁶ the Food Standard Agency (FSA) at UK level and the European Food Safety Authority (EFSA) at EU level were established following the BSE food safety management crisis;⁴⁷ and regulating food risks had illuminated the issue of contested governance⁴⁸ and public distrust of the government⁴⁹ in the EU. During the previous decade, China had made similar efforts to regulate food safety management – for instance, in 2004, the State Food and Drug Administration (SFDA) had been empowered as a liaison for coordinating food safety management between multiple food regulators,⁵⁰ while 2010 saw the creation of China’s Food Safety Commission of the State Council following such food scandals as the 2008 melamine-tainted milk powder.⁵¹ As a trend, risk regulation has been widely applied as a tool for controlling food risks in different parts of the world.

⁴⁴ Charles Albert Browne, "The Life and Chemical Services of Fredrick Accum," *Journal of Chemical Education* 2, no. 12 (1925).

⁴⁵ Sumar and Ismail, "Adulteration of Foods -- Past and Present."

⁴⁶ David Vogel, *The Politics of Precaution: Regulating Health, Safety, and Environmental Risks in Europe and the United States* (Princeton and Oxford: Princeton University Press, 2012). 9.

⁴⁷ Ellen Vos, "The EU Regulatory System on Food Safety: Between Trust and Safety," in *Uncertain Risks Regulated*, ed. Ellen Vos and Michelle Everson (London: Routledge/Cavendish Publishing, 2009).

⁴⁸ Ansell and Vogel, "The Contested Governance of European Food Safety Regulation."

⁴⁹ Vos, "The EU Regulatory System on Food Safety: Between Trust and Safety."

⁵⁰ State Council of PRC, "Regulation for Major Responsibilities and Personnel of Sfd," (Beijing: General Office of the State Council (PRC), 2005).

⁵¹ General Office of the State Council (PRC), "Announcement on Establishment of of Food Safety Commission of State Council".

Regulatory failure

While it is expected that regulations control risk or correct market failure, regulatory failure is arguably inherent in regulatory activity. Thus, Peter Grabosky contends that such inherent failure may range from “bad science”, “bad planning”, and “defects of programme implementation” to “bad politics” without clearly specified reasons for bad regulation.⁵² Yet, the notion of “capture” may help explain why regulation tends to fail.⁵³ Starting with the “regulatory life cycle” theory, Marver Bernstein suggests that, as they matured, the regulatory agencies would develop close relationships with the regulated.⁵⁴ In the meantime, James Wilson focuses on the distribution of the cost of regulation mobilisation and the benefits of regulation,⁵⁵ while Vogel uses cases in US and Britain to stress informal resolution of issues and a culture of consensus between regulators and the regulated.⁵⁶ Further, the Chicago School – represented by George Stigler – explicitly argues that regulation is corrupted and is promoted by sectional, rather than public, interest, while the beneficiaries are interest-seeking politicians, businesses, and bureaucrats.⁵⁷ All these statements may converge to specify the reason for regulatory failure: regulators are not truly independent of the interest they try to regulate.

Other scholars explain regulatory failure from the perspective of regulator’s incentives and motivations. Remaining tied in with theories of regulatory capture in this regard, regulators are interested in resources for securing their position and status. Hence, if regulators achieve their goals (such as manipulating public blame, for instance), regulatory involvement is likely to occur – even if only symbolically.⁵⁸ Similarly, regulators may be encouraged to pursue regulatory activities in order to maximise

⁵² Peter N. Grabosky, "Counterproductive Regulation," *International Journal of the Sociology of Law* 23, no. 4 (1995): 360.

⁵³ Michael Moran, "Understanding the Regulatory State," *British Journal of Political Science* 32, no. 2 (2002): 392-94.

⁵⁴ Marver H. Bernstein, *Regulating Business by Independent Commission* (Princeton, N. J.: Princeton University Press, 1955).

⁵⁵ James Q. Wilson, "The Politics of Regulation," in *The Politics of Regulation*, ed. James Q. Wilson (New York: Basic Books, 1980), 366-70.

⁵⁶ David Vogel, *National Styles of Regulation: Environmental Policy in Great Britain and the United States* (New York, Ithaca: Cornell University Press, 1986).

⁵⁷ George J. Stigler, "The Theory of Economic Regulation," *The Bell Journal of Economics and Management Science* 2(1971).

⁵⁸ Christopher Hood, "The Risk Game and the Blame Game," *Government and Opposition* 37, no. 1 (2002).

convenience, media profile, or even “public interest”.⁵⁹ In other words, regulatory incentives may originate from “special interest” or “narrow advantage” rather than from “public interest”, while regulators are not necessarily motivated by “the best policy” (beyond individual self-interest), but personal utility.⁶⁰

Other explanations addressing the causes of regulatory failure include: non-functioning interaction among regulatory actors⁶¹ and inappropriate regulatory responsiveness to changes without proper adaptation.⁶² As Martin Lodge states, “any regulatory regime is not only characterised by a conflict of interest, but also by conflicts of standards of appropriateness that lead to inherent tension and potential causes for failure”⁶³ – here, the key point is that regulatory failure may stem from systemic sources, rather than simply from lack of resources or capacity. This is particularly important in China’s case, as the present research argues that regulatory segmentation – rather than plain scarcity in regulatory resources – is crucial to the systemic failure of the food safety regime in China.

With this in mind, regulation that is designed to correct failure may fail in the first instance, especially in an environment where regulatory system is still in its infancy, such as the global South. As a wave of regulatory institutions transplanted from the North to the developing world during the 1990s, scholars observed and evaluated the regulatory development (or failure) on both regional (such as in Latin America⁶⁴ and Asia⁶⁵) and national (such as China⁶⁶ and India⁶⁷) levels, or on the levels of particular

⁵⁹ Michael E. Levine and Jennifer L. Forrence, "Regulatory Capture, Public Interest, and the Public Agenda: Toward a Synthesis," *Journal of Law, Economics, & Organization* 6(1990).

⁶⁰ Ibid.

⁶¹ Colin Scott, "Analysing Regulatory Space: Fragmented Resources and Institutional Design," *Public Law* (2001).

⁶² Michel Crozier, *The Bureaucratic Phenomenon* (Chicago: University of Chicago Press, 1964).

⁶³ Martin Lodge, "The Wrong Type of Regulation? Regulatory Failure and the Railways in Britain and Germany," *Journal of Public Policy* 22, no. 03 (2002): 271.

⁶⁴ David Levi-Faur and Jacint Jordana, "Toward a Latin American Regulatory State? The Diffusion of Autonomous Regulatory Agencies across Countries and Sectors," *International Journal of Public Administration* 29, no. 4-6 (2006).

⁶⁵ Kanishka Jayasuriya, "Globalization and the Changing Architecture of the State: The Regulatory State and the Politics of Negative Co-Ordination," *Journal of European Public Policy* 8, no. 1 (2001).; "The New Regulatory State and Relational Capacity," *Policy and Politics* 32, no. 4 (2004).; Darryl S. L. Jarvis, "Institutional Processes and Regulatory Risk: A Case Study of the Thai Energy Sector," *Regulation & Governance* 4, no. 2 (2010).

⁶⁶ Pearson, "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State.," Hsueh, *China's Regulatory State: A New Strategy for Globalization*.

⁶⁷ Lloyd I. Rudolph and Susanne Hoeber Rudolph, "Redoing the Constitutional Design: From an Interventionist to a Regulatory State," in *The Success of India's Democracy*, ed. Atul Kohli (Cambridge: Cambridge University Press, 2001).

sectors within countries.⁶⁸ Judging the South's development (or failure) of regulatory governance against North's regulatory state benchmarked as "best-practice" runs a high risk of missing micropolitics and specificities decisive to those economies. In practice, directly transplanting regulatory institutions into the South may create hollow institutional shells without adequately incorporated local political and economic context.⁶⁹ Rather, it is more pragmatic to adequately address the crucial backdrop of the state, market formation, and rulemaking and respect the South's development of regulatory governance as an ongoing process of state-building.⁷⁰ In this sense, the great value of the Chinese case study is not only its intrinsic importance but how analysing China can help engage with the literature of the regulatory state that almost always draws on European and North American cases.⁷¹

Regulatory state and segmentation in China

There is a vibrant debate around the gradual establishment of a regulatory state in China. The idea of a "regulatory state" involves a new institutional and policy style emerging while the government's role as a direct employer or property owner declines through privatisation and bureaucratic downsizing,⁷² with key emphasis on institutional self-regulation.⁷³ During the past four decades, China has seen dramatic economic reforms and incremental political changes – indeed, one significant move of this process has been government interventions transiting from direct commands to indirect and preventative regulations.⁷⁴ Despite being in the early stages of regulatory

⁶⁸ Navroz K. Dubash and D. Narasimha Rao, *The Practice and Politics of Regulation: Regulatory Governance in Indian Electricity* (New Delhi: Macmillan India Ltd, 2007).; Mariana Mota Prado, "Bureaucratic Resistance to Regulatory Reforms: Contrasting Experiences in Electricity and Telecommunications in Brazil," in *The Rise of the Regulatory State of the South*, ed. Navroz K. Dubash and Bronwen Morgan (Oxford Oxford University Press, 2013).; Alison E. Post and M. Victoria Murillo, "The Regulatory State under Stress: Economic Shocks and Regulatory Bargaining in the Argentine Electricity and Water Sectors," in *The Rise of the Regulatory State of the South*, ed. Navroz K. Dubash and Bronwen Morgan (Oxford Oxford University Press, 2013).

⁶⁹ Dubash and Morgan, "The Rise of the Regulatory State of the South."

⁷⁰ Kanishka Jayasuriya, "Regulatory State with Dirigiste Characteristics: Variegated Pathways of Regulatory Governance," in *The Rise of the Regulatory State of the South*, ed. Navroz K. Dubash and Bronwen Morgan (Oxford Oxford University Press, 2013).

⁷¹ Michael Moran, "Publication Review: The Oxford Handbook of Regulation," *Public Law* 4, no. 3 (2011).

⁷² See for example Giandomenico Majone, *Deregulation or Re-Regulation? Regulatory Reform in Europe and the United States* (London and New York: Printer & St. Martin's Press, 1990).

⁷³ Nicola Phillips, "State and Modes of Regulation in the Global Political Economy," in *Regulatory Governance in Developing Countries*, ed. Martin Minogue and Ledivina Carino (Cheltenham: Edward Elgar Publishing Ltd, 2006).

⁷⁴ Xue and Zhong, "Domestic Reform and Global Integration: Public Administration Reform in China over the Last 30 Years."

establishment,⁷⁵ with regulators still far from independent,⁷⁶ some argue that China is gradually becoming a “regulatory state”,⁷⁷ or even a “post-regulatory state”,⁷⁸ rather than the earlier predictions of “totalistic state”⁷⁹. At the same time, the Chinese regulatory system has been criticised as being “fragmented”, featuring “lack of transparency”, and heavily relying on “top-down mandates”⁸⁰; however, it is also observed that China has been strengthening and improving its trend of enforcement,⁸¹ with an urgent mission to quicken the regulatory reform in order to catch up with the economic reform.⁸²

The debate around China’s status as a regulatory state overlaps directly with the issue of segmentation. Here, segmentation refers to restricting regulatory application to a specific sector, a limited number of actors, a particular region, or a certain group of people and often reflects the state’s strategic concerns and industrial policies.⁸³ Many scholars have studied sector-based regulatory segmentation; for instance, Margaret Pearson analyses core patterns of China’s emergent regulatory state in the most strategic sectors of the economy,⁸⁴ while Roselyn Hsuch discusses regulatory segmentation in different industries and argues that regulatory control is dependent on each industry’s “strategic value” and competitiveness,⁸⁵ which leads to different enforcement outcomes. This argument is shared by some other scholars, including Sebastian Heilmann⁸⁶, Wang

⁷⁵ OECD, *OECD Reviews of Regulatory Reform: China 2009*: 93-94.

⁷⁶ Pearson, "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State."

⁷⁷ Yang, *Remaking the Chinese Leviathan: Market Transition and the Politics of Governance in China*.; Wang, "Regulating Death at Coalmines: Changing Mode of Governance in China," 31.

⁷⁸ Dowdle, "Beyond the Regulatory State: China and "Rule of Law" in a Post-Fordist World".

⁷⁹ Tang Tsou, *Er Shi Shi Ji Zhongguo Zhengzhi: Cong Hong Guan Li Shi Jiao Du Kan [Twentieth Century Chinese Politics: From the Perspectives of Macro-History and Micromechanism Analysis]* (Hong Kong: Oxford University Press, 1994). 69-72.

⁸⁰ Marc Dupuis et al., "Top-Down Mandates and the Need for Organizational Governance, Risk Management, and Compliance in China: A Discussion," *China-USA Business Review* 10, no. 5 (2011).

⁸¹ Philip Stalley, *Foreign Firms, Investment, and Environmental Regulation in the People's Republic of China* (Palo Alto, CA, USA: Stanford University Press, 2010). 87.

⁸² Eswar S. Prasad, "How to Sustain China's Growth Miracle," in *China's Reforms at 30: Challenges and Prospects*, ed. Dali L Yang and Litao Zhao (New Jersey, London, and Singapore: World Scientific Publishing Co. Pty. Ltd., 2009), 17.

⁸³ Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles."

⁸⁴ Pearson, "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State." And "Governing the Chinese Economy: Regulatory Reform in the Service of the State."

⁸⁵ Hsueh, *China's Regulatory State: A New Strategy for Globalization*: 42.

⁸⁶ Sebastian Heilmann, "Regulatory Innovation by Leninist Means: Communist Party Supervision in China's Financial Industry," *The China Quarterly* 181(2005).

Shaoguang⁸⁷, Victor Shih⁸⁸, Miron Mushkat,⁸⁹ to name a few. Meanwhile, other scholars bring up historically embedded urban-rural regulatory segmentation and regional segmentation.⁹⁰ Regulatory segmentation may occur in other forms and together with further problems, including weak motivation, responsibility fragmentation, blame avoidance, incoherent standard-setting,⁹¹ “*Guanxi*” (relationship),⁹² and corruption⁹³.

This thesis argues that the above notion of regulatory segmentation is inadequately analysed in literatures on China, with the most studied regulatory segmentations being based on industries, urban-rural division and, increasingly, on export-domestic sectors. These studies had addressed the generalised regulatory outcome but missed variations within an industry, region, or sector. For example, this research focuses on varying food safety levels and unevenly distributed food risks, which cannot simply be explained by non-strategic positioning of food safety regulation, urban-rural difference, or export-domestic division. Furthermore, this research incorporates social class – key element of China’s political and economic background – into this inadequately analysed notion of regulatory segmentation and attempts to explain China’s systemic failure of the food safety regime by using a segmentation approach.

Regulatory failure on food safety in China

In China, food safety is not a regulatory domain that holds high “strategic value” (unlike finance or telecommunication⁹⁴), yet it has received growing attention over the past

⁸⁷ Wang, "Regulating Death at Coalmines: Changing Mode of Governance in China."

⁸⁸ Victor Shih, "Partial Reform Equilibrium, Chinese Style: Political Incentives and Reform Stagnation in Chinese Financial Policies," *Comparative Political Studies* 40, no. 10 (2007).

⁸⁹ Miron Mushkat and Roda Mushkat, "The Political Economy of China's Regulatory State: A Reappraisal," *BYU Journal of Public Law* 27, no. 1 (2012).

⁹⁰ Lipton, *Why Poor People Stay Poor: Urban Bias in World Development.*; Oi, "Reform and Urban Bias in China."; Cheng and Selden, "The Origin and Social Consequences of China's Hukou System."; Skinner, Joseph, and Kuhn, "Social and Environmental Regulation in Rural China: Bringing the Changing Role of Local Government into Focus."; Dong and Ye, "Social Security System Reform in China."; Yang, "Economic Transformation and State Rebuilding in China."; Cai, "Hukou System and Unification of Rural-Urban Social Welfare."

⁹¹ Peng Zhao, "Status Quo, Problems and Perfection of Risk Regulation System in China -Basing on Analysis of the NPC Standing Committee's Law Enforcement Inspection Condition," *Administrative Law Review*, no. 4 (2010).

⁹² Jing Fang, "The Chinese Health Care Regulatory Institutions in an Era of Transition," *Social Science & Medicine* 66, no. 4 (2008).

⁹³ Hepeng Jia, "China Syndrome-a Regulatory Framework in Meltdown?," *Nature Biotechnology* 25(2007).

⁹⁴ Hsueh, *China's Regulatory State: A New Strategy for Globalization.*

decade.⁹⁵ From the beginning of the 21st century, a series of trade-related food safety scandals had erupted in China, with shocking results. The catalyst was melamine-tainted baby formula milk powder in 2008,⁹⁶ with regulatory reform following this crisis. The regulatory efforts included the milestone issuing of *Food Safety Law of the PRC*, the establishment of the Food Safety Commission of the State Council, and extensive regulatory arrangements at the local and central levels.

However, intensive regulatory reforms on minimising food risk did not function adequately, and frequent food safety scandals continued to occur. Certain headlines caused alarm: dead pigs in Huangpu River⁹⁷, cadmium polluted rice⁹⁸, lamb adulterated with rat and glue⁹⁹, gutter oil¹⁰⁰ – and the list goes on. This thesis argues that an explosion of new food safety scandals and ongoing reform of the food regulatory regime combine to indicate the failure of previous regulatory efforts.

The reasons for regulatory failure in China's food safety regime are explained through different perspectives. Some argue that the combination of risk assessment (science-driven) and management (policy-driven) had restrained the regulators' incentives to reduce food safety risk (as stated by Shumei Chen¹⁰¹ and Hon-Ming Lam and his colleagues¹⁰²) and cite precedents in the EU and US^{103 104}. Yet others (such as Bridget Hutter¹⁰⁵, Karolina Zurek¹⁰⁶, Elizabeth Fisher¹⁰⁷, and Erik Millstone¹⁰⁸) highlight the

⁹⁵ Waikeung Tam and Dali Yang, "Food Safety and the Development of Regulatory Institutions in China," *Asian Perspective* 29, no. 4 (2005).

⁹⁶ Ni and Zeng, "Law Enforcement Is Key to China's Food Safety," 1990.

⁹⁷ Xinhua New Agency, "Value Chain Exposed by Jia Xing People: We Don't Know How Many Dead Pigs Shang Hai People Have Eaten," Sina News, <http://news.sina.com.cn/c/2013-04-01/140426703029.shtml>.

⁹⁸ Nandu News, "Cadmium Polluted Rice Being Sold and Hard to Recall," Nandu New, <http://nandu.oeeee.com/nis/201305/23/55290.html>.

⁹⁹ Jamil Anderlini, "Chinese Police Cracked the Case of Adulterated Lamb," FChinese, <http://www.ftchinese.com/story/001050268>.

¹⁰⁰ Sina News International, "Gutter Oil Recycled, Chinese Consume 3 Million Tons of Gutter Oil," Sina News, <http://dailynews.sina.com/bg/news/int/kwongwah/20100319/02311277128.html>.

¹⁰¹ Shumei, "Sham or Shame: Rethinking the China's Milk Powder Scandal from a Legal Perspective."

¹⁰² Lam et al., "Food Supply and Food Safety Issues in China."

¹⁰³ Millstone and Van Zwanenberg, "The Evolution of Food Safety Policy-Making Institutions in the UK, EU and Codex Alimentarius."

¹⁰⁴ Gabriele Abels and Alexander Kobusch, "Regulation of Food Safety in the EU: Changing Patterns of Multi-Level Governance," in *Conference of the ECPR Standing Group on Regulatory Governance* (University College Dublin 2010).

¹⁰⁵ Bridget M. Hutter and Tola Amodu, "Risk Regulation and Compliance: Food Safety in the UK " (London 2008).

¹⁰⁶ Zurek, "Social Implications of Europeanisation of Risk Regulation and Food Safety: Theoretical Framework for Analysis."

¹⁰⁷ Elizabeth Fisher, "Food Safety Crises as Crises in Administrative Constitutionalism," *Health Matrix* 20, no. 1 (2010).

practical impossibility of a clear distinction between risk assessment and management, no matter how effectively this separation operates. The impossibility is simply caused by the fact that separating risk assessment and management facilitates an optimal monitoring scheme in theory, yet when risks are to be assessed on scientific grounds in practice, regulators or policy-makers have to consider possible political impacts and available resources.

In order to explain such regulatory failure, a substantial body of research addresses the weak implementation of food safety regulations in China – including studies by Marisa Anne Pagnattaro and Ellen R. Peirce¹⁰⁹, Jianhong Xue and Wenjing Zhang¹¹⁰, Yongqing Wu and Yan Chen¹¹¹, and many others. These studies pointed out that the regulation's degree of efficacy may explain its implementation failure – that is, whether the regulation works only on paper;¹¹² whether food safety related regulations contain a balance of scientific and political elements;¹¹³ or whether regulation design is missing some elements, e.g., the administrative background of food safety regulations.¹¹⁴ Indeed, implementation failure is a major reason for China's weak performance when it comes to regulatory regime on food safety – yet, it remains a popular “syndrome” elsewhere. Hence, it is clear that other reasons for implementation failure hold much higher research value.

Current explanations fail to address the systemic failure of the food safety regime – hence the value of the regulatory segmentation approach. Regulatory segmentation aims to explain China's urban-rural regional differences – this includes the differing performances of food safety management in urban and rural areas.¹¹⁵ Further, regulatory

¹⁰⁸ Millstone, "Science, Risk and Governance: Radical Rhetorics and the Realities of Reform in Food Safety Governance."

¹⁰⁹ Ellen Peirce and Marisa Anne Pagnattaro, "From China to Your Plate: An Analysis of New Regulatory Efforts and Stakeholder Responsibility to Ensure Food Safety," (2009).

¹¹⁰ Jianhong Xue and Wenjing Zhang, "Understanding China's Food Safety Problem: An Analysis of 2387 Incidents of Acute Foodborne Illness," *Food Control* 30, no. 1 (2013).

¹¹¹ Wu and Chen, "Food Safety in China."

¹¹² Haines, "Regulatory Failures and Regulatory Solutions: A Characteristic Analysis of the Aftermath of Disaster," 41.

¹¹³ Vos, "The EU Regulatory System on Food Safety: Between Trust and Safety."

¹¹⁴ Fisher, "Food Safety Crises as Crises in Administrative Constitutionalism."

¹¹⁵ Michael Hubbard and Gideon Onumah, "Improving Urban Food Supply and Distribution in Developing Countries: The Role of City Authorities," *Habitat International* 25(2001).; Gareth Enticott, "Risking the Rural: Nature, Morality and the Consumption of Unpasteurised Milk," *Journal of Rural Studies* 19(2003).; Tam and Yang, "Food Safety and the Development of Regulatory Institutions in China." Peng Liu and William McGuire, "One Regulatory State, Two Regulatory Regimes: Understanding Dual Regimes in China's Regulatory State Building through Food Safety," *Journal of Contemporary China* 24, no. 91 (2014).

segmentation of food for both the domestic sector and the export market was studied during China's emergence as a leading global food exporter.¹¹⁶ Hence, this research highlights the regulatory segmentation approach as an intrinsic explanation for the uneven distribution of regulatory resources, incentives, food risks, and varying food safety levels, and goes on to argue that regulatory segmentation is the key reason for the systemic regulatory failure of China's food safety regime. This calls for a closer look at the social foundation of regulatory segmentation.

Social foundation of regulatory segmentation

This study reviews market formation in China, and argues that regulatory segmentation of the food safety regime is based on consumer fragmentation – which was caused by an accumulation of many factors, including market development, consumption patterns, and social class formation.¹¹⁷ Among the factors responsible for shaping consumer fragmentation, social class in particular highlights consumers' differences in terms of income, lifestyle, education, occupation, and so on.¹¹⁸ These social differences assist producers and marketers in their search for a target audience and play a crucial role in advertising to different consumer groups.¹¹⁹ All over the world, social class division and consumer fragmentation reinforce each other in terms of possession of power, privilege, wealth, and social status – and China is no exception. It is only the sophisticated political and economic denotations of the concept “class” which may vary and be implicit in some cases.

China's meanings of “social class” (阶级) have varied over time. For instance, David Goodman argues that, in China, class is best understood in terms of the “intergenerational transfer of compound inequalities of wealth, status and power”¹²⁰ rather than as sole class and stratification in socio-economic development. He also mentions that Mao Zedong used class to facilitate a successful revolution and establish

¹¹⁶ Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles."

¹¹⁷ Paul Du Gay, *Consumption and Identity at Work* (London: Sage Publications, 1995).; Richard Layard, *Happiness: Lessons from a New Science* (New York: Penguin Press, 2005).; Yiannis Gabriel and Tim Lang, *The Unmanageable Consumer* (London, California and New Delhi: Sage Publications Ltd, 2006).; "New Faces and New Masks of Today's Consumer," *Journal of Consumer Culture* 8, no. 3 (2008).

¹¹⁸ A. Stewart, K. Prandy, and R. M. Blackburn, *Social Stratification and Occupations* (London and Basingstoke: The Macmillan Press LTD, 1980).

¹¹⁹ Michael J. Silverstein et al., *The \$10 Trillion Prize: Captivating the Newly Affluent in China and India* (Cambridge and MA: Harvard Business Review Press, 2012).

¹²⁰ Goodman, *Class in Contemporary China*: 7.

the People's Republic of China, who later pushed class analysis to a level of near self-destruction.¹²¹ Indeed, Mao's call to "Never forget class struggle" prompted the launch of the Cultural Revolution,¹²² which made the word "class" a politically sensitive one in the following decades. Later on, this concept was associated with other negative images – such as wealth and privilege generated by Party members and their families,¹²³ rising inequality and anger from most Chinese citizens,¹²⁴ and social positioning of entrepreneurs and a culture of "wealth hatred"¹²⁵. So, the word "class" is used rather cautiously and implicitly by China's government, its media, and the public.

Instead, the word "stratum" (阶层) is now in use. Around the turning of the 21st century, individuals were encouraged to pursue accumulation of cultural capital and an economic capacity to consume – which justifies the existence and behaviour of the wealthy.¹²⁶ An interpretation of this socio-economic change was necessary as "class" was still being used cautiously; this ideological and political demand brought in "stratum" to replace "class",¹²⁷ presented by Lu Xueyi, the prime architect of academic research on class in contemporary China and backed by CASS Institute of Sociology¹²⁸. Lu's occupation-based stratum was neither unique nor new, with Max Weber,¹²⁹ Alexander Stewart,¹³⁰ Anthony Giddens,¹³¹ John H. Goldthorpe,¹³² and Erik Olin Wright¹³³ previously having researched the relationship between occupation, class, and authority. According to Lu, 10 strata are identified by "occupation, the possession of

¹²¹ Ibid.

¹²² Richard Curt Kraus, *Class Conflict in Chinese Socialism* (Columbia: Columbia University Press, 1981).

¹²³ Renzhong Wang, "Unify Thinking, Conscientiously Rectify Party Work Style," *Hongqi [Red Flag]* 1(1982).

¹²⁴ David, "Between Social Justice and Social Order: The Framing of Inequality."

¹²⁵ Xiaowei Zang, "Market Transition, Wealth and Status Claims," in *The New Rich in China*, ed. David Goodman (Abingdon: Routledge, 2008); Yingjie Guo, "Classes without Class Consciousness and Class Consciousness without Classes: The Meaning of Class in the People's Republic of China," *Journal of Contemporary China* 21, no. 77 (2012).

¹²⁶ Ann Anagnost, "From "Class" to Social Strata": Grasping the Social Totality in Reform-Era China," *Third World Quarterly* 29(2008).

¹²⁷ Lu, *Dangdai Zhongguo Shehui Jiecheng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*.

¹²⁸ CASS is short for Chinese Academy of Social Science, and is the leading research institute and think tank under the State Council of PRC.

¹²⁹ Dagmar Waters et al., "The Distribution of Power within the Community: Classes, Stände, Parties by Max Weber," *Journal of Classical Sociology* 10, no. 2 (2010).

¹³⁰ Stewart, Prandy, and Blackburn, *Social Stratification and Occupations*.

¹³¹ Anthony Giddens, *The Class Structure of Advanced Societies* (London: Hutchinson, 1973).

¹³² John H. Goldthorpe, *Social Mobility and Class Structure in Modern Britain* (Oxford: Clarendon Press, 1980).

¹³³ Erik Olin Wright, *Class Counts: Comparative Studies in Class Analysis* (Cambridge: Cambridge University Press, 1997).

organisational authority, economic and cultural resource”.¹³⁴ Such stratification of Chinese society forms the social foundation for fragmented consumer groups in the present research, and is discussed in detail in the following chapter.

People in different strata share different patterns of food consumption and divide into different consumer groups. For example, in the domestic food market, the senior government staff enjoy the privilege of an exclusive supply system,¹³⁵ thus forming the base of the politically privileged group. This fraction of consumers has further mixed with certain politicised economic elites at both central and local levels.¹³⁶ Next, affluent consumers – or “the new rich” – have formed over time as a fragmented consumer group who largely belong to the upper-middle and middle classes.¹³⁷ This consumer group shares a medium to high consumption ability,¹³⁸ similar consumption taste and patterns,¹³⁹ and a growing voice in the public arena and political influence.¹⁴⁰ They come from mixed backgrounds that include business people; enterprise managers; private entrepreneurs; professional, contract-based managers of state enterprises; university professors and senior scientists; stockbrokers; real estate agents; senior employees in major banks and other financial institutions; lawyers; accountants; singers; fashion models and designers; and professional athletes.¹⁴¹ Finally, consumers

¹³⁴ Lu, *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*: 9.

¹³⁵ Lu and Bian, "Inequality in Reform and Social Economy from the Perspective of Citizen Status."; Gao, "Beijing Shi Kunnan Shiqi Shangpin Gongying Zhuiji [Beijing Commodities Supply in Difficult Times]."

¹³⁶ In some places like Guangdong Province, politics have been captured by economic elites locally, see Tony Saich and Biliang Hu, *Chinese Village, Global Market: New Collectives and Rural Development* (New York: Palgrave Macmillan, 2012). 176.

¹³⁷ Goodman and Zang, "The New Rich in China: The Dimension of Social Change."

¹³⁸ Lu, *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*.; Hanlong Lu, "The Chinese Middle Class and Xiaokang Society," in *China's Emerging Middle Class: Beyond Economic Transformation*, ed. Cheng Li (Washington, D.C.: Brookings Institution Press, 2010).

¹³⁹ Choon-Piew Pow, *Gated Communities in China: Class, Privilege and the Moral Politics of the Good Life* (London and New York: Routledge, 2009).; Cartier Carolyn, "Class, Consumption and the Economic Restructuring of Consumer Space," in *Middle Class China: Identity and Behaviour*, ed. Minglu Chen and David Goodman (Cheltenham and Northampton: Edward Elgar Publishing, 2013).

¹⁴⁰ Cheng Li, "Chinese Scholarship on the Middle Class: From Social Stratification to Political Potential," in *China's Emerging Middle Class: Beyond Economic Transformation*, ed. Cheng Li (Washington, D.C.: Brookings Institution Press, 2010).; Chunling Li, "A Profile of the Middle Classes in Today's China," in *Chinese Middle Classes: Taiwan, Hong Kong, Macao and China*, ed. Hsin Huang and Michael Hsiao (London and New York: Routledge, 2014).; Eileen Yuk-ha Tsang, *The New Middle Class in China: Consumption, Politics and the Market Economy* (Hampshire and New York: Palgrave Macmillan, 2014).

¹⁴¹ David Goodman, "The People's Republic of China: The Party-State, Capitalist Revolution and New Entrepreneurs," in *The New Rich in Asia: Mobile Phones, McDonalds and Middle Class Revolution*, ed. R. Robison and D. S. G. Goodman (London: Routledge, 1996), 225.; Gongqin Xiao, "The Rise of the Technocrats," *Journal of Democracy* 14, no. 1 (2003): 62.

at the lower end of the stratification spectrum form the vast majority of the ordinary domestic consumer group – this includes the underprivileged and the needy, such as rural inhabitants,¹⁴² laid-off workers,¹⁴³ and other low-income groups. Such fragmentation of consumer groups forms the foundation for regulatory segmentation of the food safety regime, which takes the shape of differentiated regulatory incentives, resources, and settings when food is regulated in the context of fragmented consumer groups – which ultimately leads to unevenly distributed food risks and differentiated food safety levels.

Regulatory segmentation for fragmented consumer groups

Regulatory segmentation of the food safety regime is shaped, consolidated, and institutionalised by the power, privileges, and economic resources of fragmented consumer groups formed from one or several social classes. With such regulatory segmentation, the food safety regime dispenses food risks mainly to the underprivileged group, while food safety benefits go to the privileged group that has the power and resources needed to create, maintain, and stabilise a regulatory system to serve their interests. Within the food safety context, this thesis argues that China's food safety regime had been segmented into four consumer groups: the politically privileged, the affluent consumers, ordinary domestic consumers, and foreign consumers.

Within the domestic food market, the top stratum of state and social management form the majority of the politically privileged group in accordance with Lu's stratification.¹⁴⁴ They are the dominant class, with power to control and manage state resources,¹⁴⁵ as well as the ruling class, signified by privilege, wealth, and power.¹⁴⁶ Their food safety is protected by a historically embedded exclusive supply system that uses its own sub-regulatory mechanisms to regulate food for staff of certain rank or in certain sectors,

¹⁴² Carolyn and Rothenberg-Aalami, "Empowering the "Victim"."; Yan, Hugo, and Potter, "Rural Women, Displacement and the Three Gorges Project."; Zhang and Wan, "The Impact of Growth and Inequality on Rural Poverty in China."

¹⁴³ Cai, "The Resistance of Chinese Laid-Off Workers in the Reform Period."; Solinger, "Labour Market Reform and the Plight of the Laid-Off Proletariat."; Wang, "New Urban Poverty in China."

¹⁴⁴ Lu, *Dangdai Zhongguo Shehui Jiecheng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*.

¹⁴⁵ David Goodman, "Middle Class China: Dreams and Aspirations," *Journal of Chinese Political Science* 19, no. 1 (2014).

¹⁴⁶ Danqing Chen, "Zhiyou Shangji Shehui Meiyou Shangliu Shehui [There's Only a Ruling Class; No Upper Class]," *Nanfang Zhoumo [Southern Weekend]*, 7 February 2013.

while the system itself had been designed to ensure food safety for this small group.¹⁴⁷ Indeed, Szelenyi argues that important goods are allocated in an inegalitarian way in socialist redistributive economies¹⁴⁸ – and so China’s exclusive supply system is a “cadre power”¹⁴⁹ backed redistribution system in nature. Even as authoritarianism decreases and marketization increases, the political influence of the privileged consumer group continues to ensure the existence of cadre power and guarantees that the segmented food safety regime serves the interests of consumers at the top of the social stratum.¹⁵⁰

The affluent consumer group mainly contains individuals from the upper-middle class. They are the “well-off”, “middle income earner” or, simply, “the new rich”¹⁵¹ – they are the beneficiaries of post-reform economic growth and social change. So, instead of overflowing with political power, this group is rich in economic resources that allow them to afford their preferred lifestyle – including better food safety. Affluent consumers can access food choices that provide better food safety – such as imported food; food from renowned domestic producers; and food from Community Supported Agriculture (CSA) farms, which provide premium but expensive produce. Moreover, affluent consumers are mainly located in economically developed and/or politically influential urban areas where regulatory resources on food safety are plentiful, compared with remote and underdeveloped areas that house the majority of the third group – the ordinary domestic consumers.

The ordinary domestic consumer group includes mostly the lower-middle and lower classes –largest in size, suffering the most from an inadequate food regulatory regime, and facing high chances of food risk and low levels of food safety. They are the “peripheral groups (such as peasants)” as opposed to the “core group (such as senior

¹⁴⁷ Yunxiang Yan, "Food Safety and Social Risk in Contemporary China," *The Journal of Asian Studies* 71, no. 03 (2012).

¹⁴⁸ George Konrad and Ivan Szelenyi, *The Intellectuals on the Road to Class Power* (New York: Harcourt Brace Jovanovich, 1979).

¹⁴⁹ Victor Nee, "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China," *Administrative Science Quarterly* 37, no. 1 (1992).

¹⁵⁰ Ivan Szelenyi, "An Outline of the Social History of Socialism or an Auto-Critique of an Auto-Critique," *Research in Social Stratification and Mobility* 19(2002): 45.

¹⁵¹ An Chen, "Capitalist Development, Entrepreneurial Class, and Democratization in China," *Political Science Quarterly* 117, no. 3 (2002): 408-09.; Kellee S. Tsai, *Back-Alley Banking: Private Entrepreneurs in China* (Ithaca: Cornell University Press, 2004). 1.; Serena Liu, "Toward an Analytical Theory of Social Change: The Case of China," *The British Journal of Sociology* 57, no. 3 (2006): 506-07.; Dali Yang, "Economic Transformation and Its Political Discontents in China," *Annual Review of Political Science* 9(2006): 155.

cadres)",¹⁵² or the "subordinate classes" as opposed to the "dominant classes".¹⁵³ Compared with the politically privileged and affluent consumer groups, the ordinary domestic consumers are in an underprivileged position in terms of economy, power, and social status – which further reinforces their underprivileged pattern of food consumption.¹⁵⁴ Being politically powerless and economically poor forces ordinary domestic consumers to prioritise low price and give minimal consideration to food sources, safety, risk information, and other issues.¹⁵⁵ This food consumption choice may mean that consumers sacrifice food quality and safety for availability and quantity, exposing them to high food risks from problematic food sources in low-end free markets (such as food from unlicensed producers).

The fourth group comprises overseas foreign consumers of food produced in China. In fact, China has been the fourth leading global food exporter since 2009,¹⁵⁶ with export food of better quality and safety than food in the Chinese domestic market.¹⁵⁷ Export – including food export – has economic and political significance for China in terms of GDP growth boost, political agenda, and contribution to local farming income and employment. Hence, foreign consumers have privileged access to China's export food, which is produced with higher regulatory standards on quality and safety. Indeed, China's regulatory segmentation of export-domestic food has been designed in order to distinguish institutional arrangements and food safety standards between the domestic food market and foreign consumers¹⁵⁸ and to realise greater food safety for the latter group.

Within these four fragmented consumer groups, regulatory segmentation of food safety has produced varying food safety levels and unevenly distributed food risks. This thesis argues that such regulatory segmentation is the fundamental reason for the industry's

¹⁵² Qiang Li, "The New Changes in the Structure of the Social Stratification in China," in *Social Stratification in China Today*, ed. Peilin Li, Qiang Li, and Liping Sun (Beijing: Social Sciences Academic Press, 2004), 26.

¹⁵³ Goodman, *Class in Contemporary China*: 122.

¹⁵⁴ Peilin Li and Yi Zhang, "Social Stratification Based on Consumption in China," in *Social Stratification in China Today*, ed. Peilin Li, Qiang Li, and Liping Sun (Beijing: Social Sciences Academic Press, 2004).

¹⁵⁵ *Ibid.*, 231.

¹⁵⁶ Bonarriva and Weaver, "China's Agricultural Trade: Competitive Conditions and Effects on US Export," 21.

¹⁵⁷ Information Office of State Council of PRC, "China Foreign Trade Whitepaper," Information Office of State Council of PRC via Xinhua Net, http://news.xinhuanet.com/politics/2011-12/07/c_111222865.htm.

¹⁵⁸ H. Frederick Gale and Jean C. Buzby, "Imports from China and Food Safety Issues," in *Economic Information Bulletin* (2009).

differentiating regulatory resources and incentives, and that it has led to the systemic failure of China's food safety regime. This is the core focus of this research and will be examined further in chapters five through to seven. Besides regulatory segmentation as core reason for the systemic failure of China's food safety regime, the unpredictable nature of food safety management is exacerbated by various other issues, such as food risk perception and amplification, and the spiral of declining trust towards food regulators.

Other issues: Risk perception, amplification, and trust

This section examines other issues contributing to the failure of China's food safety regime. As noted previously, consumer trust towards food regulators has declined due to their delaying or hiding food risk information in the past – and this distrust makes food safety regulation even more challenging.¹⁵⁹ Consumer distrust not only originates from numerous food safety crises that followed regulatory efforts, but may be damaged further by floods of “intuitive risk judgement” or risk perception, as defined by Paul Slovic.¹⁶⁰ Scholars such as Baruch Fischhoff et al.,¹⁶¹ Daniel Kahneman and Amos Tversky,¹⁶² Slovic,¹⁶³ and many others have already noted that consumers make decisions based more on risk perception rather than on actual risk. Indeed, studies by Wim Verbeke¹⁶⁴, Joost M. E. Pennings et al.¹⁶⁵, and Michel Setbon¹⁶⁶ show that consumer judgement on food regulatory performance is significantly influenced by food-related risk perception, food hazards, modern food production, and the growing

¹⁵⁹ Lynn J. Frewer, "Trust, Transparency, and Social Context: Implications for Social Amplification of Risk," in *The Social Amplification of Risk*, ed. Nick Pidgeon, Roger E. Kasperson, and Paul Slovic (Cambridge: Cambridge University Press, 2003).; John Eldridge and Jacquie Reilly, "Risk and Relativity: BSE and the British Media," in *The Social Amplification of Risk*, ed. Nick Pidgeon, Roger E. Kasperson, and Paul Slovic (Cambridge: Cambridge University Press, 2003).; E. Van Kleef et al., "Consumer Evaluations of Food Risk Management Quality in Europe," *Risk Analysis: An International Journal* 27, no. 6 (2007).; Kuei-tien Chou and Hwa-meei Liou, "System Destroys Trust?--Regulatory Institutions and Public Perceptions of Food Risks in Taiwan," *Social Indicators Research* 96, no. 1 (2010).

¹⁶⁰ Paul Slovic, "Perception of Risk," in *The Perception of Risk*, ed. Paul Slovic (London and Sterling VA: Earthscan Publication Ltd, 2000), 220.

¹⁶¹ Baruch Fischhoff et al., "How Safe Is Safe Enough? A Psychometric Study of Attitudes Towards Technological Risks and Benefits," *Policy Sciences* 9, no. 2 (1978).

¹⁶² Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47, no. 2 (1979).

¹⁶³ Paul Slovic, "Perception of Risk," *Science* 236, no. 4799 (1987).

¹⁶⁴ Wim Verbeke, "Beliefs, Attitude and Behaviour Towards Fresh Meat Revisited after the Belgian Dioxin Crisis," *Food Quality and Preference* 12, no. 8 (2001).

¹⁶⁵ Joost M. E. Pennings, Brian Wansink, and Matthew T. G. Meulenberg, "A Note on Modeling Consumer Reactions to a Crisis: The Case of the Mad Cow Disease," *International Journal of Research in Marketing* 19, no. 1 (2002).

¹⁶⁶ Michel Setbon et al., "Risk Perception of the "Mad Cow Disease" in France: Determinants and Consequences," *Risk Analysis : An Official Publication of the Society for Risk Analysis* 25, no. 4 (2005).

food chain. Further, compared with other risks, food risks in China may amplify and potentially cause greater alarm, anxiety, or outrage due to previous major cases and the nature of the risk.¹⁶⁷ In short, food regulators deal not only with food risks, but also with more intractable risk perception and amplified food risk,¹⁶⁸ while consumers display limited trust towards them.

In the bigger picture, certain structural issues further weaken the efficacy of China's regulatory regime on food safety. Namely, agency fragmentation within the established regime occurs as a result of ambiguous regulatory responsibilities¹⁶⁹ and competition of interest,¹⁷⁰ which further encroaches on the regime's function of overseeing the domestic food market. Food regulations that are being issued or implemented may not be accurately understood by the regulated¹⁷¹ (including food producers), while food regulators may be unclear as a consequence of ambiguously defined responsibilities. Indeed, regulators exhibit mild responses to food safety regulation violators due to their willingness to trust; however, such responsive regulation¹⁷² causes low cost of non-compliance and moral hazards. And, at the macro level, since the food regulatory regime developed as part of China's regulatory state establishment, the regime's adaptation should be just as vital (if not more) as its design in China's context.¹⁷³

Conclusion

This thesis attempts to explore the reasons – from the perspective of regulatory segmentation – for the systemic failure of China's regulatory regime on food safety. This review begins with examining a popular regulation tool that is widely used as an indirect intervention for promoting economic or non-economic goals. Indeed, regulation has gradually developed into a systematic concept of regulatory regime – which was

¹⁶⁷ Roger E. Kasperson et al., "The Social Amplification of Risk: A Conceptual Framework," in *The Perception of Risk*, ed. Paul Slovic (London and Sterling VA: Earthscan Publication Ltd, 2000).

¹⁶⁸ Lynn Frewer, Heleen Van Dijk, and Fischer Arnout, "Consumer Perceptions of the Risks and Benefits Associated with Food Hazards," in *Risk Communication and Public Health*, ed. Peter Bennett, et al. (Oxford, New York: Oxford University Press, 2010).

¹⁶⁹ Pearson, "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State."; Zhou and Jin, *Food Safety Management in China: A Perspective from Food Quality Control System*.

¹⁷⁰ Tam and Yang, "Food Safety and the Development of Regulatory Institutions in China."

¹⁷¹ Black, "Regulatory Conversations."

¹⁷² John Braithwaite, "Responsive Regulation and Developing Economies," *World Development* 34, no. 5 (2006).

¹⁷³ David Levi-Faur and Jacint Jordana, "Conclusion: Regulatory Capitalism: Policy Irritants and Convergent Divergence," *Annals of the American Academy of Political and Social Science* 598(2005).

designed for different purposes, such as promoting competition, modifying behaviour, and controlling risks. Various forms of regulatory regimes have been designed extensively and used to control risks in general and food risks in particular, with mixed regulatory outcomes. Not uncommonly, regulatory failure occurs for a wide range of reasons, including implementation failure, agency fragmentation, captured interest of the regulators, or simply a disordered regulatory regime.

China uses regulatory tools for an increasingly wide range of issues – here, regulatory tools and regimes are designed to achieve different policy goals, from industry management to food risk control. In the context of food safety management, China borrowed its first policy tools from the former Soviet Union – thus, regulatory tools began to dominate food safety management as China’s economic reform progressed since the 1980s. Indeed, the last decade (2004-2013) has seen overwhelming regulatory input and reorganisation in the established food safety regime, as equally staggering food safety crises occurred in the domestic food market. China’s widespread food safety crises concurring with intensive regulatory efforts in the food safety regime suggests a systemic failure of its regulatory regime on food safety. Apart from issues typical to most regulatory regimes – such as agency fragmentation and blame avoidance – it is worth looking into the reasons for the regulatory failure of food safety in China.

With this in mind, regulatory failure of China’s food safety regime should be studied in the context of China’s emerging regulatory state as shaped by a distinctive political and historical background – in particular, by the emergence of different social classes, and class-based fragmented consumer groups. Whether China has become a regulatory state is a contested argument that bears both agreement and disagreement. Many scholars suggest that China’s way of regulatory state development is not necessarily the same as that in the North, while a generalisation of this statement may run the risk of missing the essence of China’s political economy. Instead, words like “fragmented”, “sector-based”, and “segmented” are used to describe the establishment of a bifurcated or multi-furcated regulatory state in China, with regulatory establishment defined as depending on the strategic significance of industries, sectors, or regions. So, a non-strategic sector has higher chances of negative regulatory outcomes, compared with sectors of strategic significance.

Indeed, in the non-strategic sector of food safety, not all regulatory outcomes are negative, with food intended for certain consumer groups still considered safe and reliable under the current regulatory regime. With regulatory segmentation, China's food safety regime functions differently for its various fragmented consumer groups, food safety benefits and risks are distributed unevenly. The present research attempts to explore which consumer group benefits more from this segmented regulatory regime, and the reasons for entrenching the unevenly distributed benefits of food safety management.

Understanding the political economy of China's regulatory state enables us to see why regulatory segmentation is an essential dimension – so, regulatory segmentation becomes the core focus of this research. The value of this focus is not just a result of the intrinsic significance of food safety management, but by using a segmentation approach, it provides a different view of understanding China's regulatory state establishment and helps engage with literature that almost always draws on cases in the global North. Hopefully, this research identifies practical implications for future regulatory reform of the food safety regime. Rather than focusing only on implementation, this thesis uses the risk regulatory model to specifically evaluate consumer group based regulatory segmentation on food safety standard-setting, food risk information-communication, and unlawful behaviour modification. The following chapter outlines how this research uses and modifies the risk regulatory model as well as how fragmentation of China's consumer groups has transpired over time.

Chapter 2

Towards a Conceptual Framework for Regulatory Regime and

Methods

This chapter introduces the conceptual framework used in studying food safety as a risk regulation mode. For the purposes of analysing China's management of food safety, this framework expands a model of risk regulatory regime developed by Christopher Hood, Henry Rothstein, and Robert Baldwin. This model's key advantage is in providing a comprehensive framework of risk regime analysis, instead of focusing on implementation like most literature on regulation.

In order to suit the background of China's food safety regime, this research builds on the risk regulatory regime model and focuses on food risk as core regime content – unlike the original model's focus on multiple risks analysis. Further, this framework enables the differentiation of the regime of food safety - a key theoretical and empirical objective of this thesis - by analysing the political economy of regulatory segmentation and resultant unevenly distributed risks. This analysis requires adequate consideration of social class based fragmentation of food consumers as its core regime context – it became the premise for differentiating degrees of regulatory incentives, resources, and forms of institutional arrangements. Together, these differences have contributed to regulatory segmentation, which plays a crucial part in explaining China's food regulatory failure. In this sense, social class based consumer fragmentation forms the basis for regulatory segmentation occurring and shaping the uneven distribution of food risks; so, this modifies the framework's regime context, emphasising fragmented consumer groups to demonstrate how and why food risks and safety levels are uneven.

The present chapter discusses the social foundation of China's fragmentation of food consumers as the core regime context, beginning by introducing the original risk regulatory regime in section one. Next, section two outlines how this model fits with the discussion of China's food safety regime and presents the reasons for the modification. Finally, section three examines in detail the social foundation of fragmented consumer groups in China – this forms the basis on which Chapters Five to Seven will subsequently address regulatory segmentation with a modified risk regulatory model.

Risk regulatory regime

This research uses the risk regulatory regime model as its main framework for analysing regulatory segmentation within China's food safety regime. This model had been developed by Christopher Hood, Henry Rothstein, and Robert Baldwin in *The Government of Risk*¹ and is mainly used to rate various risks in regulatory control dimensions. The present research concentrates on food risk only and attempts to explain China's regulatory failure via evaluating three control components of the food safety regime.

According to Hood and colleagues, one standard way to understand regulation is to view it from a cybernetic angle.² In this sense, any regulatory regime as a control system should contain a minimum of three components: the standard-setting component, to distinguish between the system's more and less preferred states; the component of information-gathering (or monitoring), to produce knowledge about the system's current or changing states; and the behaviour-modification component, to change and improve the system.³ In case of any component's failure, the control system will also fail in order to keep the system within a preferred subset of all possible states.⁴ In order to avoid system conflicts, overlaps or gaps, and communication failures, operation of the control system requires a linking or coordinating mechanism.⁵

Standard-setting

Standard-setting is central to regulation and refers to setting goals, targets, and guidelines.⁶ While it is not possible to avoid risks altogether, standard-setting determines the acceptable levels and distribution of risk.⁷ There are many ways to set standards in a risk regulatory regime – for instance, standards may emerge as various participants with different positions and interests negotiate outcomes that represent a

¹ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*.

² Christopher Hood et al., "Explaining Risk Regulation Regimes: Exploring the 'Minimal Feasible Response' Hypothesis," *Health, Risk & Society* 1, no. 2 (1999).

³ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 23.

⁴ Christopher Hood, *Administrative Analysis* (Brighton: Wheatsheaf Books, 1986). 112.

⁵ Charles Perrow, *Normal Accidents: Living with High-Risk Technologies* (Princeton: Princeton University Press, 1999).

⁶ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 25-26.

⁷ C. F. Larry Heimann, *Acceptable Risks: Politics, Policy, and Risky Technologies* (Ann Arbor and MI: University of Michigan Press, 1997).

compromise. Indeed, a growing number of China's food safety standards are designed together with regulators, research institutions, and food producers. On the other hand, standards may develop due to a technocratic process that applies technical approaches, conducts systematic tests and inquiries, and refers from other domains or regions⁸ – for instance, the standards on the maximum residue limit of pesticide on certain kinds of food. For the most part, standard-setting in risk regulation involves a mix of different approaches.

It must be noted that the clarity, transparency, and coherence of standard-setting in a risk regulation regime are crucial to overall regulatory performance. Clarity helps avoid ambiguity and misunderstanding when implementing standards, while transparency facilitates comparison, observation, improvement of the standards system, and participant trust. So, in order to minimise conflicts in enforcement, standards related to the same risk should be coherent, rather than segmented. At the same time, standard-setting should remain within enforcement capacity – hence, carelessly increasing the number and rigidity of standards may impede regulatory outcome. In short, a set of clear, transparent, coherent, feasible standards is fundamental to an effective risk regulatory regime.

Information-gathering

The gathering of information refers to collecting risk-related information. While central to all types of regulation, information-gathering benefits risk regulation in particular due to its high chances of uncertain probabilities.

There are numerous methods of gathering information about risks. For example, regulators (or agencies appointed by regulators) may conduct analyses and experiments in order to provide information as official sources. On the other hand, non-official information can be supplied by whistle-blowers, individuals (such as consumers or even complainants), and other non-traditional regulators (such as NGOs) who are willing to contribute to information sharing. Within the process of communicating risk information, the media – particularly the social media of recent years – plays an increasingly significant role due to its wide and grass-root coverage of guiding public comprehension.

⁸ Ross E. Cheit, *Setting Safety Standards: Regulation in the Public and Private* (Berkeley: University of California Press, 1990).

Information-gathering can be a determining factor when the politics and interests of different participants are involved – hence, information quality and reliability are highly crucial. In reality, however, the accuracy and authenticity of risk information may be influenced by various social and political forces and problematic. For example, regulators or private organisations may fake, fabricate, delay, and even suppress undesirable information about risk tests or inspections.⁹ When scientific information is gathered and communicated, perceptions of its overall conclusions are shaped by the way it is communicated, interpreted, and used by different actors (such as professional, institutional, or cultural ones).¹⁰ Furthermore, the actual process of exchanging risk information may amplify or attenuate the risk.¹¹

Behaviour-modification

Behaviour modification generally refers to individual and organisational behavioural changes made in order to improve the regulatory regime.¹² Based on feasible standard-setting and objective information-gathering, behaviour-modification is the stage of implementing designed standards and may contain issues typical to applying regulations – such as agency fragmentation and blame avoidance – hence weakening the efficacy of risk regulatory regime.

One ongoing issue in behaviour-modification relates to choosing between regulatory approaches from the doctrines of “compliance” and “deterrence”. Here, compliance doctrines rely heavily on education, persuasion, and other diplomatic (or mild) approaches, instead of frequently applying sanctions in order to produce a compliance culture. On the other hand, deterrence doctrines rely on credibility and utility of punishment in order to prevent the regulated from breaking the rules.¹³ In most cases,

⁹ Erik Millstone, *Food Additives: Taking the Lid Off What We Really Eat* (Harmondsworth: Penguin, 1986).

¹⁰ Roger E. Kasperson et al., "The Social Amplification of Risk: A Conceptual Framework," *Risk Analysis* 8, no. 2 (1988). ; Lynn J. Frewer, "Public Risk Perceptions and Risk Communication," in *Risk Communication and Public Health*, ed. Peter Bennett and Kenneth Calman (Oxford: Oxford University Press, 1999).; Black, "Regulatory Conversations."; Matteo Ferrari, *Risk Perception, Culture, and Legal Change: A Comparative Study on Food Safety in the Wake of the Mad Cow Crisis* (Farnham, England: Ashgate Publishing Limited, 2009).

¹¹ Kasperson et al., "The Social Amplification of Risk: A Conceptual Framework," 181.; Jeanne X. Kasperson et al., "The Social Amplification of Risk: Assessing Fifteen Years of Research and Theory," in *The Social Amplification of Risk*, ed. Nick Pidgeon, Roger E. Kasperson, and Paul Slovic (Cambridge: Cambridge University Press, 2003).

¹² Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 26-27.

¹³ *Ibid.*, 27.

regulators need to adopt a hybrid approach, using compliance responses on those identified as morally concerned about regulatory requirements and deterrence approaches on those displaying opportunistic or amoral behaviours.¹⁴

Regulators' choice of regulatory style should closely match the attitudes and beliefs of the regulated. In other words, as a precondition of effective behaviour modification, regulators need to make a reasonable judgement on the culture and political setting of the regulated, since such culture can unexpectedly shape regulatory outcomes.¹⁵ For instance, within a compliance culture, it is reasonable to expect that official bans or warnings about a potentially dangerous food additive will discourage its use among food producers. However, within an opportunistic culture, such regulatory tools will work only if accompanied by heavy investment in detection together with application of significant sanctions. Regulators' judgement is complicated further by the regulated often belonging to a mixed culture that depends on such factors as region and possible cultural shift over time. In addition, such issues as regulator incentive structure and regulatory responsibility design may also negatively affect behaviour-modification.

Regulatory regime context and content

Cutting across control dimensions of regulatory regime are variations in context and content. Here, regime context denotes the “backdrop of regulation, consisting of the risk(s), public and media attitudes about it, and the way power or influence is concentrated in organised groups”, while regime content refers to “regulatory objectives, the way regulatory responsibilities are organised and operating styles of regulators”.¹⁶

In other words, regime context highlights three basic elements: type of risk, encompassing the risk's inherent features; public preferences and attitudes, closely related to culture of a particular social context; and nature of organised interests, demonstrating the relative power and mobilisation among affected groups. These three fundamental elements can further combine with additional contextual elements.¹⁷

¹⁴ Ayres and Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate*.

¹⁵ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 27.

¹⁶ *Ibid.*, 28.

¹⁷ *Ibid.*, 28-30.

Regime content encompasses three overlapping elements: regime size specifies the amount of regulation applied to a given risk; regime structure indicates how regulation is organised, what institutional arrangements are adopted, and how invested resources are distributed; and, finally, regime style refers to the operating conventions and attitudes of those involved in regulation as well as regulation’s formal and informal workings.¹⁸

Table 2-1 Risk regulatory regime model

		<i>Control components</i>		
Regime context	Type of risk	Information gathering	Standard setting	Behaviour modification
	Public preference and attitudes			
	Organised interests			
Regime content	Size			
	Structure			
	Style			

Source: Christopher Hood, Henry Rothstein, Robert Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*, New York: Oxford University Press, 2001, p. 29.

This model of risk regulatory regime can separate further for a detailed observation on the regime. Yet, separated or not, this model covers a wide range of ways in which regulatory regime varies as well as how regulations should function.

In studying China’s regulatory regime on food safety, this research modifies the model to capture the fundamental background of this nation’s political economy. More disturbing than general low food safety levels is the issue of unevenly distributed food risks and varying food safety levels – both closely related to social class based fragmentation of food consumers. Against this backdrop, this study’s analysis of the food safety regime will incorporate the social foundation of food consumer fragmentation. Expanding on the original model will help address the regulatory

¹⁸ Ibid., 30-32.

segmentation within the regime, explain how food safety regime functions in China, and analyse the reasons for varying levels of food safety within the different consumer groups produced by such a regime.

Modification of the risk regulatory regime

This research makes a number of modifications in order to integrate social foundations of food consumer fragmentation into an analysis of the food safety regime. These modifications include redefining regime content and context, including fragmentation of consumer groups, and expanding the information-gathering control component.

Redefining regime content and context

In the modified model, the focus of regime content will reduce to food risk regulation only. The original model's detailed items of regime size, structure, and style will remain included but only in relevance to the regulatory regime on food safety.

Regime size, structure, and style tend to vary as regime content focuses solely on food risk regulation for different consumer groups. Groups who normally need more attention – such as newborns and children – are not necessarily ones to enjoy the benefits of high food safety levels. When China's food crises made world headlines, it was still a leading global food exporter with a high passing rate in food quality and safety. For decades, the safety of food made in China had been high for some consumers yet astonishingly low for others.

Such variations in food safety levels among different consumer groups are the result of regulatory segmentation of the food safety regime. With a general low level of food safety in the Chinese domestic food market, regulatory segmentation within the food safety regime has led to a reality where food safety crises differently affected various food consumer groups and, hence, food risks became unevenly distributed. Thus, the regulatory segmentation caused by fragmentation of consumer groups has to be addressed in a context of analysing the reasons for failure of China's food safety regime.

With this in mind, this thesis will redefine regime context in order to highlight the crucial foundation for regulatory segmentation of the food safety regime. Thus, the key

focus of regime context is the fundamental backdrop of fragmented consumer groups, due to significant impact on regime content and resultant varying levels of food safety. In the course of studying the power, influence, preferences, and attitudes of the organised – as per the original model – it is essential to uncover the identity of those who consume food with higher safety levels and the reasons for this. Most importantly, inquiry into food risks unevenly distributed among different consumer groups can provide a new perspective on explaining systemic regulatory failure of the food safety regime and, more broadly, of regulatory segmentation in China.

Chapters Five to Seven use this modified framework as the setting to analyse how each control component functions in fragmented consumer groups in order to reveal overall regulatory segmentation of the food safety regime. Four consumer groups are identified within the food safety regime: foreign consumers, the politically privileged, affluent consumers, and ordinary domestic consumers. The following section discusses how these consumer groups came into existence.

Information: Not only gathering, but also communicating

Information-gathering is central to both risk regulators and the regulated – hence, this thesis expands the control component of information-gathering in order to cover information communication between the regulators and the regulated. Information about food risk is supposed to benefit the public and be available to all food consumers alike. However, in China's reality, communication of food risk information to some consumer groups is less obstructed than to others. By addressing the issue of food risk communication, this research argues that it is not just food risks, but also food risk information that is unevenly distributed among fragmented consumer groups. Segmented communication of food risk information has caused such issues as varying food risk perceptions and public distrust towards food regulators; this further impedes the food safety regime, as discussed in Chapter Six.

Table 2-2 Modified risk regulatory regime model

<i>Control component</i> <i>Fragmented consumer groups</i>	Standard-setting	Information gathering and communicating	Behaviour modification
Foreign consumers			
The politically privileged			
Affluent consumers			
Ordinary domestic consumers			

Within a modified model of risk regulatory regime, Chapters Five to Seven analyse how the food safety regime became segmented among fragmented consumer groups. In fact, this research argues that regulatory segmentation is due to the fragmented consumer groups stemming from a hybrid of political and economic stratification in the Chinese society. Thus, the following section focuses on how fragmented consumer groups had formed in China over time.

Social foundation for fragmented consumer groups

Fragmentation of consumers is a feature of contemporary consumerism globally, with mass consumption perceived as having fragmented into a “proliferation of highly individualised niche products”.¹⁹ With increasing social chasms in wealth distribution, access to resources, abundance in commodities, power, and other issues, consumers themselves have divided and, very likely, set against each other.²⁰ Such fragmentation is likely to worsen with increasing disparity between the global north and south, deteriorating environmental conditions (especially in the Third World), and deepening social fragmentation.

Numerous factors affect fragmentation of consumer groups. Two or three decades ago, consumption was largely decided by production – so, the model of consumption was

¹⁹ Gabriel and Lang, "New Faces and New Masks of Today's Consumer," 324.

²⁰ *The Unmanageable Consumer*.

built on “the Fordist Deal”,²¹ whereby mass consumption echoes mass production. During the last decade or so, technological innovations, the information explosion, and the idea of “identity in consumption”²² (referring to consumer lifestyle choices) came to influence consumption patterns. Today, consumer fragmentation is affected by an increasing number of issues such as fraught economic conditions, widened social inequalities, happiness in consumption, culture awareness, economic restructuring, and so on.²³ From a consumer standpoint, pursuit of meaning through consumption, emergent new forms of activism and resistance, casualization of work and consumption, and expansion of consumerism all play a role in the increasingly complicated and sophisticated consumer fragmentation.²⁴ In addition, consumers categorise themselves into different fragmentations based on shared features – for instance, some consumers behave as conformists, and others as rebels; some prefer uniqueness in consumption as individualists, while others feel safe in real or imaginary groups (or neo-tribes);²⁵ some are rational and others emotional; and some seek new excitement as explorers, and others prefer no surprises as comfort-seekers.²⁶

Among all factors taking part in the fragmentation of consumer groups, the influence of social class is fundamental and determining. Social class highlights consumer differences in incomes, lifestyles, consumption patterns, education, occupation, and other aspects – based on which, consumers are fragmented into various groups.²⁷ More importantly, in their search for target audiences, producers and marketers have long utilised the differences between social classes, which take shape of inequalities of power, wealth, social standing, culture, and opportunities²⁸ – hence forming an indispensable part of advertising and marketing to different consumer groups.²⁹

Each of those factors plays a role in shaping consumer fragmentation in China’s market. As elsewhere, the influence of social class is fundamental to forming fragmented consumer groups – although, in contemporary China, the origin and meaning of this

²¹ Ibid.

²² Du Gay, *Consumption and Identity at Work*.

²³ Layard, *Happiness: Lessons from a New Science*.

²⁴ Gabriel and Lang, "New Faces and New Masks of Today's Consumer," 332.

²⁵ Michel Maffesoli, *The Time of Tribes: The Decline of Individualism in Mass Society* (London: Sage Publications, 1996).

²⁶ Gabriel and Lang, *The Unmanageable Consumer*.

²⁷ Stewart, Prandy, and Blackburn, *Social Stratification and Occupations*.

²⁸ Rosemary Crompton, "Class and Family " *The Sociological Review* 54(2006).

²⁹ Silverstein et al., *The \$10 Trillion Prize: Captivating the Newly Affluent in China and India*.

concept goes beyond “a social group in socio-economic development”, and is overwhelmingly political. Hence, this concept is used less explicitly than it ought to be. Still, social class continues to form a determining foundation for this fragmentation of consumer groups, with the concept’s political and economic denotations varying over time.

The social class based consumer fragmentation has shaped regulatory segmentation of the food safety regime. Since its establishment, there have been differentiating regulatory arrangements for different groups of consumers – here, social class based consumer fragmentation is a crucial foundation for historically embedded regulatory segmentation of the food safety regime. Thus, this research will address the fragmentation of food consumers from a perspective of social class formation within Chinese society and analyse how food consumer fragmentation has influenced China’s food safety regime.

Fragmentation of food consumers in China

All food consumers are nominally equal in front of the regulatory regime on food safety – its practice, however, tends to mainly benefit some consumers while distributing mostly burdens to others. In China’s case, the benefits (or burdens) of the food safety regime are unequally allocated upon all food consumers. Such unequal allocation follows Szelenyi’s argument that, in socialist redistributive economies, important goods are allocated in an inegalitarian way³⁰ – this being a consequence of “redistributive intervention by government” or privileges created by the dominant economic mechanism to serve the top of social hierarchies.³¹ Safe food as a privilege was institutionalised via economic and regulatory mechanisms specifically for a certain consumer fragmentation, while others became the underprivileged sufferers of problematic food safety. So, before discussing how certain fragmentations of food consumers are privileged and others not, the Chinese food market should ask “who gets what, when, and how” – starting with which consumers comprise the “who”.³²

³⁰ Konrad and Szelenyi, *The Intellectuals on the Road to Class Power*.

³¹ Szelenyi, "An Outline of the Social History of Socialism or an Auto-Critique of an Auto-Critique," 45.

³² Harold Dwight Lasswell, *Politics; Who Gets What, When, How* (New York, London: Whittlesey House, McGraw-Hill Book Co., 1936).

The “who” encompasses consumers in China’s different social classes (阶级). Although social class is a product of socio-economic development,³³ this concept in China goes beyond sole social stratification. From the beginning, Mao Zedong had used the method of class analysis to confirm the triumph and leadership of Chinese Communist Party (the CCP).³⁴ However, Mao’s concept of class underpinned the Cultural Revolution,³⁵ which pushed China to the edge of political and economic turmoil. Both during and following the Cultural Revolution, the word “class” was given sophisticated political meaning by such terms as “class struggle” and negatively discriminant “class labels” for individuals and their families – hence, “class” has been used cautiously since the 1970s. During the Reform era, the concept of class became associated with other negative images – such as wealth and privilege that seemed to be generated by Party members and other well-connected,³⁶ rising gap between the rich and the poor and other social inequalities,³⁷ and the social positioning of entrepreneurs and uneven distribution of wealth.³⁸ So, China’s government, the media, and its public are cautious in explicitly using the word “class”, despite ongoing formation of new classes as part of socio-economic development.

Instead, China now uses the word “stratum” (阶层) to replace “class”. With the deepening of the Reform and economic liberalisation, individuals’ capacity to accumulate wealth and consume had been encouraged rather than criticised by government and market, thus justifying the existence and behaviour of the wealthy.³⁹ Rather than using “class” to define various social groups – with new features resulting from socio-economic changes during and following the reform era – it became replaced by “stratum”,⁴⁰ a word coined by Lu Xueyi. In fact, Lu’s occupation-based stratum was not unique or new, with numerous others having researched the interaction between occupation, status, wealth, class, and authority. Lu’s approach has been widely accepted by policy makers – and it now dominates China’s academic discussion of social class.

³³ Goodman, *Class in Contemporary China*.

³⁴ Ibid.

³⁵ Kraus, *Class Conflict in Chinese Socialism*.

³⁶ Wang, "Unify Thinking, Conscientiously Rectify Party Work Style."

³⁷ David, "Between Social Justice and Social Order: The Framing of Inequality."

³⁸ Zang, "Market Transition, Wealth and Status Claims."; Guo, "Classes without Class Consciousness and Class Consciousness without Classes: The Meaning of Class in the People's Republic of China."

³⁹ Anagnost, "From "Class" to Social Strata": Grasping the Social Totality in Reform-Era China."

⁴⁰ Lu, *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*.

Lu Xueyi divided the Chinese social structure into ten social strata, which belong to five social hierarchies (or classes).⁴¹ This division is based on individuals' occupation and their possession of organisational authority and economic and cultural resources.⁴² Economic and cultural resources have a straightforward meaning. Organisational authority, on the other hand, refers to the power to allocate other types of resources (presently controlled by CCP and the Chinese government) – according to Lu, organisational authority is the decisive and most important form of resource in social stratification. With this in mind, the ten top-down social strata are: state and social management, economic management, private enterprise owners, specialised technological personnel, administrative personnel, individual industrial and business households, business service personnel, business workers, agricultural workers, and urban unemployed, unemployed, and semi-unemployed personnel (see figure 2-1 below).⁴³

China's social stratification had been shaped and consolidated by access to the three types of resource in general and organisational authority in particular – here, possession of these resources by different stratifications exerts significant impact on the fragmentation of consumer groups, thus further shaping regulatory segmentation of the food safety regime. Indeed, consumption patterns are largely determined by what strata consumers belong to. For instance, the top strata of state and social management (belonging to the upper hierarchy) have privileged access to commodities that money cannot buy and is usually guaranteed by higher regulatory standards. In the meantime, the middle strata – such as economic management or private enterprise owners (belonging to the upper-middle hierarchy) – have the economic capacity to consume commodities unaffordable to the lower strata. Finally, the lower strata – such as workers and the unemployed (mostly belonging to the lower hierarchy) – must accept low priced commodities of poor quality and safety due to their limited economic resource.

⁴¹ Ibid.

⁴² Ibid., 9.

⁴³ Ibid.

Five social hierarchies

Ten social strata

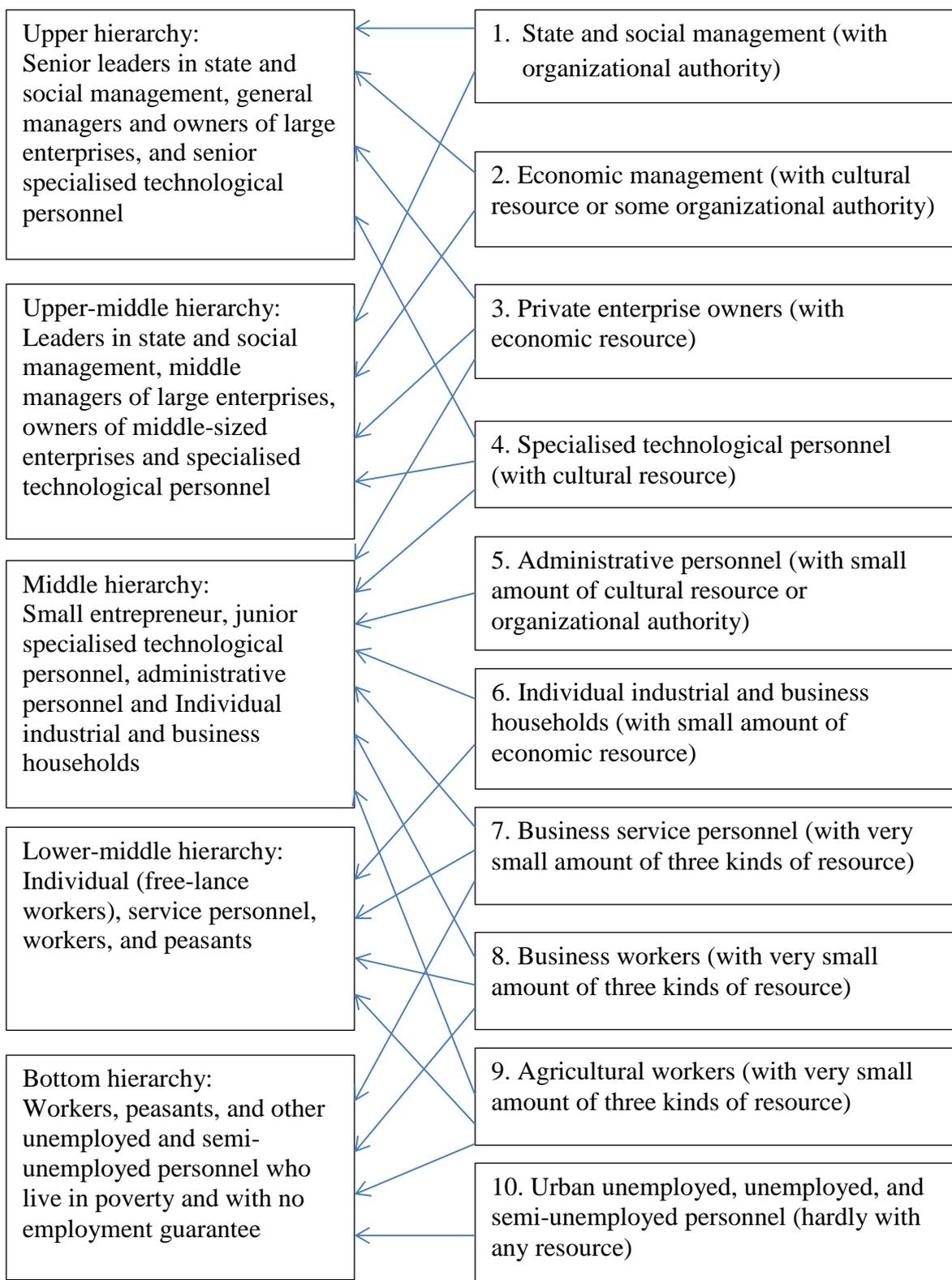


Figure 2-1 Social hierarchies and strata in China

Source: Xueyi Lu, *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]* (Beijing: Chinese Academy of Social Sciences, 2002)

In food consumption, consumers in one or several social strata sharing similar resource structure (in terms of power, privilege, economic capacity, consumption patterns, and so on) had been clustered into different food consumer groups. These groups face different levels of food safety – and this is caused by regulatory segmentation of different consumer groups within the food safety regime, as per the main argument of this research. Briefly speaking, while applying the regulatory regime on food safety, different sets of food safety standards are used for food supplied to different consumer groups that have uneven access to food risk information – indeed, unlawful behaviours in food production were modified segmentally for food intended for fragmented consumer groups. Overall, regulatory segmentation driven by fragmentation of food consumers results in uneven distribution of food risks and varying safety levels of food produced in China.

Regulatory segmentation within the food safety regime mainly occurs within four fragmented consumer groups. The first group includes foreign consumers – they are not in China geographically, but consume food exported from China. This group is not necessarily large, yet it has been significant to China’s export-oriented economy during 2004-2013, as the nation gradually built itself into a leading global food exporter. Hence, foreign consumers possess relatively privileged food safety compared with the majority of domestic food consumers in China. The second group – the politically privileged – are located in the upper hierarchy and have strong organisational authority, according to Lu’s stratification. The politically privileged group is also recognised as the “political elites” with absolute and unchallengeable power⁴⁴ in decision-making in most policy areas, which enables them to manipulate “redistributive intervention” in order to ensure the distribution of privileges. In the case of food consumption, the privilege of high food safety levels is guaranteed by a historically embedded and authority empowered exclusive supply system. Next, the third group of affluent consumers comprises members of mostly upper-middle and a small part of middle classes – emerging from the reform era, they have high levels of disposable income and, thus, the capacity to purchase “safe” food by paying a premium. Under Lu’s framework, this group of affluent consumers armed with economic and social capital are capable of creating their own supply of quality goods (including food).

⁴⁴ D. Shlapentokh, "Post-Mao China: An Alternative to ‘the End of History’?," *Communist and Post-Communist Studies* 35, no. 3 (2002): 239.

In the meantime, most food safety crises had occurred within the fourth group – ordinary domestic consumers, partly from the middle class and mainly from the lower-middle and lower classes. It is worth noting that this group includes most food producers as consumers (see figure 2-2 below). Scarce resource possession offers this group limited choices in food consumption. While each fragmentation of food consumers may include sub-groups based on region, consumption preference, and other variables, the sub-groups within the four major fragmented food consumer groups will not be discussed here for sake of maintaining analytical clarity.

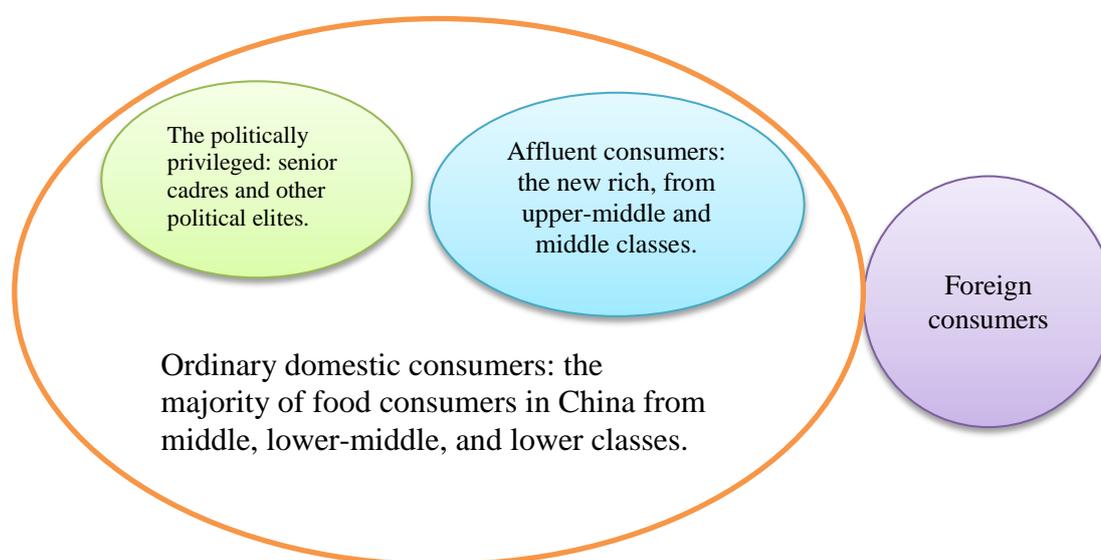


Figure 2-2 Fragmentation of food consumers and social strata

Foreign consumers

Here, foreign consumers refer to those who consume Chinese food exports and are not in China geographically. China's food export has increased steadily over the past decade, with an annual increase of around 12% during 2004-2013 (figure 2-3). In 2009, China became fourth leading global food exporter after the U.S., Brazil, and Canada.⁴⁵ The top five major importing nations and regions for Chinese food export comprise Japan, EU (EU-27), Hong Kong, the U.S., and Korea.⁴⁶

⁴⁵Bonarriva and Weaver, "China's Agricultural Trade: Competitive Conditions and Effects on US Export," 21.

⁴⁶Ibid., 22.

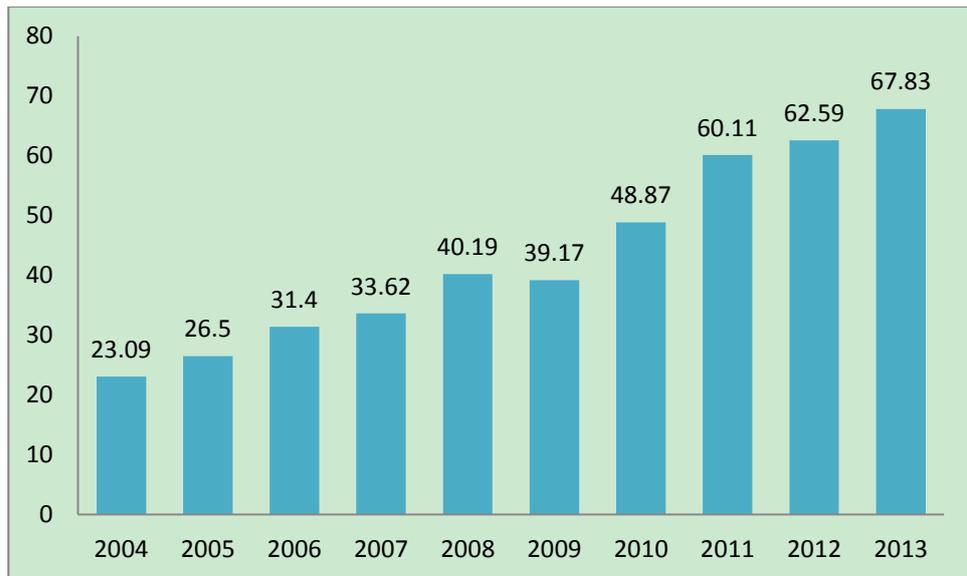


Figure 2-3 Food export from China in 2004-2013 (billion USD)

Source: based on data from General Administration of Customs of the People's Republic of China, available on <http://www.customs.gov.cn/publish/portal0/tab44604/module109000/page27.htm>.

China exports mostly labour-intensive food products. For instance, among all of USD 62.59 billion of food exported from China in 2012, labour-intensive aquatic products were highest on the food export list, amounting to USD 20.27 billion or 32.38% of the total.⁴⁷ Over USD 17 billion fell into the category of horticultural products, led by fresh vegetables and fruit. Processed vegetables and fruit export took a large share also, reaching USD 7.56 billion. Other non-horticultural products exported from China include miscellaneous processed foods, processed animal feed (mainly soybean oil cake and pet food), and meat products.⁴⁸

For the past three decades, China has promoted export as one of its three engines for economic growth – the other two being investment and domestic consumption.⁴⁹ Export contributes significantly to China's GDP growth and revenue at central and local levels. For instance, in 2012, China's net export (trade surplus of CNY 46.09 billion)

⁴⁷ NBSC, "Export Products and Value in 2012," National Bureau of Statistics of China, <http://data.stats.gov.cn/workspace/index?a=q&type=global&dbcode=hgnd&m=hgnd&dimension=zb&code=A06040101®ion=000000&time=2012>, 2012.

⁴⁸ Ibid.

⁴⁹ Gang Fan, "'Three Engines' Should Move Forward in Balance," *Ke Xue Jue Ce [Scientific Decision-making]*, no. 10 (2006).

accounted for 9.6% of national GDP (CNY 478 billion).⁵⁰ In major food export provinces – such as Shandong, Fujian, Guangdong, and Zhejiang – the food export sector had created a large number of employment opportunities and was a significant source of local farmer income. For instance, with an annual growth rate of food export of around 10%, Shandong had been China's top food exporter province since the beginning of the 21st century. Starting from 2011, food export from Shandong reached over USD 15 billion Yuan,⁵¹ creating around 25% of Shandong's farmer income and establishing over 16 million employment positions.⁵² A steady fiscal revenue, farmer income, and employment further contribute to local social stability. Indeed, some areas depend on food export for regional geopolitical cooperation – thus, the Yunnan province is not as large as Shandong in food export, yet the food trade between Yunnan and Association of Southeast Asian Nations (ASEAN) countries is a crucial agenda in Sub-Mekong regional cooperation.⁵³

The economic and political significance of food export for China means that foreign consumers have gained a prioritised and privileged position of accessing China's food export with higher regulatory standards on quality and safety. As contributors to China's economic boom, foreign consumers (not confined to food consumers) have received extra attention and preferential treatment in the Chinese market and from regulators. So, among the control components of the food safety regulatory regime, China's safety standards on food for foreign consumers differ from those for the domestic sector, while institutional arrangements (behaviour-modification mechanism) for standards implementation also vary. Availability of food safety information to foreign consumers is segmented in the form of better transparency and traceability. Overall, China's regulatory segmentation within its food safety regime offers foreign consumers higher food safety levels and less food risks, compared with its domestic consumers.

⁵⁰ GAC, "China's Net Export Contributed to 10% of GDP Growth, Trade Dependence Ratio Reduced to 47%," General Administration of Customs of the People's Republic of China, <http://www.customs.gov.cn/publish/portal0/tab39267/info417050.htm>.

⁵¹ Foreign Trade Department of MOC, Monthly Statistics on Agricultural Products Import and Export in China, (Beijing: Foreign Trade Department of MOC, 2015), http://wms.mofcom.gov.cn/article/zl_ncp/table/2013_12.pdf.

⁵² Hongbiao Li, Yunbao Wu, and Qingyou Wei, "Experience and Inspiration of Agricultural Product Export in Shandong," *Liaoning Economy* 7(2012).

⁵³ Guanqi Zhou, "The Influence of CAFTA on the Trade of Agricultural Products between Yunnan and ASEAN," *Journal of Yunnan Nationalities University (Social Science Edition)* 28, no. 2 (2011).

The politically privileged

Within Chinese society, the top stratum of state and social management as per Lu's stratification⁵⁴ controls the core of state power and is the country's group of key decision-makers. They are the leading cadres appointed and supervised by and centring on the CCP⁵⁵ or the political elite, according to Mao who designed social structure in a more simplified and flat way that consisted of only two parts: the elite and the masses.⁵⁶ They are also the dominant class who has power to control and manage the state's resources,⁵⁷ and the ruling class featured by their privilege, wealth, and power⁵⁸ – although these concepts differ in their degrees of coherence, organisation, and permanence.⁵⁹ In recent research, the organisational authority possessed by the top stratum was recognised as the monopoly power of the Party-state, extending to managing the national economy and wealth generation⁶⁰ as well as controlling economic and political power.⁶¹

The group of the politically privileged is not confined to the top stratum of leading cadres and extends along the Party-state hierarchy and among the economic elite. Within China's stratified social structure, the organisational authority and power of the top stratum are decentralised along multiple levels of the Party-state hierarchy system – from the centre to province, prefecture, county, township, and village – and with government administration equivalents from ministry to bureau, division, and section.⁶² That is not to say that the whole cadre force belongs to this dominant class – however, those with political privilege are from this pool. Many administrative cadres should be considered part of the middle rather than upper, or dominant, class. At the same time,

⁵⁴ Lu, *Dangdai Zhongguo Shehui Jiecheng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*.

⁵⁵ John P. Burns, *The Chinese Communist Party's Nomenklatura System* (New York: M. E. Sharpe, 1989).

⁵⁶ Joseph C. H. Chai, *An Economic History of Modern China* (Cheltenham, UK: Edward Elgar, 2011). 156.

⁵⁷ Goodman, "Middle Class China: Dreams and Aspirations."

⁵⁸ Chen, "Zhiyou Shangji Shehui Meiyou Shangliu Shehui [There's Only a Ruling Class; No Upper Class]."

⁵⁹ Goodman, *Class in Contemporary China*: 65.

⁶⁰ Qinglian He, "Dangqian Zhongguo Shehui Jiegou Yanbian De Zongtixing Fenxi [a Comprehensive Analysis of the Evolution of China's Social Formation]," *Shuwu [Book Room]* 3(2000).; "A Volcanic Stability," *Journal of Democracy* 14(2003).

⁶¹ Alvin Y. So, "The Making of the Cadre-Capitalist Class in China," in *China's Challenges in the Twenty-First Century*, ed. Joseph Cheng (Hong Kong: City University of Hong Kong Press, 2003).

⁶² Andrew Walder, "The Party Elite and China's Trajectory of Change," *China: An International Journal* 2, no. 2 (2004).

some of the economic elite – who started out within the Party-state and had been politicised during and after the Reform era – are deeply intertwined with the political system in China and can access to political privileges.⁶³ It would be imprecise to calculate how many fall into the group of the political privileged, considering that even discussing class and relevant inequalities was ambiguous and discouraged. Based on available data of 500,000 cadres in leadership positions and roughly 42 million of the entire cadre force,⁶⁴ and between 3% and 4% of the population are estimated to have an annual income at or above RMB 500,000 Yuan⁶⁵ – an estimated 3% of the total population constitute the dominant class⁶⁶ with different kinds of privileges, or the politically privileged.

In this regard, a system of exclusive supply has realised and protected the consumption rights of the politically privileged group. Here, exclusive supply can be defined as a system where superior goods are exclusively supplied to the top social strata. An early version of exclusive supply can be traced back to the tribute system of China's ancient dynasties – under this system, the emperor, royal families, and senior leaders enjoyed the privilege of exclusive access to superior goods that money could not buy. After establishment of the PRC in 1949, this system had been modified and implemented to guarantee the living standards of the politically privileged, especially when facing commodity shortage – a “cadre power”⁶⁷ backed redistribution system in its nature. In the Party-state hierarchy system, cadres above certain rank enjoyed the privilege of exclusively supplied goods, with guarantee on priority, safety, and quality.⁶⁸ Such a

⁶³ Houyi Zhang and Zhili Ming, *Zhongguo Siying Qiye Fazhan Baogao 1978-1998 [Report on the Development of Private Enterprises in China 1978-1998]* (Beijing: Social Science and Culture Press, 1999). 50.; Houyi Zhou, "Jiniru Xinshidai De Zhongguo Siying Qiyezhuzhu Jiecheng [Private Entrepreneurs in China Enter a New Era]," in *Zhongguo Shehui Xingshi Fenxi Yu Yuce: 2004 Nian [Blue Book of China's Society 2004: Analysis and Forecast of China's Social Development]* (Beijing: Social Science and Culture Press, 2004), 318.; and Bruce J. Dickson, *Wealth into Power: The Communist Party's Embrace of China's Private Sector* (Cambridge: Cambridge University Press, 2008). 94-95.

⁶⁴ John P. Burns, "The Chinese Communist Party's Nomenklatura System as a Leadership Selection Mechanism: An Evaluation," in *The Chinese Communist Party in Reform*, ed. Kjeld Erik Brodsgaard and Yongnian Zheng (Abingdon: Routledge, 2006).; Andrew Walder, "The Party Elite and China's Trajectory of Change," in *The Chinese Communist Party in Reform*, ed. Kjeld Erik Brodsgaard and Yongnian Zheng (Abingdon: Routledge, 2006).

⁶⁵ Teresa Wright, *Accepting Authoritarianism: State-Society Relations in China's Reform Era* (Redwood City: Stanford University Press, 2010). 7.

⁶⁶ Goodman, *Class in Contemporary China*: 91.

⁶⁷ Nee, "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China."

⁶⁸ The Central Committee of Communist Party of China, "The Instruction Forwarded by the Central Committee of Cpc on Qi Yanmin's Report on Special Supply to Senior Leaders and Intellectuals in Beijing," Xinhua News Agency, http://news.xinhuanet.com/ziliao/2005-01/11/content_2445200.htm.

system outlived the era of its birth, survived The Great Famine of 1959-1961, endured the Cultural Revolution and the Reform era, and found its way into the 21st century when China's political economic background transited from centrally planned to a market economy with Chinese characteristics. Yet, marketization did not stop cadre power, and many cadres managed to preserve the same power and privileges, if not more.⁶⁹

Food is on top of the list of goods provided within the exclusive supply system. According to Gao Zhiyong, a retired senior official in Ershang Group (二商集团)⁷⁰ who participated in the writing of *Beijing Zhi, Shangye Juan, Fu Shipin Shangye Zhi* [北京志: 商业卷, 副食品商业志 *Beijing Chronicles: Commerce & Non-staple Food*], food was specially, separately, and preferentially prepared for three kinds of consumers since establishment of the PRC: participants of important conferences and occasions; visiting foreign leaders and embassy staff; and national leaders, professionals of special types, and senior intellectual experts.⁷¹ All three consumers types were of high political significance, with most of the first and third kinds bearing overwhelming organisational authority – they formed the early version of “the political privileged”. As time went on, the composition and size of “the political privileged” varied, but this did not affect the reality of this consumer group continuing to enjoy higher levels of food safety compared with the “masses”.

A different (higher) levels of food safety for the politically privileged has gradually become institutionalised with the exclusive food supply system. According to Lu's description, the politically privileged are mostly from the top stratum – the decision-makers and/or senior regulators of China's key policy areas, including food safety policies. The exclusive food supply offers the politically privileged the exclusive access to quality and safe food, and the organisational authority possessed by this small group guarantees long-term functioning of the exclusive supply system. The politically privileged “is not only the maker of the rules of the game, but also the sportsman

⁶⁹ Nee, "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China."

⁷⁰ Ershang Group is the major food provider for the exclusive system in Beijing. The Group was reorganized based on its predecessor and renamed as Ershang Group in 1997 as a state owned enterprise with major mission of providing food for government officials. Nowadays, the Group also provide a small share of its products in market.

⁷¹ Beijing Municipal Chronicles Committee, *Beijing Zhi, Shangye Juan, Fu Shipin Shangye Zhi* [*Beijing Chronicles: Commerce & Non-Staple Food*] (Beijing: Beijing Publishing House, 2002).

competing in the game and the referee for the game at the same time”.⁷² In this sense, the politically privileged are able to secure a stable and consistent level of food safety through historically embedded regulatory segmentation of the food safety regime—the exclusive supply system, and their possession of organisational authority further consolidates the institutionalisation of this regulatory segmentation.

Affluent consumers

Commencing in the late 1970s, China’s reform era promoted rapid economic growth and dramatic social changes, which in turn created a range of beneficiaries. Several social groups participated in and benefited from wealth creation during and following the reform. Literature defines them differently yet interchangeably as the “wealthy”, “well-off and educated”, “middle strata/classes”, “middle income earner”, “bourgeoisie and middle class”, “an affluent stratum”, or simply “the new rich”.⁷³ This grouping is a broad idea rather than a precise category, inclusive of not only economic elite, but also the petty bourgeoisie as well as professionals in a range of new industries – such as lawyers, accountants, stockbrokers, estate agents, designers, athletes, and so on.⁷⁴ These reform beneficiaries share the feature of an abundant economic resource to consume and form the group of affluent consumers in the Chinese and global market.

Most affluent consumers are from the broad pool of the middle class (here upper-middle class is included in this broad concept). China’s middle class is a contested classification due to political sensitivity around discussion of class and inequality. This concept attracted academic notice during mid-1980s in China and, gradually, there came to be a degree of agreement about the definition of middle class, despite the differences.⁷⁵ Thus, at least four criteria are used to define middle class in China: income, occupation, education, and consumption. *Income* of a middle class member should be relatively high and stable; he or she should be employed in a high-status

⁷² Yong Guo and Angang Hu, "The Administrative Monopoly in China's Economic Transition," *Communist and Post-Communist Studies* 37, no. 2 (2004): 272.

⁷³ Chen, "Capitalist Development, Entrepreneurial Class, and Democratization in China," 408-09.; Tsai, *Back-Alley Banking: Private Entrepreneurs in China*: 1.; Liu, "Toward an Analytical Theory of Social Change: The Case of China," 506-07.; Yang, "Economic Transformation and Its Political Discontents in China," 155.

⁷⁴ Goodman, "The People's Republic of China: The Party-State, Capitalist Revolution and New Entrepreneurs," 225.; Xiao, "The Rise of the Technocrats," 62.; Luigi Tomba, "Creating an Urban Middle Class: Social Engineering in Beijing," *The China Journal*, no. 51 (2004): 4-8.

⁷⁵ Chunling Li, "Characterizing China's Middle Class: Heterogeneous Composition and Multiple Identities," in *China's Emerging Middle Class: Beyond Economic Transformation*, ed. Cheng Li (Washington, D. C.: Brookings Institution Press, 2010), 136.

occupation, such as a professional or managerial position, and it is better to be “within the system”; *higher education* is expected; and, finally, *consumption* and lifestyle are significant identifiers of the middle class.⁷⁶ Despite existence of agreed criteria to define middle class, this contested concept still produces a rather wide range for its size: from 5%⁷⁷ to 54%⁷⁸ of the total Chinese population. A range between 10% and 30% is one most agreed upon by scholars.⁷⁹

Affluent consumers are from the broad concept of middle class, but only form a subset of it. In literature on middle class in China, the inclusion of different social groups is a key contested focus and, quite often, this inclusion can be as wide as its percentage of the total population. For example, Lu Xueyi estimated that 23% of the population belonged to the middle class in 2006,⁸⁰ yet he allowed for nine out of ten social strata to be regarded as part of the middle class (except for the stratum of “urban and rural unemployed”).⁸¹ Meanwhile, the CCP included all those who possess skills, knowledge, and organisational experience in the middle class (or the intermediate class in sociological literature).⁸² Contrary to this rather wide inclusion, some scholars emphasise the key criteria of the concept of income, consumption, and lifestyle, thus narrowing down the size of the middle class to varying degrees. For instance, Li Chunlin recognises that only 4.1% of the workforce or 2.8% of the population could meet all the criteria of middle class.⁸³ Li Peilin calculated 3.2% of the population as “core middle class”, and another 8.9% as semi-core middle class.⁸⁴ In 2012, McKinsey

⁷⁶ Ibid., 139-40.; Li, "Chinese Scholarship on the Middle Class: From Social Stratification to Political Potential," 60.

⁷⁷ NBSC, *National Bureau of Statistics of China Statistical Yearbook 2005* (Beijing: China Statistics Press, 2005).

⁷⁸ Dominic Barton, Yougang Chen, and Amy Jin, "Mapping China's Middle Class," *McKinsey Quarterly* 3(2013), http://www.mckinsey.com/insights/consumer_and_retail/mapping_chinas_middle_class.

⁷⁹ Li, "Characterizing China's Middle Class: Heterogeneous Composition and Multiple Identities."; Xueyi Lu, *Social Structure of Contemporary China* (Singapore: World Scientific Publishing, 2012).; Wright, *Accepting Authoritarianism: State-Society Relations in China's Reform Era.*; Jie Chen, *A Middle Class without Democracy: Economic Growth and the Prospects for Democratization in China* (New York: Oxford University Press, 2013).; Silverstein et al., *The \$10 Trillion Prize: Captivating the Newly Affluent in China and India*.

⁸⁰ Lu, *Social Structure of Contemporary China*.

⁸¹ *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*: 9.

⁸² Goodman, *Class in Contemporary China*: 93.

⁸³ Chunling Li, *Duanlie Yu Suipian: Dangdai Zhongguo Shehui Jieceng Fenhua Shizheng Fenxi [Cleavage and Fragmentation: An Empirical Analysis of Social Stratification in Contemporary China]* (Beijing: Social Science and Literature Press, 2005). 482-99.

⁸⁴ Peilin Li and Yi Zhang, "Zhongguo Zhongchan Jieji De Guimo, Rentong, He Shehui Taidu [the Scale, Identification and Attitude of China's Middle Class]," in *Daguoce Tongxiang Zhongguo Zhilu De*

estimated that 14% of the population constituted the “real middle class”, as opposed to the “mass middle class”.⁸⁵ Such a reduced concept of the middle class indicates the number of affluent consumers, although it is impractical to calculate an actual number. Still, multiple research results overlapped on the range between 10% and 15% of the Chinese population as affluence consumers, and they are mostly from the upper-middle class to be more precisely considering the possible wide coverage of middle class in China.

The economic resource of affluent consumers allows them to pay a premium for their preferred lifestyle, including better food safety. With the combination of deteriorating food safety levels on the Chinese domestic market, import of new food production concepts, and market freedom, Community Supported Agriculture (CSA) farms have appeared in many of China’s large cities. As an emerging choice of food consumption for affluent consumers, CSA farms are localised, small-scale, and transparently managed; adjacent to large cities, these farms are designed to provide trustworthy food at a price higher than market average (details of such food production patterns will be introduced in Chapters Six and Seven). Affluent consumers are willing to pay premium for food from trusted CSA farms, regarding this as a safer alternative to available mass produce.

Another key point is that affluent consumers can access other food choices besides the burgeoning CSA farms. Despite being more costly and limited in quantity, these food choices boast higher safety levels – for example, imported food and food from renowned domestic producers. Unlike high risk food, possibly made by unlicensed producers for ordinary domestic consumers and widespread in low-end free markets, the premium food category is expected to produce lower food risks by following food safety standards, supplying food safety information, and remaining within margins of food safety regulations. This helps realise higher food safety levels for affluent consumers, whose very consumption capacity and willingness to consume serve to protect these new levels. Meanwhile, ordinary domestic consumers are willing to consume expensive food, remaining hindered only by its affordability. In reality, this group is exposed to most of the risks present in China’s food market.

Zhongguo Minzhu [a Chinese Democratic Great Power Strategy for China], ed. Jin Tang (Beijing: People’s Press, 2009).

⁸⁵ Barton, Chen, and Jin, "Mapping China’s Middle Class".

Ordinary domestic consumers

Ordinary domestic consumers comprise majority of China's food consumers – this includes consumers of large quantities, who also produce food. This group encompasses some members of the middle class and the greater part of the lower-middle and lower classes. Compared to the ones with either power or economic resource or both, they are peripheral⁸⁶ and subordinate.⁸⁷ This group exists mainly in the informal economy,⁸⁸ representing around 60% of the urban working population and 80% of the total working population⁸⁹ – or around 620 million people.⁹⁰ Although statistics regarding this group are neither clear nor totally reliable,⁹¹ this is – without a doubt – China's largest food consumer group. Based on estimated sizes of the politically privileged and affluent consumer groups, ordinary domestic consumers include approximately 80-85% of China's population.

The composition of ordinary domestic consumers reveals their underprivileged position in areas of economy, power, and social status. This group is large in size and broad in its coverage of social groups: the unemployed in rural and urban areas (e.g., laid-off workers and long-term unemployed), peasants, migrant workers, small business people, the self-employed, office and service workers, workers in unregistered businesses and, finally, some low-level workers in state-owned enterprises and in collective, private, and foreign-invested sectors.⁹² Thus, ordinary domestic consumers are at the disadvantaged end of China's economic inequality. Research and statistics demonstrate that the top 10% of households in China control at least 32% of income,⁹³ with some other calculations indicating figures as high as 56% of income, or 86% of total

⁸⁶ Li, "The New Changes in the Structure of the Social Stratification in China," 26.

⁸⁷ Goodman, *Class in Contemporary China*: 122.

⁸⁸ The informal economy is defined as part of economic activity unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated. Quoted in Manuel Castells and Alejandro Portes, "World Underneath: The Origins, Dynamics and Effects of the Informal Economy," in *The Informal Economy: Studies in Advanced and Less Developed Countries*, ed. Alejandro Portes, Manuel Castells, and Lauren Benton (Baltimore: Johns Hopkins University Press, 1989), 12.

⁸⁹ Philips C. Huang, "China's Neglected Informal Economy: Reality and Theory," *Modern China* 35(2009).; "The Theoretical and Practical Implications of China's Development Experience: The Role of Informal Economic Practices," *Modern China* 37, no. 3-43 (2011).; "Profit-Making State Firms and China's Development Experience: "State Capitalism" or "Socialist Market Economy"?", *Modern China* 38(2012).; "Misleading Chinese Legal and Statistical Categories: Labour, Individual Entities, and Private Enterprises," *Modern China* 39(2013).

⁹⁰ NBSC, *National Bureau of Statistics of China Statistical Yearbook 2012* (Beijing: China Statistics Press, 2012). table 4.1.

⁹¹ Dorothy Solinger, "Why We Cannot Count the "Unemployed"," *The China Quarterly* 170(2001).

⁹² Goodman, *Class in Contemporary China*: 124.

⁹³ Tom Orlik, "China's Inequality Gini out of the Bottle," *Wall Street Journal*, 17 September 2012.

household assets.⁹⁴ Annual disposable income figures suggest that the top 1% of households had an average of RMB 559,000 Yuan, while the bottom 25% had an average of RMB 10,800 Yuan.⁹⁵ With this in mind, the term “equality” does not do justice to how the Party-state allocates and reallocates resources – in fact, political power had been disproportionately decentralised from social and state management to the lower class.⁹⁶ This inequality in exercising political power has resulted in the lower end of China’s class structure being the largest yet weakest. Against a backdrop of recognising and appreciating the elite and upper-middle classes, ordinary domestic consumers appear to have low social status due to their unfavourable positioning of economic and political power. This assumption is particularly true for some social groups – such as migrants seeking work in the city with their relatively low levels of education and scarce social connections.⁹⁷

A combination of reinforced poverty, powerlessness, and low social status determines the lifestyle and consumption patterns of the ordinary domestic consumer group – this includes consumption of food, clothes, housing, communication tools, transportation, entertainment,⁹⁸ and education.⁹⁹ Thus, when it comes to the fundamental consumption of food, over 60% of ordinary domestic consumers regard their priority consumption target as “having adequate and affordable food,” with less consideration going to food sources, safety, risk information, and so on.¹⁰⁰ In some cases, this consumption choice may involve sacrificing food quality and safety for availability and quantity. For instance, attractively low priced food from unlicensed producers is more likely to be consumed by ordinary domestic consumers than by other groups, especially those at the bottom of society – this is the major group to buy cheap food in low-end free markets characterised by uncertain quality and unreliable safety inspection procedures.

⁹⁴ Gan Li, "China Household Finance Survey 2012," (Texas A&M University and Southwestern University of Finance and Economics, 2012).

⁹⁵ "Findings from China Household Finance Survey," (Texas A&M University and Southwestern University of Finance and Economics, 2013).

⁹⁶ Yingjie Guo, "Political Power and Social Inequality," in *Unequal China*, ed. Waning Sun and Yingjie Guo (Abingdon: Routledge, 2013).

⁹⁷ Goodman, *Class in Contemporary China*: 181-84.

⁹⁸ Li and Zhang, "Social Stratification Based on Consumption in China."

⁹⁹ Stephanie Hemelryk Donald and Zheng Yi, "Richer Than before -- the Cultivation of Middle Class Taste: Education Choices in Urban China," in *The New Rich in China: Future Rulers, Present Lives*, ed. David Goodman (London and New York: Routledge, 2008).

¹⁰⁰ Li and Zhang, "Social Stratification Based on Consumption in China," 231.

There is evidence to suggest that uneven distribution of food risks mainly affects the less affluent consumers. Around 30% of all food sold in China comes from unlicensed food processors, most of which are found in underdeveloped and poor regions (mostly rural areas) where most consumers fall into the category of ordinary domestic consumers.¹⁰¹ Further, an investigation by the State Administration of Industry and Commerce (SAIC) indicates that, of the bulk packed food sold mainly in underdeveloped rural markets, around 60% is unregulated and not certified by QS certification¹⁰² as well as missing entirely or bearing fake information about producers, expiry dates, and ingredients.¹⁰³ It is worth noting here that roughly 80% of total food safety incidents and 90% of food-borne diseases originate in China's underdeveloped rural areas.¹⁰⁴ Such unevenly distributed food risks further suggest a segmented food regulatory regime that assigns less benefits of food risk regulation to ordinary domestic consumers than to the other fragmented consumer groups.

Conclusion

The system of regulating food safety is a risk regulatory regime in nature – hence, this research adopts the model of risk regulatory regime in order to analyse the performance of China's food safety regime. From a cybernetic standpoint, the regime must contain three control components – standard-setting, information gathering, and behaviour modification – together with a linking mechanism under a different regime context and content. Of course, this model can break down further for the purpose of rating different kinds of risks.

Within the present research, the risk regulatory regime model has been modified to capture the crucial background of China's food safety regime. With food risk analysis as the sole focus of regime content, this thesis emphasises the key feature of regulatory segmentation – a crucial element of the reality of varying food safety levels and unevenly distributed food risks. Equally important is fragmentation of China's consumer groups based on social classes that drove and consolidate the historically

¹⁰¹ Tianjiao He and Xu Sun, "Unlicensed Food Accounted for 30% of All Foods Sold in China," China Business News, <http://food.china.com/news/11116379/20130514/17831351.html>.

¹⁰² QS is the compulsory product quality safety certification in China, and is required for all producers, including food producers.

¹⁰³ SAIC, "Food Safety Investigation in Distribution by SAIC," (Beijing: SAIC, 2013).

¹⁰⁴ Liu and McGuire, "One Regulatory State, Two Regulatory Regimes: Understanding Dual Regimes in China's Regulatory State Building through Food Safety," 121.

embedded regulatory segmentation. For this reason, the present research identifies consumer fragmentation as the core regime context.

Social stratification of Chinese society is the basis for fragmentation of domestic food consumers. As an equivalent concept of social class, China's social stratification provides a foundation for three domestic consumer groups, which impacted on the segmented food safety regime gradually. As the dominant class, the political elite formed the body of the first group – the politically privileged. In turn, the affluent consumer group comprises members of the upper-middle class – they are the new rich, that is, beneficiaries of rapid economic growth and wealth accumulation generated by China's reform. The remaining domestic food consumers combine into the group of ordinary domestic consumers – by far the largest group that contains a wide social range. Finally, the fourth group – the foreign consumers – includes overseas food consumers in countries that import food from China. There is no question about China's food safety regime affecting foreign consumers, especially during China's emerging as a leading food exporter on a global scale. All in all, this chapter has identified four fragmented consumer groups that are benefited segmentally from China's regulatory regime on food safety.

As has been noted, this thesis argues that the social class based fragmentation of food consumers lays the foundation needed for regulatory segmentation of the food safety regime – which, in turn, leads to deteriorating food safety levels and unevenly distributed food risks. It is worth noting that diversified consumer fragmentation potentially challenges both regulators and the regulatory regime by necessitating reallocation of regulatory resources and by balancing regulatory incentives. Specifically, new fragmentation of consumer groups means that regulators need to design new standards, tailor specific information-communicating mechanisms, and modify behaviours of the regulated in order to maintain the balance and sustainability of production and consumption. Accordingly, this thesis argues that China's segmented food safety regime is caused by food consumer fragmentation that endures since the regime's establishment, while historically embedded regulatory segmentation highlighted the variations in regulatory incentives, resources, and institutional arrangements, thus ultimately causing systemic failure of the food safety regime.

Hood's model of risk regulatory regime provides a comprehensive framework for analysing the overall performance of China's food safety regime. This research takes a step further, expanding the model to capture the background of China's political economy as the core of the regime context. This development means that analysis of the food safety regime can target regulatory segmentation – a crucial issue for food safety regulation in particular and, more broadly, for the establishment of regulatory state in China. On the whole, risk regulation is becoming more challenging, sophisticated, and complicated, not only because we now face more risks as a “risk society”, but also because the background for risk regulation is increasingly diversified and complex. Thus, modifying the original model in order to better capture and complement a changing background results in timely improvements – these, in turn, serve to help increase the model's accuracy and efficacy.

Chapter 3

Development of the Regulatory Regime of Food Safety in China

This chapter outlines the development of regulatory regime on food safety in China over the last five decades. Regulatory regime on food safety is a comprehensive system which facilitates various experts and regulators working together to oversee and manage food safety. A system of such complexity requires different regulators to cooperate and coordinate – indeed, it is common to see food regulatory regimes with multiple regulators. For example, food safety in the United States is managed by the Food Safety Inspection Service (FSIS) under the U.S. Department of Agriculture (USDA)¹; the Food and Drug Administration (FDA); and the Centre for Food Safety and Applied Nutrition (CFSAN)², with support from 10 other regulators. In another instance, Japan's food issues are handled by the Ministry of Agriculture, Forestry and Fisheries (MAFF)³; Ministry of Health, Labour and Welfare (MHLW)⁴; and Food Safety Commission of Japan (FSC)⁵. Meanwhile, in Australia, local governments work alongside the Department of Health & Aging⁶, Department of Agriculture, Fishery and Forestry (DAFF)⁷, and Food Standards Australia New Zealand (FSANZ)⁸ to generate a “safe food system”, which covers food policies, standards, enforcement, and surveillance. Yet in some countries, a single comprehensive food regulator governs the entire regulatory regime on food safety. For instance, German food safety is administered by Federal Ministry of Food, Agriculture and Consumer Protection (Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz, BMELV);⁹ other unified food

¹ USDA Food Safety and Inspection Service, "About Fsis,"
<http://www.fsis.usda.gov/wps/portal/informational/aboutfsis>.

² US Food and Drug Administration, "FDA Basics,"
<http://www.fda.gov/AboutFDA/Transparency/Basics/ucm195786.htm>.

³ MAFF of Japan, "The Role of Ministry of Agriculture, Forestry and Fisheries,"
<http://www.maff.go.jp/e/role/index.html>.

⁴ Ministry of Health Labor and Welfare, "Food Safety Information,"
<http://www.mhlw.go.jp/english/topics/foodsafety/administration/index.html>.

⁵ Food Safety Commission of Japan, "Role of the Food Safety Commission,"
http://www.fsc.go.jp/english/aboutus/roleofthefoodsafetycommission_e1.html.

⁶ Department of Health and Ageing, "The Role of Department of Health and Ageing,"
<http://www.health.gov.au/internet/main/publishing.nsf/Content/health-overview.htm>.

⁷ Department of Agriculture Fisheries and Forestry, "Food Regulation and Safety,"
<http://www.daff.gov.au/agriculture-food/food/regulation-safety>.

⁸ Food Standards Australia New Zealand, "Australia's Safe Food System,"
<http://www.foodstandards.gov.au/about/safefoodsystem/Pages/default.aspx>.

⁹ Federal Ministry of Food Agriculture and Consumer Protection, "Introduction on Federal Ministry of Food, Agriculture and Consumer Protection (Bmelv),"
http://www.bmelv.de/EN/Ministry/ministry_node.html.

regulators include the Food Standard Agency (FSA) in the U.K.¹⁰ as well as the Canadian Food Inspection Agency (CFIA)¹¹.

Food safety regime in China has simultaneously adopted different styles through historically embedded segmentation. So, China operates both multiple-regulators and single-regulator regimes in order to regulate food safety, with the two regimes being based on different consumer groups. One dominant regulator regulates food safety and quality for foreign consumers, while several regulators oversee the domestic food market. Regulatory segmentation extends beyond the export-domestic division and reaches fragmented consumer groups in the domestic food market, where each administrative level (province, municipality, or country) mirrors regulatory settings at central level. The fundamental regulatory styles for different consumer groups remained unchanged until 2013, when one main regulator began monitoring the domestic food market. Sharing similar regulatory styles though, overseas and domestic food markets are still regulated by different major regulators, with the consumer groups based segmentation still prevailing.

The present chapter begins by describing how China's regulatory regime on food safety had formed over time, with particular attention paid to segmentation. Indeed, this chapter's key aim is to highlight the segmentation of the food safety regime based on consumers' political and economic status. Specifically, this chapter's first section reviews the development stages of the regulatory regime, and explains how they were divided initially – emphasising the stage during 2004-2013, which arguably suggests that systematic failure of China's food safety regime is due to concurrent explosive food safety crises and successive rounds of regulatory reform intending to control these crises. In turn, section two introduces the regulatory responsibilities of each regulator – which, it must be noted, had been poorly defined – and proposes the crucial issue of agency fragmentation within a segmented regime that regulates food for the domestic market. Finally, section three highlights how regulatory segmentation of the food safety regime is historically embedded among fragmented consumer groups.

¹⁰ Food Standards Agency, "About FSA," <http://www.food.gov.uk/about-us/about-the-fsa/>.

¹¹ Canadian Food Inspection Agency, "About the Canadian Food Inspection Agency," <http://www.inspection.gc.ca/about-the-cfia/eng/1299008020759/1299008778654>.

Review: Development of the food safety regime

China's food safety regime had developed over four stages: 1949-1978, 1978-1992, 1992-2004, and 2004-2013. These stages are divided based on significant historic events that had transformed each stage into a period with coherent regulatory structure – indeed, all stages share some features when it comes to food safety regulation.

A number of historic events had significant impact on food regulatory structure in China. The regulatory regime's first developmental stage commenced with establishment of the PRC in 1949 – during this stage, China experienced the Great Famine and economic stagnation through the Cultural Revolution. Food scarcity was the major focus of this stage – hence the regulatory focus. The second stage began in 1978, which saw the Third Plenary Session of the 11th Central Committee of the Chinese Communist Party (CCP). This meeting indicated the beginning of the Reform era via transition from command to a market economy and privatisation of most industries, including the food industry. In 1992, Deng Xiaoping's "Southern Tour" marked the beginning of the third stage and further confirmed the theme of China's economy as "market economy with Chinese characteristics" and increasing privatisation¹². Mirroring the marketization trend, 1992's administrative reform dealt with either empowering existing regulators or establishing new ones – thus facilitating the emerging of China's regulatory state and accelerating regulatory segmentation of food safety. Towards this stage's end, food safety incidents increased at an unprecedented rate. This was due to a number of factors, including regulatory inefficacy caused by a widening gap between economic liberalism and political openness;¹³ agency fragmentation of the food safety regime; a lengthening food chain and growing food demand; modernisation of the food industry; and regulatory segmentation that intensified as middle class expanded. Hence, 2003 saw the State Drug Administration

¹² In 1992, when there was the debate about socialism versus capitalism, Deng pointed out: "whatever works will work". So Chinese nation unlocked itself from a huge ideological suffocation and embarked upon an unprecedented transformation, unparalleled in scale or scope anywhere in the world, started from Deng's tour to Southern China, establishing Economic Zones. Information from: Zhikai Gao, "Deng's Pragmatic Heritage Example for Leaders Worldwide " Global Times, <http://www.globaltimes.cn/NEWS/tabid/99/ID/694593/Dengs-pragmatic-heritage-example-for-leaders-worldwide.aspx>.

¹³ Michael A. Santoro, *China 2020: How Western Business Can--and Should--Influence Social and Political Change in the Coming Decade* (Ithaca and London: Cornell University Press, 2009). ix.

renamed to State Food and Drug Administration (SFDA)¹⁴ and expected to coordinate among food regulators. This event ended the third stage.

The fourth stage commenced in 2004, distinguished by a concurrence of intensive regulatory initiatives to improve food safety and an explosive number of food safety incidents, mostly among consumers from the lower and lower-middle classes. Agency fragmentation – a crucial issue in the food safety regime supervising the domestic market – had been addressed following the food safety crises. In 2013, the China Food and Drug Administration (CFDA) was reorganised based on the previous SFDA¹⁵ and was appointed as dominant food regulator in the domestic food market and marking the end of the fourth stage.

The beginning of regulatory segmentation – 1949 to 1978

The first stage started with establishment of the PRC and ended with the dawn of China's profound economic reform. At this stage, China was under a command economy – food was in dramatic scarcity and the priority of the food industry was to maintain supply, hence the regulatory focus. Later on, this focus expanded to cover such issues as food hygiene. Other food risks were not covered by the regulatory realm, mainly because command dominated food producers were under the government's direct control and had little incentive, opportunity, or technology to exert man-made hazards on food – such as adulteration, for instance.

Regulatory segmentation was part of the food safety regime from the outset. On the one hand, the Central Government referred to former Soviet Union in establishing nationwide Weisheng Fangyi Zhan (or WFZs, translated as “sanitation and anti-epidemic stations”) in 1953 in order to regulate food hygiene¹⁶ – these were situated mainly in rural areas.¹⁷ On the other hand, from 1956, the Ministry of Light Industry, Ministry of Food Industry, Ministry of Agriculture (MOA), Ministry of Chemical Industry, the Ministry of Commerce, and All China Federation of Supply and Marketing

¹⁴ State Council of PRC, "Regulation for Major Responsibilities and Personnel of Sfda."

¹⁵ "Plan on State Council Organization Reform and Function Transition," Xinhua News Agency, http://www.gov.cn/2013lh/content_2354443.htm.

¹⁶ Furui Zhang, "Dui Wei Sheng Fang Yi Zhi Neng De Zai Ren Shi [Reconsideration of Health Prevention Function]," *Zhong Guo Gong Gong Wei Sheng Guan Li Za Zhi [China Public Health Management Journal]* 7, no. 2 (1991).

¹⁷ Liu and McGuire, "One Regulatory State, Two Regulatory Regimes: Understanding Dual Regimes in China's Regulatory State Building through Food Safety," 131-33.

Cooperatives (ACFSMC) jointly regulated other food-related issues in urban areas.¹⁸ Moreover, the Ministry of Trade regulated food import and export, further extending segmentation into the foreign trade-domestic sector division.¹⁹

Simultaneously, agency fragmentation was embedded in the food safety regime due to multiple complicated criteria for regulatory responsibilities design. Food processing stages and categories were the main criteria in defining regulator responsibilities, and food's geographical location played a part on some occasions. So, MOA regulated quality control of crops and animals during cultivation and breeding stages, while the Ministry of Food regulated the processing and distribution stage. Further, the Ministry of Commerce regulated food quality in urban areas, while ACFSMC was in charge of the rural areas.²⁰ Without a coordination mechanism, multiple regulators could get involved in an issue with food grown, processed, and distributed in both urban and rural regions – as was the case for most food.

¹⁸ Liu Peng, "Tracing and Periodizing China's Food Safety Regulation: A Study on China's Food Safety Regime Change," *Regulation & Governance* 4, no. 2 (2010): 247.

¹⁹ Ibid.

²⁰ ACFSMC, "Charter of All China Federation of Supply and Marketing Cooperatives (ACFSMC)" Xinhua Net, http://news.xinhuanet.com/ziliao/2004-12/27/content_2385266.htm.

Table 3-1 Key food regulators from 1949 to 1978

Food issues	Regulators	Period
Food hygiene in general	WFZs	1953–1978
	Ministry of Health	1949–1978
Quality control of grain, salt, sugar and wine brewing	Ministry of Light Industry	1949.10–1952.9
		1954.10–1965.2
	Ministry of Food Industry	1949.10–1950.12
		1956.5–1958.2
	Ministry of Finance	1949.10–1952.7
Food purchase and sale quality management	Ministry of First Light Industry	1965.10–1970.6
	First Group of Ministry of Light Industry	1970.6–1978
	Ministry of Agricultural Products Purchase	1955.7–1956.11
	Ministry of Urban Services	1956.5–1958.2
	All China Federation of Supply and Marketing Cooperatives (ACFSMC)	1955.1–1958.2
Food production and distribution management		1962.7–1970.6
		1975–1978
	Ministry of Second Commerce	1958.2–1962.7
	Ministry of Commerce	1970.6–1975
	Ministry of Chemistry Industry	1950.5–1975.2
Control of import and export food	Ministry of Trade	1949.10–1952.8
	Ministry of Commerce	1952.8–1970.6
Control of import and export food	Ministry of Trade	1949.10–1952.8
	Ministry of Foreign Trade	1952.11–1973.10
	Import and Export Product Test Bureau	1973.10–1982.2

Core regulation: *Provisional Food Hygiene Control Ordinance*, approved in 1965

Source: Liu Peng, “Tracing and Periodising China’s Food Safety Regulation: A Study on China’s Food Safety Regime Change,” *Regulation & Governance* 4, no. 2 (2010): 248.

At this stage, complexity and agency fragmentation had been revealed in food regulations. In 1965, the *Provisional Food Hygiene Control Ordinance* was co-drafted by several ministries and was the first and only comprehensive regulation on food safety since 1949. It described a food regulatory regime where food issues were regulated “primarily by industrial ministries and secondarily by health agencies and WFZs”²¹. The *Ordinance*, however, failed to clearly define each regulator’s responsibilities and establish protocol of cooperation and coordination among numerous food regulators.

Food risks were not prominent at this stage. As China’s command economy determined that absolute majority of food producers would be subordinate to the government at a

²¹ Tianjin Government, “Tianjin Shi Ren Min Wei Yuan Hui Guan Yu Zhuan Fa Guo Wu Yuan Pi Zhun De Shi Pin Wei Sheng Guan Li Shi Xing Tiao Li [Notification on Food Hygiene Management Provisional Ordinance Issued by State Council, Tianjin People’s Commission],” *Tianjin Zhengbao* 1965.

certain administrative level, and state-controlled economy meant that profit-driven food risks, like intentional food adulteration, were minimal. Statistics showed that food risks at this stage were mainly due to poor consumption habits and bad food hygiene²² – not considering death from the Great Famine.²³ Within this fledgling food safety regime, many political interventions – such as ideological education, mass campaigns, administrative sanctions, and quality competitions – were used to regulate food related issues, rather than traditional regulatory tools such as economic penalties and judicial punishment. When economic reform was about to start (towards the end of the 1970s), food regulatory regime with command was set to change accordingly in the following stage.

Consolidating regulatory segmentation – 1978 to 1992

The second stage started in 1978, when the economic reform was the major theme of the era. China's economy took off, driven by ownership diversification and gradual marketization in some sectors, and continued growing rapidly over the next four decades. So, China's GDP grew from RMB 364.52 billion Yuan in 1978 to RMB 2693.73 billion Yuan in 1992.²⁴ Although agriculture grew slower than the average GDP growth, the increase from RMB 102.75 billion Yuan in 1978 to 586.66 billion Yuan in 1992 had a significant impact on food industry.²⁵

The impact on the food industry was immense in terms of industry size. Growth in number of food producers, distributors, processors, and restaurants was phenomenal compared with the previous stage.²⁶ Using the pork industry as an example, the number of slaughterhouses and cold storage centres increased from 5 and 23 in 1950 to 1145 and 1312, respectively, towards end of the 1980s.²⁷ Growth also occurred in some non-

²² Guangxi Medical Intelligence Institute, "Jiang Su Sheng 1974-1976 Nian Shi Wu Zhong Du Qing Kuang Fen Xi [Analysis of Food Poisoning in Jiangsu Province from 1974-1976]," *Domestic Medicine Digest: Disease Prevention* 1979, 178.

²³ Having said that, this stage witnessed the largest amount of food-caused deaths in China. The Great Famine from 1958 to 1962 caused tens of millions of lives (with no concrete number, and most scholars estimated to be around 40 million), but this tragedy is due to food security rather than food safety. Source: Ke Feng, *Mao Zedong De Da Ji Huang--1958-1962 De Zhong Guo Hao Jie Shi [Mao Zedong's Famine--1958-1962 China's Disaster]* (Hong Kong: New Century Publisher, 2011).

²⁴ China's GDP in 1949 was estimated at 46.6 billion Yuan. Data from: NBSC, "China GDP Data," (National Bureau of Statistics of China).

²⁵ Ibid.

²⁶ Yanhe Du, *Yinshi Fuwuye Jichu Zhishi [ABC of the Food Service Industry]* (Beijing: China Finance and Economy Publishing House, 1989). 30.

²⁷ Lyping Lv, *Guoneiwai Shipin Gongye Gaikuang [Summary on Food Industry inside and Outside China]* (Beijing: Economy Daily Publisher, 1987). 37.

traditional food categories due to improving living standards. For example, the amount of dairy factories increased from less than 10 in 1949 to over 700 in the 1980s.²⁸ Compared with the previous stage, expansion of the food industry provided better availability and wider choices for food consumers, including those with low incomes. Marketization also reinforced consumption patterns based on consumers' possession of power, privileges, and wealth – which substantially contributed to the deepening of consumer fragmentation, especially the group of affluent consumers.

Similarly, a significant impact was that enterprise ownership grew diversified, thus substantially motivating economic activities and changing relationships between producers and regulators. Prior to the Reform, all food producers were state-owned, forming the foundation for a “command and control” structure of the regulatory regime. Since early 1980s, the number of collectively and privately owned food producers grew rapidly, and their relationship with food regulators changed from straightforward command and control to sophisticated interaction. For instance, Beijing had 297 state-owned food processing plants prior to 1983, while in 1985 it housed over 560 collectively and 520 privately owned food factories.²⁹

Profound economic reform posed challenges for both food producers and regulators. For food producers, diversified ownership offered unprecedented autonomy in self-regulation, despite having to transit from being strictly controlled and simply obeying orders to responding to regulation with self-discipline in an effective way. For food regulators, whose responsibilities were not clear in the previous stage, rapid expansion of the food industry worsened agency fragmentation through significant growth in number and diversification of ownership of food producers.³⁰ Rapidly increasing food establishments revealed the insufficiency of the food safety regime with traditional political tools and unevenly distributed regulatory resources in both financial and human terms. More food related issues emerged, such as increasing food export and the need for food quality standards. With compounded challenges for both food regulators

²⁸ Baofeng Zhang, *Zhongwai Rupin Gongye Fazhan Gailan [Summary of Domestic and Overseas Dairy Industry Development]* (Ha'er Bin: Ha'er Bin Map Publishing House, 2005). 14, 23.

²⁹ Beijing Statistics Bureau, Beijing Food Industry Association, and Food Industry Office of Beijing, *Beijing Shipin Gongye [Beijing Food Industry]* (Beijing: Beijing Science & Technology Publishing House, 1986). 66-67.

³⁰ Hu Wang and Changjian Li, "The Crisis of Mainstream Paradigm: Introspection and Reforming of China's Food Safety Regulation," *Journal of South China Agriculture University (Social Science Edition)* 7, no. 4 (2008): 135.

and food producers, it is not surprising to see a growth of food risks towards the end of this stage.³¹

Food risks at this stage were mostly related to food hygiene – hence, the focus of food safety regulation. The *Provisional Food Hygiene Control Act of People's Republic of China* had been passed in 1982, replacing the *Provisional Food Hygiene Control Ordinance*.³² One of the Act's highlights included a nation-wide licensing system on food hygiene, to be initiated as a compulsory prerequisite for any food producers or traders. The licensing system would help food regulators deal with an increasing number of food producers with various forms of ownership. Another highlight of the Act clarified that including poisonous or pathogenic additives in food was a punishable offence – here, the Act nominated problematic food additives and packaging materials – thus indicating that intentional food adulteration, apart from food hygiene, came under attention of food safety regulation.³³

The Act's focus on food hygiene increased both regulatory segmentation and agency fragmentation, however, via conflict in ambiguously defined responsibilities of food regulators. For example, the Act stated that WFZs would maintain their function “as food hygiene supervision agencies” while the Ministry of Health (MOH) was empowered with “leadership in food hygiene supervision”.³⁴ Both regulators seemed to have similar regulatory responsibilities and cooperation was expected. The reality, however, proved that two regulators had a conflict in food hygiene supervision: MOH was in charge of issuing or revoking food hygiene licenses with inspection results issued by WFZs, while WFZs was in charge of food hygiene inspection yet one hierarchical level lower than MOH. When facing food hygiene breaching behaviour, neither MOH nor WFZs could enforce substantial regulatory punishment (such as revoking food hygiene license) without cooperating with the other – which was highly unlikely due to their conflict of interest.

Both regulatory segmentation and agency fragmentation of the food safety regime were not only deepened, but also further widened by the multiplication of new regulatory

³¹ Yan, "Food Safety and Social Risk in Contemporary China," 708.

³² Yinglian Hu, "Regime Logics of "Major Ministries" on Food Safety," *China Reform* 352, no. 3 (2013), http://www.caixin.com/2013-03-11/100499693_all.html#page2.

³³ Standing Committee of NPC, "Food Hygiene Act of the People's Republic of China (Provisional)," ed. The NPC Standing Committee (Beijing 1982).

³⁴ Ibid.

agencies in the regime due to expansion of the food industry and emerging food related issues. For example, the Industrial and Commercial Bureau joined WFZs and MOH in food hygiene regulation; the State Bureau of Technical Supervision was established in 1988 in order to develop food quality standards; and China's export food industry started to grow at this stage – so, any issues related to export food were separately monitored by newly established Export-Import Inspection and Quarantine Bureau. Without clarifying each regulator's responsibilities, more regulators could only mean a worsening agency fragmentation.

Furthermore, regulatory segmentation was consolidated by regulatory legacy from the command economy. Apart from a large food safety regime of multiple regulators, several powerful industries and state-owned enterprises (SOE) had their own agencies to regulate food safety. The agencies were directly subordinate to these industries or SOEs and referred to their own food safety standards and regulations (for instance, such as the railway industry).³⁵ In other words, those industries and SOEs had been facilitated with their own “micro” food regulatory mechanism, or “sub-regime”.

³⁵ Xue and Zhong, "Domestic Reform and Global Integration: Public Administration Reform in China over the Last 30 Years," 292.

Table 3-2 Key food regulators from 1978 to 1992³⁶

Food issues	Regulators	Period
Food hygiene in general	WFZs	1978-1992
	Ministry of Health	1978-1992
	Industrial and Commercial Bureau	1988-1993
Agricultural products	Ministry of Agriculture, Herding and Fishing	1982-1988
	Ministry of Agriculture	1988-1992
Grain products	Ministry of Grain	1979-1982
Food purchase and sales	All China Federation of Supply and Marketing Cooperatives (ACFSMC)	1982-1995
Food production and distribution management	Ministry of Commerce	1979-1993 (with name changes)
Export and import food	Import and Export Product Test Bureau	1973-1982
	Export-Import Inspection and Quarantine Bureau of AQSIQ ³⁷	1982-1998
	State Bureau of Technical Supervision of AQSIQ	1988-1993
Core regulations: <i>Food Hygiene Control Ordinance</i> approved in 1979; <i>Provisional Food Hygiene Control Act of People's Republic of China</i> passed in 1982		

Source: The Central People's Government of the People's Republic of China. "Introduction on State Council of PRC." http://www.gov.cn/gjjg/2005-08/01/content_18608.htm.

The impact of the Reform on the food industry – followed by new food safety regulation with poorly defined regulatory responsibilities and multiplication of new regulatory agencies in the regime – contributed to the major issues of regulatory segmentation and agency fragmentation in different ways. Together with sub-regimes in the powerful sectors, a regulatory segmentation food safety regime was consolidated. The dramatic economic and social changes during the next stage further reinforced the social foundation for regulatory segmentation through rapid development of various fragmented consumer groups.

³⁶ The Central People's Government of PRC, "Introduction on State Council of PRC," http://www.gov.cn/gjjg/2005-08/01/content_18608.htm.

³⁷ AQSIQ is short for General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

Streamlining regulatory segmentation – 1992 to 2004

Two interrelated events of substantial significance at this stage impacted on the overall food industry and contributed to the regulatory segmentation of food safety regime. The first is Deng's Southern Tour in 1992 as a trigger of deepening and quickening of marketization and privatisation, which substantially improved market efficiency, and revealed the redundancy and obsolescence of regulatory regime over many industries, including food industry. During the marketization, increasing number of food related issues emerged into the realm of food safety regime due to another wave of quick growth in food industry, both in the length of food chain and in food categories.³⁸ For example, China's food export increased, and a range of functional food, new food materials appeared thanks to the improvement in people's living standard.

The wave of marketization and privatisation quickened the fragmentation of various consumer groups as the foundation for regulatory segmentation. The dramatic economic and social changes promoted the growth of affluent consumers as beneficiaries from the wealth creation, and as a fragmented consumer group. Marketization and privatisation also marginalised some people who used to be protected by the even distribution of employment opportunities and social welfare in command economy: large number of laid-off workers, the still employed but in the informal economy,³⁹ migrant workers, and other vulnerable groups. They as the group of ordinary domestic consumers suffered the most from negative social changes, including the breaking out of food safety crises.

The second significant event is the administrative reform in 1992 and another one in 1998, aiming at downsizing the regulatory system, saving regulatory cost⁴⁰, and minimising the legacy from command economy through decentralising administration.⁴¹ Many industry-oriented ministries were abolished, such as the Ministry of Textiles and

³⁸ Peng, "Tracing and Periodizing China's Food Safety Regulation: A Study on China's Food Safety Regime Change," 252.

³⁹ The informal economy is defined as part of economic activity unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated. Quoted in Castells and Portes, "World Underneath: The Origins, Dynamics and Effects of the Informal Economy," 12.

⁴⁰ State Commission Office for Public Sector Reform (SCOPSR), "1993 Nian Guo Wu Yuan Ji Gou Gai Ge De Qing Kuang [State Council Reform in 1993]," State Commission Office for Public Sector Reform (SCOPSR), http://www.scopsr.gov.cn/zlzx/zlzxlsyg/201203/t20120323_35153.html.

⁴¹ Yukai Wang, Hao Wu, and Xiaofang Wang, "Wo Guo Xing Zheng Guan Li Ti Zhi Gai Ge San Shi Nian Li Shi Hui Gu [Review of China's Administration Reform in the Past 30 Years]," CPC News, <http://theory.people.com.cn/GB/49150/49152/7810078.html>.

the Ministry of Light Industry.⁴² Rather than ministry abolition, the impact of administrative reforms on food safety regime is the decentralisation of regulatory power, with local level regulators taking more responsibilities. Food producers and distributors, mostly privately owned, were increasingly regulated by local food regulators.⁴³ Those two events impacted on food industry and food safety regime substantially through large number of newly emerging food safety issues, new focus of food safety apart from food hygiene, and new power structure within food safety regime, which were addressed by a series of laws and regulations, and regulatory structure adjustment accordingly.

A series of laws and regulations were issued to address the growing significance and rapid changes of food industry. In 1995, *Food Hygiene Law of the People's Republic of China* was issued. It was the first time that food hygiene was raised to the level of national legislation in Chinese history.⁴⁴ According to the *Law*, MOH was nominated as the dominant regulator in food regulation, working closely with MOA, State Administration for Industry and Commerce (SAIC), and a few others. The *Law* covered a much wider range of food safety issues besides food hygiene, including baby food safety, food additives, food packaging, food manufacturing equipment, detergent, food catering environment, training of staff in food industry, food transportation and storage, and drinking water quality. It is noticeable that the *Law* clearly signified that certain kinds of the food were strictly forbidden for sale, such as adulterated food, food with inedible additives, food with overdose of pesticide or veterinary drug residues, food from unlicensed slaughterhouse, and food with other possible harm. This clarification showed that food risks gradually came from diversified sources.

After the *Law*, a series of regulations were issued or amended soon afterwards mainly by MOH for better implementing the *Law*. These regulations include *The Management Regulation on Health Food*, *Supervision Regulation on Food for Students*, *Food Hygiene Supervision Procedures*, *Administrative Sanction Regulation on Food Hygiene*,

⁴² Ibid.

⁴³ For example, at central level, the Ministry of Health will be in charge of food hygiene issue, while at provincial level, the individual provincial Department of Health will take the role, and it will be the Bureau of Health at city level.

⁴⁴ Standing Committee of NPC, "Food Hygiene Law of the People's Republic of China," ed. Standing Committee of NPC (Beijing: Standing Committee of NPC, 1995).

Regulation on Food Hygiene License and many others.⁴⁵ Meanwhile, over 50 regulations and rules under the *Food Hygiene Act of the People's Republic of China (Provisional)* were amended or abolished. The *Law* also introduced Good Manufacturing Practice (GMP) and Hazard Analysis and Critical Control Point (HACCP) into food production and regulatory regime for the first time.⁴⁶

Based on the *Law* and other regulations, the restructure of food safety regime, together with the institutionalisation of regulatory segmentation and agency fragmentation unfortunately, occurred during the second administrative reform in 1998. The responsibility of setting food safety standards was shared by MOH and the newly reorganised State Administration of Quality Supervision, Inspection and Quarantine (AQSIQ); and the food quality supervision at distribution stage was transferred from the Ministry of Commerce to SAIC. After reorganisation, food safety responsibilities were shared and coordinated among MOH, AQSIQ, MOA, The Ministry of Commerce and Trade (MOFCOM), and SAIC at central and local levels.⁴⁷ Briefly, MOA regulated the production of primary products, AQSIQ regulated food processing and export, SAIC regulated food distribution and qualification of food dealers, MOFCOM regulated food distribution and food market order, and MOH regulated food hygiene at production and consumption stage such as restaurants and canteens.⁴⁸

The agency fragmentation and ambiguously defined regulatory responsibilities spurred the need for coordination between agencies. Hence, State Drug Administration was reorganised and renamed as SFDA in 2003,⁴⁹ and entitled with the crucial responsibility of coordinating among various food regulators.⁵⁰ The expectation on SFDA was ambitious, but its hierarchical inadequacy determined its incapacity in fulfilling the designed mission. SFDA was of vice-ministerial status under the State Council of PRC,⁵¹ while the other five regulators were of ministerial status⁵²—SFDA was half

⁴⁵ NPC of PRC, "Implementation Report on Food Hygiene Law of the People's Republic of China by Standing Committee of NPC " NPC of PRC, http://www.npc.gov.cn/wxzl/gongbao/2000-12/07/content_5003785.htm.

⁴⁶ Ibid.

⁴⁷ Jun Han, *Report on Food Safety in China* (Beijing: Social Science Academic Press (China), 2007).

⁴⁸ Ibid.

⁴⁹ State Council of PRC, "Regulation for Major Responsibilities and Personnel of Sfd.".

⁵⁰ Wang, Wu, and Wang, "Wo Guo Xing Zheng Guan Li Ti Zhi Gai Ge San Shi Nian Li Shi Hui Gu [Review of China's Administration Reform in the Past 30 Years]".

⁵¹ CFDA, "China Food and Drug Administration Information Guide," CFDA, <http://www.sda.gov.cn/WS01/CL0464/>.

level below. Under China's strict hierarchical power structure, SFDA could hardly have a say in the cooperation of this regime, not to mention effective coordination. This hierarchical inadequacy of SFDA explained partially why agency fragmentation was still prominent in the coming years even though there was an assigned coordinator.

Table 3-3 Key food regulators from 1992 to 2004

Food issues	Regulators	Period
Food hygiene at production stage and consumption stage, some food standards	Ministry of Health	1992-2004
Production of primary products	Ministry of Agriculture	1992-2004
Export and import food, food standards	The Administration for Quality, Supervision, Inspection and Quarantine (AQSIQ)	1998-2004 (with name changes)
Food distribution as well food market order	The Ministry of Commerce and Trade (MOFCOM)	1993-2004 (with name changes)
Food distribution with focus on qualification of food dealers	State Administration of Industry and Commerce (SAIC)	1998-2004
Regulatory coordination	State Food and Drug Administration (SFDA)	2003-2004
Core regulations: regulations based on <i>Food Hygiene Law of the People's Republic of China</i> issued in 1995		

Source: Han, Jun. *Report on Food Safety in China*. Beijing: Social Science Academic Press, 2007.

Towards the end of this stage, a rough regulatory regime on food safety was shaped, and the regulatory development after 2004 was path dependent on these institutional legacies. During the first two stages covering 1949 to 1992, the regulatory regime of food safety was more of a command-control system than a regulatory regime, and food regulations mostly took the form of direct orders and policies, with focus primarily on food hygiene. At the third stage starting from 1992, regulatory tools such as incentives and economic sanctions played an increasingly important role in food regulation, and the focus of food safety regime grew wider to cover a comprehensive range of food related issues besides food hygiene. Two administrative reforms during this stage

⁵² Haoping Qian, "Zhong Guo You Duo Shao Zheng Bu Ji Dan Wei? [How Many Ministerial Level Departments Are There in China?]," *Southern Weekly* 2012.

empowered food regulators and consolidated an early version of food safety regime towards the end of this stage, especially with the participation of an official coordinator. Though many problems existed, some positive outcomes came along: the average pass rate of food hygiene increased from 61.5% in 1982 to 83.1% in 1995, and further to 90.13% in 2004;⁵³ and food poisoning incidents nationwide dropped from 1861 in 1991 to 522 in 1997, paralleled with a drop in the number of people suffering from food poisoning from 47367 to 13567 during the same period.⁵⁴

Regulatory segmentation was institutionalised with the regulatory reform albeit progress of the food safety regime. Article 55 of the *Law* exempted export food and Article 56 exempted food supplied to army and other “specially supplied” food from being regulated under the general food safety regime.⁵⁵ Such exemption reiterated that different food consumer groups were treated differently. Meanwhile, the decentralisation within the food safety regime offered flexibilities and autonomy to food regulators at local levels. The intention of decentralisation was to allow local food regulators to handle food safety issues with flexibility since issues could be different from region to region, but the accumulation of regulatory autonomy somehow became the origin of side effects which significantly impeded food safety regime, such as local protectionism, regulatory implementation driven by tax revenue rather than consumer protection, and corruption.⁵⁶ Last but not least, the agency fragmentation appeared in previous stage did not get any better. The vague and obscure language in the *Law* further blurred regulatory responsibilities. For example, “MOH would be in charge of food safety supervision and management in general, with all *relevant* departments under the State Council working in their specific areas.”⁵⁷ Moreover, newly joined SFDA was expected to coordinate, but actually had a high chance of adding up to agency fragmentation⁵⁸.

⁵³ Hu, "Regime Logics of "Major Ministries" on Food Safety".

⁵⁴ MOH, *Zhong Guo Wei Sheng Tong Ji Nian Jian 1991-2006 [China Health Statistical Yearbook 1991-2006]* (Beijing: Beijing Union Medical College Press, 1991-2006).

⁵⁵ Standing Committee of NPC, "Food Hygiene Law of the People's Republic of China."

⁵⁶ Mingang Lin and Jinliang Xu, "Research on Government Regulation of Food Safety in China's Transitional Period," *Chinese Public Administration*, no. 10 (2008).

⁵⁷ Standing Committee of NPC, "Food Hygiene Law of the People's Republic of China," Art. 3.

⁵⁸ Jing Li, "Effectiveness of Food Safety Regulatory System in China—a Case Study on China Dairy Industry," *Wuhan University Journal (Philosophy & Social Science)* 64, no. 2 (2011): 88.

From 2004 to 2013— regulatory segmentation and food safety crises

Large number of food safety crises at this stage suggested that the food safety regime failed. The decade from 2004 to 2013 witnessed explosive food safety incidents as well as intensive but reactive regulatory efforts into the food safety regime. Many factors contributed to the explosive food safety crises: lengthening and sophisticated food chain, dated food safety standards, loopholes in food safety regulation, technology improvement, weak self-discipline of food producers, and deeply rooted regulatory segmentation. Intensive regulatory initiatives were driven by one after another major food safety crises. Based on the concurrence of numerous food safety crises and intensive regulatory initiatives, this thesis argues that the regulatory regime on food safety in China failed.

Numerous food safety crises gradually proved the link between regulatory failure of food safety regime and embedded regulatory segmentation. The first major food safety crisis occurred at the outset of this stage as a result of regulatory segmentation, which mainly affected low income earners in the group of ordinary domestic consumers. In 2004, baby formula milk powder sold widely in Fuyang, Anhui, was found to be adulterated, with similar products found in underdeveloped rural markets in Shandong, Henan, and many other provinces. These inferior products were rather low-priced; hence, their major consumers (who later became victims) were low income earners in underdeveloped rural markets such as Fuyang. The adulterated milk powder was found to be very low in protein and caused malnutrition and poisonous reactions among 229 babies in Fuyang alone, with 12 deaths.⁵⁹

The first regulatory initiative was promoted by this crisis and panic, first among parents in underdeveloped areas and, later, nationwide. On 1 September 2004, *State Council Decision on Strengthening Food Safety Control* was issued to address the importance of food *safety*.⁶⁰ For the first time, food safety was used in the title of a food related regulation, and food regulator responsibilities were restructured based on the emphasised transition from food hygiene to the broadened food safety. According to the *Decision*, the responsibilities of MOA and SAIC remained the same; MOH's

⁵⁹ People's Net, "Topic: Fuyang Milk Powder," People's Net News, <http://www.people.com.cn/GB/shehui/8217/33048/>.

⁶⁰ State Council of PRC, "State Council Decision on Strengthening Food Safety Control," (Beijing: General Office of State Council (PRC), 2004).

responsibility in food hygiene supervision at the production stage was transferred to AQSIQ, who would oversee food processing and food export.⁶¹ Meanwhile, MOFCOM was removed from the direct regulator's list, yet was required to work with MOA and the National Development and Reform Commission (NDRC)⁶² to fulfil their responsibilities in managing the areas of plantation, breeding, food processing, distribution, and consumption.⁶³ The *Decision* specially addressed the problem of agency fragmentation within the regime, and pointed out that SFDA should function as a comprehensive supervisor and liaison in the regime, and that it would be in charge of food safety crisis solution.⁶⁴ Yet, this complication of regulatory responsibilities and affiliation of more agencies appeared to be unhelpful.

The *Decision* addressed the issue of food safety unprecedentedly heavily compared with laws and regulations at previous stages. For example, baby and child food would become a prioritised regulatory focus, with special attention not just on baby food producers, but also small vendors, restaurants, and student canteens. Further, the *Decision* outlined punishment measures for food safety crimes – food safety information would be exposed regularly, with “name and shame” policies; food regulations based on *Food Hygiene Law* would be amended to cover a wider range of safety issues together with proposed safety standards and a risk assessment system; and local level regulators would be empowered and required to take responsibility for local food safety supervision, while local protectionism will be strictly eradicated.⁶⁵

The *Decision* was reinforced by a *Special Decision*. In 2007, the *State Council Special Decision on Food Safety Supervision and Management* was passed and took effect immediately.⁶⁶ The *Special Decision* stressed that food regulators at local level would take major responsibility, with each regulator focusing on specialised regulatory areas, while food enterprises will become better self-disciplined.⁶⁷ Such clarification

⁶¹ Ibid.

⁶² NDRC is a significant part of State Council of PRC. It is in charge of researching and developing economic and social policies, evaluating existing policies, and providing guidance on macro adjustment of economic reform in China.

⁶³ State Council of PRC, "State Council Decision on Strengthening Food Safety Control."

⁶⁴ "Regulation for Major Responsibilities and Personnel of Sfd."a."

⁶⁵ "State Council Decision on Strengthening Food Safety Control."

⁶⁶ "State Council Special Decision on Food Safety Supervision and Management," General Office of State Council (PRC), http://www.gov.cn/zwggk/2007-07/27/content_699138.htm.

⁶⁷ Ibid.

emphasised the active role of enterprises and reiterated the importance of local government and regulators, rather than relying totally on any one side.

Actions echoing these regulations were taken accordingly, but brought out a complicated map of participating agencies that aggravated agency fragmentation. In August of 2007, the Leading Group for Product Quality and Food Safety under State Council was established, with former Vice Premier Wu Yi as director, and 10 more agencies participating on top of the original five regulators.⁶⁸ A four-month nationwide investigation was carried out immediately. Although the short-lived Leading Group was revoked on 21 March 2008 due to routine adjustment of Advisory and Coordinating Organs under the State Council and its responsibilities were transferred to MOH and AQSIQ,⁶⁹ Wu Yi concluded following the investigation that a long-term regulatory framework on product quality and food safety was urgently necessary.⁷⁰

At the end of 2008, the Sanlu melamine milk powder scandal broke out – this major crisis triggered the first legislation on food safety in China's history. Across the nation, around 300,000 babies were victims of melamine adulterated milk powder produced by Sanlu, and other renowned dairy enterprises were found to sell adulterated dairy products. This crisis revealed the urgency for a better functioning regulatory regime on food safety. After several drafts, the Standing Committee of the National People's Congress passed the *Food Safety Law of the People's Republic of China (FSL)* on 28 February 2009, and it became effective on 1 June 2009.⁷¹ Shortly following was the first draft of *Food Safety Law Implementation Measures* in April and final draft on 20 July of the same year.⁷² *FSL* and the *Measure* highlighted the prominent significance of food safety, and were expected to work as a solid legislative and regulatory foundation for a better functioning food safety regime.

⁶⁸ The original agencies which involved in food safety regulation are: MOA, MOH, SAIC, SFDA and AQSIQ, and the other ten are: Ministry of Foreign Affairs (MFA), National Development and Reform Commission (NDRC), Ministry of Science and Technology (MOST), Ministry of Public Security (MPS), Ministry of Supervision (MOS), Ministry of Finance (MOF), General Administration of Customs (GAC), State Administration of Taxation (SAT), Legislative Affairs Office of the State Council (LAO) and State Council Information Office (SCIO).

⁶⁹ State Council of PRC, "Adjustment of Advisory and Coordinating Organs under the State Council," General Office of the State Council (PRC), http://www.360doc.com/content/13/0310/16/7499155_270588251.shtml.

⁷⁰ Xinhua News Agency, "The Status and Timing of Food Safety Commission of State Council," Xinhua News Agency, http://news.xinhuanet.com/politics/2010-02/11/content_12964640.htm.

⁷¹ NPC of PRC, "Food Safety Law of the People's Republic of China".

⁷² State Council of PRC, "Food Safety Law Implementation Measures," General Office of State Council (PRC), http://www.saic.gov.cn/fldyfbzdjz/zcfg/xzfg/200909/t20090927_71292.html.

Compared to previous *Food Hygiene Law*, *FSL* and the *Measures* clearly focused on food safety in the domestic market. On top of all, *FSL* and the *Measures* appointed MOH as the predominant regulator supervising the implementation of *FSL*. *FSL* and the *Measures* proposed a “National Food Risk Surveillance Plan” to be implemented jointly by MOH, AQSIQ, SAIC, SFDA and MOFCOM.⁷³ Meanwhile, *FSL* specified that a broad and detailed set of food safety standards should be in place, addressing such issues as food additives, food for babies and specific groups, standards transparency, and coherence between national and local food safety standards.⁷⁴ In addition, the *FSL* proposed an information notification mechanism on food risks⁷⁵ and a food recall system⁷⁶ to facilitate food safety risk communication; addressed consumer rights concerning food information accessibility,⁷⁷ and called for clearer legal liabilities compared with previous versions.⁷⁸ Moreover, *FSL* emphasised agency fragmentation within the food safety regime and, hence, highlighted the importance of effective coordination. As a result, Food Safety Commission of State Council (FSC) was established on 6 February 2010, aiming at coordinating the regulatory responsibilities among all food regulators.⁷⁹ FSC was an “Advisory and Coordinating Organ under the State Council”⁸⁰ in nature, designed to coordinate among ministries and reporting directly to the State Council.⁸¹

The priority and significance of food safety were revealed by the presence of senior leadership figures and the composition of FSC. It was chaired by then Vice Premier Li Keqiang (Premier since 2013 and member of The Politburo Standing Committee

⁷³ Ibid., art. 5.

⁷⁴ NPC of PRC, "Food Safety Law of the People's Republic of China" art. 18-26.

⁷⁵ Ibid., art. 12-14.

⁷⁶ Ibid., art. 75.

⁷⁷ Ibid., art. 8-10, 21, 26, 54.

⁷⁸ Ibid., art. 84-98.

⁷⁹ General Office of the State Council (PRC), "Announcement on Establishment of Food Safety Commission of State Council".

⁸⁰ Advisory and Coordinating Organ under the State Council is responsible for: “organization and coordination of key tasks carried by different Ministries, Organizations, Administrative Offices, Institutions and Bureaus under the State Council. The agenda agreed by Advisory and Coordinating Organ should be approved by the State Council, and then be implemented by different Ministries, Organizations, Administrative Offices, Institutions and Bureaus accordingly. Upon emergencies, Advisory and Coordinating Organ shall stipulate interim administrative measures under with approval of the State Council. Quoted from: State Council of PRC, "State Council Administrative Structure and Management Regulations," Xinhua News Agency, http://news.xinhuanet.com/ziliao/2003-08/13/content_1024686.htm.

⁸¹ Ibid.

(PBSC)—the heart of decision making in PRC).⁸² Two Vice Directors of Commission were the then Vice Premier: Hui Liangyu and Wang Qishan⁸³. FSC also established the FSC Office as the working body. The composition of FSC was as follows. The initial five food regulators had been maintained – MOA, MOH, SAIC, SFDA, and AQSIQ. Another five agencies, members of the Leading Group for Product Quality and Food Safety in 2007, were maintained also – NDRC, MOFCOM, MOST, MPS and MOF. Next, six agencies in the Leading Group for Product Quality and Food Safety had been removed – MOS, MFA, GAC, SAT, LAO, and SCIO. And, finally, three new agencies had joined: Ministry of Industry and Information (MIIT), State Administration of Grain (SAG), and Ministry of Environmental Protection (MEP). The Deputy Secretary-General of the State Council also became one of the commission members.⁸⁴

Despite the political importance of *FSL* and establishment of FSC, both have little impact on food safety. Actually, after the establishment of FSC in 2010, food safety crises peaked in 2011 and 2012. The importance of food safety was indeed stressed, being revealed by the growing input of regulatory resources, more participants and senior figures in leadership at this stage. The design of FSC with more agencies participating intended to cover a wider range of food safety issues and enhance coordination among agencies. However, such a redundant food safety regime was described by many as “nine dragons regulate one water source” (九龙治水).⁸⁵

The over-addressed agency fragmentation revealed the significance of the under-addressed regulatory segmentation. With both SFDA and FSC specifically targeting agency fragmentation within the food safety regime, this major issue had been overwhelmingly stressed. Yet the worsening food safety crises breaking out among ordinary domestic consumers makes one ponder whether the fundamental reason for

⁸² The Politburo Standing Committee (PBSC) is China's top leadership body, making decisions in all major policy spheres. PBSC is a way to show 'collective leadership', and no other party or government body can overrule the PBSC. There are seven members in PBSC: Xi Jinping, Li Keqiang, Zhang Dejiang, Yu Zhengsheng, Liu Yunshan, Wang Qishan and Zhang Gaoli. Normally PBSC members are also leaders for major pillars of governance, including the Central Party Committee, the State Council, the National People's Congress, and the Chinese Political Consultative Conference.

⁸³ Now Wang Qishan is the Chairman of Central Commission for Discipline Inspection and a member of The Politburo Standing Committee.

⁸⁴ State Council of PRC, "Announcement of Establishing Food Safety Commission of State Council " General Office of State Council (PRC), http://www.gov.cn/zwgc/2010-02/10/content_1532419.htm.

⁸⁵ Haiying Wang et al., "Gao Bie "Jiu Long Zhi Shui", Shi Pin an Quan Shi Fou Neng Kua Yue "San Chong Men" [Farewell to "Nine Dragons on Water Management", Can Food Safety Go over "Three Obstacles", " Xinhua News Agency, http://news.xinhuanet.com/2013lh/2013-03/15/c_115038110_3.htm.

such systemic failure goes beyond highly addressed agency fragmentation. The historically embedded and intensified regulatory segmentation, while rarely mentioned, may provide a convincing angle.

Table 3-4 Key food regulators from 2004 to 2013

Time or event	Main regulators	Other regulatory participants
State Council Decision on Strengthening Food Safety Control issued on Sept 1, 2004	Ministry of Agriculture (MOA), Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), State Administration of Industry and Commerce (SAIC), Ministry of Health (MOH), and State Food and Drug Administration (SFDA)	Local level regulators, Ministry of Commerce (MOFCOM), and National Development and Reform Commission (NDRC)
State Council Special Decision on Food Safety Supervision and Management passed on July 25th, 2007; Leading Group for Product Quality and Food Safety under State Council established in August of 2007;	Ministry of Agriculture (MOA), Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), State Administration of Industry and Commerce (SAIC), Ministry of Health (MOH), and State Food and Drug Administration (SFDA)	Local level regulators, Ministry of Foreign Affairs (MFA), National Development and Reform Commission (NDRC), Ministry of Science and Technology (MOST), Ministry of Public Security (MPS), Ministry of Supervision (MOS), Ministry of Finance (MOF), General Administration of Customs (GAC), State Administration of Taxation (SAT), Legislative Affairs Office of the State Council (LAO), and State Council Information Office (SCIO).
Food Safety Law of the People's Republic of China issued on February 28, 2009; Food Safety Commission of State Council established on February 6, 2010	Ministry of Agriculture (MOA), Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), State Administration of Industry and Commerce (SAIC), Ministry of Health (MOH), and State Food and Drug Administration (SFDA)	Local level regulators, National Development and Reform Commission (NDRC), Ministry of Science and Technology (MOST), Ministry of Public Security (MPS), Ministry of Finance (MOF), Ministry of Commerce (MOFCOM), Ministry of Industry and Information (MIIT), State Administration of Grain (SAG), Ministry of Environmental Protection (MEP), and Deputy Secretary-General of the State Council
Core regulations: <i>State Council Decision on Strengthening Food Safety Control</i> issued on Sept 1, 2004; <i>State Council Special Decision on Food Safety Supervision and Management</i> passed on July 25 th , 2007; <i>Food Safety Law of the People's Republic of China</i> issued on February 28, 2009; and <i>Food Safety Law Implementation Measures</i> passed on July 20, 2009		

Source: data from "State Council Decision on Strengthening Food Safety Control," General Office of State Council (PRC), http://www.gov.cn/zwqk/2005-08/12/content_22130.htm, and State Council of People's Republic of China, "State Council Special Decision on Food Safety Supervision and

Management," General Office of State Council (PRC), http://www.gov.cn/zwggk/2007-07/27/content_699138.htm.

In 2013, a profound restructure changed the multiple-regulator style of food safety regime. SFDA was upgraded into CFDA at ministerial level, and simultaneously empowered as the dominant food regulator in the domestic food market. This structural change aimed to reduce agency fragmentation, which undeniably weakened food safety regulations. During 1949-2013, the food safety regime developed from command-and-control structure to a regime dominated by regulatory tools and had experienced substantial political, economic, and social changes. The food safety regime grew increasingly sophisticated, yet food safety in China deteriorated due to a compound of factors. Among many factors, the issue of agency fragmentation has been recognised and blamed as one crucial reason for the inefficacy of food safety regime, and it became so obvious that almost each regulatory initiative addressed the issue. Ambiguously designed regulatory responsibilities could be the source for serious agency fragmentation within the regime, which is to be introduced below.

Key responsibilities of major food regulators from 2004 to 2013

Each food regulator was expected to take advantage of its expertise and work together to cover a growing range of food safety issues, yet ambiguously defined regulatory responsibilities – together with such issues as competition of interest among regulators – turned cooperation into fragmentation. Regulatory responsibilities were divided simultaneously into food production stages, expertise of each regulator, and food varieties, with multiple criteria making regulatory overlap almost unavoidable. For example, SFDA, MOA, and AQSIQ all work on food safety information disclosure; under a food safety crisis, both SFDA and AQSIQ are major regulators in a crisis reaction; both AQSIQ and SAIC are food safety inspectors and investigators; and all regulators are in charge of drafting regulations in specific areas. Though SFDA was clearly commissioned to coordinate among all regulators, agency fragmentation was inevitable with such a degree of overlap in regulatory responsibilities, plus SFDA's disadvantage in the power hierarchy.

SFDA

SFDA was expected to play a comprehensive and coordinating role in the food safety regime. SFDA was in charge of drafting food safety related laws, regulations and rules, including supervision of food safety regulations, inspection and licencing regulations of food enterprises, and implementation rules on food safety standards. Meanwhile, SFDA built and managed the information system of food safety, covering food risk screening and disclosure, vertical report system on food risks, food crisis emergency, food recall, electronic information system, and training programs for enterprises and communities. More broadly, SFDA undertook a general coordinating role in cooperation among all food regulators regarding supervision and risk management and evaluating provincial government's performance on fulfilling food safety management.⁸⁶

SFDA's responsibilities were fulfilled by three Divisions under SFDA – and their responsibilities were divided along the food chain. Division I would focus on safety issues at food production and processing stages.⁸⁷ Division II had similar responsibilities to Division I, but focused on food distribution and consumption stages.⁸⁸ Division III focused on information and technical issues, such as evaluating and reporting on food safety, risk information sharing among regulators from central to local levels, national food risk surveillance and disclosure, early warning system on food risks, technical issues on food safety supervision system along the whole food chain, statistics collection and annual review of food safety information, international exchange, and research projects on food safety.⁸⁹

MOH

The food safety focus of MOH grew over time. Traditionally, MOH focused on food hygiene and prevention of food related diseases. As food risks multiplied, MOH focused on a much wider range of food safety concerns. Two major departments conducted the regulatory responsibilities of MOH – Food Safety Standard and

⁸⁶ CFDA, "Main Responsibilities for China Food and Drug Administration," <http://www.sda.gov.cn/WS01/CL0003/>.

⁸⁷ "Main Responsibilities for Food Safety Division One under CFDA," <http://www.sda.gov.cn/WS01/CL1321/>.

⁸⁸ "Main Responsibilities for Food Safety Division Two under CFDA," <http://www.sda.gov.cn/WS01/CL1322/>.

⁸⁹ "Main Responsibilities for Food Safety Division Three under CFDA," <http://www.sda.gov.cn/WS01/CL1323/>.

Assessment Division of MOH and the China National Centre for Food Safety Risk Assessment (CFSA).

Most food safety standards were designed by the Food Safety Standard and Assessment Division of MOH, which also organised food risk surveillance, evaluation, and information sharing. The Division would undertake safety verification and approval of new food materials, additives, and varieties, and participate in drafting qualification, conditions, and regulations for agencies in charge of certification and inspection.⁹⁰

CFSA was positioned as the major national assessment agency on food risk, covering from farm to fork – its major contribution was technical support of food risk management. It worked on food risk management for the government and information dissemination of food safety for the general public. So, CFSA undertook food risk assessment; reported risk analysis results to MOH; provided assessment agencies with technical support; researched food safety trends and advised MOH with early warnings; organised food safety training; communicated with the media and general public on food safety information; worked with the China Centre for Disease Control (CCDC) on emergency reactions in the event of a food crisis; and carried out routine work for the Secretariat of Expert Panel of CFSA and Food Safety National Standards Appraisal Commission.⁹¹

MOA

The major focus of MOA was on safety of agricultural products. Under MOA, multiple divisions covered agricultural product safety, including divisions on seeds, plantation, breeding, fishing, organic products, animal feed, Genetically Modified Organisms (GMO), and pathogen studies. Two of these divisions focused on agricultural product quality and safety: Agricultural Products Quality and Safety Supervision Department of MOA and the Agricultural Products Quality and Safety Centre.

⁹⁰ Food Safety Standard and Assessment Division of National Health and Family Planning Commission of People's Republic of China (NHFPC), "Main Responsibilities of Food Safety Standard and Assessment Division of Nhfpc," <http://www.moh.gov.cn/sps/pzyzz/lm.shtml>.

⁹¹ China National Center For Food Safety Risk Assessment, "Responsibilities for China National Center for Food Safety Risk Assessment," China National Center For Food Safety Risk Assessment, <http://www.cfsa.net.cn/Article/Singel.aspx?channelcode=B2957AD28C393252428FF9F892D1EDE1811F73D8044090E5&code=224F8CC60FBB5F9730DD1A1FEB4FFBECADA5BD5859FE051B>.

Agricultural Products Quality and Safety Supervision Department covered a wide range of issues. The Department drafted laws, rules, and regulations concerning agricultural product quality and safety supervision as well as development plans and strategies on safe agricultural products with relevant implementation measures; organised risk assessment of agricultural product quality and safety; provided advice on technical barriers to trade (TBT), carried out training programs on technology that can improve agricultural product quality and safety; initiated agriculture standardisation programs and designed agriculture industry standards with matched evaluation measures; undertook inspection and supervision of agricultural product quality and safety with appropriate early warning systems and regular information disclosure; managed assessment agencies that authorised and verified certain types of agricultural products, such as agencies that certify pollutant-free and organic products; facilitated establishment of agricultural product traceability and labelling system; and managed agricultural products safety emergency events. In addition, the Department regulated market orders for agricultural product exchange, supported research projects on improving agricultural products quality and safety, implemented successful research results, promoted international exchange, and facilitated cooperation among agriculture associations.⁹²

The Agricultural Products Quality and Safety Centre was established in December of 2002 as a major implementation organ of MOA. The Centre's main responsibilities included implementing policies, laws, rules, regulations, and research or training programs concerning agricultural products quality and safety, and coordinating among different sub-divisions within MOA (such as breeding, plantations, and fishing) from central to local levels. Moreover, the Centre sponsored the China Agricultural Products Quality and Safety Network as an information sharing and inquiry platform for the general public.⁹³

⁹² Agricultural Products Quality and Safety Supervision Department of MOA, "Major Responsibilities of Agricultural Products Quality and Safety Supervision Department of Moa," Agricultural Products Quality and Safety Supervision Department of MOA, http://www.moa.gov.cn/sjzz/jianguanju/jieshao/zhineng/201006/t20100606_1532739.htm.

⁹³ Agricultural Products Quality and Safety Center, "Major Responsibilities of Agricultural Products Quality and Safety Center," Agricultural Products Quality and Safety Center, http://www.aqsc.agri.gov.cn/zhxx/zzjg/201012/t20101228_73068.htm.

SAIC

SAIC mainly worked on food safety issues at the consumption and distribution stage. The direct responsible division on food safety under SAIC is Food Distribution, Supervision and Management Division, which drafted and implemented specific monitoring measures on food safety at the consumption and distribution stages; inspected food safety and quality in markets and other consumption locations; proposed standards for food distributors; managed the licensing system for food distributors and the catering industry; and investigated food safety incidents at the food distribution and consumption stage.⁹⁴

AQSIQ

AQSIQ was one of the five regulators overseeing the domestic food market as well as being the major regulator of safety issues in import and export food. In the domestic food market, AQSIQ is the major quality manager, certifier, and inspector on food, food additives, food packing materials, food production facilities, and all other food related materials. In an event of urgent food safety crisis, AQSIQ would be the major regulator as part of a crisis reaction.

As the only food regulator overseeing food safety for foreign consumers, AQSIQ fulfilled this role through two subordinate departments. Firstly, the Import & Export Food Safety Department drafted regulations and rules for safety supervision on import and export food, undertook inspection and quarantine procedures with the risk analysis and emergency reaction system, and investigated severe import and export food safety incidents.⁹⁵

Secondly, the National Food Safety Information Centre was established in 2005 and designed as a research institute and database for safety information on import and export food. The Centre collects and analyses safety information on import and export food, reporting the final results to AQSIQ for information disclosure and policy making. In addition, the Centre conducts research on laws, rules, and regulations concerning

⁹⁴ Food Distribution Supervision Department of SAIC, "Major Responsibilities of Food Distribution Supervision Department of SAIC," Food Distribution Supervision Department of SAIC, http://www.saic.gov.cn/zzjg/jgsz/200905/t20090523_48790.html.

⁹⁵ Import & Export Food Safety Department of AQSIQ, "Major Responsibilities of Import & Export Food Safety Department of AQSIQ," Import & Export Food Safety Department of AQSIQ, http://jckspaqj.aqsiq.gov.cn/sjjs/200610/t20061030_20951.htm.

food safety among China's trading partners in order to provide advice for domestic food importers and exporters. Moreover, the Centre works on analysing food risk – such as toxicology and carcinogen study of new food materials and impact on import and export food – and discloses safety information to public websites.⁹⁶

The growing sophistication of food industry and the food safety regime have intertwined with agency fragmentation within the food safety regime, thus contributing substantially to the institutional weakness of the regime. The ambiguously defined regulatory responsibilities are arguably the origin, which obscured lines of authority and the division of labour and resource. Vague regulatory responsibilities became even more ambiguous when new regulatory initiatives touched on interests of powerful organisations, which occurred with almost every round of regulatory restructure in the past, hence exacerbating agency fragmentation. In fact, agency fragmentation is one of many systematic biases in the segmented implementation arrangements for the group of ordinary domestic consumers which will be analysed in details in Chapter Seven.

Moreover, agency fragmentation aggravated the crucial issue of regulatory segmentation. In fact, a significant role of ambiguously defined regulatory responsibilities involved differentiating the responsibilities of food safety management among various consumer groups, such as foreign consumer group, or the group of ordinary domestic consumers in underdeveloped rural areas. Successive rounds of regulatory initiatives addressing agency fragmentation attenuated the significance of regulatory segmentation and made it implicit and hidden. While initiatives targeting agency fragmentation failed to enhance the institutional performance of the food safety regime, this thesis argues that regulatory segmentation – being purposefully under-addressed – plays an essential role in the systemic failure of the food safety regime in China.

Regulatory segmentation in the development of food safety regime

Regulatory segmentation is, arguably, an essential feature of Chinese regulatory state. As noted in the previous two chapters, segmentation here refers to restricting regulatory

⁹⁶ National Food Safety Information Center, "Responsibilities of National Food Safety Information Center," National Food Safety Information Center, <http://www.fsi.gov.cn/about.jsp?id=1>. Some typical information disclosure websites are www.fsr.org.cn and www.fsi.gov.cn.

application to a specific sector, a limited number of actors, or a particular region.⁹⁷ Segmentation is determined by the state's interest in that, if the state continues to enhance control over crucial industries or assets, chances of regulatory segmentation would significantly increase. For example, government intervention in the industry of finance and telecommunication is much stronger than in the industry of textile and food safety.⁹⁸

Rather than being segmented as a whole industry like finance or textile, this thesis argues that regulatory segmentation occurred within the food safety regime as a non-strategic regulatory domain, and that fragmentation of consumer groups shaped the regulatory segmentation of food safety regime. There is historical proof that food quality and safety in China's overseas market (foreign consumers) have been regulated segmentally, and there is regulatory segmentation in the domestic food market, though implicit.

The power, privilege, wealth, and social status of consumers in diverse social classes determine how they are fragmented into different consumer groups, and what kind of regulatory standards and resource they can access. With such regulatory segmentation, the food safety regime channelled the benefits of food safety management to economically or/and politically significant consumer groups, such as foreign consumers and the politically privileged, while food risks were channelled to the poor and powerless ones, such as ordinary domestic consumers. The group of affluent consumers, benefiting from wealth creation in rapid economic growth in China, paid a premium for better food safety. Regulatory segmentation caused uneven distribution of food risks upon different consumer groups, and this thesis argues that regulatory segmentation driven by the fragmentation of consumer groups is crucial to the systemic regulatory failure in food safety regime.

The food regulatory regime for export food

Rather than being regulated by multiple regulators which may incur agency fragmentation – as is the case in the domestic food market – food for foreign consumers

⁹⁷ Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles," 182.

⁹⁸ Pearson, "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State."; Hsueh, *China's Regulatory State: A New Strategy for Globalization*.

is regulated by one dominant regulator. The segmented regulatory regime for foreign consumers was designed with the establishment of the food safety regime, when the Ministry of Trade temporarily regulated food export and import in 1949. In 1952, the central government established General Administration of Import and Export Products Inspection under the Ministry of Foreign Trade, and since then it was the major regulator of export and import products nationwide, including food.⁹⁹ Later, the comprehensive AQSIQ became sole regulator of food for foreign consumers. Different regulators played the role as the sole regulator overseeing food safety for foreign consumers at various stages, but the one-regulator style has never changed. These regulators include Ministry of Trade (1949-1952), Ministry of Foreign Trade (1952-1973), Import and Export Product Test Bureau (1973-1982), Export-Import Inspection and Quarantine Bureau under AQSIQ (1982-1998), and AQSIQ (1998 till today).¹⁰⁰

The regulatory regime of single regulator determines consistent regulation of the whole food chain for foreign consumers. Different to the regulatory regime overseeing the domestic food market, AQSIQ, and its local branches, the China Inspection and Quarantine (CIQs) has direct control of export food producers through a compulsory licensing system. Instead of breaking down regulatory responsibilities, AQSIQ takes the dominant regulatory role and uses different mechanisms to maintain safety and quality of export food – such as mandate safety certification and partnerships with regulators from importing nations (as will be analysed in Chapter Seven). The regulatory regime of export food safety has proved more effective in maintaining food safety for foreign consumers than the regime for domestic consumers, with a safety passing rate remaining above 99% for years.¹⁰¹

The reasons for this segmentation are as follows: at the outset of the food regulatory regime (as it was structured during the 1950s), food in China was in shortage to different degrees and export was on a small scale.¹⁰² Thus, a single regulator was arranged for the command controlled food export. Later on, such regulatory style was

⁹⁹ Shanghai Chorography Office, "Chorography of Shanghai Product Inspection Bureau," Shanghai Chorography Office, <http://shtong.gov.cn/node2/node2245/node67984/node67995/node68050/node68126/userobject1ai65546.html>.

¹⁰⁰ Peng, "Tracing and Periodizing China's Food Safety Regulation: A Study on China's Food Safety Regime Change."

¹⁰¹ Information Office of State Council of PRC, "China Foreign Trade Whitepaper".

¹⁰² Yongjiagn Li, "Food Import and Export of China," *International Trade*, no. 8 (1994).

maintained due to the relatively small size of food export, the growing strategic importance of export economically and politically,¹⁰³ and the effectiveness and efficiency of such a style – it avoided the crucial issue of agency fragmentation. The single-regulator regime might not be practical for the entire food sector in China due to its huge size and strategic evaluation of food industry,¹⁰⁴ but profound change occurred in 2013 in the form of a trial, when CFDA was restructured as the dominant food regulator of the domestic food market. Yet, CFDA still works with MOA and MOH regulating food safety for domestic food market.

Regulatory segmentation of domestic food consumers

Compared with regulatory segmentation of food for foreign consumers, where food is explicitly regulated with different food safety standards and institutional settings (as will be analysed in Chapter Five and Seven respectively), the regulatory segmentation upon domestic food market is implicit, though historically embedded. For example, since the establishment of the food safety regime, the group of politically privileged has been provided with safe food by designated trustworthy food producers within the exclusive supply system, and the group's power and organisational authority ensured such food safety. The affluent consumers – clustered mostly from upper-middle class that was growing rapidly since the Reform – had the economic capacity to pay a premium for food from comparatively reliable sources. The group of ordinary domestic consumers – neither politically powerful nor economically affluent – suffered most from inadequacy in regulatory resource and regulatory blanks, such as food from unlicensed food producers. This regulatory segmentation led to uneven distribution of food risks within various groups in the domestic food market.

The food safety regime historically allowed the existence of sub-regimes. Some strategic sectors were equipped with their own food regulatory agencies and the food for their employees as consumers was regulated within the sub-regime. For example, railway industry and powerful SOEs had direct subordinate agencies regulating food safety for their employees,¹⁰⁵ and Article 56 of *Food Hygiene Law*¹⁰⁶ and Article 102 of

¹⁰³ Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles."

¹⁰⁴ Hsueh, *China's Regulatory State: A New Strategy for Globalization*: 237-46.

¹⁰⁵ Xue and Zhong, "Domestic Reform and Global Integration: Public Administration Reform in China over the Last 30 Years."

¹⁰⁶ Standing Committee of NPC, "Food Hygiene Law of the People's Republic of China."

*Food safety Law*¹⁰⁷ both stipulated that food for military department is excluded from the food safety regime. Moreover, food for the politically privileged is exclusively provided, such as participants of important conferences and occasions, visiting foreign leaders and embassy staff, and national leaders, professionals of special types and senior intellectual professionals.¹⁰⁸

Apart from sub-regimes of powerful sectors and exclusive supply system protecting the politically privileged, the overall food safety regime for domestic market has also been segmented with uneven distribution of regulatory power and resource along the top-down regulatory chain. Affluent consumers are mostly in economic and political advanced regions, and the food safety regime in these areas is close to the top of regulatory chain and able to access more regulatory resource – hence, food safety for these consumer groups is better ensured. These affluent consumers also have the economic liberty to create access to safe food supplies, such as purchasing imported food or transparently managed petty farms.

Conversely, ordinary domestic consumers are mostly politically powerless and economically poor, and they are at the middle and far end of food regulatory chain, where less regulatory resource and more food risks reinforced each other. Among them, those from lower and lower-middle classes in underdeveloped rural areas are the main victims of food safety crises. Due to inadequate budgetary sources, regulatory staff structure and resource allocation in underdeveloped regions,¹⁰⁹ these vulnerable groups suffer the most from systemic failure of the food safety regime.

This thesis argues that regulatory segmentation, being under-addressed and implicit, is the crucial reason for the failed food safety regime in China. Rather than being addressed by rounds of regulatory initiatives intending to improve the food safety regime (such as the issue of agency fragmentation), regulatory segmentation has been created, stabilised, and institutionalised into the regime in order to serve the interest of some – and became implicit and hidden. With the regulatory segmentation, the food safety regime turned into a redistributive system of inequalities, producing

¹⁰⁷ NPC of PRC, "Food Safety Law of the People's Republic of China".

¹⁰⁸ Beijing Municipal Chronicles Committee, *Beijing Zhi, Shangye Juan, Fu Shipin Shangye Zhi [Beijing Chronicles: Commerce & Non-Staple Food]*.

¹⁰⁹ Liu and McGuire, "One Regulatory State, Two Regulatory Regimes: Understanding Dual Regimes in China's Regulatory State Building through Food Safety," 124-30.

differentiated outcomes of food safety management upon various consumer groups. Hence, compared to other issues that weakened the institutional performance of the food safety regime (including agency fragmentation), regulatory segmentation discouraged the overall improvement of food safety level and remains, arguably, the crucial reason for systemic failure of the food safety regime in China.

Conclusion

The regulatory regime on food safety went through different stages and developed into the current framework. At the first stage, from 1949 to 1978, the framework of food regulation under a command economy mainly dealt with food shortages as a priority. Apart from food scarcity, food risks were rare at this stage; hence, few problems were revealed in the regulatory regime. The legacy of command economy remained strong, but the market started to play a multifaceted role in the second stage, from 1978 to 1992. The beginning of this stage was the beginning of China's Reform, when food industry experienced substantial growth, both in size and form of ownership. The number of food establishments increased substantially, and the state was not the sole owner anymore. Food risks at this stage were mostly related to food hygiene, which became the focus of food safety related laws and regulations and regulatory initiatives accordingly. The third stage, from 1992 to 2004, witnessed further expansion of China's economy, when two major administrative reforms set a foundation for China's development of regulatory state, including regulatory regime on food safety. The regulatory structure with five regulators was formed at this stage and continued into the next. Food risks at this stage went beyond traditional food hygiene and grew in number, and inefficacy of the food safety regime surfaced. In order to deal with the crucial problem of agency fragmentation within the food regulatory regime, SFDA was empowered as the coordinator, which initiated the fourth stage, from 2004 to 2013. Food risks during this decade grew in category and number; hence, intensive regulatory initiatives were exerted, such as establishment of the Leading Group for Product Quality and Food Safety in 2007 and Food Safety Commission in 2010. These initiatives, unfortunately, achieved little in improving food safety. With concurrence of food safety crises and intensive regulatory input, this thesis argues that the regulatory regime on food safety failed systemically.

Facing regulatory failure, agency fragmentation has been addressed so often as the clue for improving food safety regime, yet those regulatory initiatives left food safety crises intact. Indeed, agency fragmentation is a substantial issue in the regulatory regime over domestic food market. The intention for a multiple-regulator structure is that each regulator would regulate with its expertise when facing rapidly developing food industry and increasing risks. Unfortunately, with ambiguously defined regulatory responsibilities and poor coordination, agency fragmentation contributed significantly to the ineffectiveness of food safety regime. When new food risks require regulation, agency fragmentation becomes even more acute, since regulators – having neither previous involvement nor explicitly defined regulatory responsibilities over these new risks – are highly likely to aggravate agency fragmentation.

While agency fragmentation has been addressed in many regulatory initiatives, this thesis argues that the serious impact of the rarely addressed regulatory segmentation (based on fragmentation of consumer groups driven by social classes) has been substantially attenuated, and that the crucial reason for regulatory failure lies in this historically embedded regulatory segmentation. At the outset of the food regulatory regime, food was regulated segmentally depending on who was consuming it. Food consumed in the overseas market was regulated by one dominant regulator, while food consumed in the domestic market was regulated by multiple regulators. There was further segmentation in the domestic food market – food consumed by senior political elite (the politically privileged) was regulated with the exclusive supply system, food consumed by consumers in politically or economically (or both) advantaged areas was regulated with abundant regulatory resources in human, finance, and technology. In the meantime, food destined for a large number of ordinary domestic consumers – with little market or political power – was regulated with least regulatory resources in the middle and at the far end of the regulatory chain. Although there was safe food in food crises-prone China, regulatory segmentation led to both safe food and food risks being distributed extremely unevenly among various consumer groups.

The upgrading and empowering of CFDA in 2013 was to tackle with numerous food safety crises and improve the overall food safety regime via minimising agency fragmentation. This centralisation meant that CFDA would take the responsibilities of the FSC Office, AQSIQ's responsibilities in supervision and management of food safety

at production and processing stages, and SAIC's responsibilities at the food distribution and consumption stages. Previous regulatory resources under AQSIQ and SAIC (including staff and financial resources) would be transferred to CFDA.¹¹⁰ Meanwhile, MOA maintained its original supervision and management responsibilities of agricultural products. Finally, MOH and the China Family Planning Commission were combined to form National Health and Family Planning Commission of People's Republic of China (NHFPC), which would be in charge of food safety standards proposal and food risk assessment.¹¹¹

Its development from 1949 to 2013 failed to build the food safety regime into an effective one; however, new regulators and regulations, new relationships between regulators and the regulated, new procedures, new administrative organisations and, most importantly, new skills¹¹² accumulated during the time-compressed period created valuable lessons for future direction. The reform, however, hardly touched upon regulatory segmentation, which this thesis argues as the crucial reason for the systemic failure of the food safety regime. In addition to general low food safety levels, regulatory segmentation of the food safety regime produced varying food safety levels and food risks unevenly distributed among fragmented consumer groups – these will be introduced in the following chapter.

¹¹⁰ State Council of PRC, "Plan on State Council Organization Reform and Function Transition".

¹¹¹ Ibid.

¹¹² Edward S. Steinfeld, *Playing Our Game: Why China's Economic Rise Doesn't Threaten the West* (Oxford, New York: Oxford University Press, 2010). 59.

Chapter 4

Food Safety Crises in China

This chapter analyses the food safety incidents that occurred in China over the past few decades, with focus on the decade from 2004 to 2013. The main contention of this chapter is that food crises have a systematic and differential effect on fragmented consumer groups. It is this differential impact that is at the core of this thesis.

Food safety is an old problem regardless of regions, eras, economic development levels, or political systems.¹ Over the past few centuries, food safety crises occurred in ancient Rome and Athens in the form of inappropriate use of additives,² and in Britain via food adulteration in the early 19th century.³ More recently, Food Commission UK reported that “the economic advantage for an individual producer and the overall loss to the consumer of adding water to meat and cured meat is staggering ... Just 1% of undeclared added water in bacon and ham alone would amount to the annual consumption in the UK of 4,662 tonnes of water in the mistaken belief that it is meat.”⁴ Even Taiwan, famous for diversified and tasty food, had been hit by food scandals of recycled cooking oil, plasticiser in famous milk tea, and tea with high chemical residue.⁵

Food safety crises in China made for good headlines. Melamine-tainted baby formula is a striking crisis that drew attention from China and abroad. Meanwhile, the impact of food safety crises goes beyond victims of contaminated food. As China is a leading global food exporter, food safety crises in its domestic market damaged the reputation and competitiveness of Chinese food exporters.

Some groups are more vulnerable to food safety crisis than others. For instance, victims of food safety crises include mainly domestic food consumers, especially the lower end of Chinese society – and this reality made people think about the relation between economic growth and public welfare, and social inequality. Repetitive food safety crises

¹ Shears, "Food Fraud – a Current Issue but an Old Problem," 198.

² Sumar and Ismail, "Adulteration of Foods -- Past and Present," 11.

³ Brone C. A., "Life and Chemical Services of Frederick Accum," *Journal of Chemical Education* 2(1925).

⁴ Food Quality News, "Survey Finds Branded Meat Pumped with Water," Food Quality News, <http://www.foodqualitynews.com/Public-Concerns/Survey-finds-branded-meat-products-pumped-full-of-water>.

⁵ Lifan Lei, "Unpalatable Reality of Food Safety," *Taipei Times*, 28 April 2015.

and uneven distribution of food risks raised further questions about the capability of the young regulatory state of China and worsened public distrust towards food regulators.

The majority of food safety crises transpired within China. China's food export for foreign consumers remains within almost 100% of the passing rate on quality and safety, with only a handful of food safety scandals occurring in the overseas market. However, the food consumed by domestic consumers is another story – the ordinary domestic consumer, especially those at the bottom of Chinese society, have the highest chance to fall victim to food safety crises. The fact of various categories of food risk befalling ordinary domestic consumers reflects the differential impact of food safety crises by highlighting the distribution means of food risks. Here, uneven distribution further reflects the fundamental problem of regulatory segmentation in the food safety regime – for this reason, the present chapter provides a detailed outline of different food risk categories.

There are several reasons for choosing the time interval from 2004 to 2013 as this study's key research period. Above all, this decade has witnessed intensive regulatory efforts and reorganisation in the process of building a better regulatory regime on food safety. Instead of the expected improvement in food safety, a large number of food safety crises had broken out. This parallel of explosive food safety crises with significant efforts to improve the regulatory regime on food safety suggests systemic regulatory failure of the food safety regime. In addition, the years 2003 and 2013 saw significant changes in food safety regulation as introduced in the previous chapter. Indeed, the decade of 2004-2013 comprised a relatively consistent development period for the regulatory regime on food safety – additionally, this time witnessed higher data accessibility, compared with previous years.

Accordingly, the present chapter is divided into several sections, with section one providing a brief review on food safety incidents that occurred during 1949-2004. Although 2004-2013 is the key research period, section one briefly introduces food safety incidents prior to 2004 in order to highlight how food safety had deteriorated after 2004. Next, section two contains a detailed outline of food safety crises that occurred during the key research period – this introduction is based on various categories of food risks and covers everything from food adulteration to food from polluted sources. These seven categories of food risks mainly transpired among

domestic consumers, with ordinary domestic consumers making up majority of the victims – which indicates unevenly distributed food risks. The final section highlights such uneven distribution of food risks, as a result of regulatory segmentation based on consumer fragmentation.

Food safety issues prior to 2004

Eating in China used to be not only tasty but, more importantly, safe. During 1949-2004, food safety levels were steady, with occasional food hygiene incidents or improper preparation of food in public canteens or at homes. While generally steady, the year of 1982 as the beginning of food industry expansion stands out like a threshold that divides differently characterised food safety incidents prior to and following this year. Needless to say, second part of the period commencing in 1982 witnessed more food safety incidents of increasing variety, despite the year's *Provisional Food Hygiene Control Act of People's Republic of China* that tried to emphasise significance of food hygiene in particular and food safety in general.⁶

As difficulties prevented access to all food safety incidents which occurred during 1949-2004, this thesis attempts to capture a snapshot via conducting a keyword search of published journal articles in the China Academic Journals Full-text Database (<http://www.cnki.net>).⁷ While not fully comprehensive, these numbers are still indicative: 139 food safety related cases found during 1950-1982, and 225 cases during 1983-2004. In these two periods, most cases comprised traditional food risks – such as spoilage and using food past expiry date – as opposed to modern food risks – such as use of chemicals, food additives, and pesticides.⁸ Indeed, data shows that, from late 1990s, consumers witnessed an increase in modern food risks compared with previous years.

⁶ Standing Committee of NPC, "Food Hygiene Act of the People's Republic of China (Provisional)."

⁷ Data prior to 2004 concerning food safety is rather difficult to collect due to the information limitation at early stages and subsequent limited Internet access and coverage; so, the search was conducted through published journal articles, which may not show the comprehensive picture but still represents a sample.

⁸ Buchler, Smith, and Lawrence, "Food Risks, Old and New: Demographic Characteristics and Perceptions of Food Additives, Regulation and Contamination in Australia," 354.

Table 4-1 Food Safety Related Incidents 1950-2004

Type	Major Causes	Number of Cases	
		Period I 1950-1982	Period II 1983-2004
A	Meat of diseased animals	26	18
B	Spoiled foods	27	18
C	Pesticides or other chemicals	23	15
D	Problematic canteens	49	55
E	Toxic plants	4	1
F	Improper food preparation	6	0
G	Unsafe food in restaurants or markets	4	92
H	Food with toxic additives in restaurants or markets	0	26
Total		139	225

Source: Data from keyword search on <http://www.cnki.net>, and Yunxiang Yan, "Food Safety and Social Risk in Contemporary China", *The Journal of Asian Studies*, vol. 71, no. 3 (August 2012): 708.

It is worth noting that food safety incidents shared certain features during 1950-2004. Firstly, during 1950-1982, food safety incidents due to problematic public canteens (type D) had been reasonably high compared with other categories – with 49 out of 139 total cases. Issues related to public canteens include poor sanitation, unsafe storage of leftovers (refrigerators were not widespread then), lack of hygiene regulations and processing procedures, unintentional usage of spoiled food, and improper cooking methods.⁹ A high number of type D food risks relates to the fact that, at the time, it was popular to eat in public canteens at factories, schools, and in rural areas due to the system's collective nature and its impact on food consumption.

Secondly, food safety incidents due to problematic food (type A and B) were rather occasional and mostly unintentional during the whole period of 1950-2004. Meanwhile, during 1950 -1982, sales and consumption of diseased animals and spoiled foods caused many food poisoning incidents both at home and in public canteens – 26 and 27 out of 139, respectively. With the *Act* of 1982 addressing food hygiene, type A and B food risks decreased during 1983-2004. These incidents of problematic food were unintentional in the context of a command economy – when food businesses were state owned, and staff in food stores and public canteens were paid at a fixed rate regardless

⁹ Jinfu Wang, "An Analysis of Food Poisoning During the Past 14 Years in Zibo City," *Shang Dong Medicine*, no. 4 (1975): 17.

of increasing the profit margin or saving cost, which deprived them of incentives to deal in adulterated or other types of problematic food.

Finally, the 1970s saw emergence of food risks due to misusing pesticides or other chemicals (Type C). These incidents mainly occurred due to inadequate knowledge about particular chemicals, low awareness of potential dangers, or other unintentional causes – such as using pesticide containers to store food, or expending non-standardised doses of fertilisers on crops.¹⁰ In general, chemical-related food risks remained scant due to the low purchasing power of farmers at the time. Since chemicals were expensive, the farmers of the 1960s and 70s preferred such alternatives as manure and other natural ways to increase soil fertility and prevent pests or weeds.¹¹

During 1983-2004, food risks due to unsafe additives and food adulteration in restaurants or markets (types G and H) increased dramatically compared with 1950-1982. These food risk types were rarely seen during 1950-1982, with attributed occasional food poisoning events resulting mainly from improper handling rather than intentional behaviour.¹² Indeed, many scholars attributed these food risk types to lack of scientific knowledge and regulations – accordingly, the main solution consisted of proper education and hygiene regulations.^{13 14 15} Yet, since the 1980s, food risks of types G and H started to rapidly increase.¹⁶ For example, nitrite food poisoning transpired more widely, as nitrite was used to replace expensive ingredients in processed food – indeed, China has a long history of safely using strictly controlled doses of nitrite in various foods.¹⁷ However, after entering the 21st century, food risks of types G and H, together with other modern food risks, became major sources for food safety crises.

Food safety incidents during 1950-2004 had been relatively few, which does not suggest that food regulatory regime of that time was coherent and effective. Regulatory

¹⁰ Bing Hu, "An Incident Caused by the Consumption of a Piece of Sesame Cake," *Chinese Food*, no. 5 (1982): 21.

¹¹ *Ibid.*, 23.

¹² Ruixing Sun, "An Analysis of the Causes of Food Poisoning in the Past 20 Years," *Jiang Su Medicine*, no. 7 (1980): 5.

¹³ *Ibid.*, 4-5.

¹⁴ Wang, "An Analysis of Food Poisoning During the Past 14 Years in Zibo City," 15-18.

¹⁵ Shunan Zhou, "Causes of Food Poisoning and Prevention in Rural China," *Chinese Medical Journal*, no. 1 (1958): 25-27.

¹⁶ Yan, "Food Safety and Social Risk in Contemporary China," 708-10.

¹⁷ Fan Wang, "Nitrite, China's Tasty Poison," *Ecns.cn*, <http://www.ecns.cn/in-depth/2011/09-16/2428.shtml>.

segmentation of the food safety regime is historically embedded – its establishment was discussed in the previous chapter, and several reasons contribute to attenuation of regulatory segmentation in 1950-2004. First of all, prior to the Reform commencing in the late 1970s, state-owned and collective nature of China's economy determined the low level of commercial incentives for profit-driven food adulteration and other forms of manmade food risk – with most food safety incidents originating from unintentional food hygiene or poisoning issues. In the post reform era, with rapidly increasing marketization and growing food demand, profit-driven food adulteration became an increasingly significant source of food risk – during 1983-2004, an increase of risk types G and H had been observed, skyrocketing during the key research period. Secondly, the group of middle class affluent consumers hardly existed during 1950s-1980s and remained on a smaller scale until the turning of the 21st century – hence dissipating better food safety that occurred as a result of regulatory segmentation during 2004-2013. Thirdly, food safety incidents were observed in the domestic market among ordinary consumers, not in the politically privileged group. In fact, different food safety levels for ordinary domestic consumers and politically privileged had existed since the food safety regime.

Brief review of food safety crises during 2004-2013

The period of 2004-2013 witnessed a number of notable food safety crises. One extreme incident was the case of Sanlu's melamine tainted baby formula in 2008, claiming six lives and causing over 290,000 nationwide cases of renal disease by end of that year.¹⁸ Other significant cases include adulterated baby milk powder in Fu Yang that took the lives of 12 babies in 2004;¹⁹ the inedible artificial colour Sudan Red was used in fried chicken and other fast food by McDonald's in 2005;²⁰ around three million tons of recycled cooking oil estimated to return to dinner tables each year;²¹ clenbuterol hydrochloride – a bronchodilating substance used in asthma products – found in pork processed by one of China's largest meat processors in 2011;²² Di 2-Ethyl Hexyl

¹⁸ Ni and Zeng, "Law Enforcement Is Key to China's Food Safety," 1990.

¹⁹ People's Net, "Topic: Fuyang Milk Powder".

²⁰ Fengling Tang and Jinqiu Cao, "Failure in Mediating First Case of Sudan Hong in China, KFC Refused to Mediate," Chongqing Business, <http://www.china.com.cn/chinese/news/833262.htm>.

²¹ Sina News International, "Gutter Oil Recycled, Chinese Consume 3 Million Tons of Gutter Oil".

²² People's Net, "Shuang Hui Is Involved in Using Clenbuterol Hydrochloride, and First Responded to the Issue," <http://shipin.people.com.cn/GB/14150336.html>.

Phthalate (DEHP) – which directly leads to sterility and infertility – found in various beverages in 2011;²³ an ‘unknown’ amount of cadmium polluted rice was found in the market and even the government grain reserve in 2013;²⁴ and, while horse meat was found in Europe, rat meat was glued using chemicals and sold as lamb in 2013.²⁵

Food safety crises happened with unprecedented frequency in China during 2004-2013. Compared with the previous period, the food risks in 2004-2013 were mostly modern food risks, such as additives and intentional food adulteration, which dwarfed the traditional food risks that originated from poor hygiene and inappropriate processing. Many factors contributed to the skyrocketing growth of food risks. For example, the growing food chain and demand became a source of increasing food risk due to the input of new technologies and materials in food production. Increasing marketization in the post-reform era promoted diversification of the food supply, which helps meet increasing food demand on the one hand, but also creates the chance for immoral and illegal profit-driven food risks, particularly considering the regime’s various fiascos, such as intentional food adulteration or use of inedible additives. These errors led to a dramatic decline in food safety – more noticeable in underdeveloped and rural areas, which house the majority of ordinary domestic consumers.

Categories of food risks – 2004-2013

During 2004-2013, food risks increased in number, type, and complexity. Most food risks of this period fall into one of seven categories, with the absolute majority of risks occurring for consumers in the domestic food market. Among three fragmented consumer groups of the domestic food market, the ordinary domestic consumers suffered the most – especially those at the bottom of Chinese society who are mostly located in underdeveloped and rural areas, with scarce regulatory resources and weak incentives at the far end of food regulatory chain. This section contains a detailed introduction of these food risks and demonstrates the uneven food risk distribution. In the long run, some food risks – such as food from polluted sources – spill over to a

²³ Xinhua News Agency, "Poisonous Chemical Was Found in Many Kinds of Beverage from Taiwan, and Same Products Were Taken Down from Shelf," People's Daily (Overseas Issue), http://news.xinhuanet.com/food/2011-05/30/c_121472443.htm.

²⁴ Nandu News, "Cadmium Polluted Rice Being Sold and Hard to Recall".

²⁵ Anderlini, "Chinese Police Cracked the Case of Adulterated Lamb".

wider range of consumers, regardless of privilege, power, or wealth. Yet, compared to other groups, the ordinary domestic consumers are always the first victims.

This part covers seven major categories of food risks based on released media reports. The food safety crises released by the media may not be inclusive of all food safety incidents, but is representative enough for the purposes of this research. In addition, this research uses a grassroots database initiated by volunteers in Fudan University²⁶ to crosscheck data authenticity and accuracy and screen out duplicate reports. As a result, over 20,000 reports on food safety incidents were found in various media formats for the period of 2004-2013.²⁷ Thus, following deletion of duplicate reports, 3,431 individual food safety incidents had been released during this period.²⁸ Most incidents were from one or several of the seven food risks: unsafe additives, food adulteration, unlicensed food production, inferior food, sales of diseased animal products, unsafe food packaging materials, and unsafe food from polluted sources.

Unsafe additives

The risk of unsafe additives refers to both use of inedible additives and use of edible food additives in unsafe doses. A well-known example is industrial melamine added to milk powder for a higher protein level in watered-down milk. The food industry has a long history of using additives in food – traditionally, food additives were used to extend shelf life (e.g., preservatives), improve the look of food (e.g., edible colorants), or bring out certain flavours. During 2004-2013, there were 1,061 (of a total 3,431) food safety incidents concerning unsafe use of additives, making it the most significant food risk.²⁹

Development in the food industry has impact on use of additives in food. Additives are used to meet new challenges of the growing food chain, distance for food transportation, and demand for more food – including antibiotics, hormones, various colorants, fresheners, and even poisonous industrial chemicals. Both the use of inedible additives and overdose of edible additives can affect the human health. For instance, melamine

²⁶ This database was established by a volunteer team (35 volunteers) in Fudan University, with Wu Heng as their initiator and team leader. They took 31 days to check 17268 reports concerning food safety in China mainly ranging from 2004 to 2011, and built this database.

²⁷ Yi Yuan Net, "Food Safety Incidents Archive 2-39," Yi Yuan Net, <http://www.39kf.com/focus/spaq/01/index78.shtml>.

²⁸ Wu and team, "China Food Safety News Database".

²⁹ Ibid.

can cause renal calculus and failure, and is especially detrimental to babies due to their reliance on milk powder and immature renal function. Formaldehyde, which can lead to serious cancer – and blood cancer in particular – was reported in 2012 as being used to preserve Chinese cabbage and aquatic products in place of a more costly legal food preservative.³⁰ Again in 2012, formaldehyde was also used in blood pudding, which is a popular dish in south-western China.³¹ Clenbuterol hydrochloride in pig feed can reduce fat in pork, but is deadly for people suffering from arrhythmia, high blood pressure, glaucoma, diabetes, and hyperthyroidism – indeed, the Ministry of Agriculture banned this highly hazardous additive in 1997, yet it was found in pork that was being sold by China's largest meat processor in 2011.³² In 2013, there were reports of farmers adding arsenic (a kind of carcinogen, according to the International Agency for Research on Cancer) to pig feed in order to make pigs look “active and energetic” before being slaughtered, so that they could be sold at a good price.³³ Reported in 2012, the deadly and illegal pesticide hexachlorocyclohexane was used to preserve ginger simply due to costing less than the legal preservative.³⁴ From 2011, growth agents – such as forchlorfenuron – were reported as used in fruit and vegetables (such as watermelons and cucumbers) to “create” excess amount and size, with these hormone chemicals posing hazards – such as encephalitis – to the human nervous system.³⁵ And multiple reports in 2005, 2006, 2011, and 2012 exposed that 97,000 tons of antibiotics were used in animal feed each year, resulting in drug-resistance for the end consumers – human beings.³⁶ As a category of general and widespread food risk in the domestic food market, unsafe additives are extremely rampant in food that is bulk packed or from unlicensed producers and which is typically sold in low-end free markets which house the majority of ordinary domestic consumers.

³⁰ Beijing Morning News, "Guangzhou Inspected over 120 Tons of Formaldehyde Chinese Cabbage, Mainly from Shan Dong and Yunnan," Tencent News, http://finance.qq.com/a/20120520/000165.htm?pgv_ref=aio2012&ptlang=2052..

³¹ Sohu News, "Couple Produced Blood Pudding Illegally with Formaldehyde," Sohu News, <http://news.sohu.com/20120625/n346416188.shtml>.

³² Weiwei Wu, Lichang Huang, and Xinghui Li, "Insiders in Poultry Industry Said Clenbuterol Hydrochloride Used in Pig Breeding Is Common in China," Information Times (Sina News), <http://news.sina.com.cn/h/news/2011-03-17/081822130837.shtml>.

³³ Netease News, "Strange Phenomenon in Chinese Pig Farm: Arsenic Was Fed to Make Pigs Look Better," Newease News, <http://money.163.com/13/0311/18/8PN3972K00252G50.html?from=news#p=8PKAOKVQ251H0025>.

³⁴ Tencent News, "Farmers in Shandong Uses Deadly Pesticide to Preserve Ginger," Zhengzhou Evenings (Tencent News), http://news.qq.com/a/20120516/000075.htm?pgv_ref=aio2012&ptlang=2052.

³⁵ Qinghao Chen, "Swelling Agents Are Used on Mellons and Vegetables to Increase Yield," Southern Daily (Xinhua News), http://news.xinhuanet.com/food/2011-05/20/c_121440415_6.htm.

³⁶ Yongming Huang, "Drug Abuse in Breeding Industry in China—One Generation May Be Ruined," People's Daily Press, http://paper.people.com.cn/rmwz/html/2013-05/01/content_1248002.htm?div=-1..

Food adulteration

Food adulteration refers to “the act of debasing a commercial product with the object of imitating or counterfeiting a pure or genuine commodity or of substituting an inferior article for a superior one in order to gain an illegitimate profit”³⁷. During 2004-2013, 242 food safety incidents (of total 3,431) fell into the food adulteration category. In order to seek illegal high profit, food processors and/or producers use inferior, industrial, and sometimes even poisonous materials to adulterate food. Adulterated food may not be hazardous, but the inferior materials used for adulterating food need to be polished with potentially hazardous chemicals in order to improve the food’s look, taste, and texture.

The number of food adulteration incidents was not particularly high, but the food involved was normally basic food with mass consumption rates. For example, 2013 saw reports of gelatine, carmine, and nitrate being used to make rat meat look like lamb, which is mass consumed in hotpot dishes during every winter.³⁸ In 2010 and 2011, there were reports of pork that was ‘modified’ into beef with a ‘beef extract’ – a chemical compound including the carcinogens IMP GMP (I+G) and protolysate.³⁹ From 2005 to 2013, each year saw reports of industrial carrageenan and water being injected into live pigs and cows to increase their weight –a widespread practice in the slaughter industry. Industrial carrageenan can lead to dysfunction of the nervous system.⁴⁰ Moutai – China’s “National Liquor” – is so expensive that adulteration can hardly be avoided: in 2011, Guizhou Moutai Liquor Co., Ltd was reported to produce 11,000 tons of Moutai annually, yet 30,000 tons of “Moutai” was sold per year. The 19,000 ton gap comprises counterfeited and adulterated Moutai.⁴¹ An extreme example is recycled cooking oil, known as “gutter oil” due to being collected from the gutter, plate waste⁴² from restaurants, guts of animals, and used cooking oil. The harm of cooking oil adulterated with gutter oil is astonishing: calcium bicarbonate and caustic soda are used to clear and neutralise gutter oil and cover its acute danger of high percentages of aflatoxin, a strong

³⁷ Sumar and Ismail, "Adulteration of Foods -- Past and Present," 12.

³⁸ Anderlini, "Chinese Police Cracked the Case of Adulterated Lamb".

³⁹ Sina News, "Beef Extract Was Found in Many Provinces in China, and Overuse Can Lead to Cancer," Sina News, <http://news.sina.com.cn/h/news/2011-04-15/140522299247.shtml>.

⁴⁰ Sohu News, "Journalists Exposed the Production of Carrageenan and Water Injected Pork—Chemical Pork," Sohu News, http://health.sohu.com/20120323/n338699663_1.shtml.

⁴¹ "Moutai, Authentic or Fake?," Sohu News, <http://business.sohu.com/s2012/maotaijiu/>.

⁴² In China, every restaurant needs to collect plate waste separately from other forms of waste, and the waste normally goes to pig farms.

carcinogen. As reported every year from 2004 to 2013, “gutter oil” constitutes roughly 10% of the cooking oil consumed in the domestic market.⁴³ Chapter Seven further studies the case of recycled cooking oil.

The worst scenario of food adulteration is fake food – food that is totally synthesised from inferior materials and chemicals. Honey – made from syrup, alums, flavour additives, and colour – can have dangerous levels of aluminium, as reported every year in 2005-2008 and 2011-2013.⁴⁴ Reports in 2011 and 2012 identified yogurt, capsules, and fruit jelly made from industrial gelatine, which was produced from scrap leather or even worn shoes.⁴⁵ Further, certain eggs were synthesised from sodium alga acid, alums, and gelatine at a cost of only 3-4 cents per egg (reported in 2009, 2011, 2012).⁴⁶ Meanwhile, in 2011 soy sauce was reported to be made from human hair and chemicals,⁴⁷ while meatballs, fish balls, and other popular hotpot food were made from flour, colour, flavour additives, sodium bicarbonate, and elastin (reported in 2007, 2009, 2011, 2012).⁴⁸ Fake food also extends to the high end market: 40% of shark fin in China’s domestic market was not from shark, but actually was made from gelatine and other chemicals (reported in 2006, 2012, and 2013).⁴⁹ Most of the food listed here is mass consumed –such as pork, eggs, cooking oil, and beef – and, so negative health impacts can be widespread. While export food for foreign consumers was from registered producers, the politically privileged were protected by the exclusive supply system, and affluent consumers could choose from petty production – food adulteration in mass consumption expectedly had the most impact on the group of ordinary domestic consumers.

⁴³ Chuqing Hu, "Interview of Professor He Dongping, Director of Oil and Oil Plant Team of National Cooking Oil Standardization Committee, Professor of Food Science and Engineering School, Wuhan Engineering College," China.Com News, <http://news.china.com/focus/shipinanquan/11097158/20111008/16800494.html>.

⁴⁴ Xiaoli Zhao, "Industry Insiders Stated Fake Honey Widely Existed in Chinese Market'," People's News (Jinan Daily), <http://health.people.com.cn/GB/14516604.html>.

⁴⁵ Tencent News, "Traditional Yogurt Is Added with Industrial Gelatine—Made from Wasted Leather or Shoes," Tentent News, <http://finance.qq.com/a/20120409/005399.htm>.

⁴⁶ Netease News, "Story About Fake Eggs in Changsha—3 to 4 Cents of Cost," Netease New, <http://news.163.com/09/0417/07/5739NC5300011229.html>.

⁴⁷ Sohu News, "Secret Recipe for Soy Sauce Is So Disgusting That Human Hairs Are One Ingredient," Sohu News, <http://news.sohu.com/20101217/n278353117.shtml>.

⁴⁸ Hua Lou, "Wholesalers Expose the Secret of Meatballs—Combination of Everything but Meat'," Sina News, <http://news.sina.com.cn/s/2011-02-28/042822024761.shtml>.

⁴⁹ Netease News, "Industry Insiders Exposed That 40% Shark Fin in China Is Not from Shark," Netease News, http://news.163.com/12/0804/02/881GJ7HP0001124J.html#sns_163.

Inferior food

Here, inferior food refers to low quality food produced by licensed producers that fails to reach food safety standards. From 2004 to 2013, 631 out of 3,431 food safety incidents were in this category and involved some famous brands. Apart from Sanlu, melamine tainted dairy products were found made by Yili (伊利) and Mengniu (蒙牛) – China’s top two dairy producers. Ironically, their products were “Products Exempted from National Inspection” due to stable quality levels (after the melamine scandal, the exemption practice in food industry was abolished).⁵⁰ Wu De Li (五得利) is China’s leading wheat flour producer, with a market share of 9.36% and annual sales of RMB12.1 billion Yuan. Yet, despite being an extremely dangerous carcinogen, of which 2-3 grams could kill a baby – borax was found in Wu De Li wheat flour in 2012 in order to increase resilience and malleability of flour.⁵¹ Since 2011, consumers had found recurring quality issues in products of the famous meat producer Jin Luo (金锣).⁵² DEHP, DIBP, and DBF are all plasticisers that can cause cancer and infertility, yet the three elements in Jiu Gui (酒鬼) liquor were 260% of the national standard (reported in 2012).⁵³ Shang Hao Jia (上好佳) biscuits failed to pass national inspection on bacteria amount (reported in 2010).⁵⁴ And Guan Sheng Yuan (冠生园) moon cakes were found to carry much higher than allowable microbial and bacteria (reported in 2001, 2004, 2005).⁵⁵

Meanwhile, expired and occasionally contaminated food was found processed and/or sold by licensed food producers and distributors: 87 incidents out of 631 in this category. The famous brand Wu Xiang Zhai (五香斋) was found to use a moulded filling to make “Zong Zi”, a traditional rice pudding for the Dragon Boat Festival

⁵⁰ Xiaofang Pei et al., "The China Melamine Milk Scandal and Its Implications for Food Safety Regulation," *Food Policy* 36, no. 3 (2011): 412.

⁵¹ Tencent News, "No. 1 Wheat Flour Producer Was Found to Add Borax in Flour," Tencent News, http://news.qq.com/a/20120920/001547_1.htm.

⁵² People's Net, "Jin Luo Supply Chain Was Doubtful with Frequent Problems," People's Net News, <http://shipin.people.com.cn/n/2013/0321/c85914-20860981.html>.

⁵³ Er Li, "Jiu Gui Liquor Was Found to Contain Heave Dose of Plasticiser, Leading to Liver Cancer," Tencent News, http://finance.qq.com/a/20121119/002203.htm?pgv_ref=aio2012&ptlang=2052.

⁵⁴ China Finance Online News, "Shang Hao Jia and Other 8 Brands of Biscuits Failed in Bacteria Inspection," China Finance Online News, <http://news.cnfol.com/101026/101,1603,8671357,00.shtml>.

⁵⁵ Chen Liu, "Guan Sheng Yuan Fell Again on Moon Cakes," Sohu News, <http://health.sohu.com/20051031/n240623884.shtml>.

(reported in 2012).⁵⁶ Guan Sheng Yuan (冠生园) mooncakes were made using filling from the previous year (reported since 2001),⁵⁷ which later proved to be a common practice in mooncake industry (reported since 2006).⁵⁸ Capital Airline (首都航空) was found to provide expired breakfast (reported in 2011).⁵⁹ Expired Bright (光明牛奶) milk was recycled and resold (reported in 2005).⁶⁰ Expired cooking oil was found on the shelf in Wal-Mart (reported in 2012),⁶¹ and unlicensed food processors were found to be Wal-Mart's supplier (reported in 2012 and 2013).⁶² Mouldy bread was sold by Carrefour (reported in 2011).⁶³ And Starbucks was reported in 2012 as selling expired sandwiches.⁶⁴

A noticeable phenomenon in this category of food risk is that overseas food producers were found to conduct segmented standards on food safety when operating in the Chinese food market. The growth of domestic food consumption during the decade was phenomenal and attracted international food producers but, rather than shaping a set of better regulatory standards, domestic consumers became victims to unlawful behaviours that renowned international food producers conducted in the Chinese food market. Apart from the aforementioned Wal-Mart, Carrefour and Starbucks, other international food producers were found to conduct differentiated food safety standards in China. For example, Coca-Cola put 13 times more 4-methylimidazole into the coke sold in China than that for the US market, with heavy doses of 4-methylimidazole leading to tumours

⁵⁶ People's Net, "Consumers' Complaint: Just Bought Wu Xiang Zhai Zong Zi Was Moulded," People's Net News, <http://shipin.people.com.cn/GB/18211840.html>.

⁵⁷ Sohu News, "Chain Reaction of Guan Sheng Yuan Moon Cakes'," Sohu News, <http://health.sohu.com/87/39/harticle15323987.shtml>.

⁵⁸ Sina News, "Be Careful of 'Recycled' Moon Cakes," Sina News, <http://www.39kf.com/focus/spaq/01/2006-10-12-272754.shtml>.

⁵⁹ Dapeng Han, "Breakfast Provided by Capital Airline Was Expired, Causing Diarrhea," Sohu News, <http://health.sohu.com/20110425/n306388825.shtml>.

⁶⁰ Sina News, "Journalist Exposed the inside Story of Expired Bright Milk," Sina News, <http://finance.sina.com.cn/roll/20050608/0231110952.shtml>.

⁶¹ People's Net, "Wal-Mart Was Exposed to Sell Expired Cooking Oil, Promised to Compensate First and Refused the Fact Later," People's Net News, <http://shipin.people.com.cn/n/2012/0629/c85914-18409679.html>.

⁶² CCTV News, "CCTV Exposed Underground Food Processers Provided Preserved Fruit to Wal-Mart, Carrefour and Other Supermarkets," CCTV News, <http://stock.591hx.com/article/2012-04-25/0000480830s.shtml#433286-tqq-1-6781-1b16991d81b82ebaa6b002caeb88dc28>.

⁶³ Xinhua News Agency, "Bread with Mould Was Sold by Carrefour and No Explanation'," Xinhua News Agency, http://news.xinhuanet.com/food/2011-05/23/c_121445895.htm.

⁶⁴ People's Net, "Starbucks Sold Expired Sandwich—to Destroy or Not to Destroy," People's Net News, <http://shipin.people.com.cn/GB/18197491.html>.

(reported in 2011 and 2012).⁶⁵ Industry colour agent Sudan Red was found in McDonald's chicken wings (reported in 2005).⁶⁶ Highly dangerous Escherichia coli in McDonald's ice cream was 629 times higher than China's national standard (reported in 2006).⁶⁷ Hilton in Shanghai bought cakes from unlicensed food processors (reported in 2012).⁶⁸ And expensive Evian purified water was found to carry a much higher than allowable level of bacteria colony (national standard: GB8537-1995, cases reported in 2006 and 2007).⁶⁹

Unlicensed food production

Unlicensed food producers are illegal but not uncommon due to regulatory gap, especially at the far end of the regulatory chain and with the low cost of non-compliance. *Food Safety Law of PRC* issued in 2009 emphasised compulsory requirement for every food processor and distributor to obtain a licence that was to be periodically renewed.⁷⁰ A large part of growing demand for food comes from the bottom of Chinese society, where most ordinary domestic consumers are located. These consumers include mainly low income earners from rural-urban integration areas, rural communities, and other underdeveloped regions. With the least regulatory resources available in these areas and limited purchasing power of ordinary domestic consumers, unlicensed food processors find a way to provide them with cheap but unsafe food.

Unlicensed food producers work in the underground market, where limited regulatory resources create additional issues in detecting and managing them. During 2004-2013, 60 out of a total 3,431 food safety incidents came under the category of food from unlicensed food producers. Such a small number reveals the difficulties in tracking unlicensed food producers, considering the large amount of food that comes from unlicensed food producers. Some food crisis cases include expired processed chicken wings, eggs, pig trotters, and other popular snacks that were reprocessed using colours,

⁶⁵ Jinyu Wang, "Coca-Cola Was Found to Contain Cancerogen, the Dose of Which Is 13 Times Higher in Chinese Market Than in US Market," Phoenix News, http://news.ifeng.com/mainland/special/shipinanquan/content-2/detail_2012_06/26/15568489_0.shtml.

⁶⁶ Wenchuan Li, "Facing Sudan Red I Incident, More Actions Are Needed," Xinhua News Agency, http://news.xinhuanet.com/fortune/2005-03/02/content_2638057.htm.

⁶⁷ Sohu News, "Escherichia Coli in Macdonald Ice Cream Was 629 Times Higher Than National Standard," Sohu News, <http://health.sohu.com/20060329/n242525268.shtml>.

⁶⁸ Liang Shen, "Hilton Hotel's Cake Supplier Was Unlicensed Food Processor," People's Net News, <http://shipin.people.com.cn/n/2012/0625/c85914-18376508.html>.

⁶⁹ Zirui Zhang and Yonghui Wang, "Foreign Brands Psychology of Domestic Consumers, Evian Water's Quality Issue," People's Net News, <http://mnc.people.com.cn/GB/5829600.html>.

⁷⁰ NPC of PRC, "Food Safety Law of the People's Republic of China".

chemical flavour agents, carmine, and industrial formic acid – then repacked under famous brand names before entering the market. In 2013, annual yield on such “snacks” reportedly reached 1,000 tons, which equals to 5%-7% of market consumption,⁷¹ while tap water⁷² was sold as bottled drinking water despite being bottled in a dirty environment (as per reports from 2005, 2007-2009, 2011-2013).⁷³ Meanwhile, a report in 2011 describes steamed buns being dyed into different colours and sold in free markets and school canteens as steamed maize or buckwheat buns.⁷⁴ Why the food from unlicensed food producers matters is that it covers mainly basic food sold in low-end free markets according to Administration of Quality Supervision, Inspection and Quarantine of the People’s Republic of China (AQSIQ). These food categories include rice, wheat flour, cooking oil, soy sauce, vinegar, liquor, and baby formula.⁷⁵ In fact, unlicensed food producers cover a much wider range of food: bean sprouts, areca nuts, instant noodles, soy milk, dried meat floss, ham, vermicelli, sausage, roast chicken, fish, fungus, hotpot dishes, melon seeds, crabs, chili, dates, sugar canes, vegetable and fruit, pork and beef.⁷⁶

A zone of unregulated food consumption is thus created by unlicensed food producers, their main clientele comprised of vulnerable domestic consumers from the ordinary domestic consumer group mostly at the bottom of Chinese society. Around 30% of food sold in China comes from unlicensed food processors, most of whom are found in rural areas (reported in 2011 and 2013)⁷⁷ - with such food’s major consumers being children in rural areas (reported in 2013).⁷⁸ The shared features of unlicensed food include imitating famous brands (see image), attractively low prices, sold by vendors or small groceries, no supervision on food safety or quality at all, and consumers powerless both politically and economically. Apart from health threats exerted from unlicensed food

⁷¹ Qiongqiong Zhou, "Police Destroyed Poisonous Chicken Wings Production Chain in Wen Zhou," Xinhua News Agency, http://www.zj.xinhuanet.com/newscenter/headlines/2013-06/10/c_116108015.htm.

⁷² Tap water does not reach the standard of drinking water in China.

⁷³ China.Com News, "Administration of Quality Supervision, Inspection and Quarantine Exposed the Second Blacklist of Unlicensed Drinking Water Producers," China.Com News, <http://www.china.com.cn/chinese/zhuanti/zlbg/1027934.htm>.

⁷⁴ Sina News, "Wenzhou Underground Workshop Made Dyed Steamed Buns and Sold in Schools," Sina News, <http://news.sina.com.cn/h/news/2011-04-18/101522312000.shtml>.

⁷⁵ Xinhua News Agency, "Administration of Quality Supervision, Inspection and Quarantine Declared Seven Categories of Unlicensed Produced Food," Xinhua News Agency, http://news.xinhuanet.com/newscenter/2005-02/02/content_2540248.htm.

⁷⁶ Yingying Ren, *Shi Pin an Quan Diao Cha [Food Safety Investigation]* (Beijing: Oriental Press, 2004).

⁷⁷ He and Sun, "Unlicensed Food Accounted for 30% of All Foods Sold in China".

⁷⁸ Ibid.

producers – e.g., chronic food poisoning and malnutrition – accumulation of illegal profit will discourage other small-sized food producers to follow the food safety regulations.⁷⁹



Source: <http://www.gs12315.com/UploadFiles/Article/2012/4/201204121505173230.jpg>

Sales of diseased animals

This category of food risk also fits in the zone of unregulated food consumption. With no inspection and quarantine, diseased or dead animals mostly flow into low-end free markets through underground illegal deals.⁸⁰ Over 10,000 dead pigs appeared in Huangpu River in March 2013 largely due to the cracking down on a major purchase organisation of dead pigs.⁸¹ This event also raised the question of where the dead pigs had gone before 2013 – and it was too hard for people to believe that most dead pigs went to food markets in adjacent cities, even including the developed city of Shanghai.⁸² Despite lacking statistics on this food risk, some reported cases suggest that, from January 2009 to November 2012, an illegal team led by Dong Guoquan sold over 77,000 diseased dead pigs (over 1,000 tons) to the food market, with the sales volume exceeding RMB 8.65 million Yuan (case reported in 2012).⁸³ Similarly, 2013 saw reports of forty tons of diseased dead pigs having been sold via refrigeration storage in

⁷⁹ People's Net, "Focus Talk on China Central Television (CCTV) Expose Unlicensed Foods: Blur the Market and Produce High Illegal Profit," People's Net News, <http://food.china.com/news/11116379/20130508/17820646.html>.

⁸⁰ Interviews with officials of Public Security Bureau were conducted on the issue in December 2014.

⁸¹ Xinhua News Agency, "Value Chain Exposed by Jia Xing People: We Don't Know How Many Dead Pigs Shang Hai People Have Eaten," Sina News, <http://news.sina.com.cn/c/2013-04-01/140426703029.shtml>.

⁸² Shuhan Zhang, Qionghua Zhu, and Shijun Chen, "Investigation on Dead Pigs in Jia Xing, Zhejiang: Most Went to Canteen and Markets," 21st Century Economics News (Phoenix News), http://news.ifeng.com/shendu/21sjjjbd/detail_2013_03/27/23568100_2.shtml.

⁸³ Ibid.

Zhang Zhou,⁸⁴ while a case reported in 2012 specified that over 90 tons of pork from diseased pigs went into Jinjiang and Shishi (Fujian provinces).⁸⁵ Another report in 2012 indicates that a group of 25 people sold 51,563 tons of pork from diseased pigs over 12 months in the Hunan province of Changsha.⁸⁶ Another case revealed that in Shenzhen in 2012, a facility for processing diseased dead pigs was concealed in the Science and Technology Zone and sold to the market around 5,000 kilos per day of 'bleached and processed' pork from diseased pigs during 2008- early 2012.^{87 88}

First thing to remember is that dead pigs are highly likely to carry different contagious viruses, such as the porcine reproductive and respiratory syndrome or the pseudorabies virus. Thus, pork from dead pigs had been processed using formalin and other chemicals so as to cover any abnormal colour and odour.⁸⁹ In a zone of unregulated consumption, petty processors sell such pork from delicatessens in the free markets or process it into sausages and other meat products, which are purchased mainly by ordinary domestic consumers from the lower or lower-middle classes. Unless they are stricken by negative health consequences, consumers are unlikely to recognise diseased dead pigs covered by heavy colours, flavours, and processing. Apart from illegally sold dead pigs, these low-end free markets also contained other diseased dead animals, such as chickens.⁹⁰

Unsafe packaging materials

Unsafe food packaging materials are another way food can be polluted. The *Hygienic Standard for Uses of Additives in Food Containers and Packaging Materials* (GB 9685-2008) was issued on 9 September 2008 and implemented since 1 June 2009.⁹¹ Yet, despite this national standard, 74 of 3,431 food safety incidents in 2004-2013 could be

⁸⁴ Minnan News, "A Refrigeration Storage Sold 40 Tons of Dead Pigs within Three Months," Strait Cosmopolitan News (Minnan News), <http://www.mnw.cn/news/top/374204.html>.

⁸⁵ Netease News, "Over 90,000 Kilos of Dead Pig Went into Jinjiang and Shishi, Three Persons Were Sentenced," Netease News, <http://news.163.com/12/1202/12/8HNIJ6EO00014JB6.html>.

⁸⁶ Yiyun Liu, Rongjun Yao, and Ang Chen, "25 People Sold over 50000 Kilos of 'Poisonous Pork' in Changsha," Sina News, <http://hunan.sina.com.cn/news/s/2012-05-31/08301120.html>.

⁸⁷ Shenzhen TV, "A Hidden Diseased Dead Pigs Processor in Science and Technology Zone, Selling over 5000 Kilos of Pork Per Day into Market," Netease News, <http://v.news.163.com/video/2012/4/2/4/V7UH06R24.html>.

⁸⁸ Legal Daily, "Secret Story of Diseased Dead Pigs Processing: Collision between Business and Officials," Legal Daily (Foodmate News), <http://news.foodmate.net/2012/05/205564.html>.

⁸⁹ Ibid.

⁹⁰ Ren, *Shi Pin an Quan Diao Cha [Food Safety Investigation]*: 174-84,98-05.

⁹¹ This regulation was jointly issued by Ministry of Health of People's Republic of China and China National Standardization Management Committee.

classified in the unsafe packaging risk category. Some common examples of this food risk include almost half of widely used disposable tableware not qualifying and containing contaminants and poisonous chemicals (reported in 2005-2009, 2013).⁹² In turn, widely used disposable chopsticks were recycled and resold into the market (reported in 2006-2009, 2013).⁹³ Reports from 2011 and 2012 stated that fluorescer – yet another carcinogen – had been detected in disposable cups, popcorn buckets, and instant noodle containers.⁹⁴ More reports from 2011 and 2012 describe that about 26 million – or 30% – of drinking water buckets annually sold in the market had been unqualified, some made from waste plastic materials and containing bisphenol A (a female hormone) and PET (a plasticiser and carcinogen that causes fertility problems).⁹⁵ And in 2013 multiple reports refer to common drinking straws being found to contain various plasticisers.⁹⁶

Unsafe food from polluted sources

Food from polluted sources is an intractable and hidden peril that has profound negative impact in the longer term. Environmental pollution, which follows rapid economic growth of past four decades, is raising great challenges to the food industry and bears extensive impact on food safety. Some of the challenges are acute – such as severe water shortage and pollution⁹⁷ – although most are chronic – such as growing rice and other foodstuffs in polluted soil. During 2004-2013, data on food from polluted sources had been rare, mainly due to the fact that environmental impact takes time to manifest, not to mention authorities' concerns that unmanaged information may cause public panic.

⁹² Xideng Huang and Yihong Zuo, "Half of Disposable Tableware Failed to Reach National Standard, Disposable Food Containers in Particular," Information Times (ChinaEconomics News), http://www.ce.cn/xwzx/gnsz/gdxw/200706/19/t20070619_11812846.shtml.

⁹³ Sina News, "Inside Story of Disposable Chopsticks: Recycled and Resold," Sina News, <http://www.39kf.com/focus/spaq/01/2006-10-10-272137.shtml>.

⁹⁴ Zhikui Ou and Hanling Xiong, "Over 70% Disposable Cups Failed to Reach National Standard Due to Overuse of Fluorescer," People's Net News, <http://shipin.people.com.cn/GB/14691489.html>.

⁹⁵ Xiaohong Hu, "Exposure of Drinking Water Problem: 26 Million of Problematic Water Bucket Go to Market Annually," Jinhua Times (People's Net News), <http://shipin.people.com.cn/GB/14210883.html>.

⁹⁶ Shuyang Li, "Straws with Plasticizer: A Potential Danger," ChinaNews Net, <http://finance.chinanews.com/life/2013/04-18/4742265.shtml>.

⁹⁷ Jinxia Wang et al., "Understanding the Water Crisis in Northern China," in *China's Dilemma*, ed. Ligang Song and Wing Thye Woo (Canberra, Beijing: ANU E Press, Asia Pacific Press, and Social Sciences Academic Press, 2008), 276.

One environmental incident, that of cadmium polluted rice, had already raised panic. In 2013, a report showed that rice grown in the Hunan province contained 1.005 mg of cadmium per kilo – this was much higher than the national standard of 0.2 mg/kg.⁹⁸ Hunan is China's major rice growing area, and rice is the fundamental staple for Chinese food consumers. So, domestic consumers rapidly learned the word cadmium as well as many others, such as neuralgia, ostealgia (osteocarcinoma, or bone cancer), bone softening and anolysis, and renal failure⁹⁹ – all being outcomes of biological concentration of cadmium in the human body. Chapter Six will examine this case in more detail.

Among all food risks, that of polluted soil and other polluted sources may well be the worst one, with the remedy extending far beyond regulation. On the one hand, this risk has no quick fix – it would take decades, if not longer, to clear out pollutants from the soil. On the other hand, consumers have few choices due to limited arable land and vast extent of the pollution. Moreover, cadmium and other heavy metal pollution in soil exert risks far beyond rice. So, official data on soil pollution states that, of 1.8 billion Mu of arable land in China, 150 million Mu (8.3%) is polluted with heavy metals to varying degrees. Further, 12 million tons of grain is polluted by heavy metals each year in China, causing an economic loss of over RMB 20 billion Yuan (according to Zhou Shengxian, China's Minister of Environment Protection in 2011).¹⁰⁰ In 2012, the Ministry of Land and Resources of People's Republic of China updated the ratio of polluted soil to 10%.¹⁰¹ According to research institutions, the degree of soil pollution could be much worse, as currently at least 20% of Chinese land is polluted, spanning 11 provinces and 25 regions (Hunan and Jiangxi in particular). This figure came from National Rice Quality and Security Development Strategies issued jointly by China National Rice Research Institute (CNRRI) and Rice & Rice Products Quality Inspection and Supervision Centre under the Ministry of Agriculture.¹⁰² To make matters worse,

⁹⁸ Xinhua News Agency, "Cadmium Polluted Rice Arouse Thoughts on Agriculture Pollution in China, Be Cautious About Import," Xinhua News Agency, http://news.xinhuanet.com/food/2013-05/28/c_124772350.htm.

⁹⁹ Baike, "Cadmium Rice," Baike Online Encyclopedia, <http://baike.baidu.com/view/5269558.htm>.

¹⁰⁰ Liu Liu, "Why Soil Pollution Became a National Secret," Netease Opinion Page, <http://view.163.com/13/0227/11/8ONEKUGQ00012Q9L.html>.

¹⁰¹ Ibid.

¹⁰² Xinghua Ying et al., "National Rice Quality and Security Development Strategies," *Agriculture Products Quality and Safety*, no. 6 (2010): 40-41.

four out of China's seven major rivers – or the majority of rice irrigation sources – are polluted by heavy metals to various degrees.¹⁰³

Without demonstrating a linear trend on development of food safety crises, their occurrences were generally high during the decade of 2004-2013. Despite being intensive overall, the efforts to reform and improve the food safety regime had failed to bring up the food safety level proportionally. Thus, Figure 4-1 shows that an expected decline in food safety crises failed to emerge neither during nor following years when new regulations or regulatory action on food safety were initiated. Instead, when Food Safety Law was passed in 2009 as the first food safety legislation and Food Safety Commission of the State Council was established in the following year, food safety crises peaked over the years 2011 and 2012. The concurrence of rampant food safety crises and intensive efforts to improve the food safety regime signalled the regime's failure, further consolidated by the fact of the regime's segmentation and attributing most of the food risks to ordinary domestic consumers.

¹⁰³ Zhongyun Luo, "The Beginning of Cadmium Pollution in China," *Beijing Science and Technology Journal*, no. 18 (2008).

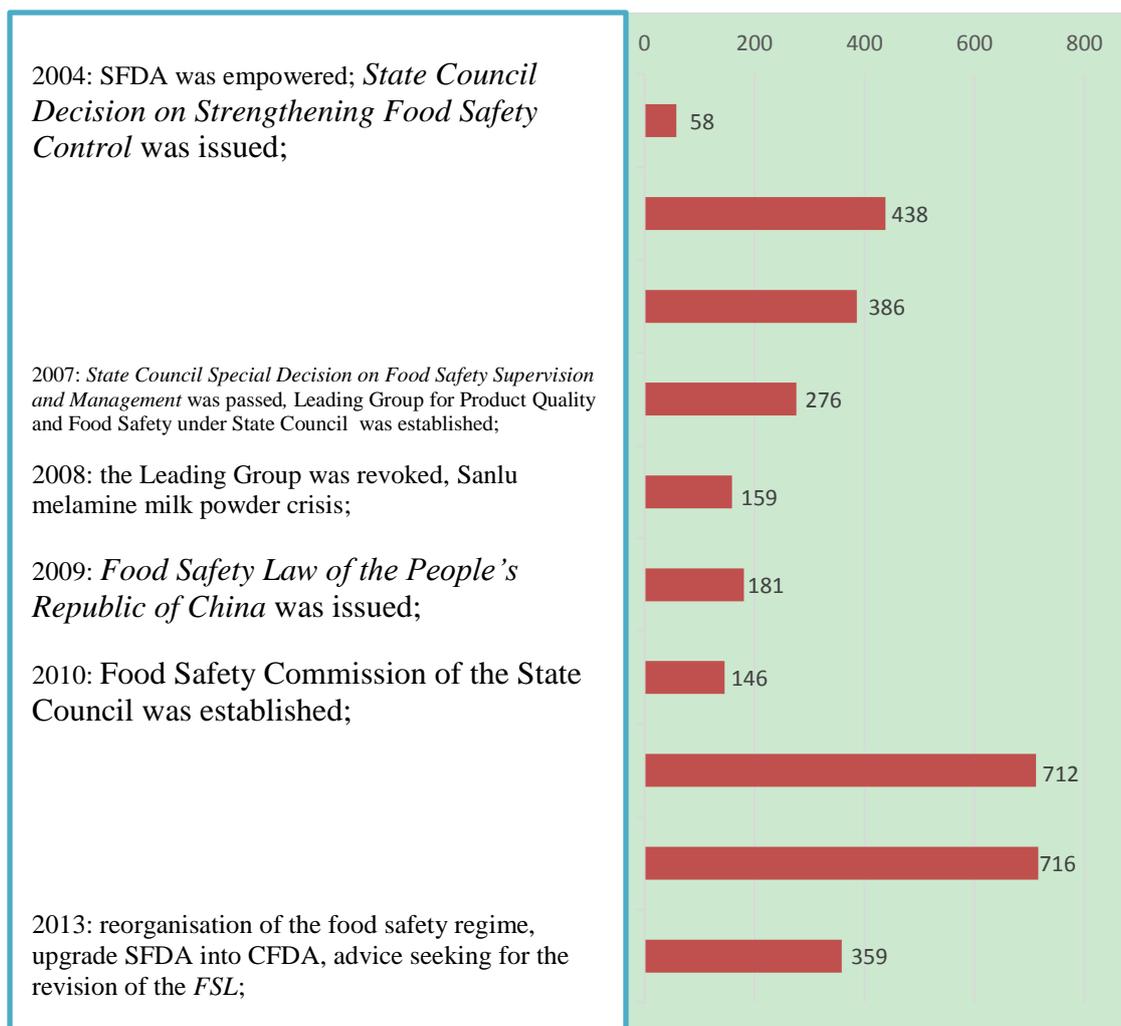


Figure 4-1 Key events in reforming the food safety regime and food safety incidents during 2004-2013

Segmentation of food risks

During the decade of 2004-2013, food risks were not evenly distributed among all of China's consumer groups. Absolute majority of food safety incidents happened in the domestic food market and, within this market, consumers suffered most at the far end of the food regulatory chain. Occurrence of food risks and safety incidents was high where regulatory resource was limited, and food remained relatively safe where regulatory resource was abundant. Such distribution of food risk reflects the class basis of consumer fragmentation, where poor consumers from lower or lower-middle classes have higher chances of suffering from more food risks and are more vulnerable to food risks in general.

Food risks concentrated on ordinary domestic consumers

Compared with other consumer groups, ordinary domestic consumers had higher chances of suffering from most of the food risks as described in the previous section. Typical examples include food risks from unlicensed food producers and sales of diseased animals. These illegal dealers would not pass quality inspection of food retail terminals in developed regions, yet there is a high chance they would be found at the far end of the regulatory chain, where food markets are loosely regulated and their offers of low prices meets demands of consumers with limited purchasing power. Food price, rather than quality or safety, was the major concern for over 20% food consumers in the food market of underdeveloped regions.¹⁰⁴ On the other hand, consumers in developed regions are more concerned about food quality and safety. Developed distribution channels – such as supermarkets, convenience stores, and free markets in economically developed areas – can sell only food with positive quality inspection results, and the majority of consumers tend to shop in these outlets. For example, 94% of consumers purchased food in regulated retail terminals in large cities like Beijing, Shanghai, and Nanjing, while in the rural market this figure was around 20% due to lack of well-regulated retail terminals and consumers' limited purchasing power.¹⁰⁵

Hence, ordinary domestic consumers are the main victims of all aforementioned food risks. Domestic consumers in the lower and lower-middle classes are politically powerless and economically poor, mostly located in rural, rural-urban integration regions and other underdeveloped regions. Regulatory resource on food safety in these regions (and for this group of consumers) is less abundant than that in economically and politically developed urban areas. For example, roughly 80% of food safety incidents and 90% of food-borne diseases originated in rural areas of China.¹⁰⁶ Over half of the food sold in free markets of rural regions was bulk packed, which has a higher chance of coming from unregulated sources. According to an investigation by the State Administration of Industry and Commerce (SAIC), around 60% of bulk packed food sold in rural markets did not carry QS certification,¹⁰⁷ and had either little or fake

¹⁰⁴ MOC, "Food Safety Investigation Report in Distribution," (Beijing: MOC, 2007).

¹⁰⁵ Ibid.

¹⁰⁶ Liu and McGuire, "One Regulatory State, Two Regulatory Regimes: Understanding Dual Regimes in China's Regulatory State Building through Food Safety," 121.

¹⁰⁷ QS is the compulsory product quality safety certification in China, and is required for all producers, including food producers.

information on producers, expiry dates, and ingredients.¹⁰⁸ In contrast, food lacking QS certification would not be allowed into the developed retail terminals in urban areas, which require inspections and information regarding food safety and quality, such as ingredient lists and expiry dates.

Other groups in the domestic market

In the domestic food market, the politically privileged would be the last group of consumers to suffer from food risks. The politically privileged maintained their choice of trustworthy food sources within the exclusive food supply system, which is guaranteed by stable and superior food safety and quality. The food from those trustworthy and designated food sources is stringently regulated even with the same set of food safety standards, and outperforms those standards in most cases. Moreover, providing food to the politically privileged is more of a political mission historically than market behaviour, so food regulators have strong regulatory incentive to protect the politically privileged from food risks. As a result, most food risks exerted minimum impacts over them except for one: food from polluted sources since pollution is trans-regional, penetrating through water and air, and long-lasting.

The economic resource of affluent consumers allowed them to afford more expensive food with better safety level. Some food risks that ordinary domestic consumers are suffering are closely related to the low price of problematic food, such as food without quality certification in low-end retail terminals. With little restraint of price as a concern upon food consumption, affluent consumers can avoid food in low-end free markets, bulk packed food and other food with possibly high chance of risks, and choose food from renowned producers and imported, which is more expensive but safer in most cases. On the supply side, food producers have strong incentive to gain the market of affluent consumers, and the competition for the market share would boost up food quality and safety. The popularity of the transparently managed CSA farms among affluent consumers is an example. Affluent consumers may suffer some food risks still, such as food from polluted sources, industry-wide food adulteration, or inferior food from licensed producers. Compared to ordinary domestic consumers, affluent consumers are with choices for safer food.

¹⁰⁸ SAIC, "Food Safety Investigation in Distribution by SAIC."

Contrast: foreign consumers

The segmented food safety regime distributed much fewer food risks to the group of foreign consumers. Different food safety standards and institutional arrangements (to be discussed in Chapter Five and Seven) to implement standards largely protected foreign consumers as a privileged group from food risks produced in China. There were a handful of food safety incident in China's overseas market during the period from 2004 to 2013 still. For example, in 2007, pet food imported from China was found to contain adulterated ingredients in the US market;¹⁰⁹ in the same year, US Food and Drug Administration (FDA) announced a border closure for all farm-raised catfish, basa, shrimp, and eels from China due to veterinary drug residues and heavy metal pollution, and the US was the second largest recipient of China's processed aquatic exports prior to this ban.¹¹⁰ Compared to the astonishingly high occurrence of food safety crises in domestic market, the food sold in China's overseas food market was of much better food safety level.

The uneven distribution of food risks upon fragmented consumer groups indicated the fundamental flaw within the food safety regime in China. With a general low level of food safety in China's domestic market, the historically segmented food safety regime attributed food safety benefits to some consumer groups and burdens to the majority and produced different levels of food safety for various consumer groups depending on their social class in China's political economy. The solidification of social class based consumer fragmentation reinforced the regulatory segmentation in the way of allocating regulatory resource and arranging regulatory setting, which contributed to the institutionalisation of the uneven food safety level. Therefore, this thesis argues that – driven by fragmentation of consumer groups – regulatory segmentation of the food safety regime is fundamental to producing an uneven distribution of food risks and food safety levels, and leading to the systemic failure of China's regulatory regime on food safety.

¹⁰⁹ Drew Thompson and Hu Ying, "Food Safety in China: New Strategies," *Global Health Governance* 1, no. 2 (2007): 3-5.

¹¹⁰ Huanan Liu, William A. Kerr, and Jill E. Hobbs, "A Review of Chinese Food Safety Strategies Implemented after Several Food Safety Incidents Involving Export of Chinese Aquatic Products," *British Food Journal* 114, no. 3 (2012): 373.

Conclusion

During 2004-2013, crucial food safety risks were being unevenly distributed among China's various food consumers. Such uneven food risk distribution resulted from regulatory segmentation of China's food safety regime – so, food destined for foreign consumers was relatively safe besides a few incidents in the overseas market, with domestic consumers bearing the majority of food risks. In the domestic food market, the politically privileged and affluent consumers had less chance of being affected by food risks than most ordinary domestic consumers, especially those at the far end of the food regulatory chain, or the end with the most food risks and food safety incidents. During 2004-2013, over 3,000 incidents spanning all seven food risk categories had broken out, with a large part of the ordinary domestic consumer group having suffered the most.

The food safety issue is neither new nor unique to China. With this in mind, Upton Sinclair had published *The Jungle* in 1906, where he wrote about the poor working conditions in Chicago. Instead of hitting people's heart as per his plan, Sinclair hit people's stomach, describing scenes people were not ready for: "Workers with tuberculosis coughed constantly and spit blood on the floor [in sausage factory]"; "These rats were nuisances, and the packers would put poisoned bread out for them; they would die, and then rats, bread, and meat would go into the hoppers together [to make sausage]"; and additives and adulteration were particularly pointed out: "Some of it they would make into 'smoked' sausage -- but as the smoking took time, and was therefore expensive, they would call upon their chemistry department, and preserve it with borax and colour it with gelatine to make it brown. All of their sausage came out of the same bowl, but when they came to wrap it they would stamp some of it 'special', and for this they would charge two cents more a pound."¹¹¹

Sinclair's novel triggered changes in food safety legislation and regulation in the United States. His readers – including Franklin D. Roosevelt – started to become concerned about the safety of their food. For instance, then U.S. President Roosevelt had been chewing a piece of sausage while reading about the sausage depicted by Sinclair. After speaking with the novelist, Roosevelt asked the Department of Agriculture to investigate food safety on U.S. territory. Soon, two laws passed: *1906 Pure Food and*

¹¹¹ Upton Sinclair, *The Jungle* (New York: Doubleday, Jabber & Company, 1906). 162-63.

Drugs Act, which prohibited interstate commerce in adulterated and misbranded food and drugs; and the *Federal Meat Inspection Act of 1906*, which aimed to prevent sales of adulterated or misbranded meat and meat products and to ensure that meat and meat products are slaughtered and processed in hygienic conditions. Meanwhile, Harvey Washington Wiley¹¹² led a team towards consolidating the core function of the Food and Drug Administration as regulating food safety and protecting consumers.¹¹³

Apart from the United States, many countries embarked on the journey of discovering food safety risks and activating legislative and regulatory processes in order to improve food safety. Three books have had substantial impact on food safety legislation and regulation in the U.S. – namely, *The Jungle* (1906), *Silent Spring* (1962), and *Fast Food Nation* (2001).¹¹⁴ In China alone, over 3,000 food safety incidents during 2004-2013 had already cost lives, money, public distrust towards food regulators and domestic food market, not to mention possible future perils including the fertility issue¹¹⁵, long-term effects on the children, and possible pressure on the medical care system in the future, which are costly lessons from a segmented and failed food safety regime.

Lessons from and reasons for previous failure should inspire an effective regulatory regime on food safety. This thesis argues that the crucial reason for the systemic failure of the food safety regime in China is regulatory segmentation driven by fragmentation of consumer groups, and it is necessary and useful to address why the segmentation is so crucial in the overall failure. This thesis further argues that such regulatory segmentation occurs within food safety standard-setting, food risk information-communication, and unlawful behaviour-modification of the food safety regime – all of which contributes to the overall regulatory segmentation of the whole regime. And the following three chapters discuss how each of those three components has been segmented upon fragmented consumer groups with the expectation of providing policy inspiration for a better regulatory regime on food safety.

¹¹² Harvey Washington Wiley was the then Chief Chemist of the Bureau of Chemistry in the Department of Agriculture.

¹¹³ US Food and Drug Administration, "History About FDA," U.S. Food and Drug Administration <http://www.fda.gov/AboutFDA/WhatWeDo/History/default.htm>.

¹¹⁴ Xiaofeng Qian, "Three Books Changed the History of Food Safety in the US," Southern Weekend, <http://www.infzm.com/content/5770>.

¹¹⁵ ChinaNews Net, "Chief Culprit of Fertility," ChinaNews Net, <http://news.sina.com.cn/o/2004-03-26/15332148703s.shtml>.

Chapter 5

Segmented Food Safety Standard-Setting

This chapter turns to an analysis of food safety standard systems. Christopher Hood, Henry Rothstein and Robert Baldwin argues that any risk control system should contain a minimum of three capacities: the capacity for standards-setting to allow a distinction to be made between more and less preferred forms of the system; the capacity for information-gathering or monitoring to produce knowledge about current or changing forms of the system; and the capacity for behaviour-modification to change and improve the system.¹ Central to the argument of this thesis is the fact that regulatory segmentation occurred within all three components of the food safety regime in China. This chapter focuses on the segmentation in food safety standard-setting.

The key element of regulatory segmentation of food safety standard-setting is the regulation of safety standards pertaining to foreign consumers and the domestic food sector in China. Food produced in China for export and domestic consumption complies with different sets of food safety standards. It is difficult to make generalisations as to which set of food safety standards is better, but the comparison among several standards systems in this chapter suggests that food safety standards for foreign consumers are more comprehensive, rigid and offer greater protection than those for domestic consumers. A higher benchmark of food safety is therefore established for foreign consumers.

For the domestic food sector, multiple problems within the standards system have weakened its effectiveness and protection for domestic food consumers. Most of all, the current food safety standards system is composed of new standards approved only by the Ministry of Health (MOH) and old standards approved by multiple food regulators that were seldom harmonised or updated. Such an uncoordinated process led directly to conflicts among standards which in practice confused food producers. Meanwhile, a large number of standards have minimal technical requirements, such as safety standards on dairy products and pesticide residue limits on crops. This resulted in a limited coverage of potential food risks. Such inadequacy was further exacerbated by the fact that many standards were dated and obsolete, running the risk of missing new

¹ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 23.

food hazards that might appear from increasingly sophisticated food technologies and lengthening food chain. This crippled the protection that standards could offer for food consumers. Last but not least, when designing new food safety standards, the system allowed food producers to sponsor and participate in the designing process, and their sponsorship may have prioritised their own commercial interests over the interests of consumers.

In contrast to the domestic food sector, food producers have to reach food safety standards in importing nations no matter how rigid and comprehensive they are. This results in higher food safety levels for foreign consumers. The different food safety levels for foreign and domestic consumers will be demonstrated in the case study that concludes this chapter: with so many food safety crises arising in the domestic food market, tea produced in China can still reach the very strict safety standards demanded by the most stringent food importers in the world, Japan and the EU.

This chapter analyses the regulatory segmentation in food safety standards-setting and illustrates its key argument about segmentation through a case study that compares tea for export with tea for domestic consumption. Section one reviews how such segmentation was gradually formed in systems of food regulatory governance and then moves on to address food safety standards-setting for foreign consumers and for domestic consumption in section two and three respectively. The analysis of problems in the domestic standards system highlights the weaknesses of the system. Section four contains the case study on Yunnan tea, produced both for foreign and domestic markets, and demonstrates these different safety levels through a comparison of the maximum residue limits of pesticides on tea in China and the nations to which it exports.

The historical roots of segmented food safety standard-setting in China

Food safety standards establish scientific indicators for the purpose of guaranteeing food safety and minimising potential hazards, and they are used as the basis for food quality and safety regulations. In order to protect market order and the health of food consumers, most countries will design their own food safety standards which are technically viable, enforceable and offer adequate protection for food consumers. China

is no exception. Upon the establishment of People's Republic of China, food safety standards were gradually designed.

The establishment of a safety standards system for food in contemporary China can be traced to the early 1950s. On 10 November 1951, the Ministry of Light Industry and the National Committee of China Food Trade Union jointly issued *The Instruction of Advanced Methods Promotion in Light Industry and Food Industry*,² signalling the central government's concerns about food quality for the first time after 1949. For a period from the late 1950s to the mid-1960s, attention concerning the food industry focused on food supply rather than safety due to the aftermath of the Great Leap Forward and Great Famine from 1959 to 1962.³ Therefore, very few regulatory initiatives dealt with food safety standards. From the 1970s, food hygiene became the focus of the food safety regime, which established and promoted laws and regulations governing food hygiene standards. Together, these formed an early version of food safety standards for domestic consumers in China.

The very significant economic transformation and export boom in the 1980s promoted both an export-oriented food industry and accompanying regulatory initiatives aiming at ensuring the safety and quality of food for export. In many regulatory initiatives concerning exports, it was specified that food for export would follow food safety standards set by importing nations, rather than domestic standards, as an international practice. This specification has been reiterated and emphasised in regulations and legislation concerning food safety in the following decades. It confirmed the application of a dual system of food safety standards for domestic consumers and those in export markets: the regulatory segmentation in food safety standard-setting that this thesis has identified as the core problem of the food standards system in China.

Food safety standards for domestic food consumption

The establishment of food safety standards system in contemporary China started in the early 1950s, as did the tradition that multiple food regulators designed and approved

² Ministry of Light Industry and National Committee of China Food Trade Union, "The Instruction of Advanced Methods Promotion in Light Industry and Food Industry," ed. Ministry of Light Industry and National Committee of China Food Trade Union (Beijing: People's Daily, 1951).

³ Hualin Song, "Food Safety Standards Law and Regulation Studies in China," *Journal of Public Administration* 04, no. 2 (2011): 32.

food safety standards. The Ministry of Light Industry and the National Committee of China Food Trade Union jointly issued *The Instruction of Advanced Methods Promotion in Light Industry and Food Industry* in 1951, which mentioned the standardisation in certain food production methods;⁴ and the Ministry of Light Industry issued *The Inspection Rules on Food Supplied to Army* to avoid food adulteration in 1952.⁵ Several safety standards on the production of specific foods and their processing were issued during the same period. For example, MOH issued the *Announcement on Perborate in Flavouring Powder* [Health 253] and *Provisional Regulations on Cold Food* [Health 106] in 1953, and in 1954 MOH issued the *Regulation on Saccharin Amount in Food*.⁶ Local food regulators followed regulatory initiatives from the central government and issued local food standards in the interim. For example, the Tianjin Municipal Government issued *Tianjin Cold Food Hygiene Standards and Inspection Methods*, *Standard on Arsenic Limit in Hydrochloric Acid Soy Bean Sauce*, and *Hygiene Requirement on Glacial Acetic Acid Vinegar* in 1953.⁷ This loose set of standards formed the very early system of food safety standards in China.

After the first round of food safety standard-setting, the process slowed down in the 1960s due to the substantial impacts of the Great Famine. Towards the end of the 1950s, food scarcity was so overwhelming that the government's attention focused on generating adequate food production to meet the demands of hungry citizens rather than on the safety of that food.⁸ This government focus was not shifted until the mid-1960s when food hygiene standards were addressed. For example, the State Council approved *Provisional Food Hygiene Control Ordinance* in 1965, requiring MOH to research and design "hygiene standards (including testing methods) on food, raw materials for food production, food additives, and food packing materials".⁹ When food supply gradually stabilised in the 1970s, food hygiene standards became the key focus in the process of designing food safety standards and food safety regulations. The *Provisional Food*

⁴ Ministry of Light Industry and National Committee of China Food Trade Union, "The Instruction of Advanced Methods Promotion in Light Industry and Food Industry."

⁵ The Ministry of Light Industry, "Requirement on Implementation of the Inspection Rules on Food Supplied to Army," *People's Daily*, February 24 1952.

⁶ Hualin Song, "Establishment and Development of Technical Standards Laws and Regulations in Contemporary China," *Study & Exploration* 184, no. 5 (2009): 16.

⁷ Penran Zheng, "Food Hygiene Management," in *Health History Record in Tianjin*, ed. Tianjin Health History Record Committee (Tianjin: Tianjin Health History Record Committee, 1986).

⁸ *Ibid.*

⁹ Tianjin Government, "Tianjin Shi Ren Min Wei Yuan Hui Guan Yu Zhuan Fa Guo Wu Yuan Pi Zhun De Shi Pin Wei Sheng Guan Li Shi Xing Tiao Li [Notification on Food Hygiene Management Provisional Ordinance Issued by State Council, Tianjin People's Commission]."

Hygiene Control Act of the People's Republic of China was passed at the 25th Standing Committee Meeting of the National People's Congress in 1982, and Chapter 5 of that Act solely governed "Food Hygiene Standards and Management".¹⁰ Later, the *Food Hygiene Law of the People's Republic of China* was issued in 1995 at the 16th Meeting of the Eighth National People's Congress¹¹ and the *Food Safety Law of the People's Republic of China* was issued in 2009.¹² Both reiterated the significance of food safety standards, and the transition of a focus from food hygiene to food safety and quality.

A series of regulations and rules related to food safety provided a systematic foundation for setting food safety standards that regulated the domestic food sector, but at the same time, those regulations allowed space for problems which largely weakened the protection that safety standards could provide for domestic consumers. For example, conflicts among food safety standards caused practical implementation difficulties for food producers. Those conflicts originated in the way that the food standards system was created and reflected the intertwining interests of multiple food regulators as standards designers.

The Provisional Food Hygiene Control Act of the People's Republic of China in 1982 proposed that the standards system should be composed of multiple levels of standards designed by various food regulators. This became the origin of the conflicts among standards. The *Act* specified that the food standards system should be composed of national, ministerial, and local levels of standards. The intention of such a composition was to design a comprehensive coverage of food safety standards, as food in China can be highly different from region to region, or industry to industry. This structure was later modified and confirmed in the *Standardisation Law of the People's Republic of China* in 1988, dividing food safety standards even further into national, industrial, local, and corporate levels,¹³ and has been maintained until recently. Among all levels of food safety standards, national food safety standards are compulsory for all food producers, who are simultaneously encouraged to design and follow higher standards (industrial or corporate standards).

¹⁰ Hu, "Regime Logics of "Major Ministries" on Food Safety".

¹¹ Standing Committee of NPC, "Food Hygiene Law of the People's Republic of China."

¹² NPC of PRC, "Food Safety Law of the People's Republic of China".

¹³ State Council of PRC, "Standardization Law of the People's Republic of China," in *11*, ed. State Council of PRC (Beijing 1988).

Conflicts among standards are exacerbated by the way that national food safety standards were designed. Compulsory national food safety standards were designed through strict regulatory procedures and with the participation of multiple stakeholders. Firstly, a specific standard research plan would be initiated by MOH, State Food and Drug Administration (SFDA), State Administration for Industry and Commerce (SAIC), and/or the Ministry of Agriculture (MOA). Other regulators likely to become involved at this stage were the Ministry of Commerce, the Ministry of Industry and Information Technology, and Food Safety National Standards Appraisal Commission. When the research plan was developed, a responsible organisation would be selected to draft the detailed standard through an invitation to bid, or nomination by food regulators. The drafting organisation could be a research institute or an industry association, but was most likely to be a panel of experts from inter-disciplinary backgrounds. The finished draft was accessible by the general public, industries and regulators for comments, followed by modification from the drafting organisation, review by Food Safety National Standards Appraisal Commission, and finally approval by MOH.¹⁴ The participation of multiple stakeholders was encouraged based on the assumption that the effectiveness of the safety standards would be optimised through the expertise of each participant. However, it is more likely that designing the standard became a process of balancing the intertwining interests of various stakeholders rather than maximising protection for domestic food consumers.

A further factor that intensified conflicts between standards is that there was no mechanism that harmonised the food safety standards from multiple issuers. MOH has been appointed as the sole approver of new food safety standards since 2013, but the existing standards system still consists of numerous standards issued and approved by other food regulators and covered by a wide range of regulations, with no harmonising mechanism, which incurs conflicts among them. The range of food safety standards can be as wide as to cover the limits of pathogens, residues of pesticide and veterinary drugs, heavy metals, pollutants and other possible harmful articles in food; standards on food additives (including categories, range of application and limits on quantities); standards on nutrition values of baby food; standards on labels and specifications for food safety and nutrition; standards on food quality; standards on inspection methods

¹⁴ Nuo Lv, "Interview with Chen Zhu: Make Food Safety Standards Scientific, Open and Transparent," Xinhua News Agency, http://www.gov.cn/jrzq/2012-02/09/content_2062351.htm.

and procedures; standards on food hygiene in the food production process; and standards on food related products (such as food packaging materials, containers, detergents, disinfectants, and tools and equipment for food production).

Conflicts within existing standards systems, indicative of the intertwining interest from various food regulators, made updating standards extremely difficult. Conflicts among standards are a form of agency fragmentation among multiple food regulators and hence involve the competition of interest among them. Therefore, the update, amendment and abolishment of existing standards can become a highly politicised negotiation and thus extremely difficult.

These conflicting standards and the distinct interests that have shaped them within the food safety system created a number of problems. Apart from practical difficulties for food producers to implement conflicting standards, the interests that underpinned those standards made it very hard to revise and update standards to enhance protection for domestic food consumers and to encompass emerging food risks, which is an especially acute issue for those dated and obsolete standards.

Problem 1: Conflicts among standards

Conflicts among existing food safety standards caused practical difficulties for food producers to follow and for regulators to supervise. Without effective coordination among different standards designed by multiple regulators, conflicts were so overwhelming that food producers had a high chance of following the “wrong” standard. For example, producers of the day lily flower in Shengyang in 2007 suffered a significant loss due to conflicting safety standards designed by MOH and MOA.¹⁵ In the incident, MOA’s safety standard of sulphur dioxide in dehydrated vegetables was 100 milligrams per kilo while the standard from MOH was 0.035 milligrams per kilo.¹⁶ When the incident of sulphur poisoning happened in Shengyang and many other cities in China, day lily flower producers who followed the standard of MOA were punished. Conflicts in standards can also happen in the form of different requirements for the same food at different processing stages. A classic example is China’s traditional food,

¹⁵ Xingwen Li, Yi Wan, and Jin Wu, "Conflicting Food Standards, Which One to Believe?," Xinhua News Agency, http://news.xinhuanet.com/health/2007-03/15/content_5848492.htm.

¹⁶ Standards on Pollution-free Dehydrated Vegetables (NY5184—2002), from Jun Ding, "Post "Su Dan Red Dye" Era," Ministry of Agriculture, http://www.moa.gov.cn/fwllm/jjps/200504/t20050426_363397.htm.

dumplings. The safety standards on wheat flour were set by MOA, while MOH was in charge of the standards on dumplings. The conflict can lead to the situation where acceptable flour (approved by MOA) cannot make acceptable dumplings (approved by MOH).

Conflicts in current standards systems were exacerbated by the rapid development of the food industry, hence newly approved food safety standards. With the modernisation of the food industry, new food risks appeared and new standards have been designed accordingly. Without effective regulatory coordination and harmonisation of the overall system of food safety standards, mixing new standards with old ones increased the number of conflicts. Prior to the issuing of the *Food Safety Law of the PRC* in 2009, the food industry in China was subject to a record total number of food safety standards: over 2000 national standards, 2900 industry standards, 1200 local standards,¹⁷ and almost 5000 corporate standards.¹⁸ Itemised by different food industries, there were over 2000 agricultural products standards, 500 aquatic products standards, 700 commercial standards (on food processing facilities, personnel, techniques, labelling and other issues), and 2000 light industry and chemical standards (mainly on edible food additives and food packing materials). Considering unsolved and newly emerging conflicts among standards, such a number of food safety standards for the domestic food market have already produced significant difficulties in implementation for food producers and supervision for regulators.

Problem 2: Inadequate protection offered by standards

A second problem concerns the scope of protection that current food safety standards can provide in China's domestic food market. The previous section argued that there are too many food safety standards if conflicts among standards are not effectively solved. But here I argue that if the actual scope of protection provided by current standards is considered, there are too few of them. A comparison with international practice suggests that the number of food safety standards from the domestic food market is rather limited: by 2009, Codex Alimentarius Commission (CAC), whose food safety

¹⁷MOH, "The Ministry of Health Issued the Twelfth Five-Year Plan on Food Safety National Standards," ChinaGov.Net, http://www.gov.cn/gzdt/2012-08/13/content_2203120.htm.

¹⁸Foodmate, "Food Safety Standards Categories," <http://down.foodmate.net/standard/allcategory.html>.

standards have been adopted by over 180 nations in the world,¹⁹ issued over 8000 general food standards, over 2000 standards on pesticide residue, and over 1000 food additive standards.²⁰ Specifically, CAC issued 2439 standards on limits of pesticides residue, covering the application of 176 types of pesticide on 375 types of food, while China's food standards system comprised 291 standards of pesticide residue limits, covering the application of 104 types of pesticides on 45 types of food.²¹

Comparisons with China's food trading partners, whose food safety standards are met by Chinese food exporters, highlight the inadequacy of food safety standards for the Chinese domestic market. The EU's indicators on pesticide residue reached over 20000 in 2010, while there are fewer than 500 indicators in China's current system.²² Furthermore, 62 chemical pollutants were identified within China's agricultural products standards system, while the number in the Food and Agriculture Organisation (FAO) was 2522, over 4000 in the US, and over 10000 in Japan.²³

Inadequate protection manifested not only in the small number of available food safety standards, but more importantly in the limited requirements of specific standards to be applied to food. The detailed requirements of food safety standards in China were much lower than those in developed nations. For example, the EU's standard on the maximum limit of diethylstilboestrol²⁴ was 0.001 milligrams per kilo while the number in China was 0.25 milligrams per kilo.²⁵ Another example is the low protein requirement for raw milk. In China the required quantity is above 2.8g/100g, while the figure in most developed nations is above 3.0g, such as 3.8g in New Zealand and 3.2g in the US and the EU. At the same time, the limit for bacterial colonies in Grade I raw milk (the best) is below 500,000 CFU/ml, and this standard is below 100,000 CFU/ml in the US and

¹⁹ There are 186 Codex members and 234 Codex observers in the world. Quote from: Codex Alimentarius Commission, "Codex Members and Observers," Codex Alimentarius Commission, <http://www.codexalimentarius.org/members-observers/en/>.

²⁰ "Codex Standards," Codex Alimentarius Commission, <http://www.codexalimentarius.org/standards/en/>.

²¹ Li, Wan, and Wu, "Conflicting Food Standards, Which One to Believe?"

²² Duanduan Yuan and Haining He, "Outdated Food Safety Standards in China," Nan Fang Zhou Mo [Southern Weekend], <http://www.infzm.com/content/58899>.

²³ Interview with Zhang, Zhengbin, Director of Centre for Agricultural Resources Research, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, quoted in *ibid*.

²⁴ Diethylstilboestrol is a synthetic nonsteroidal estrogen that was first synthesised in 1938. Human exposure to DES occurred through diverse sources, such as dietary ingestion from supplemented cattle feed.

²⁵ Fusheng Pan, "Chaotic Food Safety Standards Involve the Conflict of Interest," China Economics Network, http://www.ce.cn/xwzx/gnsz/zg/201303/05/t20130305_24169996.shtml.

30,000 CFU/ml in Denmark.²⁶ Those gaps do not justify harsh requirements as preconditions for good food safety standards. Rigid and enforceable requirements, however, are crucial for appropriate and comprehensive protection that standards can offer for food consumers. This issue will be discussed in detail in the case study that concludes this chapter, which examines the differences in the maximum residue limits of pesticides on tea for domestic and export markets.

The poor availability of technical infrastructure to test whether food reaches current standards further diminishes the protection of food safety standards in China's domestic food market. Take veterinary residue standards designed by MOA as an example. Out of 140 designed standards, only 50 can be actually tested with existing methods and available facilities.²⁷ Within the domestic food market, this issue is especially acute in underdeveloped regions where there is a shortage of the technical resources needed for food safety management, and large numbers of ordinary domestic consumers from the lower and lower-middle classes face the majority of food safety risks.²⁸

Problem 3: Obsolescence of standards

A third problem concerns the obsolescence of many current food safety standards. The modernisation and development of the food industry proceeds much faster than food safety standards in China are upgraded and revised. Although it was stated in Article 20 of the *Implementation Rules of Standardisation Law of the People's Republic of China* that all standards (including food standards) should be revised at least every 5 years,²⁹ the reality is that in the four decades since food safety standards have been gradually designed and issued, only three large scale revisions have taken place. This has meant that a quarter of food safety standards were used for over 10 years with no or little modification, and some were over 20 years old.³⁰ When a major food safety crisis happens, food safety standards for the domestic food market are more likely to be revised and upgraded when a major food safety crisis happens. In contrast, food

²⁶ Huaibin Mu, Xiangyang Hou, and Ying De, "The Development of Dairy Industry from the Perspective of Safety Standards of Raw Milk," *Chinese Journal of Animal Science* 47, no. 18 (2011): 16.

²⁷ Yuan and He, "Outdated Food Safety Standards in China".

²⁸ Peng, "Tracing and Periodizing China's Food Safety Regulation: A Study on China's Food Safety Regime Change."

²⁹ State Council of PRC, "Implementation Rules of Standardization Law of the People's Republic of China," in 53, ed. State Council of PRC (Beijing 1990).

³⁰ Yuan and He, "Outdated Food Safety Standards in China".

standards issued by CAC are frequently modified, and a biannual seminar on standards modification is held internationally to update current standards.

The obsolescence of standards is aggravated by the lag between the market entry of a new food and new safety standards. Food categories in China, as elsewhere, are increasingly diversified and more complicated and new categories of food involve new production methods, food additives and ingredients. This may introduce new food risks. The designing of new food safety standards in China lags far behind the emergence of new food categories, leaving a period during which food consumers are protected by few or inappropriate food safety standards. Pu'er tea produced in Yunnan is an emerging tea category that became popular in the first decade of the 21st century. However, for several years there were no systematic standards to certify the safety and quality of Pu'er tea. Consequently, the combination of obsolescence and absence of appropriate standards and the market popularity of Pu'er tea led to chaotic competition among tea producers. By shortening the tea fermentation period with unregulated use of chemicals and lowering the cost of production, domestic tea consumers were exposed to risks. This case will be discussed in more detail later in this chapter.

Problem 4: Interest manipulation in designing standards

In China, the way that food safety standards are designed invites food producers to sponsor and participate in the design of food safety standards, and the details of standards may be manipulated by food producers to offer more protection for themselves rather than for food consumers. The participation of food producers in food standards design can be beneficial because they are the direct practitioners of those standards. But at the same time, those standards can directly impact upon their economic interests. In most developed countries, independent research institutions are hired to design food safety standards for the purpose of avoiding the participation of enterprises that could possibly manipulate the process to favour their interests. For example, the FDA in the US explicitly states if family member(s) of any expert in the design panel of food safety standards has economic relations with any enterprise that could be potentially influenced by the standard under design, this expert will be excluded from the panel.³¹ In China, however, the national level of food safety

³¹ US Department of Health and Human Services and US Food and Drug Administration, "Guidance for the Public, FDA Advisory Committee Members, and FDA Staff on Procedures for Determining Conflict

standards setting follows one of those three routines: the state government initiates and sponsors standards design; the state government initiates and sponsors 50% of standards design expenditure, and the organisation(s) that accept the bid will fund the other half; or, the state initiates a standards design and the organisation(s) that accept the bid will fund all design expenditure.³² Most national standards are designed through the second routine, in which enterprises' sponsorship is significant. When half of the research funds for designing food safety standards come from food producers, their interests are very likely to be favoured.³³ The dairy industry provides a useful example. The safety standards on raw milk were revised in 2010. Surprisingly, the revision, with participation of dairy producers represented by two domestic dairy giants Yili and Mengniu, lowered the requirements of two key indicators reflecting the safety and quality of raw milk: protein content and presence of bacterial colonies.³⁴ This revision not only positioned China as one of the countries with the lowest safety standards for raw milk, but also prioritised the interests of dairy producers to reduce production costs over the interests of domestic food consumers, for whom the 2008 melamine milk crisis was still a recent memory.

These problems corrode the efficacy of the food safety standards system that protects domestic food consumers, hence there appeared to be a strong demand for a thorough adjustment of the standards system towards the end of the period from 2004 to 2013. According to MOH, the main responsible regulator of food safety standard-setting, there were too many redundant standards in the current system for the domestic food sector (relative to resources and the ability for implementation), and a high degree of conflict, overlap and repetition among them. In some standards, key technical indicators were still missing, and a significant proportion of standards were obsolete. There were practical difficulties associated with the implementation of standards, and with

of Interest and Eligibility for Participation in FDA ", ed. US Food and Drug Administration US Department of Health and Human Services (Rockville2008).

³² Interview with Prof. Dong Jinshi, director of International Food Packing Association, deputy secretary of Beijing Environment Science Association, quoted in Yuan Li and Qiling Lin, "Enterprises Pay for Participating in Standard-Setting," Beijing News Network, <http://www.bjnews.com.cn/finance/2013/05/02/261447.html>.

³³ Interview with Qiu Baochang, Director of Lawyer Association of China Consumers Association, quoted in Tingting Ling, "Food Standards Made by Enterprises," China News Service Center, http://www.gdct.gov.cn/politics/feature/zgspbzll/spbzwhcqfy/201105/t20110509_486359.html#text.

³⁴ Mu, Hou, and De, "The Development of Dairy Industry from the Perspective of Safety Standards of Raw Milk," 16-17.

supervision, including a shortage of test infrastructure and personnel.³⁵ Moving to the implementation stage of food safety standards, conflicting, inadequate and obsolete food safety standards can lead to ineffective and inadequate regulatory implementation. As a result, MOH initiated a nationwide reorganisation of food safety standards by issuing the *Twelfth Five Year Plan on Food Safety National Standard and Action Plan for Food Safety Standards Clearing* in 2013.³⁶

At the core of these problems of conflicting standards were the different interests and groups that have given rise to distinctive standards for different market segments and the historically-rooted regulatory segmentation in food safety standards-setting that I have identified as the key problem of the food standards system in China. This segmentation avoided those problems discussed above being permitted to complicate the implementation and governance of food safety standards for export food. Furthermore, this segmentation shaped the form and character of food safety regulations, and set different benchmarks of food safety levels for domestic and foreign consumers respectively.

Food safety standards for foreign consumers

A series of laws and regulations were designed to ensure that food exports from China met food safety standards in importing nations, and suggested that the food safety levels for foreign consumers would be different from the levels for domestic consumers due to the different sets of food safety standards that applied. China's food export industry expanded rapidly in the early 1980s, as did regulatory initiatives guaranteeing export food quality and safety. In 1984, the State Council issued *Provisional Rules on Import and Export Products Inspection of the People's Republic of China*, which emphasised the significance of inspections in achieving the required quality and safety of import and export products (including food). It replaced *Provisional Rules on Import and Export Products Inspection* issued by the Government Administration Council in 1954.³⁷ In 1989, the Sixth Session of the Seventh National People's Congress passed the very first

³⁵ MOH, "The Ministry of Health Issued the Twelfth Five-Year Plan on Food Safety National Standards".

³⁶ "Action Plan of Food Safety Standards Clearing," in [2012]913, ed. Ministry of Health (Beijing2012).

³⁷ Government Administration Council, "Provisional Rules on Import and Export Products Inspection " Government Administration Council, <http://shtong.gov.cn/node2/node2245/node67984/node67997/node68210/node68221/userobject1ai65585.html>.

law on import and export inspection, *Import and Export Products Inspection Law of the People's Republic of China*. This set not just regulations but a legal foundation for maintaining the quality and safety of import and export products.³⁸ In 1991, the *Law of the People's Republic of China on Entry and Exit Animal and Plant Quarantine* was passed by the 22nd Session of the Seventh National People's Congress, indicating an increasing focus on the quality and safety of food imports and exports.³⁹

One matter that has been repeatedly addressed through these laws and regulations is the segmented food standards system in which made-in-China food for foreign consumers follows different sets of food safety standards from those used for domestic food consumers. As an international practice, food for export should follow the food safety standards of importing countries. National food safety standards in China apply only when food safety standards in the importing country are not available (which rarely happens).⁴⁰ Meanwhile, food for export must go through both export inspection in China and import inspection in importing countries, and this requirement for two inspections largely reduces the chance that fraud food flows into China's overseas food market.

With the increase in food exports from China since late 1990s, the regulatory focus was gradually transferred from inspections on finished products to the whole production and management process. This was a more comprehensive and thorough way to achieve high safety levels for export food. For instance, in 2002, AQSIQ issued *Administrative Provisions on the Sanitation Registration and List Entry of Export Food Manufacturing Enterprises* to strengthen the regulator's responsibilities over the production and processing stage of food for export.⁴¹ In the same year, the Certification and Accreditation Administration of the People's Republic of China (CNCA) issued *Food Producers HACCP Certification Management Rules*, requiring compulsory Hazard Analysis and Critical Control Point (HACCP) certification on export food, including canned food, aquatic food, meat and meat products, frozen vegetables, fruit and

³⁸ NPC of PRC, "Import and Export Products Inspection Law of the People's Republic of China," in 14, ed. The Standing Committee of NPC (Beijing 1989).

³⁹ "The Law of Entry and Exit Animal and Plant Quarantine of People's Republic of China," in 53, ed. The Standing Committee of NPC (Beijing NPC of PRC, 1991).

⁴⁰ AQSIQ, "Management Rules of Import and Export Food Safety," AQSIQ, http://www.aqsiq.gov.cn/zwxgk/jlgg/zjl/2011/201109/t20110928_199336.htm.

⁴¹ "Administrative Provisions on the Sanitation Registration and List Entry of Export Food Manufacturing Enterprises," in *Order No. 20*, ed. AQSIQ (Beijing 2002).

vegetable juice and frozen instant food.⁴² In 2009 when the *Food Safety Law* was issued, there were 578 industrial standards specifically relating to the maintenance of the quality and safety of import and export food.⁴³

Since food for foreign consumers complies with external food safety standards, the analysis of food safety standard-setting on food for domestic consumption and for foreign consumers requires a comparison between the food safety standard-setting in China and importing nations. It would be difficult and inaccurate to generalise that food safety standards in China's importing partners are superior to those in China, and generalisation of all food safety standards for foreign consumers runs the risk of missing the variation in the levels of rigidity of food safety standards in different importing nations. But a glimpse at China's top five major food importing nations and regions suggests the food safety standards for foreign consumers are indeed more comprehensive, protective of food consumers, and stringent. Among Japan, the EU (EU-27), Hong Kong, the US and Korea,⁴⁴ it is the EU and Japan that have the most stringent food import requirements, and most other trading partners refer to food safety standards designed by CAC. These are more stringent than those in China, frequently updated in response to new food risks, and generally designed independently from commercial interests. China is trying to keep up with its trading partners in improving food safety standard-setting, and encouraging food producers for domestic consumption to design and follow higher industrial or corporate standards. This is a good intention, though there is a long way to go for food producers who are cutting corners to survive in the fiercely competitive domestic food market. The case study in the following section will show the wide gap in the rigidity of standards, and the protection they provide, through a comparison of the maximum residue limits for pesticides on tea between China and its trading partners.

Crucially this regulatory segmentation justified the situation where more stringent and comprehensive food safety standards are applied to food for foreign consumers, and resulted in a higher benchmark of protection. As a result, food producers targeting foreign consumers have to reach higher food safety levels than those set for the

⁴² CNCA, "Food Producers Haccp Certification Management Rules," in *2002[3]*, ed. CNCA (Beijing2002).

⁴³ Song, "Food Safety Standards Law and Regulation Studies in China."

⁴⁴ Bonarriva and Weaver, "China's Agricultural Trade: Competitive Conditions and Effects on US Export," 22.

domestic market. Moreover, safety standards on food for foreign consumers have been implemented within a closed production system and regulated with a segmented institutional arrangement different from those used for various domestic consumer groups. This largely ensured the effectiveness and efficiency of both the implementation of standards, and their supervision. To a significant extent, the fact that food for foreign consumers could achieve some of the most stringent food safety standards in the world is due not only to higher standards, but the segmented institutional arrangement for regulatory implementation as will be discussed in Chapter Seven.

The segmentation of food safety standards-setting will be illustrated in the following section through the case of the dual sets of safety standards on Yunnan tea consumed by foreign and domestic consumers. One of the most important safety standards for tea is the maximum residue limit (MRL) for pesticides, and the case study shows that China has much lower technical standards in comparison to those in Japan and EU, which are both major importing nations of Chinese tea. Through this comparison, the case study suggests not only that the categories of pesticides nominated in Japan and the EU's list significantly outnumber those in China, but more importantly that the requirements for specific limits of different pesticide residues is generally stricter than the equivalent in China. It reinforces the fundamental argument about the segmentation of technical standards rooted in the governance of food safety standards-setting. Apart from the emphasis on the low benchmark of safety levels for Yunnan tea for domestic consumers, this case further addresses other problems in the domestic standard system of tea safety which are largely absent from tea for foreign consumers, also due to the regulatory segmentation of food safety standard-setting.

Case study: dual set of safety standards on Yunnan tea for foreign consumers and domestic consumption

Introduction

I selected tea produced in Yunnan for three reasons: firstly, of all foods that China exports, tea export is a significant and keeps increasing. China is the largest tea producer in the world, and the second largest exporter of tea. The major importers of China's tea are Morocco, Japan, Russia and the EU. In the past decade, both the

production and export of Chinese tea have been increasing, though the increase in exports is not as dramatic as the increase in yields.

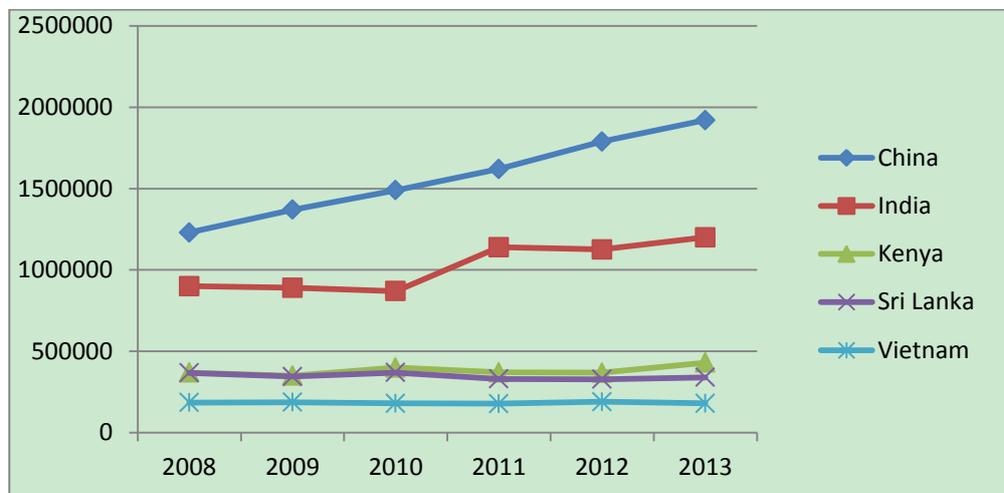


Figure 5-1 Yield of top 5 tea producers globally 2008-2013 (unit: ton)

Source: data from China Customs statistics.

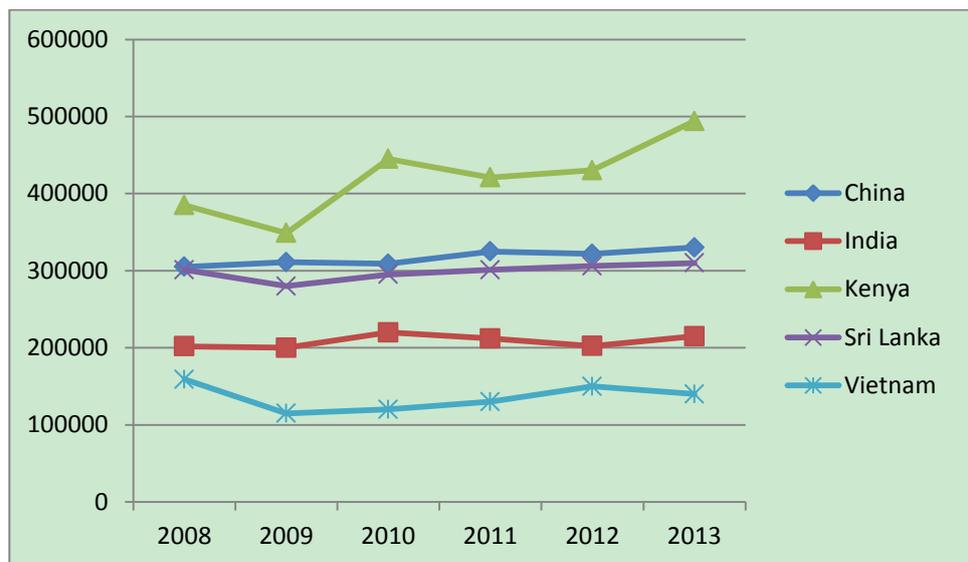


Figure 5-2 Exports of top 5 tea producers globally 2008-2013 (unit: ton)

Source: data from China Customs statistics.

Secondly, Yunnan province has been growing in importance in both tea production and export in the previous decade. Teas exported from China include green tea, black tea, oolong tea and tea of special types.⁴⁵ For example, Tie Guan Yin [铁观音] in Fujian and

⁴⁵ The HS Code of Chinese tea exports are: 09021090, 09022090, 09023090, 09024090, 09021010, 09022010, 09023010, 09024010, 09023020, 09024020, and 09030000.

Long Jin [龙井] in Zhejiang are quite famous. Yunnan is not the largest tea growing area in China, but the long tradition and optimal natural environment for tea growing in Yunnan attracted attention from tea dealers and consumers. Some types of specialty tea grown in Yunnan have gained popularity in export markets since last decade, such as Pu'er tea⁴⁶ [普洱茶] and Dian Hong [literally translated as black tea of Yunnan 滇红]. Furthermore, the export of Yunnan tea is considered a strategic niche in regional cooperation between Yunnan and Association of Southeast Asian Nations (ASEAN), because in addition to traditional tea export markets such as Russia and the EU, large quantities of Yunnan tea have been exported to ASEAN countries.⁴⁷

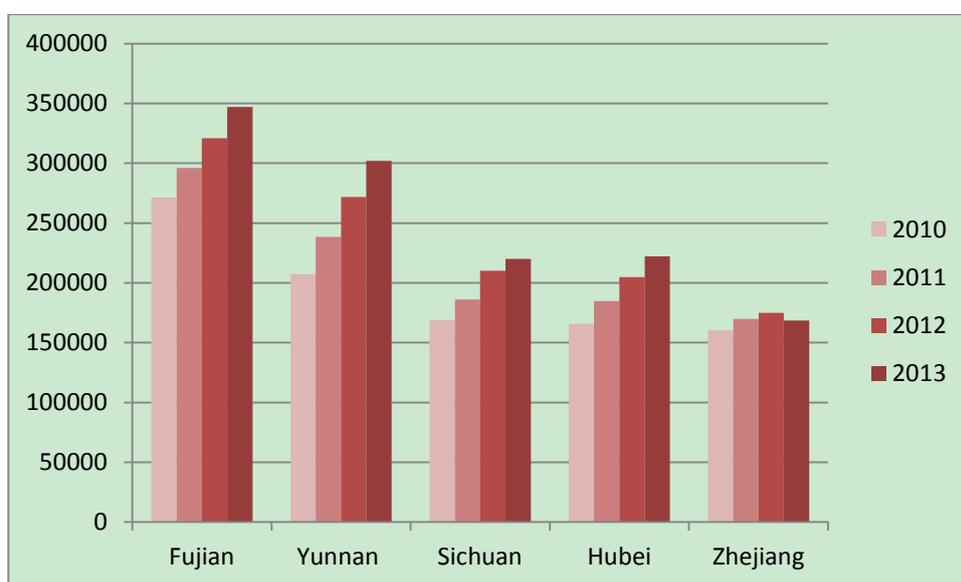


Figure 5-3 Top 5 tea producing provinces in China 2010-2013 (unit: ton)

Source: data from Nation Statistics Bureau of China, and branches in Fujian

Thirdly, in the context of scientifically sophisticated safety standards on most food products, pesticide residue is the major standard to evaluate the safety of tea. For this reason, it is an important standard that nations use to determine the safety and acceptability of imports. I can compare the MRL set for pesticides on tea consumed in China with the standards imposed by major tea importing nations on Chinese exports. Such a comparison would suggest different safety levels of tea for foreign and domestic consumers as a result of the regulatory segmentation in food safety standard-setting.

⁴⁶ Pu'er tea has a separate HS code (09023020, 09024020) rather than being categorised with any other kind of tea.

⁴⁷ Zhou, "The Influence of CAFTA on the Trade of Agricultural Products between Yunnan and ASEAN."

Segmented MRL on tea for foreign consumers and domestic consumption

There have existed several different editions of MRL standards that govern tea for Chinese domestic consumers. During the period from 2004 to 2013, the *Maximum Residue Limits for Pesticides in Food of People's Republic of China* (GB 2763-2005) was issued on 25 January 2005 and implemented on 1 October of the same year.⁴⁸ GB 2763-2005 covered much of this research period, during which there were 18 MRLs on tea. GB 2763-2012 was an updated version covering the period from 1 March 2013 to 31 July 2014, in which 25 MRLs were listed.⁴⁹ Beyond the research period, GB 2763-2014 has applied from 1 August 2014 onwards.

In China's major tea export destinations, MRL standards were much more comprehensive and rigorous. During the period from 2004 to 2013, China's tea trading partners introduced revisions that made the requirements even stricter. For example, there were 193 MRLs in the EU's safety standard system in 2000; a revision in 2006 brought this number to 210, and in 2008 this was increased to 290. By October of 2012, a total of 463 MRLs were specified after several rounds of revision in the EU's standards system.⁵⁰ As the largest importer of Chinese tea, Monaco strengthened inspections and controls on MRL standards of tea in 2004. After a five-year transition period after joining the EU, Monaco started to conform to the EU's MRL standards in 2012.

Japan, another major importer of tea from China, issued and started the implementation of *The Japanese Positive List System for Agricultural Chemical Residues in Foods* on 29 May 2006.⁵¹ In total, 276 MRLs were specified for tea. *The Positive List* was revised in 2009 and 2013, with even more rigorous requirements regarding specific residues. Table 5-1 shows the differences in MRL standards of tea in China (including two editions of MRL standards covering the research period), the EU (to which Monaco conforms) and Japan.

⁴⁸ MOH and China National Standardization Management Committee, "Maximum Residue Limits for Pesticides in Food," (Beijing: MOH, China National Standardization Management Committee, 2005).

⁴⁹ MOH and MOA, "National Food Safety Standard: Maximum Residue Limits for Pesticides in Food," (Beijing: Ministry of Health, Ministry of Agriculture, 2012).

⁵⁰ The European Parliament and The Council of EU, "Maximum Residue Levels of Pesticides in or on Food and Feed of Plant and Animal Origin," (The European Parliament, The Council of EU, 2005).

⁵¹ Department of Food Safety-Ministry of Health Labour and Welfare, "Positive List System for Agricultural Chemical Residues in Foods," (Department of Food Safety, Ministry of Health, Labour and Welfare, 2006).

Table 5-1 Pesticide MRL in China, Japan and the EU (unit: mg/kg)

No.	Pesticide	GB 2763-2005	GB 2763-2012	Japan	EU
1	Acephate	0.1	0.1	10	0.05
2	Cypermethrin	20	20	20	0.5
3	DDT	0.2	0.2	0.2	0.2
4	Deltamethrin	10	10	10	5
5	Fenitrothion	0.5	0.5	0.2	0.05
6	Flucythrinate	20	20	20	0.1
7	BHC	0.2	0.2	0.2	0.02
8	Permethrin	20	20	20	0.1
9	Difenoconazole	10	10	10	0.05
10	Glyphosate	1	1	1	2
11	Diflubenzuron	20	20	20	0.1
12	Endosulfan	30	10 ⁵²	30	30
13	Methomyl	3	3	20	0.1 ⁵³
14	Buprofezin	10	10	20	0.05
15	Cartap. Bensultap Thiocyclam	20	20	30	0.1
16	Cartap	0.5	0.5	N/A	0.1
17	Pyridaben	5	5	10	0.05
18	Diafenthiuron	5	5	20	N/A
19	Bifenthrin	N/A	5	25	5
20	Lambda- Cyhalothrin	N/A	15	15 ⁵⁴	1
21	Fenpropathrin	N/A	5	25	2
22	Imidacloprid	N/A	0.5	10	0.05
23	Carbendazim	N/A	5	10	0.1 ⁵⁵
24	Thiamethoxam	N/A	10	15	20
25	Cyfluthrin	N/A	1	20	0.1
				252 other limit requirements that are not in China's standards system	439 other limit requirements that are not in China's standards system

⁵² This is provisional until July 31, 2016.

⁵³ The specific pesticide under the EU MRL is Methomyl and Thiodicarb.

⁵⁴ The specific pesticide under the Japan Positive List System is Cyhalothrin.

⁵⁵ The specific pesticide under the EU MRL is Carbendazim and benomyl.

Source: data from “Maximum Residue Limits for Pesticides in Food (GB 2763-2005)”, “National Food Safety Standard: Maximum Residue Limits for Pesticides in Food (GB 2763-2012)”, the database of “Positive List System for Agricultural Chemical Residues in Foods”, available through <http://www.m5.ws001.squarestart.ne.jp/foundation/search.html>, and database of “Maximum Residue Levels of Pesticides in or on Food and Feed of Plant and Animal Origin”, available through: http://ec.europa.eu/sanco_pesticides/public/index.cfm?event=pesticide.residue.selection&language=EN.

Table 5-1 shows two aspects of the differences in MRLs on tea between Japan, the EU, and the two editions of standards in China, during the period from 2004 to 2013. Firstly, the EU’s limit requirements were much more rigorous than those in Japan and China. The second aspect highlights the difficulty of comparing the coverage of pesticides nominated in MRLs (that is, the scope of protection) in China, Japan and the EU. Though there was a high degree of similarity in the 25 comparable MRL standards between GB 2763-2012 in China and those in Japan, there were 252 more residue limits in *The Positive List* in Japan which were not even covered in GB 2763-2012 (which oversaw domestic tea consumption). Likewise, there were 439 EU MRL standards that were not present in China’s standards system. If a comparison were to be made with an earlier version such as GB 2763-2005, an even wider gap would be apparent.

Such segmented standards for overseas and domestic sectors strongly suggest that there are different safety levels for tea destined for foreign and domestic consumers. Tea exports from China to either Japan or the EU must follow the MRL requirements in those two regions, which indicates that tea for foreign consumers in those areas is tested with a much more stringent set of standards than tea for domestic consumption in China. Therefore, a higher level of safety and a wider scope of protection are afforded to foreign consumers. Comparatively, tea for domestic consumers would be tested according to a much looser set of MRL standards, and may incur risks from high levels of unlisted pesticide residues. Moreover, since there is no compulsory requirement for a wide range of MRL tests for domestic consumption, technical testing infrastructure for specific pesticide residues was inadequate. This issue is especially acute in underdeveloped regions where there are fewer regulatory incentives and resources, but where the majority of ordinary domestic food consumers are located.

It may well be argued that these standards reflect a kind of trade protection through which tea production is protected. In Japan and the EU, however, these same standards apply to all forms of teas whether they are produced domestically or imported from

overseas suppliers. The EU and Japan are indeed among the most stringent importing nations on all food, but high standards are applied to locally produced food as well. In fact, no matter how rigorous those standards are, they are met by many tea producers globally (including from China) who can offer tea with the highest guarantee of safety. Furthermore, China's food exports more generally (that is, not confined only to tea) are largely compliant with the EU's stringent food safety standards.

More problems in the regulation of tea for domestic consumption

The regulatory segmentation in safety standards did not only justify a much looser set of food safety standards governing tea for domestic consumers. It also allowed crucial problems such as a slow response to designing safety standards for new categories of tea which may expose domestic consumers to new risks. For example, Pu'er tea in Yunnan rapidly became popular after 2004 due to its health benefits and unique taste. Producers tried very hard to hasten the fermentation process in order to meet dramatically growing demand. This process was accelerated in different ways. One popular and economical method was to add chemicals, but this occurred without safety testing. However, the development of new standards or compulsory quality certifications to ensure the safety of Pu'er tea lagged far behind its surge in market demand, and there were no (or few) standards, not to mention tests, to regulate the quality and safety of this new star in the domestic tea market. Consumers choose Pu'er tea mostly based on their preference for certain sub-categories of tea, tastes, and specific growing areas. Hence, large amounts of Pu'er tea without any form of safety warranty were allowed to be sold to domestic consumers. In contrast, the segmented regime of food safety did not allow any form of "gap period (when food is sold with no quality and safety certification)" to occur for food for foreign consumers, and this also applied to Yunnan Pu'er tea even though it was a new category of export tea. Being regulated solely under AQSIQ, Yunnan tea (including Pu'er tea) exporters are registered as having appropriate certification. In fact, most of them have multiple certifications to ensure safety and quality, required by the closed production system for export food.

The reason for this is that agency fragmentation within the regulatory setting of the food safety regime for the domestic market contributed to the lag between the popularity of Pu'er tea and proper safety standards. In response to this new tea product, there was no clear rule governing who should implement the regulatory responsibility to raise the

appropriate standards system that certified safety of the product, or how it should be done. It was not until 2007 that QS certification (the compulsory domestic “Quality Safety” certification) became a mandated requirement for Pu’er tea producers, thereby urging compulsory safety certification.⁵⁶ Without a clear allocation of responsibility or a reward and penalty scheme, however, only about 10% of approximately 4000 large and small tea producers in Yunnan received Pu’er tea QS certification, and the rest were still selling tea to domestic consumers without any safety qualifications.

While tea grown in China (including Yunnan) for foreign consumers was set stringent safety standards, the development of equivalent safety standards for tea for domestic consumption in China has been much slower and is incomplete. Hence, in a tea pesticide residue investigation undertaken by Greenpeace from 2011 to 2012, 18 samples from 9 famous tea brands were selected and all were found to have pesticide residues far exceeding the limits of national standards. Among them, 12 samples were found with pesticides prohibited by MOA.⁵⁷ These brands were famous ones, from relatively large scale companies, and held QS certification.

Conclusion

Among the three components of the food safety regime, food safety standards-setting was segmented so that food producers would follow different sets of food safety standards depending on whether their food would be consumed by foreign consumers or sold in the domestic market. This segmentation has been embedded since the establishment of the food safety regime in China, and has been institutionalised through a series of regulations since the 1980s when exports started to increase dramatically. The *Food Safety Law of the PRC*, issued in 2009 as the first national legislation on food safety in China, further reiterated this regulatory segmentation.

The regulatory segmentation in food safety standard-setting enabled food for foreign consumers to follow more comprehensive, stringent and protective safety standards than those for the domestic food market, which precipitated higher food safety levels for this consumer group. In order to promote and preserve China’s position as a global player in

⁵⁶ Hongjie Zhou, Yan Fan, and Zhiguo Shan, "The Application of Haccp System on Pu'er Tea Producers," in *National HACCP Application and Certification Symposium* (Changsha2007).

⁵⁷ Greenpeace, "Tea Pesticide Residues Investigation Report 2012," (Beijing: Greenpeace, 2012).

food trade, the “export-oriented” regulatory segmentation justified substantial allocation of regulatory resources to the production and regulation of export food (this part concerns the implementation of food safety standards, and will be discussed in Chapter Seven), hence a better performance in food safety for foreign consumers.⁵⁸ Even when facing the most stringent food importers, such as Japan and the EU, food exports from China still performed well, as exemplified by Yunnan tea exported to those regions. According to *China’s Foreign Trade Whitepaper 2010*, China exported 127,000 batches of food to the US in 2010 with a pass rate of 99.53%, 138,000 batches to the EU with a 99.78% pass rate, and 99.74% in Japan.⁵⁹

Conversely, many problems within domestic food safety standards-setting eroded the system’s already limited protection. Compared to the comprehensiveness of food safety standards in China’s trading partners or in international practice, the limited coverage of China’s standards system stood out. It was further impeded by many conflicts among existing standards designed and approved by multiple food regulators, and their infrequent updates. Hence, 94.6% seemed to be a quite acceptable pass rate for food sampled in the domestic market in 2010, as suggested by *The Twelfth-Five Year Plan of Food Industry*, but this was much lower than that for foreign consumers and already a significant improvement from 80.1% in 2005.⁶⁰ In further considering these unsatisfactory figures, there is much doubt about their validity due to the existence of a large number of unlicensed food producers who bypassed quality and safety inspections, especially in underdeveloped regions where numerous ordinary domestic consumers live. These doubts are supported by other statistics: 146 food safety incidents occurred in 2010: one every 2.5 days. This number was dwarfed in the following year, when 712 food safety incidents happened within 365 days.⁶¹

Accompanying this segmentation of food standards has been a lack of trust and different information provided about food safety. In the next chapter, food risk communication will be analysed with special attention paid to regulatory segmentation in the form of fragmented consumer groups’ different access to food risk information, as well as various degrees of reliability, transparency and traceability of information.

⁵⁸ Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles," 4.

⁵⁹ Information Office of State Council of PRC, "China Foreign Trade Whitepaper".

⁶⁰ NDRC and MIIT, ""Twelfth Five-Year Plan" of Food Industry," (Beijing: NDRC, MIIT, 2011).

⁶¹ Wu and team, "China Food Safety News Database".

Chapter 6

Food Safety Information Communication or Miscommunication

This chapter analyses the system of food safety information-gathering and communication. It is argued, as in the previous chapter, that I can identify a process of regulatory segmentation in the communication of food safety information. This is a segmentation process that differentiates regulatory communication between the key groups of foreign consumers, the politically privileged, affluent consumers, and ordinary domestic consumers. Hence, at the core of this chapter is the proposition that access to information about food safety is an institutional failure that is deeply entrenched in the social foundation and segmentation of the regulatory process.

The communication of food safety information is an important component of the food safety regime. Such information has to be scientifically accurate and accessible to the public. In this sense, food safety information is a public good that should be non-excludable and non-rivalrous,¹ and should be available to all consumers alike. Prompt release of food safety information requires an effective communication mechanism with a high degree of transparency, underpinned by reliable information channels, coordination among different food regulators, and public trust towards food regulators and information sources. These factors are especially important in the case of potential food risks: how well a food crisis is handled depends on the prompt, proper and accurate release of risk information.

In contrast, this chapter argues that the regulatory segmentation in food risk communication created segmented rather than equal access to food risk information for fragmented consumer groups in China. In other words, food safety information is unequally distributed with different access to information for economically and politically privileged consumers. In brief, compared to relatively transparent and efficient access to food safety information for foreign consumers and politically privileged and affluent consumers, ordinary domestic consumers' access to this public good is so problematic that it has led to a series of fundamental problems. During the decade from 2004 to 2013, there were efforts from food regulators to build a systematic mechanism for food risk communication for ordinary domestic consumers, but those

¹ Hal R. Varian, *Microeconomic Analysis*, 3rd. ed. (New York: Norton, 1992).

attempts failed due to the way that the social foundations of the regulatory system preclude full and transparent food communication for all consumers.

The problems caused by the failure to provide this public good to ordinary domestic consumers largely weakened the communication of food risk information with this group. Most of all, both food regulators' failure in providing food safety information and the provision of fabricated information led to ordinary domestic consumers distrusting food regulators.² With limited access to information and distrust, this group turned to alternative information sources, which provided food risk perceptions based not on science but intuitive judgements. Furthermore, repetitive exposure to food safety crises, rapidly growing new forms of media, and the participation of non-traditional food regulators such as NGOs all contributed to amplifying existing food risks. Distrust, food risk perception and risk amplification reinforced each other and undermined regulators' efforts to enhance food risk communication with ordinary domestic consumers.

In the following three sections I analyse the regulation of food risk information and communication for foreign consumers, affluent consumers and the politically privileged respectively. However, the emphasis of this chapter is on food risk communication for ordinary domestic consumers since this group faced the poorest access to this public good which caused the most problems in food risk communication. This focus will be reflected in the structure and case study of this chapter. Section four is a detailed and in-depth analysis of food risk communication with ordinary domestic consumers, in which I will specifically address a series of systematic problems caused by the failure in public good provision, including distrust, food risk perceptions and risk amplification. In concluding this chapter, I use the case of cadmium polluted rice in Hunan to illustrate ordinary domestic consumers' poor access to food risk information, and how it led to distrust, risk perception and amplification. In combination, these fundamental problems resulted in the failure of food regulators' risk communication with ordinary domestic consumers.

² Jing Li, "Policy Coordination in China: The Cases of Infectious Disease and Food Safety Policy" (The University of Hong Kong, 2010).

Food safety information for foreign consumers—white and black lists

The key to understanding the regulation of food communication for foreign consumers is the fact that food exports from China are regulated by one regulator – the Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), with a network of systematic information releases on food safety for foreign consumers. As the sole regulator, AQSIQ’s regulatory authority makes it the major information source regarding the safety of export food and helps to simplify the communication of food safety information and avoid possible misinterpretation of food risks. Safety or risk information regarding food for export is communicated in three different ways: a strict and clear system of registration of export food producers, a blacklist of food producers who pose potential food risks, and a food recall system. All export food producers and product information can be traced and accessed through the AQSIQ database, which provides access to information with a high degree of transparency and traceability.

Even more importantly, foreign consumers’ access to food safety information is guaranteed by the segmental arrangement of the food production system for foreign consumers. Food for foreign consumers comes entirely from a closed production system in which export food producers’ information is clear and traceable through a compulsory registration system. According to Articles 26, 28 and 29 of *Import and Export Food Management Rules*, “any food producer or manufacturer who wants to export is mandated to register with AQSIQ”; and stipulates that “Only with all requirements achieved, food export from the producer is legitimate”.³ This regulatory arrangement means that food producers in China cannot produce for foreign consumers unless they gain the specified qualifications and register with AQSIQ. This has created a network of “qualified export food producers” as a ring-fenced production system. The information concerning this production system is listed in the database of AQSIQ and is accessible to food regulators, producers and consumers. It includes details of export food products, the China Inspection and Quarantine (CIQ) office that has responsibility at a provincial level, and specific export destinations.⁴

³ AQSIQ, "Import and Export Food Management Rules," in *AQSIQ [144]*, ed. AQSIQ (Beijing: AQSIQ, 2010).

⁴"Planting and Breeding Farms Registered for Export," AQSIQ, <http://english.aqsq.gov.cn/SpecialTopics/ImportandExportFoodSafety/DataService/RegisteredPlantingan dBreedingFarmsforExport/>.

Apart from this comprehensive network of food safety information serving foreign consumers, AQSIQ has also facilitated various mechanisms to enhance the convenience and efficiency of access to food safety information for this group. At the national level, AQSIQ encouraged the establishment of national or local demonstration sites for export food plantations in major food production regions, and a key focus of those sites is prompt and efficient information exchange and communication on food safety.⁵ AQSIQ acknowledges that internationally recognised standards and certifications are mandated for food exporters, such as the ones of Hazard Analysis and Critical Control Point (HACCP), International Standardisation Organisation (ISO) and Good Manufacturing Practice (GMP), which provided good technical support for establishing the traceability system of food safety information. At a local level, producers of food for export are encouraged and supported by provincial CIQs and other government departments to join the food traceability system by establishing a barcode system, visual monitoring, Quick Response code (QR code) and other measures. For example, Sanming CIQ (Fujian Province) has been promoting the Export Food Identity and Traceability system among export food producers since 2007, focusing on key food export items such as eel, tomato products and bamboo shoots. From 2007 to 2013, 1,158 batches of food products were exported from Sanming city with a value of USD 120 million, and not a single food safety incident happened.⁶

AQSIQ does not only provide the “whitelist” which allows foreign consumers to access to qualified producers, but also a blacklist as an early warning to nominate export producers who may impair food safety. AQSIQ uses “name and shame” techniques to target food exporters who failed to meet either certain food safety standards, or their regulatory obligations.⁷ This list provides the name of the food exporter, their Hygiene Registry Number, the specific food for export, export destination and detailed information on their food safety or performance violation. The list ensures that the information is communicated before any actual food risk occurs for foreign consumers. Nomination on this blacklist will significantly damage food exporters’ competitive advantage. Given the fierce market competition in China, producers cannot risk the loss

⁵ "Aqsiq's Announcement on National Export Food Demonstration Areas of High Safety and Quality," ed. AQSIQ (Beijing: AQSIQ, 2012).

⁶ Yongtao Tian, "Fujian Sanming: Food Identity and Traceability Defends Food Safety," China Industry and Economy <http://money.163.com/13/0704/00/92T9N94C00251LIE.html>.

⁷ AQSIQ, "Early Warning Announcement on Export Food Risks," AQSIQ, http://jckspaqj.aqsiq.gov.cn/jckspwgqymd/200706/t20070630_32919.htm.

of their export reputation and have strong incentives to perform. Therefore, they mostly outperform the required food safety standards and fulfil their regulatory obligations, and avoid this blacklist.

In responding to food safety crises, AQSIQ gathers emergent information and issues communication regarding that specific food risk, and implements a food recall if necessary. According to *Food Recall Management Rules*, producers of suspected unsafe food will have to report directly to municipal or provincial CIQs, who are in charge of organising and coordinating food risk investigation and evaluation.⁸ If the suspected food caused a certain degree of negative impact on consumers, local CIQs will request a food recall within one to three days depending on the different emergency levels.⁹ CIQs will keep a clear record and report to AQSIQ while the recall is progressing, to enable further responsibility tracing and evaluation of compensation.¹⁰

Segmented risk communication for foreign consumers ensured that this group has full access to food safety information with a high degree of transparency and traceability. The segmented regulatory governance of food for foreign consumers made AQSIQ the key agency in charge of controlling the communication of food safety information. It has been underpinned by the economic and political significance of the food export industry and was historically embedded. In major food production provinces, such as Shandong and Fujian, the food export industry contributed substantially to local prosperity and stability through tax revenue, local residents' income and employment opportunities, and these contributions are direct incentives for maintaining the sustainable development of this industry. On the other hand, the development of the food export industry largely relies on how well food exporters can meet stringent requirements from importing nations, including a high degree of transparency and availability of food safety information. In this sense, the significance of foreign consumers reinforced the segmented arrangement of the communication of food safety information for this group, and shaped stricter regulatory requirements ensuring their full access to food safety information. In sum, the presence of AQSIQ as the only comprehensive manager of food safety information for foreign consumers improves the

⁸ "Food Recall Management Rules," in *AQSIQ [98]*, ed. AQSIQ (Beijing: AQSIQ, 2007).

⁹ There are three recall emergency levels: Level I to III with a descending degree of emergency or severity.

¹⁰ AQSIQ, "Food Recall Management Rules."

effectiveness of risk information communication, and AQSIQ's authority on export inspection and certification further enhances the credibility of the risk information.

Food safety information for affluent consumers—exchanging money for information

Affluent consumers do not enjoy the benefits of the closed production system for food exports, but their economic resources and/or political influence allow them the choice of purchasing access to food safety information. Affluent consumers could pay more to purchase imported food, or food from renowned producers which offer traceable information on food safety and quality. Starting from 2010, Community Supported Agriculture (CSA) farms rapidly gained popularity, and quickly made themselves into another alternative food source for affluent consumers that offered high transparency of food safety information. Even though the development of CSA farms is restrained by the availability of arable land with high quality soil and irrigation water, the number of CSA farms increased from 54 nationwide in 2010 to approximately 100 in 2011,¹¹ and further to over 500 in 2015.¹²

CSA farms are a form of food production that allow consumers' participation and observation over the whole production process, and promise their access to transparent information concerning food and production processes. With deteriorating food safety levels in domestic China, CSA farms became increasingly popular because of the convincing promise that "food safety will be guaranteed with no or limited chemical fertilisers and pesticides used on vegetables and fruits, limited or no hormones and antibiotics added into feed, and poultry animals are fed for a longer time until they are naturally mature".¹³ Consumers purchase membership from CSA farms in nearby suburbs, and members benefit by having either quality food delivered to them regularly, or participating in food production, or both.

In addition to the promised high quality and safety of their produce, CSA farms' regular and prompt food safety information communication has become a selling point to attract

¹¹ H. Frederick Gale, "CSA: New Choice of Food Safety in China," Chinadialogue Net, <https://www.chinadialogue.net/article/show/single/ch/4207-Building-trust-in-food>.

¹² Yulan Zhong, "Chinese Love Organic Farming," Xinhua News Agency, http://news.xinhuanet.com/world/2015-09/28/c_128275141.htm.

¹³ Qian Liu and Chenghua Wu, "How Far Can Organic Farms Go?," *Southern Daily*, 19 August 2011.

affluent consumers and justifies their higher-than-market-average price. CSA farms mostly have online stores to release information on product varieties, price, production methods, and nutrition.¹⁴ Consumers can also check which stage the food they ordered is at in the process of growing (producing) and delivery. If members choose to participate in the food production process by regularly visiting CSA farms, they have even better access to food safety information through their own observation and judgement. If consumers are not available for on-site participation, many CSA farms can provide technologies for their consumers to observe the whole producing process online through remote monitoring.¹⁵

Access to prompt and transparent food safety information comes with a price. Part of that higher than average price paid by affluent consumers allows them the access to information from CSA farms. For example, the price of produce in the renowned Little Donkey Farm in Beijing was 2 to 8 times more expensive than produce from a free market.¹⁶ The exchange of higher prices for safer food and access to food information satisfies both suppliers and consumers: affluent consumers pay more to obtain food which is promised to be safe, and for the right to know, and CSA farms are motivated by the high profit margin to provide food with high safety levels and full access to transparent food safety information.

CSA farms exemplified a food choice with higher prices but transparent access to safety information that affluent consumers can purchase. Similar sources include imported food, food from renowned producers and other forms. Those food choices, however, are not within the reach of all domestic consumers, such as ordinary domestic consumers who locate in the lower-middle to lower classes of the Chinese social hierarchy.

¹⁴ A typical example is Little Donkey Farm in Beijing [小毛驴市民农园]: <http://shop70845525.taobao.com/>.

¹⁵ Little Donkey Farm in Beijing is one of those, and other examples are: Shanghai Shen Guo Yuan Shishang Farm Club (<http://www.huquan.net/detail/3195593.html>), Wuxi Family Farm (<http://wuxifarm.blog.edu.cn/home.php?mod=space&uid=3783834&do=blog&id=616358>), and many others.

¹⁶ The price from the free market was quoted in December 2014, and the price quoted from the CSA farm was at the same time and from Little Donkey Farm in Beijing [小毛驴市民农园]: <http://shop70845525.taobao.com/>.

Food safety information for the politically privileged—political priority

This section now turns to another group of consumers who have similarly privileged access to information but their access is based on their political standing and status. The politically privileged are the senior political cadres who fit into the upper stratification of the Chinese social hierarchy. They are in possession of influential organisational authority, small in population, and powerful in political decision making. The politically privileged are the only group of consumers with access to the exclusive food supply, and have full access to food safety information through the system in which only trustworthy food sources are selected to provide food.

There are several ways to designate food sources, and the traditional and most common way is to choose the food provided by the state owned enterprises (SOE) which prioritise their supply to the politically privileged as a political task rather than profit-driven activity. Typical examples are No. 34 Supply Department (34号供应部) subject to Beijing East Friendship Food Supply & Delivery Co.,¹⁷ and Er Shang Group (二商集团).¹⁸ The very intention of establishing those SOEs was to fulfil the political mission of providing safe food to “participants of important conferences and occasions, visiting foreign leaders and embassy staff, and national leaders, professionals of special types and senior intellectual professionals”,¹⁹ who were the very earliest group of the politically privileged. Though the composition of the politically privileged has varied over time, their food safety has been ensured by those SOEs through stringent requirements not only on food production but also on prompt and transparent release of food safety information.

SOEs in the exclusive supply system are not the only producers that provide information about the safety of their food. Other reliable forms of food supply for the politically privileged include: “farm clubs” or “training bases” that are established and affiliated to certain government departments, with the key function of producing food

¹⁷ Beijing East Friendship Food Supply & Delivery Co., "Main Business Areas," Beijing East Friendship Food Supply & Delivery Co., <http://www.effood.net/about.aspx?t=43>.

¹⁸ Tianjin Er Shang Group, "Group Introduction," Tianjin Ershang Group, <http://www.ershgroup.com/single.php?uid=6>.

¹⁹ Beijing Municipal Chronicles Committee, *Beijing Zhi, Shangye Juan, Fu Shipin Shangye Zhi [Beijing Chronicles: Commerce & Non-Staple Food]*.

for the department they are affiliated to.²⁰ Furthermore, farmers are hired and trained to produce food products in certain selected areas for the group.²¹ For some food products, which are normally consumed in small quantities or require a high degree of processing, quality food providers would be investigated and chosen to provide food subject to strict and frequent inspections.²² All these forms of food supply are mandated to provide transparent and traceable food safety information. For example, “farm clubs” or “training bases” will periodically report about food production to the government departments with which they are affiliated,²³ and detailed production information can be accessed through the designated food providers.²⁴

The high degree of transparency in food safety information is determined by the manner in which the exclusive system functions. The exclusive supply system locked all the designated food sources (through the abovementioned ways) in a separate and segmented system, in which the relationship between the politically privileged and the designated food sources is straightforward. This simple and direct relationship largely allows these consumers to avoid food information confusion, delays in information release, or delays in early warnings of potential food risks. In the event of a food crisis, the clear supply-demand relationship will reduce the time taken to trace and screen information about the food, thereby significantly avoiding a magnified impact due to delays in information communication. Hence, providing this group with access to reliable, transparent and traceable food safety information is a politicised priority, which is further facilitated by the straightforward supply-demand relationship in the segmented system of exclusive supply.

²⁰ Examples: Beijing Customs Farm: Zongshu Lv et al., ""Low Profile" Vegetable Planting," Nan Fang Zhou Mo [Southern Weekend], <http://discover.news.163.com/11/0506/10/73C7M72R000125LI.html>.; and Sui Feng Yuan (Mu Dan Jiang Local Taxation Farm): Zilong Cheng and Zichen Wang, "Witness the "Quality Life" of Officials in Mu Dan Jiang Local Tax Bureau," Xinhua News Agency, http://news.xinhuanet.com/local/2013-12/12/c_118534099.htm.

²¹ Lv et al., ""Low Profile" Vegetable Planting".

²² Examples: Shangdong Weishan Lake Lotus Food Co., Ltd. provides preserved eggs to the State Council affiliated departments: Shangdong Weishan Lake Lotus Food Co. Ltd., "Corporation Introduction," Shangdong Weishan Lake Lotus Food Co. Ltd., <http://www.honghehua.com/company.html>.; Hubei Shendan Health Food Co., Ltd provides eggs to Hubei Provincial Party Committee Canteen: Hubei Shendan Health Food Co. Ltd, "Corporation Introduction," Hubei Shendan Health Food Co., Ltd http://www.shendan.com.cn/comcontent_detail/&i=2&comContentId=2.html.

²³ Lv et al., ""Low Profile" Vegetable Planting".

²⁴ For example, specific product information is listed on the company website: Hubei Shendan Health Food Co. Ltd, "Product Information on F660 (F6103461001)," Hubei Shendan Health Food Co., Ltd http://www.shendan.com.cn/products_detail/&productId=15833.html.

In contrast to consumer groups identified above, a majority of domestic food consumers do not have equal access to the key public good of food safety information. Segmented food risk communication has meant that ordinary domestic consumers have limited access to information, and the failure in the provision of this public good drove this group to alternative sources of information. In such a segmented information seeking process, several systematic biases in food safety information communication occurred extensively within the group of ordinary domestic consumers, and these biases made it extremely difficult to realise the regulatory objective of building an effective information communication system for all, as will be discussed shortly.

Food safety information for ordinary domestic consumers—miscommunication

For ordinary food consumers in China, there is neither a compulsory requirement for transparent food safety information like the one for foreign consumers, nor straightforward information from designated food sources like the one for the politically privileged. The limited economic capacity of ordinary food consumers could prevent them from purchasing food with access to traceable safety information as the choice of affluent consumers. In the giant food market in China where most ordinary domestic consumers purchase food, a few large-scale food enterprises have started to use an information traceability system for their food. It is costly, but popular among mostly affluent consumers. Over 80% of licensed food producers in this market are of a small or medium size (not including the ones yet to be licensed),²⁵ and they are still on their way to improving food risk communication.

Food safety information from producers was limited, so food regulators' provision of access to safety information became extremely important in this rapidly growing market. Food regulators attempted to improve the communication of food risk information with ordinary domestic consumers, including addressing the regulatory responsibilities of prompt information release, creating official information channels and other such measures.

²⁵ Guijia Chen et al., *Annual Report on China's Industrialization* (Beijing: Social Science Literature Press, 2009). 332.

Attempts to improve official information communication

During the period from 2004 to 2013, food regulators designed many regulatory initiatives that aimed to enhancing the communication of food safety information between food regulators and ordinary domestic consumers. On 22 November 2004, SFDA and other food regulators jointly issued “Provisional Rules on Food Safety Supervision Information Release” to formalise food risk communication.²⁶ This rule was later replaced by “Rules on Food Safety Information Release” jointly issued by MOH and other food regulators.²⁷ The focus of the “Provisional Rules” was on each food regulator’s responsibility to collect food risk information, and the “Rules” strengthened the urgency of building a unified food information platform at local levels for better information sharing and communication with food consumers, and addressed the importance of the prompt and honest release of food risk information. These initiatives emphasised the significance of communicating food safety information, and were gradually put into practice. According to officials in the China Food and Drug Administration (CFDA), there are food safety supervision and inspection agencies at all local levels collecting daily food safety information, and they regularly sample food sold in free markets, supermarkets and other retail outlets. The analysed results will be released selectively to the public in accordance with risk levels because of fears for social stability if all the information were released at one time.²⁸

However, the domestic food market is quickly expanding in volume, and the complexity of the food chain is increasing. By the end of 2013, there were over 10.9 million food establishments in total in China. Specifically, there were over 130,000 food producers, 8.1 million food distributors and over 2.6 million restaurants. Whereas there were 70,000 pig farms in the US, there were 67 million in China. The large number of small and scattered food establishments further added difficulties in collecting food safety information, and 80% of those establishments were small scale with fewer than 10 employees.²⁹ A food market with such a large scale and a high degree of complexity

²⁶ SFDA, "Provisional Rules on Food Safety Supervision Information Release," in *SFDA [2004] 556*, ed. MPS SFDA, MOA, MOC, MOH, GAC, SAIC, AQSIQ (Beijing: State Food and Drug Administration, 2004).

²⁷ MOH, "Rules on Food Safety Information Release," in *MOH [2010] 93*, ed. MOA MOH, MOC, SAIC, AQSIQ, SFDA (Beijing: Ministry of Health, 2010).

²⁸ Interviews were undertaken with officials from the CFDA in Beijing in November 2014.

²⁹ Interview with Yu Jun, Deputy Director of Food Safety Supervision Division under Food Safety Commission, quote from: CNTV, "Five Questions on New Governance of Food Safety," CNTV, <http://cctv.cntv.cn/lm/shenghuozaocankao/20120326/123188.shtml>.

requires a proportional number of key points for the collection and supervision of food safety information. Food regulators therefore faced substantial challenges to collect, assess, communicate, and manage food safety information. Miscommunication of food risk information happens on an increasingly frequent basis.³⁰

Food regulators worked through other various official channels of food risk communication with ordinary domestic consumers. There are five official channels: the first is the official information release, which is most frequently used. It includes press conferences, news reports, early warnings of potential food risks, the release of food inspection information, and reports on food safety incidents. For example, MOH regularly held press conferences about new food safety regulations and standards, and food safety incidents.³¹ Also, when a new national food safety standard is drafted, it is routine to hold hearings to gauge public opinions. The second channel is whistleblowing hotlines for collecting public opinions, tip-offs, and complaints of possible food risks. An example is the hotline 12315, which has food safety complaints as a special focus. The third channel is food regulators working in partnership with food safety experts to provide free consultations. Hotline 12320 in China is mainly for consulting food safety information. The fourth method is organised education activities about food safety. For instance, “Food Safety in Rural Areas” and “Food Safety on Campus” are held annually to publicise knowledge about food safety to different audiences. Finally, the fifth is information releases on social media through official or semi-official food regulators. For example, the Secretariat of Food Safety National Standards Appraisal Committee issues information through Weibo.³² Considering the size of food market in China, these limited channels do not constitute a functional level of access to food safety information for ordinary domestic consumers.

In the context of this limited access to food safety information, civil society groups gained approval from food regulators and organised various avenues to provide food safety information that food producers and regulators failed to provide. Groups of

³⁰ Interviews were conducted with officials in Kunming Food and Drug Administration on 10-12 December, 2014.

³¹ For example, the Ministry of Health held a press conference upon the issue of Twelfth-Five Year Plan on Food Safety National Standard on August 14, 2012, via <http://jingji.cntv.cn/2012/08/14/ARTI1344910505177492.shtml>, visited on February 4, 2015.

³² Kai Zhong et al., "The Reality, Problems, Challenges and Countermeasures in Food Risk Communication in China [Zhongguo Shipin Anquan Fengxian Jiaoliu De Xianzhuang, Wenti, Tiaozhan Yu Duice]," *Chinese Journal of Food Hygiene [Zhongguo Shipin Weisheng Zazhi]* 24, no. 6 (2012): 580.

volunteers with food science or medical backgrounds post food safety information and hold Q & A sessions with the public through some popular non-governmental websites that specialise in science and technology knowledge, such as Guokr.com and Songshuhui.net (Songshuhui Association of Science Communicators).³³ Both have a substantial section on food safety knowledge, and aim to allow more people to “know food safety based on science”.³⁴ There are also non-governmental websites which specialise in food safety, such as Foodmate.net.³⁵ Those websites work more like a database to allow searches for food safety related information, such as a specific food safety incident, standard or additive. Furthermore, NGOs also release some food risk information based on their own investigations, such as Greenpeace which aims to “promote transparent and open information exchange in order to reach a common view and find solutions.”³⁶ Greenpeace initiated an investigation on soil pollution in Hunan, and the case study on cadmium polluted rice in the following section will analyse its role in communicating food risk information.

For ordinary domestic consumers, these attempts did not assist food regulators to provide full access to food safety information, and the failure in provision of this public good led to further problems that substantially weakened the segmented system of food risk communication. Two facts suggested the failure in providing full access to information. The first is the limited nature of official channels and information provided relative to the huge information demand from ordinary domestic consumers. More importantly, this group’s access to some information, especially risk information, was still restrained by regulators as will be discussed in the following part and the case study. Within the segmented channel of food risk communication for ordinary domestic consumers, food regulators’ failure in providing full access to food safety information incurred fundamental problems of distrust, perceptions about food risk, and risk amplification, which I will discuss shortly. Firstly, various incidents involving an information vacuum and fraudulent information about risk led to a huge decline of trust from the public towards authorities in China.³⁷ Secondly, domestic consumers were forced to turn to alternative food safety information sources, and in the process they

³³ Those two websites are <http://www.guokr.com/> and <http://www.songshuhui.net/>.

³⁴ Guokr, "Science Not Rumor," <http://www.guokr.com/scientific/subject/food/>.

³⁵ The website is <http://www.foodmate.net/>.

³⁶ Greenpeace, "Mission and Value," <https://www.greenpeace.org.cn/about/mission/>.

³⁷ A typical example is that the Health Department hid the number of SARS patients in Beijing at its peak in 2003. Xinhua News Agency, "From SARS to H7n9: The Evolution of Government Information Transparency," Xinhua News Agency, http://news.xinhuanet.com/politics/2013-04/09/c_115326254.htm.

encountered information as well as food risk perceptions from those sources. Thirdly, floods of exposures on new media, the aftermath of previous detrimental food safety crises (such as melamine tainted milk powder), and the participation of non-traditional food regulators (such as NGOs) amplified consumers' food risk perceptions. Those three problems reflected systematic weakness within the segmented channel of food risk communication for ordinary domestic consumers and further decayed the possibility of effective communication. The illustrative case of cadmium polluted rice in Hunan suggests how those problems arose from a failure in the provision of food risk information, and made the resolution to this food safety incident extremely difficult.

Distrust from fraudulent and misleading information

Trust is important in shaping the effectiveness of risk communication.³⁸ In China, the presence or absence of trust conditions all other aspects of communication around food safety. Trust appears to be linked with perceptions of accuracy, knowledge, and concern with public welfare. Distrust is associated with perceptions of deliberate distortion of information, being biased, and having been proven wrong in the past.³⁹ Ordinary domestic consumers' attitude toward official communication channels of food safety information is nowhere near "being trustworthy" for historical reasons. At the beginning of the period from 2004 to 2013, the general public's trust towards official information releases was average because both official and non-official information sources in China were limited due to both the level of economic development, and the extent of information control. The public generally got information concerning public events (including food safety) from the mass media, and public trust was maintained relatively easily if what was released on mass media was what really happened. Put differently, such trust could also be destroyed very easily: once a story was defined by journalists as a "risk story", or an official cover-up was suspected or proved, then the authority of official sources would be undermined.⁴⁰

³⁸ Ortwin Renn and Debra Levine, "Credibility and Trust in Risk Communication," in *Communicating Risks to the Public: International Perspectives*, ed. Roger E. Kasperson and Pieter Jan M. Stallen (Dordrecht: Kluwer Academic Publisher, 1991).

³⁹ Frewer, "Trust, Transparency, and Social Context: Implications for Social Amplification of Risk," 126.

⁴⁰ Eldridge and Reilly, "Risk and Relativity: BSE and the British Media," 148.

One of the events that significantly contributed to the public's distrust of safety information was the case of Severe Acute Respiratory Syndrome (SARS) in 2003.⁴¹ Beijing authorities were found to have blocked access to information concerning SARS from not only the overseas media, but also the public.⁴² When the truth was exposed – particularly revelations about hiding patients and the blocking of information – it provoked a strong public reaction. The hiding of SARS patients was criticised for accelerating the deterioration of affected patients and delaying the best time window for treatment, and the blocking of information was claimed to have possibly created a higher chance of infection due to the lack of precautionary measures that were taken. These actions by various government departments failed to show concern for public welfare and contributed to a decline in the trust of regulatory integrity and authority.

Public trust was further brought down by the scandal surrounding Sanlu melamine tainted baby formula. On 12 September 2008, Shijiazhuang Municipal government hastily issued an announcement declaring that “the baby formula produced by Sanlu Group contains melamine and the investigation team dispatched by the State Council is still working on the issue”. On 17 September, then Premier Wen Jiabao held a State Council executive meeting to investigate Sanlu Group in particular and the dairy industry in general. This was the moment that the public came to know the word “melamine” and heard about the related deaths of some babies and numerous cases of infant renal disease.⁴³ Before these dates, however, early warnings had been issued by both the enterprise and local regulators, but they failed to reach the public. Since December of 2007, Sanlu Group had started to get complaints about the possible causal effect between Sanlu milk powder and babies' kidney diseases. On 2 August 2008, more than one month before the Shijiazhuang Municipal government's official announcement, the Sanlu Chairman's request for a product recall was refused by the then vice-mayor and officials from municipal food regulators, who intended to wait until the end of the 2008 Beijing Olympic Games.⁴⁴ It is hard to estimate how much damage was caused to the victims and their families by the delay and concealment of the milk powder risk, but the Sanlu scandal reconfirmed that the official communication

⁴¹ SARS broke out in China and many Asian countries in 2003, and the highly communicable disease cost at least 8000 lives according to the WHO.

⁴² Xinhua News Agency, "From SARS to H7n9: The Evolution of Government Information Transparency".

⁴³ Shumei, "Sham or Shame: Rethinking the China's Milk Powder Scandal from a Legal Perspective."

⁴⁴ Heyan Wang, Tao Zhu, and Doudou Ye, "The Trial on "Poisonous Milk Powder", " *Finance [Cai Jing]* 2009.

of food risks was not reliable according to consumers and led to a fundamental breakdown of trust towards food regulators.

Ordinary domestic consumers' distrust led to a lack of confidence with respect to official sources delivering food safety information. Information is often judged first and foremost not by content, but by source: if the source is not trusted, the information will not be trusted either.⁴⁵ This is what happened after the Sanlu crisis. Food regulators tried to open up new ways to publicise knowledge relating to food risks, especially at local levels, and increase transparency in information communication by inviting public participation. But lost trust is difficult to re-establish,⁴⁶ and food regulators' efforts to improve risk communication were mostly in vain or, on occasion, counter-productive.

Furthermore, in the process of re-establishing trust, food regulators' actions speak louder than words,⁴⁷ and what they did further corroded ordinary domestic consumers' trust. Regulators' "body language" seen in the decision to postpone the release of a national soil pollution report in China intensified public distrust. Starting from 2006, the Ministry of Environmental Protection (MEP) and the Ministry of Land and Resources (MLR) jointly carried out a nationwide soil pollution investigation. By the end of 2010, both ministries declared that they had adequate and effective data and promised to release promptly the results of the soil investigation. In June of 2012, Wu Xiaoqing, Deputy Minister of MEP, promised again to release the results of the investigation after the State Council had granted approval. This promise was not kept. In early 2013 when cadmium polluted rice became another national food safety panic, MEP still refused to release the results on the basis that it was a "national secret".⁴⁸ It was not until April of 2014, and under great pressure from China and abroad, that a 1700-word investigation report was finally released. Not surprisingly, faced with a response that was released only under pressure, the public did not accept its findings, nor did they believe that 16% of the nation's soil was polluted.⁴⁹ How MEP's action impacted on the communication of food risks will be discussed in the final section of this chapter.

⁴⁵ Peter Bennett, "Understanding Responses to Risk: Some Basic Findings," in *Risk Communication and Public Health*, ed. Peter Bennett and Kenneth Calman (Oxford: Oxford University Press, 1999), 4-5.

⁴⁶ Paul Slovic, "Perceived Risk, Trust, and Democracy: A Systems Perspective," *Risk Analysis* 13, no. 6 (1993).

⁴⁷ Bennett, "Understanding Responses to Risk: Some Basic Findings," 5.

⁴⁸ Liu, "Why Soil Pollution Became a National Secret".

⁴⁹ MEP and MLR, "National Soil Pollution Investigation Report," ed. MEP (Beijing2014).

It is this failure to provide a public good and the distrust in the segmented regulatory system that drove ordinary domestic consumers to alternative information sources, particularly those available on the internet. While there is opportunity for the extensive exposure of food risk information online, what is in shortage is the accuracy and objectivity of information. This may not only further contribute to distrust towards official sources, but can create a large space for people's perceptions of food risks. When heavy metal polluted rice ignited fear and curiosity among ordinary domestic consumers, they attempted first to get confirmation from food regulators. Unfortunately, food regulators' failure to provide such information pushed ordinary domestic consumers to the extensive exposure given to deadly rice online. As a result, the perception of rice upgraded the risk into a panic, and failed to help both ordinary domestic consumers and food regulators to work out a solution.

Risk perceptions from alternative information sources

When ordinary domestic consumers were forced to find alternative sources of food safety information that food regulators failed to provide, they got both risk information and perceptions. Paul Slovic defined risk perception as people's intuitive risk judgements.⁵⁰ Risk information sources did not only provide information, but also risk perceptions depending on the nature of the risk. As will be discussed soon, food risk is prone to be perceived with emotion and intuition.

One of the difficulties in effective risk communication is that it needs not only to deal with technical risks, but also the concerns that the public has towards a particular risk, or risk perception.⁵¹ There is normally a gap between the technical risk evaluated by scientific experts and the subjective risk judgement held by the general public: that is, the gap between science and lay perception. This gap expands the domain that risk communication should cover. In real life, risk perceptions are more difficult to deal with as they are often richer and more complex than risks themselves, and cover more psychological constructs, emotions and culturally-derived factors.⁵² Risk perception has to be dealt with carefully due to the fact that individual behaviours towards risks are mostly driven by perception or beliefs about risks, rather than the technical risk

⁵⁰ Slovic, "Perception of Risk," 220.

⁵¹ Frewer, "Public Risk Perceptions and Risk Communication," 21.

⁵² James Flynn, Paul Slovic, and C. K. Mertz, "Decidedly Different: Expert and Public Views of Risks from a Radioactive Waste Repository," *Risk Analysis* 13, no. 6 (1993).

estimated by experts.⁵³ This suggests that ordinary domestic consumers' reaction to food risk and judgement are dependent on their risk perceptions.

The notion of risk perception explains why some risks trigger greater anger, anxiety and alarm than others, regardless of scientific estimates about the seriousness of actual risks. Food risks fall in this category. The subjectivity, irrationality, and emotion contained in food risk perceptions also can make those perceptions very quickly and easily believed. During the period from 2004 to 2013 when food safety incidents became one of the most concerning issues in China, what ordinary domestic consumers were really scared of may not necessarily be real food risks, but food risk perceptions. Rumours during this period included information such as: dumplings were made from used cardboard,⁵⁴ contraceptive drugs were used on cucumber to make it look fresh,⁵⁵ and watermelons were injected with sweetener.⁵⁶ Many others spread rapidly on the internet and were quickly believed by large number of consumers. Sometime these reports were broadcast on TV programs, which made the stories even more convincing. This information spread so quickly online that scientists could never act rapidly enough to explain the truth behind these rumours to the public. Food regulators faced another dilemma: if scientists were invited to comment through official channels, their statements were likely to be doubted rather than believed due to distrust from the public. However, if the rumours were not clarified and explained then rumour-based risk perceptions could cause panic and exacerbate distrust among the public.

Food risk has certain characteristics, such as devastating consequences and involuntary exposure, and those characteristics contribute to high public perceptions of risk.⁵⁷ These characteristics are referred to as "fright factors" by scholars: risks are generally more worrying and negatively perceived if they are perceived to be *involuntary, inequitably distributed, inescapable*, arise from an *unfamiliar or novel source*, result from *manmade rather than natural sources*, cause *hidden and irreversible damage*, pose danger to *children or pregnant women or future generations*, *death threat*, cause *damage to*

⁵³ Frewer, "Public Risk Perceptions and Risk Communication," 20.

⁵⁴ Baowei Zheng, "Pursue the Authenticity in News with Moral Discipline--Case Study on the Fake News of Cardboard Dumplings," *China Radio & TV Academic Journal* 8(2007).

⁵⁵ Qiang Wang, "Cucumber with Conceptive Drugs," Xinhua News Agency, http://news.xinhuanet.com/food/2015-06/26/c_1115728263.htm.

⁵⁶ Qiong Wang, Haibo Yu, and Lin Liu, "Injection for Watermelon? Impossible," People.Cn, <http://scitech.people.com.cn/n/2013/0820/c1007-22634078.html>.

⁵⁷ Robin Gregory, James Flynn, and Paul Slovic, "Technological Stigma," *American Scientist* 83, no. 3 (1995).

identifiable rather than *anonymous victims, be poorly understood by science, and subject to contradictory statements from responsible sources.*⁵⁸ This list may not be finite and factors listed are interdependent.

In terms of the segmented food regulatory system, a particularly key fright factor is that food risks are *inequitably distributed* among various consumer groups due to regulatory segmentation, which sustained the segmented food safety regime and is critical to the widespread food risk perceptions among ordinary domestic consumers. Compared to other fragmented consumer groups, ordinary domestic consumers have the highest exposure to various food risks but the poorest access to food safety and risk information. Foreign consumers' access to food safety information is highly transparent thanks to AQSIQ's compulsory requirement for the release of information. Food for the politically privileged is from designated and easily traceable food sources with highly transparent food safety information, such as food from designated SOE providers.⁵⁹ Affluent consumers could purchase food with a low potential for risk and with access to food safety information. The combination of high food risks and poor access to food risk information for ordinary domestic consumers suggested *inequality* in both the distribution of food risks and access to food risk information, which creates a higher chance that food risks will be perceived among this group than in others.

Apart from the fact that food risks are *inequitable distributed*, food risks that ordinary domestic consumers face share characteristics of many other fright factors. Ordinary domestic consumers are being involuntarily exposed to a wide range of food risks. Most are manmade food risks, such as food adulteration and additives. Some of the food risks for this group are inescapable, such as food processed with recycled cooking oil.⁶⁰ Some food risks are not only inescapable but cause hidden and irreversible damage, and even the threat of death or fatal disease, such as rice polluted by cadmium and other heavy metals.⁶¹ For ordinary domestic consumers, the effects of soil pollution on food are still poorly understood. Science may explain some possible impacts on public health, but

⁵⁸ Peter Bennett et al., "Understanding Public Responses to Risk: Policy and Practice," in *Risk Communication and Public Health*, ed. Peter Bennett, et al. (Oxford, New York: Oxford University Press, 2010), 8-9.

⁵⁹ For example, the safety and production information of all the food provided by Hubei Shendan Health Food Co. Ltd, can be checked through its product inquiry system:
http://www.shendan.com.cn/products_list/&pmcId=35.html

⁶⁰ David Barboza, "Recycled Cooking Oil Found to Be Latest Hazard in China," *New York Times*, 01 April 2010.

⁶¹ Luo, "The Beginning of Cadmium Pollution in China."

accurate scientific explanations are not available to ordinary domestic consumers. A lot of food additives are unheard of or are not supposed to be used in food at all, and those food risks are from unfamiliar and novel sources. Furthermore, most food risks are potentially more harmful to vulnerable groups, such as children and pregnant women, especially in underdeveloped regions where the food safety regulations are less strictly implemented.

The risk of heavy metal polluted rice to be discussed in the last section shares many characteristics of those “fright factors”. Being inequitably distributed, ordinary domestic consumers have a high chance of involuntary exposure to heavy metal polluted rice. This is inescapable for those who have little information about the origin of their rice. Poorly understood or explained heavy metal polluted rice may cause hidden and irreversible damage, and death threat or fatal disease. This unfamiliar food risk is especially harmful to vulnerable groups, such as children and pregnant women, and poor peasants who have no choice but eat the rice they grow in polluted regions. Regulators experienced difficulty issuing explanations and clarifications regarding the perception of heavy metal polluted rice due to a lack of public trust, the perception-prone characteristics of the risk and the significance of rice in Chinese diet. This case will be analysed in the last section.

Apart from these fright factors, some other elements also contribute to intensifying food risk perceptions. Some previous food safety crises caused extremely detrimental impacts which have only partly diminished. For example, the Sanlu milk powder crisis led the public to assume that all milk powder produced in China is not safe, and the risk perception of milk products has become a long-lasting one. Such risk perception of milk drove Chinese parents to give up the *perceived* problematic baby milk powder made in China, and instead buy large quantities of the brands they perceived to be safe. Immediately after the Sanlu crisis, Chinese parents’ purchase of baby milk powder caused Hong Kong to strictly ration sales to protect their local supply.⁶² Besides Hong

⁶² A legislative ration was implemented in March of 2013. That ration is one of the most stringent of its kind in history: an individual over 16 can take no more than 1.8 kg of milk powder upon departure and violation will incur a fine of at most HKD 500,000 and two years in jail.

Kong, supermarkets in the US, New Zealand, Australia, Germany, Macao, and Holland all placed rations on baby milk powder during 2012 and 2013.⁶³

Furthermore, the cultural context to which individuals are exposed will impact on their food risk perception.⁶⁴ Complex cultural experiences related to people's attachment to place can make people amplify or attenuate certain food risk perceptions,⁶⁵ so can different cultural contexts.⁶⁶ In China, food is central to the culture and value system, and some types of food, such as rice, are especially significant. As the case study in the next section will illustrate, risks about rice can easily be intensified into a panicked perception through people's imagination and intuitive judgement due to the strong cultural connotation of this specific food.

Last but not least, perceived risks can be more or less serious depending on risk management. When the public has little or no confidence in risk management, risk perception can again be intensified. The extent to which people distrust risk managers may determine how people process risk information.⁶⁷ Risk management might be judged through a particular risk event or a general public impression, both of which fail to contribute to public confidence in food risk management in China, and hence cause intensified food risk perceptions. The case of cadmium polluted rice in the next section will illustrate how food regulators failed to re-establish the public's trust after this specific risk event. Thus, ordinary domestic consumers' impression of incompetent food risk management further intensified those perceptions about cadmium pollution.

Food risk amplification and new media

The risk communication process can contribute to the amplification of risks, and the contemporary environment of rapid and non-stop information exchange enhances the chance of amplifying risks. At this level, a particular risk event can be likened to a stone dropping into a pond causing ripples, and those ripples are much larger than the original splash. The indirect effects of risks can exceed the direct ones, and this is the idea of

⁶³ Sohu News, "Special Topic: Ration on Milk Powder in Hong Kong," Sohu News, <http://baobao.sohu.com/s2013/5655/s367305970/>.

⁶⁴ Bennett, "Understanding Responses to Risk: Some Basic Findings," 7.

⁶⁵ Jeffrey R. Masuda and Theresa Garvin, "Place, Culture, and the Social Amplification of Risk," *Risk Analysis: An International Journal* 26, no. 2 (2006): 449.

⁶⁶ Clifford W. Scherer and Hichang Cho, "A Social Network Contagion Theory of Risk Perception," *Risk Analysis: An International Journal* 23, no. 2 (2003).; Ferrari, *Risk Perception, Culture, and Legal Change: A Comparative Study on Food Safety in the Wake of the Mad Cow Crisis*.

⁶⁷ Frewer, "Trust, Transparency, and Social Context: Implications for Social Amplification of Risk."

social amplification of risk.⁶⁸ The social amplification of risk framework (SARF) explains why some risks can elicit significantly strong psychological, social, behavioural consequences compared to their real, technical damages, while some other risks are purposefully underestimated by the public.

The segmented channel of food risk communication for ordinary domestic consumers is more complex than the channels for other groups, as there are more participants. This complexity has created a higher chance of the amplification of food risk. When ordinary domestic consumers were pushed to alternative sources for food risk information, their understanding of food risks would be amplified through the way that information was communicated via those sources. In the process of food risk communication, risk information is sent out from an information source via a signal (or a message) to information transmitters, or directly to the receivers. This communication process may add cultural, psychological and emotional elements into the actual technical risks, which amplify risks. The information sources, transmitters and receivers can act as “risk amplification stations”,⁶⁹ including: the scientists or research institutes who conduct technical assessment of food risks, food regulators, government agencies, different forms of media, NGOs, celebrities, individuals and personal networks, and enterprises. In the segmented channel of food risk communication for ordinary domestic consumers, the chances for food risk to be amplified are higher than for other consumer groups due to more and increasing number of participators serving as “risk amplification stations”, including multiple regulators, increasing numbers of civil society organisations, and growing alternative information sources.

Each risk amplification station plays a different role in risk communication with ordinary domestic consumers. The wording of food safety scientists or research institutes is based on testing and evidence, and is cognitive, heuristic, and rarely absolute. However, scientific and technical terminologies can suggest that facts are “unknown” and “uncertain”, which can easily be interpreted as “danger” and “risk”. The attitudes of food regulators and government agencies are mostly prudent and conservative while sending food risk information to domestic consumers. These consumers distrust the regulators, and therefore may suspect that risk information is being filtered and the degree of filtering can be highly exaggerated. Meanwhile, when

⁶⁸ Kaspersen et al., "The Social Amplification of Risk: A Conceptual Framework."

⁶⁹ *Ibid.*, 181.

food regulators or other government agencies provide a response to a certain food risk, the response itself is seen as reinforcing risk and leads to risk amplification. For instance, a precautionary food recall will be decoded as a confirmed food hazard, especially for those who consumed the food.

Independent of the accuracy of food risk information, the flow of large volumes of information serves as an effective risk amplifier.⁷⁰ This is what happened when domestic consumers were driven to alternative sources for food safety information that food regulators failed to provide. When the media is competing for headlines, repetitive exposure of a certain food risk amplifies the risk through mobilising potential fears and panic. This recalls memories of previous food accidents or regulatory failures, or enlarges the degree of previous failures or negative outcomes. Moreover, the use of provocative and terrifying words by the media makes risk amplification even worse. For example, food additives become “inedible chemicals”, potentially dangerous elements become “poisonous”, possible carcinogenic items become “cancer triggers”, and to name a few. In the process of communicating food risks, the exposure of possible risks can lead to a dramatic shift in the discourse of message passing, in which risk-related matters recede in importance in the face of a growing depiction of victimisation, distrust and inequality.⁷¹

Food regulators’ failure in providing the public good of food safety information has led to increasing participation of civil society organisations as emerging new modes of food risk amplification. One example is NGOs, which are subject to oversight by the state but in certain areas such as environmental protection and food safety they act like independent regulators. These NGOs include Greenpeace,⁷² Justice for All,⁷³ and Woodpecker Food Safety for Community.⁷⁴ Since they are understood to be independent of political and economic interests, their releases of information about food risk gain public trust but also play a role in amplifying risks. This occurred after Greenpeace’s release of its soil pollution result in Hunan (to be discussed in the case study). Celebrities and individuals may work as risk amplification stations. With the support of communication technology, celebrities’ comments are easily available and so

⁷⁰ Ibid., 184.

⁷¹ Kasperson et al., “The Social Amplification of Risk: Assessing Fifteen Years of Research and Theory,” 18.

⁷² Greenpeace homepage: <http://www.greenpeace.org/china/zh/>.

⁷³ Justice for All homepage: <http://www.tianxiagong.org/index.asp>.

⁷⁴ Woodpecker homepage: <http://www.food120.org/>.

deeply believed by their followers that their personal preference, including misunderstanding or misleading messages, can spread rapidly among these followers. In that case, if they comment inaccurately about food risk, these misunderstandings will be believed and spread and the actual risk will be amplified.

The failure to provide this public good also resulted in the proliferation of information sources through widespread electronic communication such as the internet and smart phones, and Weibo and Wechat are typical. Weibo, a social networking platform similar to Twitter, created a huge volume of users starting in 2009. Weibo users can send, read, share and comment on a message of no more than 140-characters with or without images or video. Identity verification is used to recognise celebrities, nicknamed “Big Vs”,⁷⁵ who become opinion leaders in an ocean of information, including food safety information. Wechat appeared in 2011 and is a multi-function network tool similar to Messenger: users can send and receive messages, images, audio clips and short videos to their online friends. Users can also share information in an established interpersonal network, and individuals and organisations (governmental and non-governmental) can apply for a public subscription account to which users of Wechat can subscribe, allowing them to comment and share.⁷⁶ Both Weibo and Wechat gained large group of users very rapidly: towards the end of 2013, there were over 500 million users on Weibo and Wechat respectively, and there were over 270 million public subscriptions on Wechat. Such a large base of users makes the social influence of both Weibo and Wechat impossible to neglect.

Weibo and Wechat contribute to food risk amplification in different ways through their overwhelming coverage and influence. For example, “Big Vs” on Weibo, who are either celebrities or organisations, can have a sizable group of followers easily beyond ten million, and food risk information which goes through “Big Vs” spreads much faster than through traditional media. Unfortunately not every “Big V” is accurate about the risks they comment on or share, and their risk perception can quickly become their followers’ perception. In this sense, individuals, groups and institutions can act as amplification stations by sharing risk perceptions within social networks.⁷⁷ Compared to Weibo, Wechat is more of an interpersonal network with interpersonal trust among a

⁷⁵ Wikipedia, "Sina Weibo,"

<http://zh.wikipedia.org/wiki/%E6%96%B0%E6%B5%AA%E5%BE%AE%E5%8D%9A>.

⁷⁶ "Wechat," <http://zh.wikipedia.org/wiki/%E6%96%B0%E6%B5%AA%E5%BE%AE%E5%8D%9A>.

⁷⁷ Masuda and Garvin, "Place, Culture, and the Social Amplification of Risk."

“circle of friends”. The information spread on Wechat, including food risk perceptions, therefore sounds true and convincing.

Due to ordinary domestic consumers’ lack of access to official food safety information, Weibo and Wechat exert a strong social influence and have contributed to amplifying food risks. This group was forced to seek alternative information sources that were not provided through the segmented channel of food risk communication, and their demand facilitated the wild spreading of information and opinions about food risks on Weibo and Wechat. When Weibo first appeared in the second half of 2009, a keyword search of “food safety” on Weibo found only 181 messages posted during the last four months in 2009. This number, however, soared to over 100,000 in 2010, rapidly to 6.49 million in 2011, 17.39 million in 2012 and 21.29 million in 2013.⁷⁸ Based on the feature of information communication whereby people are inclined to filter information to include only what they choose to believe,⁷⁹ Weibo can promote a spiral of amplifying food risks. This occurs because of intense exposure and debates that are raised by numerous Weibo users who argue for the authenticity and their personal understanding of the risk information they access.

In the domestic food market, food risk related publicity can also mislead ordinary domestic consumers due to their lack of access to food safety information, and this amplifies food risks. For example, Zhang Yu Wine, a renowned 120-year old wine brand in China, was reported to carry the highest residues of carbendazim and metalaxyl (two pesticides used on grapes) in its products among all the 10 sampled wines that were sent to be tested by a journalist in 2012. The report further pointed out that long-term exposure to such pesticides might lead to liver cancer. The key phrases that stood out in the report were: Zhang Yu Wine, highest pesticide, and liver cancer. This news caused a dramatic decline in the sales of Zhang Yu wine and its share price plummeted by 9.83%⁸⁰ within the day of the news release. Further investigation, however, found several facts: firstly, no evidence, even from the test organisation, could prove that the wine with the highest pesticide residues was from Zhang Yu. Additionally, no causal relationship was found between carbendazim and metalaxyl and liver cancer; the

⁷⁸ These numbers are search results via <http://s.weibo.com>.

⁷⁹ Carl I. Hovland, "Social Communication," *Proceedings of the American Philosophical Society* 92, no. 5 (1948).

⁸⁰ In the stock exchange market in China, the range for a stock price increase or decline can't go beyond 10% of the stock price per day.

assumption was based on the fact that pesticides are detrimental to the liver.⁸¹ Another example is food containing Genetically Modified Organism (GMO). Some food was labelled as “GMO-free” as a marketing strategy,⁸² but this reverse use of the GMO label not only suggested that all other food without a “GMO-free” label could be harmful, but also intensified the public perception that GMOs are all detrimental. This amplified risk perception about GMOs. These incidents were later clarified by either food producers or food regulators, but distrust led to consumers filtering out official messages.

The problems with food regulators’ failure to provide food safety information to domestic consumers were due to the segmented risk communication systems. These in turn fed into problems with trust and the integrity of regulatory authorities that led to the search for alternative information sources. These alternative sources provided not only information, but also amplified risk perceptions which in itself was a source of communication failure. In this segmented regulatory system, distrust of regulatory authority, food risk perception and risk amplification reinforced each other and ultimately led to a failure in food regulators’ communication of food risks with ordinary domestic consumers.

In the section below, I analyse the case of heavy metal polluted rice in Hunan. The case study has been chosen because it reflects all these problems in communicating food risk for ordinary domestic consumers. It underlines how the issue of food safety is related to the political economy of the rice industry and serves to highlight the social foundations of the regulatory system of food safety. In this case, ordinary domestic consumers’ distrust towards food regulators was exacerbated by consumers’ failure in accessing to information about the risks of rice. When they were forced to consult alternative information sources, they encountered risk perceptions, which were later amplified by the involvement of an NGO and repetitive exposure through the media. Ultimately, none of these problems were resolved effectively within the segmented system of food risk communication, which left ordinary domestic consumers in a state of amplified fear and anxiety.

⁸¹ Jun Cui and Xiaojuan Wu, "Avoid Food Safety Information Release Becoming Tools of Unfair Competition," China Economy Net, http://www.ce.cn/cysc/sp/info/201208/15/t20120815_21211451.shtml.

⁸² Xiaohong Hu and Xinhui Teng, "Peanut Oil with "Non-Gmo" Label Is Criticized as Unfair Competition," *Jinghua Times*, April 21, 2014.

Case study: heavy metal polluted rice

Background

Rice is the most widely consumed staple grain in China. Yet, this widely consumed food may not be safe for domestic consumers due to soil and water pollution in rice growing regions. Since the early 21st century, there have been occasional reports of heavy metal polluted crops, but this has not necessarily involved rice, or occurred on a large scale. The exposure of reports about this type of pollution became frequent towards the end of last decade. Domestic consumers expected to be able to access information such as the location of polluted regions, the degree of pollution and possible damage to health from the official sources, which however were not available for them.

Regulators were mute on the issue, but not because they did not have information to share. An investigation of soil pollution in China was initiated in 2006 with a budget of over CNY 1 billion Yuan, jointly held by MEP and MLR. The results of the investigation were promised to be released in 2010, but neither ministry fulfilled this promise.⁸³ Domestic consumers were not greatly interested in the investigation until 2013 when the media intensively reported on cadmium polluted rice mostly from Hunan province.⁸⁴ In the domestic food market, the group of politically privileged and affluent consumers can take precautions and obtain rice from designated regions that they know to be safe, but the word “cadmium” was highlighted as a food risk panic among ordinary domestic consumers who have few choices. Indeed, this crisis hit vulnerable groups the worst: the first and largest group of victims of cadmium poisoning from eating polluted rice were the low-income peasants who lived in those communities and could not afford to purchase better quality food. All the problems in risk communication analysed in the previous section occurred in this polluted rice crisis: due to the lack of access to official information, ordinary domestic consumers experienced severe distrust and desperately sought information that resulted in risk perceptions and risk amplification.

⁸³ Ding Zeng, "Soil Pollution Is Secret?," *Phoenix Weekly* 2013, 27.

⁸⁴ Lu Han, "'Cadmium Rice' Reappeared in Hunan, Disturbance in Rice Market," *YiCai Media*, <http://www.yicai.com/news/2014/04/3745769.html>.

Hunan, a province rich in agriculture and nonferrous metals

Hunan is located along the midstream of the Yangtze River and is abundant in natural resources. Being famed as “a land flowing with milk and honey”, agriculture has been significant in Hunan since ancient times. With rich biodiversity and fertile land, Hunan provides Chinese domestic consumers with a large amount of agricultural produce. Hunan is ranked first in rice production in China, with a share of 16% in the domestic rice market in 2012.⁸⁵

Hunan is also abundant in nonferrous metals ores. The reserves of 37 out of 142 types of nonferrous metal ores in Hunan rank within the top 5 in China, and another 62 types rank within the top 10. The development of heavy metal industry is in proportion to the mineral endowment in Hunan, and there were over 800 enterprises involved with nonferrous metals production. Not surprisingly, Hunan is rich in industrial sewage and other pollutants rich in heavy metal, such as cadmium, lead and mercury. In fact, Hunan ranked first in cadmium-rich industrial sewage discharge in China in 2011, and accounted for 40% to 80% of total discharge in China during the period from 2009 to 2012.⁸⁶

As with the rest of China in the previous four decades, regulators in Hunan have sought a high growth in GDP. Rice growing is significant in feeding the country but is not necessarily a forceful driver of GDP. In the past decade, Hunan has been fulfilling its mission as a traditional agricultural province to maintain a high yield of rice, but its new economic growth point was in the nonferrous metal industry. The fixed investment in the nonferrous metal industry in Hunan boomed with an average annual growth of 15% since 2006, and many regulations were issued to prioritise the development of the nonferrous metal industry, such as “Comments of Hunan Provincial Government on Supporting Rapid Development of Nonferrous Metal Industry” in 2008,⁸⁷ “Implementation Measures Nonferrous Metal Industry Development Plan in Hunan

⁸⁵ Edward Wong, "Good Earth No More: Soil Pollution Plagues Chinese Countryside," *The New York Times (Chinese Version)*, December 31 2013.

⁸⁶ Xiaoshan Fan and Hong Luo, "Heavy Metal-Rich Industrial Sewage Discharge in China," *China Environment Science* 33, no. 4 (2013).

⁸⁷ Hunan Provincial Government, "Comments of Hunan Provincial Government on Supporting Rapid Development of Nonferrous Metal Industry " in *Xiang [2008] 30*, ed. Hunan Provincial Government (Changsha: Government Information Opening Platform of Hunan Province, 2008).

(2009-2011)” in 2009,⁸⁸ and “Comments of Hunan Provincial Government on Supporting Key Enterprises” in 2013,⁸⁹ to name a few.

Consequently, the nonferrous metal industry took off quickly during the period. The prioritisation of strong political and regulatory support suggests a newfound local reliance on the industry. Local authorities’ political orientation of the economy development above safety and environmental protection created a strong influence over food safety regulation in a way that relegates the interests of domestic consumers –food safety for them is not as important as local economic growth.

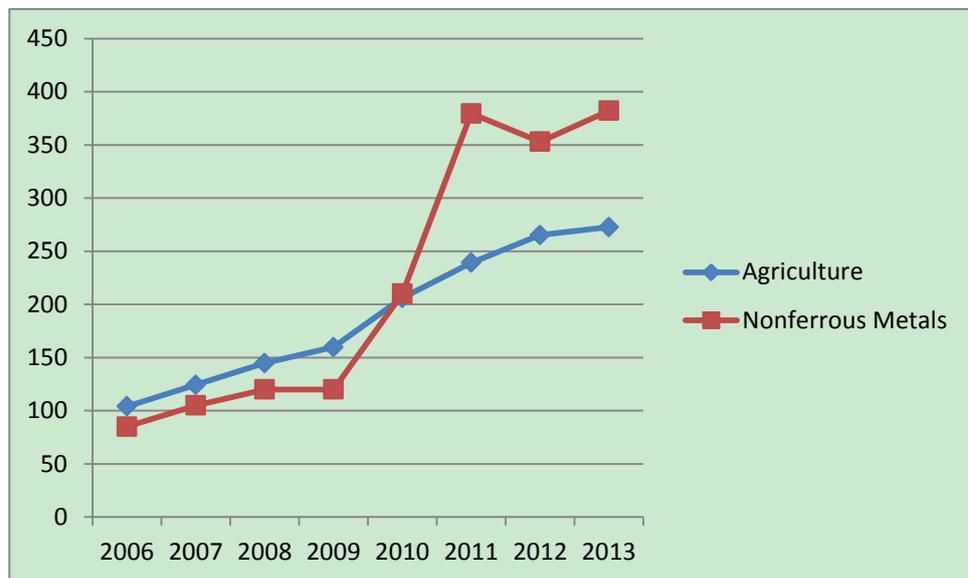


Figure 6-1 Output value of agriculture and nonferrous metal industry in Hunan (billion Yuan)

Source: data from National Bureau of Statistics of China.

Such an influence was firstly reflected in the way that the pollution from the nonferrous metal industry was dealt with. The industry is a money maker and tax contributor as well as a serious polluter. Depending on the method used to dispose slag, there are different degrees of pollution caused to the soil, underground and ground water, and air that accompany the development of the nonferrous metal industry. Proper disposal of nonferrous metal slag can reduce the extent of pollution, but is costly. For decades, little

⁸⁸ "Implementation Measures Nonferrous Metal Industry Development Plan in Hunan (2009-2011)" in *Xiang [2009] 17*, ed. Hunan Provincial Government (Changsha: Government Information Opening Platform of Hunan Province, 2009).

⁸⁹ "Comments of Hunan Provincial Government on Supporting Key Enterprises," in *Xiang [2013] 27*, ed. Hunan Provincial Government (Changsha: Government Information Opening Platform of Hunan Province, 2013).

or no regulatory pressure from local authorities has meant that disposal measures for the nonferrous metal industry in Hunan (or other provinces with mineral resources) involved piling the slag in adjacent areas, even if that neighbourhood was farmland. More seriously, nonferrous metal factories would, in most cases, bypass environmental protection regulations and directly discharge into waterways the industrial sewage that was rich in heavy metal residues.⁹⁰

In areas polluted with heavy metal, irrigation water (ground water) and top soil will easily pass traces of heavy metals into crops. Compared to other crops such as fruit and vegetables, rice is a water-intensive crop and can readily absorb cadmium.⁹¹ Daily consumption of cadmium polluted rice leads to a biological concentration in the human bodies, which was first seen among rice growers in Hunan and other provinces with cadmium pollution. Other food from polluted areas will also aggravate the concentration of cadmium in consumers' bodies, such as vegetables, aquatic products, and poultry that was fed with polluted feed. Cadmium is a toxic and unneeded element in the human body, which cannot digest or excrete the element once it is ingested. Consumers of cadmium-polluted food chiefly suffer from chronic toxicity caused by a biological concentration of cadmium, including irreversible kidney damage, nervous system damage, a deteriorating immune system, and itai-itai disease, in which cadmium replaces calcium in bones and causes severe osteoporosis (the disease is named after a cadmium poisoning incident that happened in Japan in the 1960s).⁹² Moreover, cadmium is toxic to the cardiovascular system, reproductive system and is a Grade I carcinogen.⁹³

Perceptions on cadmium polluted rice

As analysed in the previous section, risk perceptions appear when there is not a systematic release of information, and this particular risk shares characteristics of different "fright factors". Perceptions about cadmium polluted rice grew wildly since this risk was unknown to ordinary domestic consumers, and was unequally distributed. The reports of "strange diseases" escalated in communities close to heavy metal

⁹⁰ Fan and Luo, "Heavy Metal-Rich Industrial Sewage Discharge in China."

⁹¹ Shen Ke and Shi Qiao, *Cadmium, More to Be Dreaded Than Tigers* (Beijing: Hua Xia Press, 2013). 79-81.

⁹² *Ibid.*, 25-38.

⁹³ Ding Zeng, "A Village's Battle against Pollution," *Phoenix Weekly* 2013.

polluted areas in Hunan and other provinces and caused great curiosity and panic. Those who suffered from “strange diseases” were mostly peasants in rice-growing communities, who were low-income earners at the bottom of the local social hierarchy and ate what they grew. For example, it was reported in 2009 that after six years of operation at a nonferrous metal workshop in Shuangqiao Village located in Liuyang, Hunan, large numbers of villagers (especially children and the elderly) in Shaungqiao and other villages started to suffer from strange symptoms, and several of them died young. The Hunan Health Department was involved in the investigation and declared that the reason for the symptoms was chronic cadmium poisoning.⁹⁴ Similar incidents in which low-income rice-growing peasants suffered from cadmium poisoning happened in other places including Hunan, Shaoguan in Guangdong, Dexing in Jiangxi and Hedi in Guangxi.⁹⁵

The absence of systematic information or clarification about cadmium risk from regulators caused perceptions to spread rapidly within the domestic food market. Various information sources described cadmium poisoning among rice-growing peasants and estimated the degree of pollution. *The Beijing News* reported that 44.44% of rice in the Guangzhou market had a higher level of cadmium than the national standard, and over 60% was from Hunan.⁹⁶ This report was reprinted extensively but the names of exact suppliers were never mentioned in any version. Cadmium-rich rice from Hunan caused fear in the market, but domestic consumers were not able to tell if the rice they bought was from problematic suppliers. If consumers bought rice in kilograms from a free market rather than in packed bags, there was no way of knowing where the rice was from. Regulators expressed concern that there would be huge economic effects if details of polluted rice suppliers were released, but their behaviour – deliberately withholding key information and poor risk communication – again damaged consumers’ trust toward official information sources. This pushed consumers to alternative information sources where wild perceptions flourished.

Due to the proliferation of modern communication methods as discussed in the previous section, the report on *The Beijing News* was rapidly echoed by many old reports that

⁹⁴ Xiaohong Yang and Qianhua Fang, "Investigation of Cadmium Pollution in Liuyang," *Nan Fang Dushi Daily*, August 11 2009.

⁹⁵ Ke and Qiao, *Cadmium, More to Be Dreaded Than Tigers*: 45-62.

⁹⁶ Guoji Xiao, "Covering the Truth About Cadmium Rice Triggers Panic," *The Beijing News*, May 22 2013.

were reposted. This strengthened perceptions about cadmium among ordinary domestic consumers. Overnight, previous reports on cadmium pollution were reposted online by various information sources. For example, in 2002, the Rice and Rice Products Quality Supervision Centre of MOA sampled rice in the domestic market, and the result showed that 28.4% of sampled rice contained levels of lead over the national standard, and 10.3% had higher-than-standard levels of cadmium. In 2007, a research team from Nanjing Agriculture University sampled 91 batches of rice from 24 provinces and 3 municipalities directly under the central government in China, and the result showed that approximately 10% of rice in the market had higher-than-standard levels of cadmium.⁹⁷ Repetitive exposure caused domestic consumers to worry that they had a high chance of purchasing rice that belonged to the 10% or 20% that was polluted with cadmium. This perception was further intensified by experts who were invited on official media to suggest that it was advisable not to “consume rice from the same origin in the long term.”⁹⁸

The segmented regulatory regime failed to ensure systematic and transparent food risk communication with ordinary domestic consumers, and this failure drove the group to alternative information sources which spread risk information as well as perceptions. Perceptions such as “most rice is from polluted areas such as Hunan”, “rice is mostly cadmium polluted”, and “cadmium polluted rice leads to incurable and miscellaneous diseases” were further intensified with terrifying phrases such as “poisonous rice” that were expressed repetitively in the media. During the period from 22 May 2013 when cadmium polluted rice from Hunan was first reported to the end of the same year, a keyword search for “cadmium rice” on Weibo showed over 170,000 results, suggesting the degree of panic and type of risk perceptions evident among ordinary domestic consumers.

Risk amplification on cadmium polluted rice

Facing widespread messages and perceptions about cadmium polluted rice, ordinary domestic consumers were eager to know the official explanation about the effects of cadmium pollution on rice and soil. The spotlight was on the National Soil Pollution

⁹⁷ Liang Jin et al., "Distribution of Heavy Metals in the Soil-Rice System and Food Exposure Risk Assessment of North Jiangsu, China," *Journal of Ecology and Rural Environment* 23, no. 1 (2007).

⁹⁸ Ping Yang, "Advice from Expert: Don't Eat Rice from a Certain Region for Too Long," Yang Cheng Evening Press, <http://finance.people.com.cn/n/2013/0521/c1004-21561308.html>.

Investigation, started in 2006 by MEP and MLR. Both ministries failed to release the promised results of the investigation, in 2011 and 2012 respectively. Their refusal to provide this public good triggered even more intense curiosity among domestic consumers. In 2013, Mr. Dong Zhengwei, a lawyer in Beijing, submitted an online application asking for the release of “Methods and Data of National Soil Pollution Investigation” and “Reasons and Measures for National Soil Pollution”.⁹⁹ Dong’s application was refused in the following month with the reason provided by MEP that the “investigation result concerns a national secret and is not suitable for disclosure”. Regulators’ failure in public good provision in the name of protecting a national secret drastically amplified the perceptions about soil pollution to the level led to the question, “how bad must it be to be classified as a national secret”? Not only that, other channels containing information about cadmium pollution were blocked. For example, the book *Cadmium, More to Be Dreaded than Tigers* [镉毒猛于虎] was published in late 2013, and is a systematic introduction on cadmium pollution in China. The book became unavailable in the Chinese book market not long after its release, even though it was sponsored by MEP.

As the earlier discussion illustrated, civil society organisations can create avenues within the official information vacuum to release their own investigations when food regulators fail to provide risk information as a public good. Environmental NGO Greenpeace carried out a soil pollution investigation targeted at the adjacent areas of an industrial park in Hengyang city of Hunan from July to September in 2013. Greenpeace sampled 13 batches of rice from 5 target villages located within a 2.5 kilometre radius around the Heng Dong Industrial Park, and 7 batches of rice from another two villages which were 10 kilometres away as reference samples. Soil and ground water in those locations were sampled at the same time. According to Greenpeace, all the rice samples were sent to a qualified third-party laboratory for a heavy metal test, and samples of ground water and soil were sent to the Greenpeace laboratory in the University of Exeter in the UK. The results showed that among 13 batches of rice from 5 target villages, 12 samples contained a much higher level of cadmium than national standard, in one case 21 times higher. The cadmium level of all soil samples from those 5 target villages was higher than the Grade II national standard and worst one was 3 times

⁹⁹ Jianrong Qie, "The Application of a Lawyer for Soil Pollution Investigation Result Was Refused in the Name of National Secret," *Legal Daily*, February 25 2013.

higher.¹⁰⁰ In contrast, the cadmium level of all 7 batches of rice from the two reference villages was below national standard, so were the soil samples.¹⁰¹

As the only trustworthy source in the information vacuum, the numbers in the Greenpeace investigation were widely but inappropriately quoted and substantially contributed to the amplification of the risk about cadmium polluted rice. Most media quotations involved selective filtering from the overall results. A careful reading of the 21-page investigation report suggested that the cadmium levels of soil, ground water and rice grown in the very adjacent area of a Hunan industrial park (within a 2.5 kilometre radius) were higher than the national standard to different degrees, but samples of farther areas were safe according to the national standard. Nevertheless, the keywords which were extracted and widely quoted in different reports were: “Hunan”, “rice with cadmium”, and “21 times higher than national standard”.¹⁰² Technically those keywords are part of the investigation result but can easily be interpreted as “rice grown in Hunan has an exceptionally high level of cadmium”. To a large extent, food regulators’ failure to provide information added fuel to the popularity and credibility of inappropriate quotations from the Greenpeace investigation.

The results of the National Soil Pollution Investigation in China were finally released on 17 April 2014 by MEP and MLR.¹⁰³ It was a five page report of 1757 words. With a CYN 1 billion (budget) and 8 years, it came too late and by that stage it was too difficult to convince domestic consumers that 16.1% of national land had been polluted to some degree. With strong distrust, domestic consumers could hardly replace various deeply embedded perceptions about soil pollution with this simple and very belated official investigation result.

Among ordinary domestic consumers, perceptions of cadmium polluted rice were so deeply embedded that it was used in marketing. Consumers’ purchase behaviour is decided more by risk perception than risk. In several free markets in Changsha (the

¹⁰⁰ Grade II soil is the threshold requirement for agricultural use. See: MEP, "Environmental Quality Standards for Soils," (Beijing: MEP, AQSIQ, 2008).

¹⁰¹ Greenpeace, "Heavy Metal in Rice Report," (Beijing: Greenpeace, 2013).

¹⁰² The following are links to a few of such reports: http://m.thepaper.cn/newsDetail_forward_1244572; <http://zhenhua.163.com/14/0424/14/9QJQP UU1000464DT.html>; <http://www.yicai.com/news/2014/04/3745769.html>; http://finance.ifeng.com/a/20140428/12209395_0.shtml; <http://news.sohu.com/20141031/n405633576.shtml>; http://www.sn.xinhuanet.com/2014-04/28/c_1110441851.htm.

¹⁰³ MEP and MLR, "National Soil Pollution Investigation Report."

capital city of Hunan), rice from some dealers was specifically tagged as “not local”, “rice from North-eastern China” [东北米], or even “rice for exclusive supply” [特贡用米]. When I made inquiries to rice dealers regarding the exact origins of the rice, whether the non-local rice was from non-polluted areas, or how “rice for exclusive supply” could be sold in markets, their reaction was mostly impatient and irritated.¹⁰⁴ Consumers seldom asked as many questions as I did to verify the origins of rice, but “felt” it was safer to pay more for the rice not grown locally even though there was a high chance that the rice was falsely labelled as “not local”. While deceiving frightened consumers, such marketing strategies solidified consumers’ perception that rice grown in Hunan was highly likely to be polluted with cadmium, which made risk communication even more difficult.

Implications of the case study

One of the key conclusions in this chapter relates to the unequal access to food safety information for ordinary domestic consumers. It is the failure of food regulators to provide this “public good” that leads to distrust, risk perception and amplification. This illustrative case study showed how authorities relegated the interests of ordinary domestic consumers through prioritizing the development of nonferrous industry, and protecting suppliers of polluted rice. Under such a political orientation, the failure of regulators to provide a public good – namely, information about rice safety – exacerbated distrust among ordinary domestic consumers, and drove them to alternative information sources. Both information and risk perceptions about cadmium polluted rice flooded into these sources, and consumers’ perception was solidified due to the official information vacuum. This vacuum was finally broken by the civil society organisation Greenpeace, but previously embedded perceptions could hardly be replaced by either the comprehensive results of the Greenpeace investigation, or the belated release of an official explanation. Amplified perceptions significantly dwarfed the explanation backed by science.

In fact, scientific research suggested a much less detrimental impact from cadmium pollution than consumers perceived to be the case. Even when there is the same level of

¹⁰⁴ I had some time to visit rice dealers in local free markets in Changsha as part of my fieldwork in October of 2014. The reactions from both food consumers and rice dealers were not scientific proof, but provided a window into how deeply the risk perceptions of polluted rice were embedded into people’s minds.

cadmium in the soil, a range of factors including different varieties of rice, PH value of soil, and ways of using of fertilisers, will jointly impact on the cadmium level in the final crop. Though soil pollution in China is astonishingly prevalent, many factors show that it is arbitrary to state that rice from a soil polluted area is automatically detrimental to health.¹⁰⁵ It would have been a superb opportunity for regulators to regain trust from ordinary domestic consumers by presenting an honest, prompt and detailed explanation informing them about the risk of cadmium pollution, and they failed again to provide this public good. Due to this failure, ordinary domestic consumers chose to trust alternative information sources and a civil society organisation, which facilitated the spread and amplification of this risk. Rampant risk perceptions did not help ordinary domestic consumers to protect them from cadmium risks at all. Instead, distrust and difficulties invalidated regulators' attempts to improve risk communication to this group.

Conclusion

The food safety communication system is segmented on the basis of the four consumer groups identified, and this segmentation created different levels of access to the public good of food safety information for various groups. The communication of food risks to foreign consumers is centralised with AQSIQ. This group's access to food safety information was largely guaranteed by the clear "whitelist" of daily and traceable information, and the "blacklist" of early warnings and the food recall regime in the event of food crises, which existed under the segmented regulatory arrangement. The exclusive supply system for the politically privileged designated a clear and straightforward supply-demand relationship between trustworthy food sources and that group, and this segmented system ensured the transparency, traceability and reliability of food safety information for the politically privileged. Affluent consumers could pay a premium for access to food safety information, such as by purchasing imported food or food from CSA farms, and the higher-than-average price of these produces was a direct incentive for those food producers to provide reliable food safety information. The segmented food risk communication system failed to ensure that ordinary domestic consumers had full access to food safety information, and this failure caused

¹⁰⁵ Ke and Qiao, *Cadmium, More to Be Dreaded Than Tigers*.

fundamental problems of distrust, risk perception and amplification, which greatly weakened risk communication with this group.

Because of the limited and fraudulent food safety information provided by food regulators, ordinary domestic consumers' trust toward regulators experienced a downward spiral. At the same time, this group was driven to alternative information sources, supported by the boom of the internet, smartphones and social media. Food risks led to various risk perceptions due to a complex series of factors, including the nature of food risk, ordinary domestic consumers' distrust, and the flood of information sources. Central to my argument is that these perceptions were further amplified through the way how food safety information was communicated to ordinary domestic consumers through segmented and limited channels, and the growing participation of non-traditional food regulators. Altogether, distrust, food risk perceptions and risk amplification contributed to the failure in the food risk communication with ordinary domestic consumers, and weakened the overall segmented food safety regime.

One of the interesting implications of food regulators' failure to provide the public good of food safety information to ordinary domestic consumers is the increasing participation of non-traditional food regulators. Typical examples are growing civil society groups with frequent utilisation of social media, such as NGOs, who gained some trust among consumers. Those actors may become dynamic "amplification stations" to further amplify food risks, but such regulatory pluralism may become a trend for future regulatory regimes for food safety.¹⁰⁶ Meanwhile, their competing participation in food risk communication can push food regulators to improve their performance. For instance, while being food risk amplification stations, the significant social influence of both Weibo and Wechat empowered users with some leverage over food regulators. When a food risk or risk perception spreads around Weibo or Wechat, it becomes increasingly difficult for food regulators either to delay their response to the risks, or undertake a "diversionary reframe"—that is, an attempt to divert attention away from citizens' real concerns by "reframing" the risks as being about something else.¹⁰⁷ A priority in regulating Chinese society is to keep stability and harmony [维稳]. Failure to respond to the flood of food risk information or perceptions on social media

¹⁰⁶ Benjamin van Rooij, Rachel E. Stern, and Kathinka Fürst, "The Authoritarian Logic of Regulatory Pluralism: Understanding China's New Environmental Actors," *Regulation & Governance* (2014).

¹⁰⁷ William R. Freudenburg, "Institutional Failure and the Organizational Amplification of Risks: The Need for a Closer Look," in *The Social Amplification of Risk*, ed. Nick Pidgeon, Roger E Kasperson, and Paul Slovic (Cambridge: Cambridge University Press, 2003), 107.

will incur an even more unwelcome wave of comments, speculation and questions that can lead to social unrest. Also, as the case of cadmium polluted rice displayed, the results of the Greenpeace investigation became a source of pressure asking for official response and clarification, even though the results were misinterpreted.

Varying food safety levels and unevenly distributed food risks arise due to different benchmarks of food safety standards and segmented access to food safety information. However they also reflect the different methods through which the food safety standards and regulations are implemented. The following chapter will analyse the implementation of food safety standards and regulations with special attention on how and why regulatory segmentation centralised most of the problems of regulatory implementation upon the group of ordinary domestic consumers.

Chapter 7

Understanding the Failure of Food Safety Regulatory Implementation

This chapter moves on to a discussion of regulatory segmentation in the third key dimension of the food safety regime: behaviour modification. Behaviour modification in general refers to the changes in individual and organisational behaviour aimed at improving the regulatory regime.¹ In the case of the food safety regime, behaviour modification encompasses the regulatory implementation of food safety standards, laws and regulations. Implementation enables food producers and food regulators to modify behaviours that undermine food safety. As with the previous case of food safety standard-setting and food safety information communication, the process of regulatory segmentation in food safety implementation had a different impact on consumers through the operation of differential regulatory arrangements for various groups. At the core of this chapter is the argument that different patterns of regulatory implementation are shaped by the differential allocation of regulatory incentives and resources between the various consumer groups.

Effective implementation of food safety is shaped by the interaction of food consumers, producers and regulators. Food consumers exert influence over the implementation of food safety standards by producers, but more importantly, they impact on regulators' implementation through the exercise of their political and market power. The effectiveness and capacity of food safety implementation depends on the extent to which consumers can use their political and market power to entrench more capable and effective systems of regulatory governance. For example, in comparison with other groups, ordinary consumers were exposed to more problems in food safety implementation and subsequently more food safety crises. Within the segmented food safety regime, not only is the political and market power of each group distributed unevenly, but the derived inequalities are "locked in" through differential regulatory governance systems creating the uneven patterns of implementation that I analyse in this chapter. In other words, the outcome of food safety implementation differs depending on the political and economic position of the various consumer groups involved.

¹ Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*: 26-27.

Four fragmented consumer groups have shaped food safety implementation in different ways. The political power and control of resources possessed by the politically privileged created and institutionalised the exclusive supply system under the segmented regime, which ensured the effective implementation of food safety for the group. Foreign consumers' economic and political significance enabled the segmented regulatory arrangement, in which Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) as the sole regulator enhanced the effectiveness and efficiency of food safety implementation. The group of affluent consumers had strong market power to create incentives for food producers to continue improving food safety implementation, and the capacity to pay a premium for it. In contrast, ordinary domestic consumers did not have the political or market power to stimulate effective food safety implementation from either food producers or regulators. This chapter advances the argument that the powerlessness of ordinary domestic consumers limited their impact on the effectiveness of safety implementation, and hence they were greatly susceptible to the systematic implementation biases embedded in the segmented arrangements. The case study of adulterated cooking oil that concludes the chapter illustrates this disadvantaged position of ordinary domestic consumers.

The chapter proceeds to outline this argument as follows. Section one and two focus on the segmented arrangements of food safety implementation for foreign consumers and the politically privileged. Section three introduces how affluent consumers are able to influence food producers for effective implementation. Section four constitutes the key focus of the chapter, providing a detailed analysis of the regulatory implementation arrangements for ordinary domestic consumers and explaining the systematic implementation biases that led to the failure of food safety implementation for this group. Those biases are revisited in the case study on adulterated cooking oil that concludes the chapter. This case study exemplifies how those biases stood in the way of modifying behaviours that significantly undermined food safety for ordinary domestic consumers, which occurred widely in other food safety crises in the domestic food sector.

AQSIQ—the sole regulator of implementation for foreign consumers

The key to understanding the regulatory implementation of food safety for foreign consumers is the pivotal role of exports in the Chinese economy. In China, export-led development has been promoted as one of the three engines for economic growth in China during the past few decades (the other two are investment and domestic consumption).² It was not until approximately 2010 that the contribution of exports to GDP growth started to decline marginally due to both Chinese domestic policy adjustment and the decline in overseas markets.³

During the period from 2004 to 2013, food export was promoted in many major agricultural provinces as one of the key stimuli for economic growth. China gradually established itself as the fourth global food exporter,⁴ via range of industry support measures such as tax refunds, preferential loans, government investment in agriculture infrastructure, and simplified regulatory procedures. In addition, Chinese policies encouraged Foreign Direct Investment in agriculture-related areas. For instance, investment aiming at improving safety and quality of export food was encouraged. These included higher quality storage facilities, effective and efficient transportation and logistics services, and better cold chain infrastructure to keep produce fresh for a longer period.⁵

With policy support, the food export industry became an important source of jobs and economic growth in many major food-producing provinces, such as Shandong, Fujian, Guangdong, and Zhejiang. Shandong province provides a useful example. Shandong has been the largest food export province in China since the beginning of 21st century, and its annual growth rate of food export was around 10%. Starting from 2011, food export from Shandong reached over USD 15 billion, accounting for approximately a quarter of China's total food exports.⁶ Food exports comprised about 25% of Shandong

² Fan, ""Three Engines" Should Move Forward in Balance."

³ Linyuan Qian and Zhouxian Zhao, "Two Transitions as the Core of Economic Structure Adjustment," *Frontline* 4(2010).

⁴ Bonarriva and Weaver, "China's Agricultural Trade: Competitive Conditions and Effects on US Export," 21.

⁵ Shuchun Hua, "The Reality, Trend and Strategy in Utilizing Fdi in Agriculture," *World Agriculture* 396, no. 4 (2012): 74.

⁶ Foreign Trade Department of MOC, *Monthly Statistics on Agricultural Products Import and Export in China*.

farmers' income, and provided employment to over 16 million people in the food industry.⁷

The food export industry is not only important in an economic sense, but is also politically crucial. For example, Yunnan province's food exports are not as valuable as Shandong's, but the food trade between Yunnan and Association of Southeast Asian Nations (ASEAN) countries is one of the most important agendas in Sub-Mekong regional cooperation, which gains political momentum.⁸ The food export industry is well-entrenched politically with key support from provincial and national authorities, such as simplified and preferential loan arrangements and export credit for exporters,⁹ fee-waivers in export food inspections,¹⁰ province- and national-led trade affairs¹¹, and many others.

The economic and political significance of food exports created a system of strong incentives for food regulators to effectively implement food safety regulations for foreign consumers. China's major food importers are Japan, the EU, Hong Kong, and the US, all of which have stringent safety and quality requirements. Therefore, the priority of food regulators in managing export food is to strictly control food risks by modifying any behaviours that possibly undermine food safety or weaken producers' ability to reach the food safety standards of importing nations.

This political economy of the food export industry ensured that foreign consumers are well looked after. The political and economic significance of this group shaped a different implementation arrangement from the one for the domestic food sector. As briefly mentioned in previous chapters, AQSIQ is the sole food regulator in charge of regulating the safety of export food, with the implementation of food safety regulations as its core regulatory responsibility. This structure is mirrored from central to local levels (China Inspection and Quarantine, or CIQ is AQSIQ's local branch). The entrenchment of a regulator with widespread power across all vertical arrangements of

⁷ Li, Wu, and Wei, "Experience and Inspiration of Agricultural Product Export in Shandong."

⁸ Zhou, "The Influence of CAFTA on the Trade of Agricultural Products between Yunnan and ASEAN."

⁹ General Office of Provincial Government of Shangdong, "Announcement on Measures to Promote Sustainable Development and Upgrade of Foreign Trade in Shangdong Province," ed. Provincial Government of Shangdong (Jinan: General Office of Provincial Government of Shangdong, 2015).

¹⁰ Hairong Yu, "Shandong: Fee Waiver for Livestock Export Inspection," http://www.gov.cn/fwxx/sh/2007-10/19/content_779832.htm.

¹¹ See for example the China Import & Export Fair Kunming and South Asian Countries Trade Fair, <http://www.kmfair.org/>, and the China Import and Export Fair, <http://www.cantonfair.org.cn/>.

the food production system helped to avoid the problems of poor coordination and agency fragmentation that appeared in the multiple-regulator implementation in the domestic food sector (to be discussed in section four).

I turn now to AQSIQ's role in the regulatory implementation of food safety for foreign consumers. AQSIQ mobilised at least four mechanisms to ensure food safety implementation for foreign consumers. Those mechanisms are segmented arrangements confined to food for foreign consumers and, crucially, sustained export food safety at a stable and high level.

The first and foremost measure is a closed production system of food for foreign consumers. All producers of export food are mandated to meet the various qualifications to export, and are registered into the approved exporters' system under AQSIQ.¹² The registration itself is a high quality and safety threshold for export food producers and not many can pass the stringent benchmark: 12,000 food enterprises (2.68% of those licensed nationally) were approved to produce for export, and 380,000 hectares out of 121 million hectares of farmland (0.31%) were approved for growing crops to export.¹³ Moreover, local CIQs monitor not only the quality and safety of the finished food products as the regulators do for the domestic food sector, but supervise the whole food production process in order to ensure a high quality of food safety implementation from farm to fork. Any behaviour that impairs food quality and safety will be named, shamed and penalised by CIQs and AQSIQ on a blacklist open to the public,¹⁴ which would be a severely penalty to their reputation and competitiveness in the export market.

Secondly, regional CIQs take localised initiatives to assure food safety implementation based on the export foods and the market in various provinces. There is a certain degree of competition for larger export shares among major food export provinces such as Shandong, Fujian and Guangdong. In order to gain an even larger export share and other forms of reward from the central level, provincial CIQs carry out locally-tailored regulatory initiatives to further facilitate food producers to reach higher safety levels. In short, such incentives create a race to the top for food safety but the way the regulatory arrangements are designed confines this to the export food sector only.

¹² AQSIQ, "Planting and Breeding Farms Registered for Export".

¹³ General Office of the State Council (PRC), "Food Quality and Safety in China," State Council of PRC, http://www.gov.cn/gongbao/content/2007/content_764220.htm.

¹⁴ AQSIQ, "Early Warning Announcement on Export Food Risks".

For example, Shandong Province designed different regulations and goals to keep its leading position, such as the “Quality and Safety Supervision Management Rules on Agricultural Products Export in Shandong” in 2006 with a specific focus on stable safety levels,¹⁵ and in order to minimise food hazards from risk-prone preserved fruit and asparagus, Shanxi CIQ carried out extra safety checks on those two products. Additionally, there are over 20 production bases supplying fresh produce to Hong Kong in Guangdong, Hunan, Sichuan, Ningxia and Yunnan, so those local CIQs strengthened the supervision of local cold storage facilities to minimise food risks arising from transportation and storage.¹⁶ Those CIQs’ specific initiatives were aimed at gaining a larger market share for local food exporters, which subsequently resulted in an upwards spiral of food safety and quality from food producers.

Thirdly, various forms of food safety and quality certifications are used as tools for review and surveillance in order to modify export food producers’ behaviours. AQSIQ made it compulsory for export food producers to obtain certain internationally recognised certifications for specific food products, such as Hazard Analysis and Critical Control Point (HACCP), Good Agricultural Practice (GAP), International Standard Organisation (ISO) 9000 and many others.¹⁷ The periodical checks required by those certifications for export food producers ensured their performance in sustaining continuously high food safety levels. In this sense, AQSIQ internationalised its regulatory implementation arrangements via this compulsory requirement for export food producers to obtain internationally acknowledged certifications.

For example, export food producers who adopt HACCP or GAP will be audited periodically by a third-party certifier.¹⁸ AQSIQ also encourages partnerships with overseas third-party certifiers to tailor certification plans for export food producers in China. For example, the Certification and Accreditation Administration of the People’s Republic of China (CNCA) and the China Quality Certification Centre (CQC) have designed standards on GAP for Chinese producers in partnership with GLOBAL

¹⁵ The General Office of Shandong Provincial Government, "Quality and Safety Supervision Management Rules on Agricultural Products Export in Shandong " in *SD 189*, ed. Shandong Provincial Government (Shandong: The General Office of Shandong Provincial Government, 2006).

¹⁶ AQSIQ, "Speical Edition on National Quality Supervision, Inspection and Quarantine Working Conference," AQSIQ, http://bgt.aqsiq.gov.cn/zjxx/201112/t20111228_205846.htm.

¹⁷ Shaosheng Jin, Jiehong Zhou, and Juntao Ye, "Adoption of Haccp System in the Chinese Food Industry: A Comparative Analysis," *Food Control* 19, no. 8 (2008).

¹⁸ Zhigang Wang et al., "The Effectiveness of Haccp Certification in Food Processing Enterprises," *China Soft Science*, no. 9 (2006).

GAP.¹⁹ AQSIQ's compulsory requirement for certification provided periodical surveillance, which helps to maintain a stable safety level of food for foreign consumers.

Such certification requirement also promoted bilateral regulatory partnerships between AQSIQ and China's major trading partners aimed at sustaining export food safety. For instance, AQSIQ worked with the FDA and opened the FDA's China branch in November of 2008. One of its important missions is to ensure that the food exported from China to the US reaches food safety standards and certification requirements in the US. When Japan, one of the most stringent food importers in the world, imports food from China, AQSIQ will facilitate Japanese food regulators to conduct regular inspections and audits of selected Chinese farms that export to Japanese corporations.²⁰ In this way, a specific set of regulatory arrangements were selectively internationalised – that is, subject to international standards – in a way that did not apply to other regulatory arrangements.

Fourthly, in major food export provinces, AQSIQ worked with local government departments to establish demonstration sites of export food production. In those provinces, the core message that “export food demonstration sites” conveyed is that food produced in those established sites reached and maintained a reliable and stable safety level. At the central level, AQSIQ supported those demonstration sites with facilitation measures, such as simplified regulatory procedures, technical and financial support, and regulatory fee waivers.²¹ At the end of 2013 there were 144 export food demonstration sites nationwide and 44 more joined in 2014.²² Some examples are Pingdu National Export Food and Agricultural Products Quality and Safety Demonstration Site in Shandong, and Binchuan National Export Food and Agricultural Products Quality and Safety Demonstration Site in Yunnan.

The regulatory segmentation outlined above helped to create a system of incentives and interests that favours foreign consumers and created an effective and efficient

¹⁹ GLOBAL G.A.P., "Who We Are," http://www.globalgap.org/uk_en/who-we-are/.

²⁰ Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles," 5.

²¹ AQSIQ, "Announcement on the Facilitation Measures for the Approved National Export Food and Agricultural Products Quality and Safety Demonstration Area," in *AQSIQ 2013[187]*, ed. AQSIQ (Beijing: AQSIQ, 2013).

²² "Announcement on Approved National Export Food and Agricultural Products Quality and Safety Demonstration Area in 2014," in *AQSIQ 2014[123]*, ed. AQSIQ (Beijing: AQSIQ, 2014).

implementation of regulation through segmented arrangements. In the segmented arrangements, AQSIQ is the only regulator implementing food safety for foreign consumers, and the social foundation of foreign consumers created strong incentives for AQSIQ to implement various mechanisms to ensure sustainable food safety. All those mechanisms confined segmented arrangements only to food for foreign consumers, and some of them internationalised AQSIQ's regulatory implementation. According to statistics, those mechanisms proved to be rather effective: China's food exports always had a pass rate of above 99% for safety and quality.²³ To a large extent, this AQSIQ-led regulatory arrangement for foreign consumers, underpinned by the economic and political significance of the export industry, contributed substantially to such effective regulatory implementation. In other words, it provided the social foundations for an effective system of regulatory implementation.

Politically assured regulatory implementation for the politically privileged

In contrast to the position of foreign consumers and the export industry, the effective implementation of food safety regulations for the politically privileged stems from the exclusive supply system. This distinctive implementation arrangement, the exclusive supply, is a system in which superior goods, including food, are supplied exclusively to the top social strata. In contemporary China, this system was designed and implemented to guarantee the living standards of the politically privileged.

The exclusive supply system provided different goods with higher safety and quality standards, and food is preeminent in this system. It was designed to provide food with high levels of safety and with priority to the state and social management in the top strata of Chinese society,²⁴ political elites,²⁵ the dominant class,²⁶ ruling class,²⁷ or the politically privileged in general. The politically privileged have strong political influence and the power to control and manage the resources of the state, which created a system of strong political incentives that favoured this group. This system of political

²³ Information Office of State Council of PRC, "China Foreign Trade Whitepaper".

²⁴ Lu, *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*.

²⁵ Chai, *An Economic History of Modern China*: 156.

²⁶ Goodman, "Middle Class China: Dreams and Aspirations."

²⁷ Chen, "Zhiyou Shangji Shehui Meiyou Shangliu Shehui [There's Only a Ruling Class; No Upper Class]."

incentives further helped to design, stabilise and institutionalise the exclusive supply system over time.

The exclusive supply system enabled separate food production from the mass food production to ensure food safety for the politically privileged. The Ministry of Public Security (MPS) was the first regulator to organise the exclusive supply system. In the 1950s, MPS established the Food Safety & Security Division (the Division), also known as Zhong Nan Hai Special Supply Depot internally, or Beijing Hotel Guesthouse externally.²⁸ The Division had direct control of separate food production including crop production bases, slaughterhouses, butchers, confectionary factories, food processing factories, food safety test laboratories and other facilities. In other words, the Division covered the whole food chain from farm to chopsticks for the politically privileged, and it owned facilities for food safety tests. All its facilities achieved the highest possible technical standards in China at that time, and the design and construction of many facilities was carried out by experts invited in from the former Soviet Union.²⁹

The best personnel and producers were recruited into the exclusive supply system in order to ensure the high level of quality and safety of the food provided through the system. Personnel ranging from senior management to basic production staff were selected by Beijing Municipal Commerce Bureau based on their working performance, and safeguard staff and laboratory personnel were appointed by the Division and Beijing Municipal Public Security Bureau. These staff members were not only skilled and professional, but were specially trained to implement “exclusive policies”, disciplined in the exclusive supply industry, and understood the demands and preferences of the politically privileged.³⁰ Meanwhile, some SOEs were established or selected into the exclusive supply system. For example, Beijing Jushan State Farm was established by staff from the Division to exclusively provide food to the politically privileged, and the Beijing Hotel Supply Department³¹ and Beijing Municipal Food

²⁸ Gao, "Beijing Shi Kunnan Shiqi Shangpin Gongying Zhuiji [Beijing Commodities Supply in Difficult Times]," 16.

²⁹ Ibid.

³⁰ Ibid.

³¹ China Inesweek, "The History of Exclusive in China: From "Special Supply" to Immortal "Exclusive Supply"," China News Weekly Press, <http://insight.inesweek.cn/report-8089-page-all.html>.

Supply Department, also known as No. 34 Supply Department,³² were established as distributors within the exclusive supply system.

The real growth and consolidation of the exclusive supply system started from the late 1950s when China faced the Great Famine and an extreme food shortage. In November 1960, the Central Committee of China Communist Party (CCP) approved the report issued by Qi Yanmin³³ on prioritising safe food supply to senior leaders and intellectuals in Beijing.³⁴ According to his proposal, cadres in Beijing above level 13 (out of 25 administrative hierarchies) should be guaranteed the supply of a certain quantity of safe food, and such a practice should be applied nationwide.³⁵ In the early 1960s, the exclusive supply system expanded to a wide range of government cadre hierarchies when the Great Famine got worse. In 1961, 51 central government affiliated departments built 271 food production bases, mostly providing food to their own canteens.³⁶ Most land used in those food production bases was rented in the name of “collaboration” with little symbolic rent. In some specific cases, the large investments went into the facilities in production bases in order to reach and maintain high levels of food safety, contrasting sharply with the nationwide famine.

When the Great Famine ended, the exclusive supply system was maintained and even institutionalised into the food safety regime due to its popularity among cadres. When the CCP initially approved the prioritised safe food supply to the politically privileged, it stated that this measure was temporary and transitional to deal with food shortages during the Great Famine, and should be ended when famine was over to avoid the institutionalisation of the “privileged class”.³⁷ Contrary to the CCP’s intention, the exclusive supply system was so popular as welfare for the politically privileged that it was streamlined into the segmented food safety regime. In fact, an increasing number of food providers, mostly SOEs, joined this system and maintain their identity as providers

³² Beijing East Friendship Food Supply & Delivery Co., "Main Business Areas".

³³ Qi Yanmin was the Premier Office Director and Vice Ministry of Ministry of Culture of PRC then. Information from: Yonghui Liu, "Zhou Enlai's Helpful Assistant Qi Yanmin," China CPC News, <http://dangshi.people.com.cn/GB/85038/13679247.html>.

³⁴ The Central Committee of Communist Party of China, "The Instruction Forwarded by the Central Committee of Cpc on Qi Yanmin's Report on Special Supply to Senior Leaders and Intellectuals in Beijing".

³⁵ Ibid.

³⁶ China Inewsweek, "The History of Exclusive in China: From "Special Supply" to Immortal "Exclusive Supply"". At that time, it was very common to eat at canteens rather than at home.

³⁷ The Central Committee of Communist Party of China, "The Instruction Forwarded by the Central Committee of Cpc on Qi Yanmin's Report on Special Supply to Senior Leaders and Intellectuals in Beijing".

for exclusive supply system to the present day. Some well-known examples are Beijing Er Shang Group,³⁸ Tianjin Er Shang Group,³⁹ and Beijing Jushan State Farm (under Beijing Sunlon Group).⁴⁰ The politically-motivated mission of providing safe food to the politically privileged at national and local levels has been written into those food producers' corporate constitutions. The overall exclusive supply system was gradually stabilised within the food safety regime. Some of those SOEs also provide food for sale, but their small market share and high price limit them to only a small proportion of affluent consumers.

As marketization progressed in China, the CCP again intended to abolish the exclusive supply system, and this effort made the system operate in a much more secretive way than it had done previously. In 1989, the Central Committee of the CCP and the State Council jointly attempted to marketize all food production⁴¹ and avoid the institutionalisation of the target population as "the politically privileged".⁴² This welfare system for political cadres, however, was too deeply embedded to be removed easily. In order not to contradict the intention from the central government, all information concerning exclusive supply suddenly became extremely low profile and secretive and government-affiliated exclusive supply facilities were handed over to subordinate institutions. For example, the Beijing Municipal Agriculture Bureau established a vegetable plantation base in Xiao Tang Shan in 1984, and it was handed over to Beijing Agriculture Technology Promotion Station (affiliated to Beijing Municipal Agriculture Bureau).⁴³

In the meantime, the institutionalisation of the exclusive supply system occurred beyond the central level and approached local levels. Local food producers with a reputation for high food safety levels were designated to provide food to the politically privileged, such as Tianjin Er Shang Group, Shandong Weishan Lake Lotus Food Co., Ltd and

³⁸ Beijing Er Shang Group, "Group Introduction," Beijing Er Shang Group, <http://www.bjfood.com.cn/pages/gyes/jtjs/Content.aspx>.

³⁹ Tianjin Er Shang Group, "Group Introduction".

⁴⁰ Beijing Sunlon Group, "Group Introduction," Beijing Sunlon Group, <http://www.bjcag.com/show.aspx?n=20090907151515135376>.

⁴¹ The Central Committee of Communist Party of China and The State Council of PRC, "The Central Committee of Cpc and the State Council's Decision on Several Issues That General Public Concerned," China CPC News, <http://cpc.people.com.cn/GB/64162/64165/67447/68007/4640256.html>.

⁴² Beijing Municipal Party Committee, "Why We Should Abolish Exclusive Food Supply to Leaders," *Qian Xian [Frontline]*, no. 9 (1989).

⁴³ Xinjie Jiang, "The Transition of Exclusive Supply," Caixin News, http://ucwap.caixin.com/2011-05-14/100307127_2.html.

Hubei Shendan Health Food Co., Ltd.⁴⁴ Local government departments established food production bases in the name of “farm clubs” or “training bases”, such as Beijing Customs Farm and Mu Dan Jiang Local Taxation Bureau.⁴⁵ Alternatively, farmers were trained and hired to produce food products exclusively, such as for Guangdong Provincial government.⁴⁶

Whether at a central or local level, it was the politically privileged status of this group that enabled them to enjoy the benefits of effective food safety implementation with segmented arrangements. The description from a manager of an exclusive facility suggested the level of safety: “in order to avoid chemical pollution, all the fertilisers here are organic, so are all pesticides. Crops are not allowed to be applied with even organic fertilisers and pesticides for a certain period before harvest, and the whole process is strictly monitored.”⁴⁷ Such stringent implementation of food safety measures contrasted dramatically with the implementation failure that ordinary domestic consumers continued to confront.

The roots of the exclusive supply lay in the politically privileged status of this group that shaped the segmented nature of food safety implementation. In this respect Szelenyi has argued that important goods were allocated in an inegalitarian way in socialist redistributive economies,⁴⁸ and the dominating class “have a vested interest in the maximisation of ‘redistributive power’.”⁴⁹ The exclusive supply system is a form of “redistributive power”, or a redistribution system backed by “cadre power”.⁵⁰ Hence, providing food to the politically privileged is a political task, and food abundance and safety became a “privilege”⁵¹ of those consumers. Even with the increase of marketization, the political power of the politically privileged still ensured the cadre

⁴⁴ Examples: Shangdong Weishan Lake Lotus Food Co., Ltd provides preserved eggs to the State Council affiliated departments: Shangdong Weishan Lake Lotus Food Co. Ltd., "Corporation Introduction".; Hubei Shendan Health Food Co., Ltd provides eggs to Hubei Provincial Party Committee Canteen: Hubei Shendan Health Food Co. Ltd, "Corporation Introduction".

⁴⁵ Examples: Beijing Customs Farm: Lv et al., ""Low Profile" Vegetable Planting".; and Sui Feng Yuan (Mu Dan Jiang Local Taxation Farm): Cheng and Wang, "Witness the "Quality Life" of Officials in Mu Dan Jiang Local Tax Bureau".

⁴⁶ Lv et al., ""Low Profile" Vegetable Planting".

⁴⁷ Interview with one manager from Beijing Customs Farm (anonymous), cited from *ibid*.

⁴⁸ Szelenyi, "An Outline of the Social History of Socialism or an Auto-Critique of an Auto-Critique," 44.

⁴⁹ "The Intelligentsia in the Class Structure of State-Socialist Societies," *American Journal of Sociology* 88(1982): 287.

⁵⁰ Nee, "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China."

⁵¹ Victor V. Magagna, "Consumers of Privilege: A Political Analysis of Class, Consumption & Socialism," *Polity* 21, no. 4 (1989): 711.

power continued, and was even reinforced. This ensured that the social foundations of the segmented implementation arrangement served the interests of powerful groups within the state.⁵²

Buying standards: Affluent consumers and food safety regulation

Affluent consumers are not beneficiaries of the type of specially arranged regulatory implementation that exists for foreign consumers or the politically privileged, but they have market power that creates incentives for food producers to achieve better safety implementation. As the emerging new rich, they can purchase more expensive food from producers who effectively implement food safety standards and regulations, such as imported food, food from renowned food producers, or food from Community Supported Agriculture (CSA) farms. I will use CSA farms as an example to illustrate how affluent consumers source food from producers with effective safety implementation by paying a premium.

CSA farms have started to gain popularity as an alternative source of safe food for affluent consumers since the end of the 2010s. This concept first appeared in the 1960s in Switzerland and Japan.⁵³ CSA farms allow consumers to pledge membership covering the anticipated production cost and to receive shares of farm's products throughout the growing season.⁵⁴ In China, consumers of CSA farms are mostly from the new rich, such as employees of SOEs, large scale private enterprises, listed corporations, financial institutions and those in other well-off households.⁵⁵ Affluent consumers either purchase membership from CSA farms, or their employers purchase on their behalf as a type of welfare for employees. Countless food safety crises in China encouraged the expansion of CSA farms, from 54 CSA farms nationwide in 2010 to approximately 100 in 2011,⁵⁶ and further to over 500 in 2015.⁵⁷

The reason for the prevalence of CSA farms is that they promise effective implementation of high safety standards for their food and offer consumers the chance

⁵² Szelenyi, "An Outline of the Social History of Socialism or an Auto-Critique of an Auto-Critique," 45.

⁵³ Suzanne DeMuth and National Agricultural Library, *Community Supported Agriculture (CSA): An Annotated Bibliography and Resource Guide* (National Agricultural Library, 1993). 1.

⁵⁴ *Ibid.*, 2.

⁵⁵ Liu and Wu, "How Far Can Organic Farms Go?."

⁵⁶ Gale, "CSA: New Choice of Food Safety in China".

⁵⁷ Zhong, "Chinese Love Organic Farming".

to monitor and/or participate in the highly transparent plantation process. Most CSA farms will obtain organic certification of soil and irrigation water on the farm in the first place,⁵⁸ such as Shanghai-based Tony's Farm covering nine cities and regions,⁵⁹ Jun Yuan Organic Farm in Zhengzhou,⁶⁰ and Xiao Mao Lv Citizens' Farm in Beijing which will be introduced soon. Those farms promised different methods to ensure effective implementation of food safety throughout the whole production process, such as being free of chemical fertilisers and additives (including synthesised growth hormones, ripener, swelling agents and colouring agents), and the transparent release of information. CSA farms invite consumers' surveillance over their implementation through the option of participation in the production process, or remote supervision with real time monitoring technology as part of the CSA package.⁶¹ Some CSA farms encourage consumers to select third-party inspection agencies they trust to test food safety and quality at the cost of the farms.⁶²

Take the case of "Xiao Mao Lv Citizens' Farm [Little Donkey Residents' Farm]" as an example. This farm was established in 2009 in Su Jia Tuo County, Beijing, by Dr Shi Yan, who once worked in a CSA farm in Minnesota.⁶³ The farm obtained certification of organic farming and established its reputation and a stable client group soon afterwards.⁶⁴ A one year membership for a household of three costs CNY 9,000 Yuan,⁶⁵ which includes only vegetables. Annually, roughly 324 kilos of vegetables of different varieties will be delivered (on a weekly basis), meaning every kilo of vegetables from the farm costs around CNY 27 Yuan. In comparison, most varieties of vegetables in the Chinese free market cost from CNY 5 to 15 Yuan per kilo on average. The pork from the farm costs around CNY 100 Yuan per kilo, which is at least double the price of pork

⁵⁸ Liu and Wu, "How Far Can Organic Farms Go?."

⁵⁹ Tony's Farm, "Introduction About the Farm," Tony's Farm, <http://www.tonysfarm.com/farmintr/baseintroduce.html>.

⁶⁰ Jun Yuan Organic Farm, "Introduction of the Farm," Jun Yuan Organic Farm <http://www.green258.com/Helper/OnlineHelper.aspx?id=21>.

⁶¹ Little Donkey Farm in Beijing is one of these, and other examples are: Shanghai Shen Guo Yuan Shishang Farm Club (<http://www.huquan.net/detail/3195593.html>), Wuxi Family Farm (<http://wuxifarm.blog.edu.cn/home.php?mod=space&uid=3783834&do=blog&id=616358>), and many others.

⁶² Jing, "High-Tech Farm: A Visit to Ziran Yuezhang Farm," Yogeev, <http://www.yogeev.com/inspect/ziranyuezhang>.

⁶³ Little Donkey Farm, "Introduction " Little Donkey Farm, <http://www.littledonkeyfarm.com/portal.php>.

⁶⁴ Gale, "CSA: New Choice of Food Safety in China".

⁶⁵ CNY 9000 is roughly AUD 2000 as on 25 January 2016, when the exchange rate was AUD 1= CNY 4.5.

from the free market.⁶⁶ The price of food from Little Donkey Farm can range from 2 to 8 times as high as prices in the general free market in Beijing, and such a high price is largely justified by their better implementation of food safety.

In this way food safety implementation becomes more a private than a public good that can be purchased through the market via higher prices. This market-based system is in contrast to the system of exclusive supply where incentives originate from political power and influence of the group. In this way, it is possible to see how a segmented regulatory system of implementation emerged for either politically powerful or affluent consumers. It is exactly these social foundations that had a detrimental impact on food safety implementation systems for politically and economically disadvantaged ordinary domestic consumers.

Faulty incentives: ordinary domestic consumers and regulatory implementation

As mentioned earlier, effective implementation of food safety is shaped by the interaction of food consumers, producers and regulators. The social foundation of food consumers has played a key role in shaping this interaction. The political and market power of foreign consumers and the politically privileged meant that they were able to create an incentive system that favoured them, which shaped the segmented arrangements of food safety implementation for those groups. While affluent consumers could not impose their own regulatory arrangements, they had strong market power to create incentives for food producers to reach high standards of food safety. Compared to affluent consumers, ordinary domestic consumers did not have sufficient market power to motivate food producers. In fact, ordinary domestic consumers' lack of influence led to the corruption of some well-connected food producers as against them to be discussed shortly.

Effective and capable implementation of food safety for ordinary domestic consumers is shaped by the incentives that food regulators have to provide such standards. However, the lack of political power – or indeed market power – for domestic consumers meant that these incentives were weak. Instead, many systematic problems occurred within the segmented arrangements due to the limited political compulsion or pressure that this

⁶⁶ All price information is from the online store of Little Donkey Farm, via: <http://shop70845525.taobao.com/>.

group can exert upon the food system. Systemic problems such as agency fragmentation and corruption of food regulators largely restrained them from actively taking responsibility to modify behaviours that undermine food safety. The low cost of non-compliance further deprived regulators' enforcement capability to implement food safety regulations. I will discuss these three problems in turn.

Agency fragmentation among food regulators

Agency fragmentation within the segmented food safety implementation arrangements has not just institutional but social foundations in the segmented consumer groups. For foreign consumers, the crucial reason for successful and effective regulatory implementation is that the group shaped a single-regulator implementation arrangement, in which AQSIQ dominated the implementation of food safety regulations and avoided the problem of agency fragmentation. Political compulsion from the politically privileged upon the exclusive supply sector largely motivated positive and consistent implementation. For ordinary domestic consumers, the segmented arrangements mainly consisted of five regulators: MOA, MOH, AQSIQ, SAIC and SFDA. Many other agencies have participated in food safety implementation due to the growing food chain and skyrocketing number of food safety crises. The period from 2004 to 2013 witnessed a peak of over 10 ministries and departments being involved in food safety implementation.⁶⁷

Such an overly-complex regulatory structure is prone to agency fragmentation, especially when the regulatory responsibilities of each regulator are ambiguously defined. Within this multiple-regulator structure, each food regulator was expected to maximise its expertise and was empowered to implement food safety at a certain stage of food production or processing. However, this expectation is based on clearly defined responsibilities and effective coordination, and these did not occur within the segmented structure. The lines of regulatory responsibility for each food regulator were poorly defined and divisions of labour were implicit, rather than stated statutorily (as discussed in Chapter Three). Multiple food regulators could have responsibilities for the same issue, causing both regulatory overlaps and gaps, and blame avoidance. For example,

⁶⁷ Caiping Zhang, Junfei Bai, and Thomas I. Wahl, "Consumers' Willingness to Pay for Traceable Pork, Milk, and Cooking Oil in Nanjing, China," *Food Control* 27, no. 1 (2012).

MOH,⁶⁸ MOA,⁶⁹ AQSIQ,⁷⁰ and SFDA⁷¹ were all in charge of safety implementation at different production and distribution stages depending on food varieties, and safety of basic foods such as steamed buns and pork would require the implementation of all regulators at various stages.⁷²

Ordinary domestic consumers' political powerlessness meant that they could not create political pressure for better defined regulatory responsibilities within this segmented structure. With ambiguously defined regulatory responsibilities and/or implicit division of labour, food regulators tended to withdraw from cooperating on issues for which they had no explicit authority and which had been vaguely assigned. This is the case for food safety implementation because of the rapid emergence of new food risks. Therefore, the segmented implementation of food safety was highly prone to fragmentation among various regulators. The fragmentation issue further weakened incentives for regulators to take effective responsibility to manage food safety and was especially critical when a food safety crisis broke out, such as the case of adulterated cooking oil to be discussed in the following section. While SFDA was expected to coordinate within the fragmented arrangement, it failed in this task since it was half a level lower in the hierarchy than other regulators (as discussed in Chapter Three).⁷³ The issue of agency fragmentation has been identified as the major issue that erodes effective implementation for ordinary domestic consumers,⁷⁴ though arguably the issue of corruption should be properly addressed as well.

The social foundations of corruption and food safety implementation

Corruption added to the institutional weakness of food safety implementation for ordinary domestic consumers. According to the Transparency International, China's

⁶⁸ Food Safety Standard and Assessment Division of National Health and Family Planning Commission of People's Republic of China (NHFPC), "Main Responsibilities of Food Safety Standard and Assessment Division of Nhfpc".

⁶⁹ Agricultural Products Quality and Safety Supervision Department of MOA, "Major Responsibilities of Agricultural Products Quality and Safety Supervision Department of Moa".

⁷⁰ Import & Export Food Safety Department of AQSIQ, "Major Responsibilities of Import & Export Food Safety Department of AQSIQ".

⁷¹ CFDA, "Main Responsibilities for China Food and Drug Administration".

⁷² Songtao Li, "Will the Changes in Food Regulators' Role Improve Food Safety," *China Youth Online*, 4 September 2008.

⁷³ CFDA, "China Food and Drug Administration Information Guide".

⁷⁴ See for example Tam and Yang, "Food Safety and the Development of Regulatory Institutions in China."; Liwei Sang and Global Food Safety Forum(GFSF), "Food Safety Legislation, Regulation and Practices in China," in *The China Path to Global Food Safety* (2011); Li, "Policy Coordination in China: The Cases of Infectious Disease and Food Safety Policy."

rank ranged from 70 to 80 out of 175 countries in the corruption perception index between 2004 and 2013, and soared to 100 in 2014.⁷⁵ Domestically, corruption is regarded as one of the most pressing social problems in China, ranking sixth after issues like inflation, poor medical system, income inequality, unemployment and overpriced housing.⁷⁶ The corruption of food regulators corroded already weak incentives in the implementation of food safety regulations.

In implementing food safety for ordinary domestic consumers, the malpractice of regulators driven by informal exchanges of money and other resources between regulatory agents and producer groups can substantially restrain regulators from effectively modifying behaviours that undermine food safety.⁷⁷ Due to limited political and market power, ordinary domestic consumers' interests were relegated below those of some food producers and individuals working as food regulators. Such a "balance" of interests is reflected in several corruption cases concerning adulterated cooking oil to be discussed shortly. I was not able to access the full picture of job-related corruption in food safety implementation for ordinary domestic consumers, but some released figures are indicative: in 2011, 202 people were reported as being involved in job-related crimes in food safety implementation, and this number grew to 465 in 2012.⁷⁸ Partially due to the anti-corruption campaign initiated in China in 2013, this number further soared to 2,286 in 2014.⁷⁹

Ordinary domestic consumers did not have the market power to create incentives for food producers to achieve effective implementation. Instead, corruption stemmed from the power of well-connected food producers who impaired the interest of domestic consumers and in turn led to poor levels of food safety. For example, Shuanghui Group, one of the largest meat producers in China, was found in 2011 to be selling products made of pork fed with "lean meat powder" [瘦肉精, Clenbuterol, banned by MOA in 1997]. This meat producer could not have organised a supply chain of problematic pork

⁷⁵ Transparency International, "Corruption Perception Index," <http://www.transparency.org/cpi2014/results>.

⁷⁶ Peilin Li, *People's Livelihood in Contemporary China: Changes, Challenges and Prospects* (Singapore, SGP: World Scientific Publishing Company, 2013). 59.

⁷⁷ Yajing Chen, "Corruption and Food Safety" (Fudan University, 2009).

Jun Yao, "Government Failure and Food Safety Issue" (Fudan University, 2009).

Zhengjun Liu, "Research on Government Function in the Governance of Food Safety" (Jilin University of Finance and Economy, 2012).

⁷⁸ Data on job-related crimes among food regulators in 2008, 2009, 2010 and 2013 is not available.

⁷⁹ Wei Cui et al., "The Annual Conclusion of Food Industry: Anti-Corruption Improves Food Safety?," *The Beijing News*, 17 March 2015.

without the support of food regulators who inspected the pork. This case saw 53 officials found guilty of a money-power exchange with Shuanghui Group and its suppliers.⁸⁰ Another case showed that producers of counterfeit Wangshouyi Spice Mix could not have escaped from every organised investigation initiated by food regulators without being informed beforehand.⁸¹ The largest cooking oil producer in Yunnan was found to have bribed local food regulators to cover up its business in adulterated oil production (to be discussed in the case study).⁸² The key factor behind most major food safety crimes is that food violators could not organise a complicated network of supply without “assistance” from food regulators. The case study of adulterated cooking oil in the following section would support this analysis.

Corruption is a profound issue in food safety implementation because it indicates a rather destructive interaction between ordinary domestic consumers, food producers and regulators. In this interaction, ordinary domestic consumers’ political powerlessness meant that they failed to impact on effective regulatory implementation, and some well-connected food producers impacted upon regulators to protect their food safety offences via corruption. They established close links with food regulators, and these links relegated food consumers’ interests and protected food producers’ behaviours of food safety offence. Based on released reports, four ministers (or vice ministers) were brought down due to corruption within SFDA alone since it was empowered in 2003 to coordinate the food regulators that oversaw the domestic market.⁸³ Corrupted officials in lower levels of SFDA and among other food regulators may form a much longer list. The key point is that corruption is not only due to systemic institutional failure but is rooted in the social foundation of the segmented regulatory system.

Low cost of non-compliance

Whereas corruption among food regulators protected well-connected food producers who violated food safety, the low cost of non-compliance largely restricted the enforcement power of regulators. They were also restricted in their ability to punish

⁸⁰ Yanling Zhang and Lian Dai, "Lean Meat Power Became a Hidden Rule in Meat Industry, Shuanghui Is Not the Only One," Sina News, <http://finance.sina.com.cn/roll/20110321/00389562502.shtml>.

⁸¹ Cui et al., "The Annual Conclusion of Food Industry: Anti-Corruption Improves Food Safety?."

⁸² Haitao Xie and Baocheng Chen, "'Gutter Oil' Cases in Different Locations," *Caixin* 18 June 2013.

⁸³ Yijun Hou and Gang Li, "Vice Minister of Sfd a Zhang Jingli under Detention " Ifeng News, <http://finance.ifeng.com/news/special/yjzjl/20110120/3265738.shtml>.

violations by less well-connected producers.⁸⁴ Based on Chapter 9 of the *Food Safety Law (FSL)*, the cost of non-compliance for food safety violators includes administrative punishment (such as a fine, suspension of license and compensation to victims) and criminal punishment which is only loosely defined in the first edition of the *FSL*.⁸⁵ The low cost of non-compliance means that food regulators have limited powers of deterrence over food safety violators, and it therefore hinders effective implementation for ordinary domestic consumers.

As a result, the enforcement power of food regulators to restrain non-compliant behaviours was substantially weakened. For example, Article 85 of the *FSL* (Ed. 1) states: “the food producer or traders shall be subject to a fine of RMB 2,000 to 50,000 Yuan if the total value of problematic food products⁸⁶ is below RMB 10,000 Yuan, or a fine between 5 and 10 times the total value of the products if the value exceeds RMB 10,000 Yuan; and for serious cases, the business license will be revoked.”⁸⁷ When the illegal profit from behaviours that violate food safety is higher than this low cost of non-compliance, the cost for food violators to restart illegal food production is simultaneously lowered. Food regulators’ power to punish is largely weakened by the low cost of non-compliance. Moreover, when the chance of being caught is low, the cost of non-compliance is further lowered. This is the case in underdeveloped regions due to the inadequate technical expertise of food regulators.

Practical challenges in the regulatory implementation of food safety

Two practical challenges – the large number of food establishments and unevenly distributed technical expertise – further exacerbated the systematic weaknesses in food

⁸⁴ Kui Shen, "Thoughts on Examination Exemption System on Food Enterprises," *Law and Commerce* 3(2009).

Ming Qi, "The Analysis of Chinese Food Safety Issues: Legislations and Governmental Supervision," *Chinese Law & Government* 45, no. 1 (2012).

Zhou and Jin, *Food Safety Management in China: A Perspective from Food Quality Control System*.

Lam et al., "Food Supply and Food Safety Issues in China."

Yanzhong Huang, "China's Corrupt Food Chain," *The New York Times*, 2012/08/18/ 2012.

⁸⁵ NPC of PRC, "Food Safety Law of the People's Republic of China".

⁸⁶ Those food problems includes the use of inedible additives; high level of pathogen, pesticide residues or other pollutants which are above national standards; adulterated food; meat or products of any poultry, livestock or waterborne animals which have been killed by disease, poison or other undefined causes; food that exceeds the shelf life; meat or meat products which have not been quarantined or inspected; food that is rotten, spoiled or contaminated; food dedicated to babies or other specific populations which fail to comply with food safety standards; and food with new materials which are without a safety assessment.

⁸⁷ NPC of PRC, "Food Safety Law of the People's Republic of China".

safety implementation for ordinary domestic consumers. The food sector for ordinary domestic consumers is enormous and still expanding rapidly. According to CFDA, in 2014 there were over 190,000 producers with food production licenses.⁸⁸ This number in the United States is over 30,000,⁸⁹ roughly 10,000 in Australia (in 2012),⁹⁰ and about 6,200 in Canada (in 2012).⁹¹ If combined, the number of all licensed food distributors and sellers in China goes beyond 10 million.⁹² This still-growing food sector in China unsurprisingly requires strong incentives from food regulators to effectively implement food safety regulations.⁹³ Unfortunately, ordinary domestic consumers who are politically disadvantaged in terms of access to influence over regulators can exert little political pressure for robust implementation of food safety regulations.

Further compounding these difficulties is the fact is that the majority of food producers are small- and medium-sized, and sometimes even family workshops. Only a few large-scale food producers appeared in the rapidly expanding food industry in China. For example, there were 28 listed companies in the food industry in the first quarter of 2013, with a total sales volume of RMB 38.57 billion Yuan.⁹⁴ Meanwhile, over 80% of licensed food producers for ordinary domestic consumers were of small and medium size.⁹⁵ In the first quarter of 2011, the sales income of the food manufacturing industry in China was RMB 285.51 billion Yuan. Large-scale food producers achieved a sales income of RMB 51.50 billion Yuan, and only accounted for 18.04% of the domestic market; the market shares of medium-sized and small food producers were 39.53% and

⁸⁸ CFDA, "Food Manufacturers Data,"

<http://app1.sfda.gov.cn/datasearch/face3/base.jsp?tableId=91&tableName=TABLE91&title=%CA%B3%C6%B7%C9%FA%B2%FA%D0%ED%BF%C9%BB%F1%D6%A4%C6%F3%D2%B5&bcId=137413698768984683499699272988>.

⁸⁹ Matt Kures, "Agriculture, Food & Beverage Industry Cluster Analysis," (Madison Region Economic Partnership, University of Wisconsin-Extension, 2014), 9.

⁹⁰ Committee on Australia's Food Processing Sector, "Inquiry into Australia's Food Processing Sector," Committee on Australia's Food Processing Sector,

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Former_Committees/foodprocessing/foodprocessing/report/c06.

⁹¹ Government of Canada, "Significance of the Food and Beverage Processing Industry in Canada," Government of Canada, <http://www.agr.gc.ca/eng/industry-markets-and-trade/statistics-and-market-information/by-product-sector/processed-food-and-beverages/significance-of-the-food-and-beverage-processing-industry-in-canada/?id=1174563085690>.

⁹² Shuo Wang, "Sfda: Responsibility of Food Producers and Distributors," China News, <http://www.chinanews.com/gn/2014/03-03/5901106.shtml>.

⁹³ Interviews were conducted with officials in Kunming Food and Drug Administration on December 10-12, 2014.

⁹⁴ China Economic Information Network, "Report of Food Industry Analysis in China (2013q1)," (China Economic Information Network, 2013), 26.

⁹⁵ Chen et al., *Annual Report on China's Industrialization* 332.

42.43% respectively.⁹⁶ With such a significant number of mostly small-sized food producers scattered in the market for ordinary domestic consumers, food regulators need to have strong incentives and abundant technical expertise to effectively implement food safety regulations, and ordinary domestic consumers were not able to create such an incentive system.

A further difficulty that weakens implementation stems from the uneven distribution of technical expertise. Though the food sector for ordinary domestic consumers is a significant size and continuously expanding, many food regulators within the segmented arrangement are under-staffed in terms of specialised technicians or inspectors. For example, SFDA should be equipped with at least 50,000 monitoring inspectors in the food and beverage industry, yet there were only approximately 10,000 in those positions in 2012.⁹⁷ The shortage in human resources is especially critical at a local level and in the interior and western parts of China where most ordinary domestic consumers live.⁹⁸ The shortage is expected to remain due to the scarcity of professional training facilities: there were only 70 vocational colleges nationwide providing specialised training in food safety inspection.⁹⁹

Further exacerbating these weaknesses was the shortage of testing facilities, especially those targeting at newly emerging food risks in the increasingly complicated food industry. According to the “Twelfth Five-Year Plan on the National Regulatory System of Food Safety”, there were over 6,300 institutions and laboratories which could test food quality and safety, and only 1,000 of them specialised in food tests.¹⁰⁰ These numbers show an increase in investment for food testing infrastructure, but the rate of increase is much lower than the rate of expansion of the food industry. Moreover, the facilities in some old food testing laboratories had difficulty meeting the new and stricter requirements of the rapidly expanding food industry, and the demand to upgrade infrastructure for food safety testing is pressing.

⁹⁶ China Economic Information Network, "Report of Food Industry Analysis in China (2011q1)," (China Economic Information Network, 2011), 34-35.

⁹⁷ Jennifer Holdaway and Lewis Husain, "Food Safety in China: A Mapping of Problems, Governance and Research," in *Forum on Health, Environment and Development*, ed. Lei Zhang and Jennifer Holdaway (Beijing 2014), 30.

⁹⁸ General Office of the State Council (PRC), ""Twelfth Five-Year Plan" on the National Regulatory System of Food Safety ", ed. State Council of People's Republic of China (Beijing: China Gov.cn, 2012).

⁹⁹ Sang and Forum(GFSF), "Food Safety Legislation, Regulation and Practices in China," 55.

¹⁰⁰ General Office of the State Council (PRC), ""Twelfth Five-Year Plan" on the National Regulatory System of Food Safety ".

There is also a spatial dimension to this shortage of technical expertise. Most food inspectors and technicians are in large cities, and those in county (or towns and villages) tend to lack professional training.¹⁰¹ Likewise, food testing facilities, especially ones with updated technologies, are mostly in large cities.¹⁰² Furthermore, food regulators only have control over food producers whose output is above a certain scale of production. For example, the standardised process management for livestock farms would apply to only 5.4% of pig farms which reached the required scale of production in 2012,¹⁰³ indicating that the regulatory technical expertise could not reach the large number of small-sized pig farms. Global Food Safety Forum estimated that about half of the pigs consumed by domestic consumers were not slaughtered in quarantined slaughterhouses.¹⁰⁴ In Beijing, only an estimated 4% of vegetables go through supply contract deals and food testing (when supplied to supermarkets, professional suppliers or food processing companies).¹⁰⁵ Food regulators were challenged and discouraged by the limited and unevenly distributed technical expertise, especially in underdeveloped regions where at least half of the Chinese population is located,¹⁰⁶ who are mostly ordinary domestic consumers.

The practical challenges, including the size and complexity of the food sector and the uneven distribution of the limited implementation capacity, weakened food regulators' incentives to effectively implement food safety. Their incentives are especially restricted in underdeveloped regions. On one hand, the ordinary domestic consumers who live in those regions are at the bottom of Chinese society and have the least political power to impact on food safety implementation. On the other hand, food regulators there face both a large number of small food establishments (including unlicensed ones),¹⁰⁷ and the lowest allocations of technical expertise. There were no specialised food safety inspectors in over 80% of counties and towns in China, and at least 155,000 food safety inspectors are needed in those places according to estimates

¹⁰¹ Jia and Jukes, "The National Food Safety Control System of China – a Systematic Review," 242.

¹⁰² Peng, "Tracing and Periodizing China's Food Safety Regulation: A Study on China's Food Safety Regime Change."

¹⁰³ Holdaway and Husain, "Food Safety in China: A Mapping of Problems, Governance and Research," 42.

¹⁰⁴ Sang and Forum(GFSF), "Food Safety Legislation, Regulation and Practices in China," 28.

¹⁰⁵ Holdaway and Husain, "Food Safety in China: A Mapping of Problems, Governance and Research," 45.

¹⁰⁶ NBSC, "National Census Result (Sixth, 2012)," NBSC,

<http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/indexch.htm>.

¹⁰⁷ He and Sun, "Unlicensed Food Accounted for 30% of All Foods Sold in China".

based on population.¹⁰⁸ Those challenges are reflected in the case study of adulterated cooking oil, which was mostly sold in the low-end free market, and its wide and complicated coverage was beyond the food regulators' technical expertise.

The broad thrust of this analysis is that the poor implementation of food safety regulations for ordinary domestic consumers is only partly an institutional or technical problem. The larger issue is that these technical problems stem from the fact that this group, with little political or market power, was not able to establish a system of incentives favouring them as the group of foreign consumers and the politically privileged were able to do. They also lack the market power that affluent consumers are capable of mobilizing to create incentives for food producers to meet food safety standards. The issues with domestic consumers reinforce my argument that the segmented regulatory system and its social foundation underpinned the myriad problems of implementation, such as agency fragmentation, corruption, the low cost of non-compliance and others.

Case study: why does recycled cooking oil go back to the dinner table?

Introduction

This section introduces an illustrative case study of adulterated cooking oil in the Chinese domestic food market. This is a case in which corruption, agency fragmentation, the low cost of compliance and other systematic weaknesses in the segmented implementation arrangement made it extremely difficult to bring an end to such a severe food safety violation. These systematic problems were reinforced on the consumer side by the fact that ordinary domestic consumers were politically powerless and economically poor. They were therefore not able to have an impact on effective implementation, and became the major group to consume adulterated cooking oil.

Recycled cooking oil is mostly refined and produced into biodiesel in many countries. For example, Japan issued the "Biomass Nippon Strategy" in 2002 (revised in 2006) to identify recycled cooking oil as one crucial raw material for biodiesel.¹⁰⁹ In the US, Tri-State Biodiesel (TSB) is working with other partners as an alliance, and is fulfilling its

¹⁰⁸ Weiguo Wang, "Participatory Governance of Food Safety Is a Long Way to Go," *Social Sciences in China* 670(2014).

¹⁰⁹ MAFF of Japan, "Biomass Nippon Strategy," MAFF, <http://www.maff.go.jp/e/pdf/reference6-8.pdf>.

inherent belief that all used cooking oil generated by US restaurants should be captured and processed into biodiesel as part of the national sustainability strategy.¹¹⁰ In Europe, Bio Oil Group initiates the continent-wide collection of used cooking oil for biodiesel production.¹¹¹ There are some common features shared in those regions: strict regulations for food establishments to follow when handling used cooking oil; subsidies, tax refunds or other policy incentives for companies to collect oil; and harsh punishment for the illegal use of used cooking oil.

But in China, the fact that recycled cooking oil was adulterated and reused as cooking oil has been known among the public and food regulators for at least a decade.¹¹² Recycled cooking oil comes mainly from three sources: oil from food waste and gutters around restaurants and other food establishments (which is why it is called gutter oil in Chinese, 地沟油); oil refined from the guts, skin and inferior meat of livestock; and oil residue from deep fryers (such as the oil residue from KFC). Human consumption of such recycled cooking oil can cause a series of negative health impacts, including the intake of a large amount of contaminants from gutters, bacteria, aflatoxin, and arsenic, lead and benzopyrene accumulated from the refining process. Both aflatoxin and benzopyrene are strong carcinogens.¹¹³

It is difficult to state how much recycled cooking oil is used for cooking, but an estimated quantity of over 1.5 million tons of waste cooking oil would be refined and adulterated into cooking oil annually. This estimation is based on the following calculation: 3 million tons of wasted cooking oil was produced each year in China (15% of the annual oil consumption), of which about 8% is sent for biodiesel and other industrial production, 37% goes to sewage, and 55% is estimated to go back to dinner tables after processing and refining, and mostly consumed by ordinary domestic consumers.¹¹⁴ In the simplest version of the supply chain for adulterated oil, underground dealers collect, filter, process and sell the recycled cooking oil to restaurants, snack vendors, delis, canteens in schools and factories, food wholesale

¹¹⁰ TSB Tri-State Biodiesel, "Mission Statement," <http://tristatebiodiesel.com/about-tsb/>.

¹¹¹ Bio Oil Group, "The Bio Oil Group-from Waste to Energy," <http://www.bio-oil.biz/en/about-bio-oil/company/>.

¹¹² Barboza, "Recycled Cooking Oil Found to Be Latest Hazard in China."

¹¹³ Ying Huang, "Negative Impacts from Gutter Oil " <http://shipin.people.com.cn/n/2014/0912/c85914-25650602.html>.

¹¹⁴ Ziqian Liu et al., "Expose the Black Chain of Interest on Gutter Oil," *China INewsweek* 2011.

markets, bakeries and other food establishments.¹¹⁵ Most of those food establishments are small in scale, large in number, and concentrated in the low-end market, such as night markets, small food establishments in “villages in the city”¹¹⁶ and rural areas. The very low price of recycled cooking oil compared to ordinary oil (such as vegetable oil)¹¹⁷ suits the pursuit of thin profit margins by small food establishments that mostly serve the bottom level of domestic consumers.¹¹⁸

The sale and purchase of recycled cooking oil for the purpose of cooking, while still a major criminal offence in China,¹¹⁹ is a widespread problem with long and complicated supply chain.¹²⁰ In 2011 alone, MPS announced ten cases involving the illegal production and sale of recycled cooking oil, and altogether 60,000 tons of recycled cooking oil was found to have gone to the domestic food market.¹²¹ In some specific cases, one company could be involved into the sales of over 10,000 tons,¹²² or hundreds of millions of Yuan in sales income.¹²³ Such a large scale, widespread, and low-end market targeted business of adulterated oil is more than an individual case of food fraud. It exposed systematic weaknesses in the segmented implementation arrangement for ordinary domestic consumers. Those weaknesses include agency fragmentation and corruption which were discussed in the previous section.

¹¹⁵ Interviews with officials from the Public Security Bureau in December 2014 and May 2015, and also news reports online such as: Meijie Ke and Lishan Han, "The Interest Chain of "Gutter Oil"," Ifeng News, http://news.ifeng.com/opinion/topic/digouyou/201003/0325_9848_1586778.shtml. and Liu et al., "Expose the Black Chain of Interest on Gutter Oil."

¹¹⁶ “Village in the city” refers to the villages in which villagers sold their land in the process of urbanization. Those villages are normally on the edge of cities, with a rough living environment and relatively low living standard compared to cities.

¹¹⁷ The average cost of vegetable oil is around RMB 11,000 Yuan per ton and peanut oil is over RMB 13,000 Yuan per ton. Oil adulterated with recycled cooking oil is around RMB 8,300, and recycled cooking oil is even cheaper.

¹¹⁸ Interviews with officials from Public Security Bureau in December 2014.

¹¹⁹ China Supreme People's Procuratorate, "Announcement on the Harsh Punishment of the Crime on Selling Gutter Oil," in *Pro [2012] 01*, ed. China Supreme People's Court China Supreme People's Procuratorate, Ministry of Public Security (Beijing 2012).

¹²⁰ Barboza, "Recycled Cooking Oil Found to Be Latest Hazard in China."

¹²¹ Ying Zhu, "Ten Cases Announced by the Ministry of Public Security on Production and Sales of "Gutter Oil"," Xinhua News Agency, http://news.xinhuanet.com/food/2011-12/13/c_122412590_2.htm.

¹²² Yunnan Fengrui Oil Co., Ltd in Yunnan was found to have sold over 32,000 tons of gutter oil for cooking purposes, information source: Xie and Chen, ""Gutter Oil" Cases in Different Locations."

¹²³ Qianmen Commerce and Trading Company and Dazhong Staple and Oil Company were found to have jointly gained over RMB 300 million Yuan from the production and sales of recycled cooking oil, information source: Ben Liang, "Two Cases on "Gutter Oil" in Jinan with Illegal Sale Income over 300 Million Yuan," China News, <http://www.chinanews.com/fz/2014/01-07/5708764.shtml>.

Fragmented agency cooperation

Ordinary domestic consumers are not politically influential enough to stimulate effective cooperation among food regulators and the prevention of agency fragmentation. In this case, institutional weakness was further exacerbated by the requirement of trans-regional cooperation among food regulators and other regulators. Under the segmented implementation arrangements, most food regulators including MOA, MOH, SFDA and SAIC followed localised management and only regulated the product quality and safety in a certain region. This means that they had little explicit authority over food safety issues beyond their regulatory region. When recycled cooking oil and downstream products were bought, produced or sold in different places, food regulators had little control beyond their regulatory regions and a weak incentive to cooperate due to lack of explicit authority.

Moreover, the protectionism of local government can make inter-regional cooperation among various regulators extremely difficult. Local government may turn a blind eye to the illegal behaviours of local enterprises due to the consideration of their tax revenue, employment, and government work performance. For example, Ji'nan Gelin Biofuel Co., Ltd (Gelin) in Shandong was established in 2010 as a biodiesel company which could legally collect food waste and used cooking oil. Rather than sticking to biodiesel production, Gelin was driven by huge profits and processed roughly 30 tons of recycled cooking oil to sell to downstream cooking oil producers or to adulterate with soy oil for sale.¹²⁴ While the case remained unexposed, regulators simply turned a blind eye to this company and no regulator made an effort to inspect its products or investigate the company even after complaints from local residents. When Gelin was finally under investigation, police who tried to prevent the distribution of the company's problematic products were interrupted by local county government officials.¹²⁵

The black market of recycled cooking oil required the involvement of MPS, which is not a food regulator. MPS's cooperation with food regulators could be both difficult and slow due to the absence of a cooperation mechanism, and this is what happened when MPS investigated Gelin. In Ninghai County where one upstream refinery of Gelin was located, the local Public Security Bureau found oil in the local food wholesale market

¹²⁴ Liu et al., "Expose the Black Chain of Interest on Gutter Oil."

¹²⁵ Ibid.

with a high possibility of adulteration from recycled cooking oil. However, local food regulators failed to prove this suspicion in time and delayed the investigation.¹²⁶

What made regulatory cooperation even harder was the poorly defined regulations governing how restaurants and other food establishments should handle their food waste.¹²⁷ In 2011, only 33 cities were chosen as the trial sites for implementing a non-binding “guidance”, which advised unified collection of food waste either by the environmental protection department or designated enterprises.¹²⁸ The loosely defined regulation did not specify each food regulator’s responsibilities, or punishment for non-compliance. The implicit labour division and vaguely defined responsibilities of food regulators discouraged them from cooperating, and impacted somewhat negatively on the effective modification of illegal production and sales of recycled cooking oil.

Regulatory responsibilities and corruption

The dealers who illegally dump large volumes of recycled cooking oil back to dinner tables are mostly legal corporations or part of such a corporation. Some major cases exposed since 2011 suggest that the trade in large volumes of adulterated cooking oil was all undertaken by legal corporations. For example, Yunnan Fengrui Oil Co., Ltd (Fengrui), the largest processor of cooking oil in Yunnan province, bought over 32,000 tons of recycled cooking oil to produce cooking oil from 2002 to 2012.¹²⁹

On one hand, ordinary domestic consumers were not in a politically powerful position to have an influence on food regulators’ protection over them; on the other hand, some food producers “purchased” protection over their illegal behaviours from regulators. In cases that involved large volumes of adulterated oil production and sales, nonfeasance and direct bribery of food regulators were found to assist those illegal dealers to sustain long-term and large-scale deals for adulterated oil. For example, Fengrui was protected by the director and vice director of the local AQSIQ branch. The regular check of the company’s product quality was simplified, and the penalty for “purchasing inferior raw

¹²⁶ Anonymous, "The Ministry of Public Security Cracked Down a Major Case of Gutter Oil " *The Beijing News* 14 September 2011.

¹²⁷ The relevant regulation was issued in 2010 by the State Council as an “Opinion”: General Office of the State Council (PRC), "General Office of the State Council's Opinion on Strengthening the Governance of Food Waste Management," (General Office of the State Council (PRC), 2010).

¹²⁸ NDRC, "33 Cities as the Trial Sites for Food and Kitchen Waste Management," NDRC, MOF, The Ministry of Housing and Urban-Rural Development,

http://www.sdpc.gov.cn/fzgggz/hjbh/hjzhdt/201108/t20110802_427025.html.

¹²⁹ Xie and Chen, ""Gutter Oil" Cases in Different Locations."

materials” was alleviated or even avoided. Two directors were found to have accepted RMB 130,000 Yuan in bribes, and in return they facilitated thousands of tons of recycled cooking oil to go back to dinner tables of ordinary domestic consumers.¹³⁰ In the case of Gelin, food regulators turned a blind eye to complaints from local residents and their nonfeasance resulted from compromises for the company’s economic contribution to the local economy.¹³¹

The corrupt links between oil producers and food regulators were revealed in many other cases of adulterated oil. For example, in 2012, Jiangsu Yaolin Kangrun Food Co., Ltd was found to be involved in the illegal sales of recycled cooking oil amounting to RMB 60 million Yuan and reaching 12 provinces and regions. In this case two officials from the local AQSIQ branch neglected their regular supervision responsibilities over this corporation, and blocked the complaints about suspected recycled cooking oil production.¹³² In 2012, Xuesong Oil Refinery in Hunan sold over 900 tons of recycled cooking oil to the local food market, and this case brought down two officials in the local AQSIQ branch and one from SAIC due to nonfeasance.¹³³

Technical challenges in detecting recycled cooking oil

Current national standards and testing facilities are unable to detect refined recycled cooking oil. “Hygienic Standard for Edible Vegetable Oil” (the Standard) is the current safety and quality standard for vegetable cooking oil in China.¹³⁴ In this standard, sensory judgement and 9 specific items will be checked to ensure the safety and quality of vegetable oil. These 9 items are acid value, benzopyrene, arsenic, lead, pesticide residue, aflatoxin b-1, peroxide value, the residue of leaching oil solvent, and free gossypol.¹³⁵ After deep processing, the recycled cooking oil has a high chance of passing the thresholds for all 9 items. In fact, 8 samples of recycled cooking oil out of 10 from Gelin passed all testing items specified in the Standard. At the same time, over

¹³⁰ Jia Dai, "The Supreme People's Court Exposed Five Major Cases on Food Safety Crime," The Supreme People's Procuratorate of the People's Republic of China, http://www.spp.gov.cn/zdgz/201402/t20140222_67764.shtml.

¹³¹ Liu et al., "Expose the Black Chain of Interest on Gutter Oil."

¹³² Jiangjie, "The Ministry of Supervision Notified Five Cases of Food Safety," *People's Daily*, 9 January 2014.

¹³³ Bin Zhang, "539 Cases on Duty Crime in the First Five Month in Hunan," *Hunan Daily*, 10 July 2013.

¹³⁴ MOH and China National Standardization Committee, "Hygienic Standard for Edible Vegetable Oil," (Beijing: MOH, China National Standardization Committee, 2005).

¹³⁵ Ibid.

10 kinds of strong carcinogens, which were not listed in the Standard, were detected by the Beijing Municipal Food Safety Supervision Centre.¹³⁶

The standard system for detecting recycled cooking oil, especially when adulterated into other oil, is still at an experimental stage. When the case of Gelin was exposed, MOH called for methods to detect recycled cooking oil nationwide. Seven laboratories and research institutions submitted five methods, and all were denied due to the low effectiveness proven by a panel of professionals in oil and food safety areas.¹³⁷ Food regulators failed to search for equivalent precedents from developed countries. Since recycled cooking oil in developed countries is used for producing biodiesel or other forms of biofuel with strict government supervision, encouragement and incentives, there is no need for food regulators to detect recycled oil in cooking oil.¹³⁸ That is to say, in the case of adulterated cooking oil, food regulators were inadequate not only in terms of incentives, but also lacked technical expertise for effective implementation within the segmented arrangements for ordinary domestic consumers.

Implications of the case study: vulnerabilities of ordinary domestic consumers

The fundamental cause of the illegal supply of adulterated cooking oil was the disadvantageous political and economic position of ordinary domestic consumers. This group, with such a position, could create little incentive for the improvement of systematic weaknesses in the segmented arrangements to which they were subject. The major consumers of adulterated cooking oil were the ones with the least power to change or impact on food safety implementation: vulnerable low-income earners at the bottom of Chinese society who consumed mostly from the low-end food market. Within the segmented implementation arrangement, the weaknesses of corruption and the uncoordinated operation of food regulators have assisted the growth of a sophisticated network for producing and selling adulterated cooking oil. This food violation was made even worse by food regulators' technical incapacity.

¹³⁶ Anonymous, "China Is Working on the Methods to Detect Gutter Oil," *Beijing Times*, 19 September 2011.

¹³⁷ Peng Wu, "5 Methods Collected from the Society Denied for Inability to Detect Gutter Oil," *The Beijing News* 2011.

¹³⁸ Rui Chen, Dajiu Li, and Shizhe Wen, "Where Does Gutter Oil Go in Other Countries," Cankaoxiaoxi [参考消息], <http://www.cankaoxiaoxi.com/survey/digouyou/>.

The systematic and technical weaknesses of the segmented regulatory implementation resulted in a somewhat long and sophisticated business chain of adulterated cooking oil. In the case of Gelin, the company stretched across 14 provinces to build the business chain of collecting, processing and selling recycled cooking oil. Each stage of collection, preliminary processing, distribution, intensive processing, wholesale and retail was highly organised and occurred in various provinces.¹³⁹ After those major cases were exposed, several interviewees working in Kunming Public Security Bureau expressed their shared opinion that “the exposed cases are only the tip of the iceberg” and that the path to wiping out recycled cooking oil from Chinese cuisine is still a very long one.¹⁴⁰ Biodiesel and other forms of biofuel are encouraged as a way to make use of used cooking oil and avoid it going back to dinner tables. But the high cost may not be shouldered by profit-driven enterprises if effective incentives are not in place.¹⁴¹

Conclusion

Food consumers, producers, and regulators are all significant actors in shaping the regulatory implementation of food safety. Consumers’ power, from political influence or economic affluence or both, can create a system of incentives that favour them and affect food safety implementation through specialised regulatory arrangements or a better quality of implementation.

In the segmented food safety regime in China, the implementation of food safety was neither robust nor did it fail for all groups. Rather, its effects varied drastically for different consumer groups. Foreign consumers benefited from effective food safety implementation due to both their economic and political influence. Such influences enabled a system of incentives that favoured them, and a segmented regulatory arrangement in which AQSIQ dominated implementation and largely enhanced implementation outcomes. The group of the politically privileged, with overwhelming political power and control of resources, shaped effective implementation of food safety through the exclusive supply system. The group of affluent consumers had strong market power to shape better food safety implementation and they paid a premium to

¹³⁹ Anonymous, "The Ministry of Public Security Cracked Down a Major Case of Gutter Oil".

¹⁴⁰ Interviews with officials from the Public Security Bureau in Kunming December 2014.

¹⁴¹ Weiyi Chen, "Sinopec Started the Refinery for Recycled Cooking Oil," China News, <http://finance.chinanews.com/ny/2012/08-05/4083717.shtml>.

purchase it. The group of ordinary domestic consumers, who were politically powerless and economically poor, had no political or market power to impact upon food safety implementation. Their powerlessness further limited the influence they could exert to correct the systematic problems within the segmented implementation arrangements for them, which were the consequence of their political powerlessness in the first place.

Those systematic problems substantially lowered food regulators' incentives to effectively implement food safety regulations for ordinary domestic consumers. Agency fragmentation in the multiple-regulators structure discouraged food regulators from effectively taking responsibility for food safety implementation. Corruption of food regulators, and their close links with some food producers, further constrained regulators' protection over ordinary domestic consumers. The low cost of non-compliance largely weakened regulators' power to implement safety standards. In addition, China's domestic food market is rapidly developing in terms of size and complexity, but food regulators' technical expertise was inadequate and unevenly distributed. Those practical challenges in the domestic food sector further added to the difficulty of effectively implementing food safety regulations. Just as the case of adulterated cooking oil indicated, modifying and punishing a severe violation of food safety could be very difficult due to the overlaid systematic problems within the segmented implementation arrangement for ordinary domestic consumers.

Table 7-1 Food safety implementation for various consumer groups

Consumer groups	Food safety level	Reasons
Foreign consumers	Generally high	Economic and political significance; segmented implementation arrangement
The politically privileged	High	Political power; the exclusive supply system
Affluent consumers	Generally high	Strong market power
Ordinary domestic consumers	Medium to low	Little political or market power; systematic problems in the segmented implementation arrangement

The regulatory segmentation in food safety implementation contributed substantially to the overall failure of the food safety regime. The political and class context of each consumer group determine how they impact on food safety implementation, and what outcomes they can get from the segmented implementation arrangements. The hazardous outcomes endured by ordinary domestic consumers suggest that they confront a selective assortment of systematic problems associated with food safety implementation. Such problems are not merely technical, but are located in the social dynamics that underpin the segmented food safety regime.

Conclusion

The central research problem of this thesis is to explain the repeated failure of the food safety regulatory system in China despite the ever-accelerating regulatory initiatives attempting to reform this system. In particular, this thesis focuses on why food safety regulation was felt unevenly across different consumer groups, thereby creating distinctive sets of winners and losers in this failed regulatory regime.

What might be a dysfunctional and failed regime for some may be perfectly suitable for others. By ‘winners’ I mean consumers who have access to safe food produced in China. For example, China continued to export food despite the impact of food safety crises that spilled into China’s overseas food market. In fact, food exported from China can still meet some of the most stringent safety standards in the world. Foreign consumers certainly have not had to bear the burden of regulatory failure. Affluent consumers have been able to use their economic power to shield them from the vulnerabilities and failures of food safety regulation. The politically privileged secure stable food safety levels through the exclusive supply chain as a segmented system within the food safety regime. By ‘losers’ I mean consumers who suffer from countless known or unknown food risks, such as the large number of victims of food safety crises who are powerless civilians, and the low-income earners located at the bottom of Chinese society who received the least protection from food regulators, or ordinary domestic consumers in general.

Therefore, the key task of this thesis was to explain why the food safety regime in China failed in a way that redistributed food risks and the benefits of food safety management among socially- and politically-differentiated food consumers. This thesis explained the particular mechanisms, resources and advantages that allowed some groups to access food with higher food safety benchmarks, by considering the broad range of problems in the food safety system. It also addressed why the benefits of food safety regulations could not be shared universally among all consumers in China, even if it could provide access to safe food for some consumers.

These discussions lead to the crux of my argument: regulatory segmentation in the food safety regime is pivotal in contributing to the failure of the regime, and this segmentation has a social foundation within distinctive consumer groups and hence

entrenching the segmented system. It is based on this social foundation that various consumer groups have created distinct political and economic incentive systems to shape the food safety regime and receive differential treatment. It is also this social foundation that politically perpetuated the segmented system and restrained it from moving towards a more unified system where food safety becomes a public good.

Consumers' access to safe food

Regulatory segmentation in the food safety regime is path dependent¹ – the historical origins of the food safety regulatory system created the current segmented institutional arrangements as discussed in Chapter Three. While China's politics and economy have changed significantly, the segmented nature of the regulatory system seems to be fixed. Consumers' unequal access to safe food was institutionalised through regulatory segmentation. The streamlined regulatory segmentation results in different access to food of differential safety levels for various consumer groups. In this segmented regime, food for foreign consumers was produced under distinctive regulatory conditions in which food was provided through a closed production system and regulated by a single food regulator (AQSIQ). Food for the politically privileged was provided by designated producers through the exclusive supply system. Food for affluent and ordinary domestic consumers is mostly regulated by a shared structure of multiple regulators, but the difference is that affluent consumers can choose food from producers who have incentives to produce high quality food at premium prices. Most food safety crises affected food destined for ordinary domestic consumers, who have the worst access to safe food.

I tested the relationship between unequal food risks and risk segmentation on the basis of Hood's model of regulatory risk that differentiated between various components of the risk regulation regime, as outlined in Chapter Two.² The thesis demonstrated that regulatory segmentation occurred in all three components of the regime – food safety standards-setting, information-communication and behaviour modification – and affected all four fragmented consumer groups. The entanglement of regulatory

¹ "A path dependent process is one whose asymptotic distribution evolves as a consequence (function of) the process's own history." Quoted from: Paul A. David, "Path Dependence, Its Critics and the Quest for 'Historical Economics'," in *Evolution and Path Dependence in Economic Ideas: Past and Present*, ed. Piere Garrouste and Stavros Ioannides (Cheltenham and Northampton: Edward Elgar, 2001), 20.

² Hood, Rothstein, and Baldwin, *The Government of Risk: Understanding Risk Regulation Regimes*.

segmentation in each of those components and the fragmentation of consumers institutionalised access to safe food for some consumer groups, but not all.

For example, foreign consumers' access to safe food was secured by having a single but comprehensive regulator, AQSIQ, mirrored from central to local levels.³ Such a structure allows AQSIQ to effectively supervise export food producers in a ring-fenced system to follow a different set of more elaborate and stringent food safety standards, and to efficiently provide access to food safety information for foreign consumers. AQSIQ's comprehensive capacity and the various mechanisms it mobilised largely guaranteed the effective regulatory implementation of food safety for this group, including mandated requirements for safety certifications,⁴ and regulatory partnerships with China's food trading partners.⁵

The politically privileged ensured their access to safe food through the system of exclusive food supply. When the food safety regime was first established in the early 1950s, producers were created and selected within the regime to supply food exclusively to this politically influential group. These designated food producers followed the same set of safety standards as other producers, but their politicised mission drove them to reach higher food safety benchmarks. For example, Ershang Group, one of many SOEs in the system, obtained a series of ISO and HACCP certifications to ensure a high level of safety.⁶ The straightforward supply-demand relationship designed in the exclusive supply system simplified and guaranteed access for the politically privileged to safety information, and ensured effective implementation of food safety for this group.

Affluent consumers, on the other hand, were able to access safe food by paying a premium through the market. The increasingly popular CSA farms provide an example. Affluent consumers paid much higher-than-average prices in exchange for food that has achieved better safety levels, backed by more stringent food safety standards (such as the organic farming certification),⁷ complete access to food safety information, and effective implementation of standards and rules. In this sense, affluent consumers were

³ The local level branch of AQSIQ is China Inspection and Quarantine, CIQ.

⁴ Jin, Zhou, and Ye, "Adoption of Haccp System in the Chinese Food Industry: A Comparative Analysis."

⁵ Yasuda and Ansell, "Regulatory Capitalism and Its Discontents: Bilateral Interdependence and the Adaptability of Regulatory Styles," 5.

⁶ Tianjin Er Shang Group, "Group Introduction".

⁷ Liu and Wu, "How Far Can Organic Farms Go?."

able to purchase the public goods of food safety information and implementation of food safety regulations, but in a way that sustained the systemic failures of the public regulatory system.

In contrast to these groups, ordinary domestic consumers had the worst access to safe food. By ordinary domestic consumers, I refer to those who have neither politically privileged access nor sufficient income to purchase quality food. The food safety standards that the domestic food sector followed were inconsistent, contradictory, and offered – as I said in Chapter Five – a low level of protection for consumers. Similarly, this group had limited access to food safety information from public agencies. Hence, ordinary domestic consumers were pushed to alternative information sources, where distrust, risk perceptions and risk amplification further impaired their access to information. In addition, ordinary domestic consumers were greatly susceptible to the systematic implementation biases embedded in the segmented regulatory implementation arrangement, such as corrupt practices and agency fragmentation among food regulators. In each of the areas of risk regulation, the food safety regulatory system failed to provide adequate protection for ordinary domestic consumers.

The social foundation of regulatory segmentation

It is the social foundation of regulatory segmentation in the food safety regime that entrenched the unevenly distributed benefits of food safety regulations among various consumer groups. By social foundation, I refer to the consumer fragmentation according to the social class of consumers, and their associated interests and resources. The statement that “Power is of class nature”⁸ was used to describe East European socialist societies, but it can also apply to China, where social class is fundamental in determining power and resource allocation among different sectors of population.⁹ Food consumers in one or several social classes who shared a similar resource structure of power, privilege, economic capacity, consumption patterns and other features fragmented into various consumer groups. In turn, the power and influence of each consumer group ultimately became their unique political and market power, and various

⁸ Szelenyi, "The Intelligentsia in the Class Structure of State-Socialist Societies," 288.

⁹ Lu, *Dangdai Zhongguo Shehui Jieceng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*: 9.

groups used their power to create and stabilise the regulatory segmentation of the contemporary food safety regime.

For instance, the strong political power, or “cadre power,”¹⁰ of the politically privileged still imposes on the exclusive supply to provide access to safe food to this group, though this system is less visible in the food market than it was in the past. The politically privileged are the decision-makers in China and possess strong organizational authority.¹¹ As the class of the political elite, they were able to “convert the political assets into economic capital”.¹² Their overwhelming political power sustained and streamlined the exclusive supply system even though it was originally designed only to tackle food shortage in the 1950s.¹³ In the contemporary segmented food safety regime, specialised SOEs and other forms of food production in the exclusive supply system still shoulder the responsibility of providing safe and high quality food to this group.

The emerging new rich, or affluent consumers, have strong market power to purchase the public good of food safety regulations through the market. For example, they can pay a premium for food that follows international standards, with transparent safety information and effective safety standard implementation. This group of consumers appeared during and after the Reform, and their market power created strong incentives for food producers to value this group by achieving and maintaining high food safety levels. The case of CSA farms in this thesis demonstrated that the market power of affluent consumers influenced these producers and ensured their access to safe food.

The economic and political influence of foreign consumers derived from the strategic role of food exports in China’s economy, especially in major food export provinces as introduced in Chapter Seven. Food exports contributed significantly to local employment, prosperity and stability. The influence of foreign consumers, in turn, ensured their access to safe food through distinctive regulatory arrangements which internationalised food safety standards and regulatory practices. This set of segmented

¹⁰ Nee, "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China."

¹¹ Lu, *Dangdai Zhongguo Shehui Jiecheng Yanjiu Baogao [Research Report on Contemporary China's Social Strata]*: 9.

¹² Szonja Szelényi, Iván Szelényi, and Imre Kovács, "The Making of the Hungarian Postcommunist Elite: Circulation in Politics, Reproduction in the Economy," *Theory and Society* 24, no. 5 (1995): 698.

¹³ Gao, "Beijing Shi Kunnan Shiqi Shangpin Gongying Zhuiji [Beijing Commodities Supply in Difficult Times]," 16.

regulatory arrangements strictly monitored and controlled food risks for foreign consumers, and ensured that safety regulations were effectively enforced.

In contrast, ordinary domestic consumers were mostly politically powerless and economically vulnerable, and lacked either the political or market power to obtain and sustain high standards of food safety. As a result, most systematic biases in the food safety regime occurred amongst this group. For instance, in the case of adulterated cooking oil in Chapter Seven, the systematic problems of inadequate technical expertise, poor access to risk information, and ineffective regulatory implementation all affected the group of ordinary domestic consumers. This made them the major victims of this fraudulent and health-threatening food.

The net effect of this regulatory segmentation is that incentives for food safety management were felt differently by the various consumer groups. For example, the politically privileged used their political power to create an incentive system that favouring them, but the incentives system created by affluent consumers derives more from that group's economic resources and market power. The group of ordinary domestic consumers, who were not politically powerful or economically affluent, failed to create an incentive system to motivate food producers or bring about effective implementation of food safety regulations. These different incentives, in turn, made any correction of the failed food safety regime difficult to accomplish. This is largely due to the fact that fragmented consumer groups with strong political and market power secured their beneficial food safety management through regulatory segmentation.

The key contribution of this thesis is to show that the failed food safety regime is not a simple question of institutional failure but reflects a more deeply-seated problem of uneven distribution of food safety risks amongst various socially stratified consumer groups. Hence this thesis has argued that it is the interaction of the segmented regulatory system and the differently-placed consumer groups within the regulatory governance that leads to the systemic failures of food safety in China. The argument outlined in this thesis also explains why reform of this system is politically difficult: because powerful groups have strong incentives to maintain this segmented system. This explanation goes beyond views primarily about deficits and failure in food safety

regulatory governance, such as fragmentation of food safety bureaucracy,¹⁴ regulatory implementation failure,¹⁵ and regulatory power manipulation.¹⁶

Implications for policy reform

The implication of my argument is that reforming the regulatory system will not simply be a matter of introducing more effective institutional reforms. In March of 2013, CFDA was appointed as the major food regulator for the domestic food sector, which removed the decades-old multi-regulator structure for the domestic food sector in favour of a single regulator.¹⁷ At the same time, MOH initiated a nationwide reorganization of food safety standards for the domestic food sector.¹⁸ This series of fundamental regulatory reforms aimed to resolve conflicts and other problems impairing food safety standards, and improve coherent implementation of food safety regulations and communication of food safety information in the domestic food market. However, people in China did not see the expected decline in food safety incidents in 2014, which was still above 600 and increased from over 300 in 2013.¹⁹

Yet the core of my argument is that policy reform requires a more sophisticated understanding of the social foundation of regulatory segmentation. The World Bank has released a publication on the political economy of governance reform,²⁰ which pointed out that powerful and vocal groups can influence the decision-making and actions of regulators, who may “avoid unpopular policies”, and the “socio-political contracts” between governments and these can be “political obstacles to reform”. On the other hand, the “political interest” of powerful groups can promote institutional change, and “politically-driven change can break the cycle of opposition to reform, unsettle

¹⁴ See for example: Peng, "Tracing and Periodizing China's Food Safety Regulation: A Study on China's Food Safety Regime Change; ADB, SFDA, and WHO, *The Food Safety Control System of the People's Republic of China* (Beijing: ADB, 2007).

¹⁵ See for example: Ni and Zeng, "Law Enforcement Is Key to China's Food Safety."; Zhou and Jin, *Food Safety Management in China: A Perspective from Food Quality Control System*; Jia and Jukes, "The National Food Safety Control System of China – a Systematic Review."

¹⁶ See for example: Tam and Yang, "Food Safety and the Development of Regulatory Institutions in China; Dali Yang, "Total Recall," *National Interest*, no. 94 (2008).

¹⁷ State Council of PRC, "Plan on State Council Organization Reform and Function Transition".

¹⁸ MOH, "Action Plan of Food Safety Standards Clearing."

¹⁹ Yi Yuan Net, "Food Safety Incidents Archive 0-2," Yi Yuan Net, <http://www.39kf.com/focus/spaq/01/index78.shtml>.

²⁰ World Bank, "The Political Economy of Policy Reform: Issues and Implications for Policy Dialogue and Development Operations," ed. Social Development Department (Washington D. C.: The World Bank, 2008).

institutions and bring about change.”²¹ The essence of these arguments is to suggest that we need to spend as much time on the incentives for powerful groups to demand governance reform as on the institutional supply of governance reform, if not more.

Indeed, regulatory reform and interventions are seldom apolitical and technocratic. Even though reform of the segmented food safety regime is designed to provide technical and problem-solving interventions, these interventions will create “political, ideological and distributional implications” no matter how technical they appear.²² In particular, if these interventions are in specific areas where powerful groups have interests, interventions can be moulded by them to suit their own purposes. There is no exception for the reform of, or interventions in, the segmented food safety regime in China, and the political significance of consumer fragmentation should be taken into careful consideration and used to shape reform initiatives.

In brief, understanding the political economic context of regulatory reform is crucial in promoting reforms.²³ In relation to the food safety regime, an understanding of the vested interests that have a stake in the segmented regime will allow us to determine the types of reform that are feasible as well as the coalitions that are needed to underpin more transformative changes in the regulatory system.

A further implication of this research concerns the environment of distrust among most domestic food consumers. As discussed in Chapter Six, ordinary domestic consumers were strongly distrustful due to food regulators’ failure to provide food safety information, which drove the consumers to alternative information sources. Unstoppable food risk perceptions and amplifications in those sources further pushed distrust into a descending spiral²⁴ which made the accurate communication of food risks extremely difficult. Re-establishing public trust towards food regulators is difficult,²⁵ yet it is an important prerequisite for effective food risk communication and necessary to achieve any possible positive results from future regulatory reform of the food safety regime in China.

²¹ Ibid., 32-33.

²² Shadar Hameiri and Lee Jones, "Fpc Briefing: Governing Non-Traditional Security Threats by Transforming State Trends and Challenges," (The Foreign Policy Center, 2015), 8.

²³ World Bank, "The Political Economy of Policy Reform: Issues and Implications for Policy Dialogue and Development Operations," 39.

²⁴ William Ruckelshaus, "Restoring Public Trust in Government: A Prescription for Restoration," (The Webb Lecture to the National Academy of Public Administration 1996), 2.

²⁵ Slovic, "Perceived Risk, Trust, and Democracy: A Systems Perspective."

Regulatory state with Chinese characteristics

This thesis has broader implications for the study of the regulatory state in China. What makes China important in the growing importance of the regulatory state of the global South is not only its global influence and increasing interconnectedness with the rest of the world, but also its distinctive political economy context. It is this political economy that sustains the regulatory segmentation of the food safety regime in China. This context of political economy will also play a salient role in other regulatory realms.

This thesis of the food safety regime indicated that regulatory development in China cannot be disentangled from its political economic context. This thesis demonstrated that the political economy of social class-based consumer fragmentation largely determined how the regulatory regime worked and how effective it could be. In the broader picture, many regulatory agencies created in the process of regulatory development in China were institutions transplanted from the North,²⁶ such as SFDA, following the precedent of FDA in the US. This transplantation is “localised” within the distinctive context of China, producing novel regulatory arrangements. Hence, the regulatory state has Chinese characteristics, in which regulatory agencies will be supported (or not) by key social groups, and these coalitions will shape the effectiveness of regulatory capacity. This study draws attention to the relational dimension of regulatory capacity. For example, regulatory governance in the textile industry would not be the same as that in telecommunications²⁷ or finance,²⁸ and this is due to variations in the strategic value of each industry in China’s political economy. The impact that Chinese political economy exerted on regulations has varied, and these variations are the reason that China’s rising regulatory state has been criticised as “fragmented”, having a “lack of transparency” and a heavy reliance on “top-down mandates”.²⁹ Hence, the segmentation approach provides a perspective to understand the political economy of Chinese regulatory development.

This research can help to engage with literature on the regulatory state that almost always draws on cases from the global North, and to enrich the existing regulatory state

²⁶ Dubash and Morgan, "The Rise of the Regulatory State of the South," 8.

²⁷ Hsueh, *China's Regulatory State: A New Strategy for Globalization*.

²⁸ Pearson, "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State."

²⁹ Dupuis et al., "Top-Down Mandates and the Need for Organizational Governance, Risk Management, and Compliance in China: A Discussion."

analyses of China, such as sector/industry based regulatory governance. Though the focus of this research is on food safety, it can be extended further to the broad realm of other public policies and laws, such as regulatory governance of the medical care system and the role of courts in tort liabilities concerning environmental pollution in China.

Future research opportunities

The argument running through this thesis opens up more research opportunities regarding the regulatory state in China. In the area of food safety regulations, more case studies need to be carefully analysed. One of the limitations of this project is it could not include more case studies because of the limited timeframe and difficulties in interviewing key actors. More detailed cases, especially with a specific focus on various consumer groups (even further sub-divisions of these four groups), would be helpful to test and modify my argument.

Besides digging into more detailed cases, alternative explanations of these (or more cases) are highly helpful in elaborating my argument through proving how “systemic” is the regulatory failure of the food safety regime in China. Various rounds of regulatory reform in food safety produced different outcomes, among which the rise of food safety incidents is regarded as a failure of the reform. Alternative explanations of these outcomes, including the rise of food safety incidents, can provide a more comprehensive picture of the regulatory reform in China’s food safety regime. For example, after the issue of the *Food Safety Law of the PRC* and strengthening regulatory implementation of food safety regulations in 2009, there appeared a rise in the figures of reported food safety incidents in 2010, 2011 and 2012 as opposed to 2009, and then a visible drop of the figure in 2013 as opposed to 2012. This thesis claimed such immediate rise after the 2009 round of regulatory reform as the failure of the reform just like the previous ones. Yet alternatively, such rise may be explained as a high visibility and significance of food safety in the political economy of China at the time, coupled with a rising sense that better food safety should be accorded to the domestic food consumers. In this case, the temporary rise of food safety incidents right after 2009 could be alternatively explained by the institutional inertia that delayed the effects of the 2009 reform rather than a complete failure systemically as followed previous regulatory

reforms. This angle of alternative explanations, or how else the quoted data could be explained, can provide a more objective account of the regulatory failure, and better address the progress and weaknesses in both the regulatory regime and new rounds of regulatory reform of food safety regime in China.

The role of NGOs and other civil society groups in food safety regulation is another area that cries out for more research. More actors are involved in food safety management than simply traditional food regulators, and these groups play a role as non-traditional regulators by releasing information, carrying out independent tests and collecting public opinion. Compared to traditional regulators, they attract more public trust because they are seen as independent of political and economic interests. Their participation in food safety management created leverage to alter the behaviours of traditional food regulators, as introduced through the case of cadmium polluted rice in Chapter Six. Hence, it is worthwhile to study the role of these civil society groups, including emerging groups in virtual communities such as Zhihu³⁰ and Guokr,³¹ in shaping the interaction between food consumers and regulators.

Another area requiring more research is consumers' role in the internationalisation of food safety standards. Two groups in this thesis demonstrated their influence over internationalising food safety standards: foreign consumers and affluent consumers. Exported food (for foreign consumers) follows international standards, so does imported food for affluent consumers.³² In this way, the market power of these two groups impacted on the internationalisation of food safety standards, albeit selectively. Affluent consumers are derived from the middle class, which is growing rapidly in China,³³ and one way to satisfy their demand for safe food is through imports. Therefore, the market power of these two groups will increasingly shape and internationalise food safety standards as long as China sustains food exports and increases food imports. One key question that this raises is how food regulators in China sustain dual food safety standards when the internationalisation of standards is accelerating, and more so in the

³⁰ Zhihu is a website where users can ask questions in specific areas, including food safety, and volunteers in that area will answer those questions with scientific knowledge or supported by experience. In fact, food safety is a large section with a high popularity in Zhihu due to the low levels of food safety in China, and growing sophistication of the food industry in general.

³¹ Guokr, "Science Not Rumor".

³² In fact, many CSA farms attempted to internationalise the safety standards they referred to by obtaining internationally recognised certifications in order to attract more affluent consumers.

³³ Barton, Chen, and Jin, "Mapping China's Middle Class".

context of consumer groups' demands that domestic standards meet international benchmarks. An example of this is the recent call for internationalising safety standards on dairy products.³⁴

The regulatory segmentation approach used in this thesis demonstrated a way to understand the regulatory state with Chinese characteristics. The regulatory state and its dynamics must be understood on its own terms, rather than simply how it differs from the "good governance" benchmarks established by international organisations.³⁵ After all, regulatory development can fall into so many various forms that we should "allow its dynamics to be tracked and interpreted without presuming that solutions are necessarily to be found in a rule-based, apolitical and technocratic world."³⁶ This perspective is crucial if we wish to develop a sophisticated understanding of the regulatory state in the global South in general, and in China in particular.

³⁴ See for example: Peirui Zhao, "Safety Governance of Liquid Milk in China" (Central South University of Forestry and Technology, 2014); Xiaohong Hu, "Dairy Company Passed Brc Certification of the EU," *Jinghua News*, 4 March 2015.

³⁵ See for example: World Bank, *Building Institutions for Markets: World Development Report* (New York: Oxford University Press, 2002). 158.

³⁶ Dubash and Morgan, "The Embedded Regulatory State: Between Rules and Deals," 280.

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