



Stakeholder perspectives on infant formula safety governance in China: a decade after the melamine crisis

Ronghui Yang, Klasien Horstman & Bart Penders

To cite this article: Ronghui Yang, Klasien Horstman & Bart Penders (2021): Stakeholder perspectives on infant formula safety governance in China: a decade after the melamine crisis, Food, Culture & Society, DOI: [10.1080/15528014.2021.1884410](https://doi.org/10.1080/15528014.2021.1884410)

To link to this article: <https://doi.org/10.1080/15528014.2021.1884410>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 23 Mar 2021.



Submit your article to this journal [↗](#)



Article views: 293



View related articles [↗](#)



View Crossmark data [↗](#)

Stakeholder perspectives on infant formula safety governance in China: a decade after the melamine crisis

Ronghui Yang , Klasien Horstman  and Bart Penders 

Department of Health, Ethics & Society, School of Public Health and Primary Care (CAPHRI), Maastricht University, Maastricht, The Netherlands

ABSTRACT

This paper critically engages with dynamics of the Chinese food safety governance infrastructure following the melamine crisis. It presents a qualitative analysis of 16 in-depth stakeholder interviews in Hunan, Hubei, and Henan. We reveal tensions between a segmented model of governance and a centralized model, between a centralized top-down model and stakeholder participation, and between a public model and a private, decentral market where corporate reputation must result in transparency and trust. Stakeholders also see gaps between ideals of inclusive, transparent, and participatory governance, and effective problem-solving. Governance of food safety in China, even when targeting inclusion and public accountability, remains heavily dependent on the central state as a pivotal actor.

KEYWORDS

China; milk; food safety; accountability; governance; risk communication; risk assessment

1. Introduction

In the introduction to their collection “Making Milk”, Otomo and Cohen (2017) position milk as inherently interdependent, produced for others by others. While initially associated with nursing, as a global commodity and as a public good, milk has become embedded in large food systems and infrastructures and has become one of the most regulated and studied foods. The history of milk and milk consumption, including the food safety infrastructures that have accompanied them, have been the object of research for a long time. For instance, DuPuis (2002) discusses how narratives of efficiency, progress, and bodily health underwrote milk’s rise in the 20th century US. Valenze (2011) demonstrates how government and corporate interventions have sought to position milk as part of a “nutritional social contract.” Others have discussed how the story of fresh milk is enmeshed in socio-technical arrangements that have driven social change in rural and urban areas of the US and EU (Atkins 2016; Freidberg 2009; Martiin 2010). Discussions on the safety of infant formula extend this line of inquiry (Kent, Loh, and Eibel 2005).

Infant formula stands out as being even more heavily regulated and more controversial (Hastings et al. 2020), and often not without reason. In China, the notions of affluence and modernity drove surges in milk consumption, and the state backed dairy

marketing campaigns in effort to literally grow the nation by nourishing children. However, industrialization of milk production in China, has contributed to several milk and infant formula safety scandals over the last few years, including, for instance, the 2003 big-headed baby scandal, the 2004 fake milk scandal, the 2008 melamine scandal, and the 2017 precocious puberty scandal (Yang, Horstman, and Penders 2020a; Wang, Steckler, and Hoffman 2020). Of these, the 2008 melamine scandal was the most high-profile and raised global concerns. It caused infant hospitalization and deaths and it affected 46 countries (Lin 2014). In 2008, infant milk sold in China by Sanlu was contaminated with melamine and water. By the end of September, six children had died from the effects of melamine poisoning and a further 300,000 consumers suffered kidney stones and renal failure because of melamine exposure (Holtkamp, Liu, and McGuire 2014; Pei et al. 2011). During the escalation of this incident, the Chinese central state ordered an emergency risk assessment report (Liu and Liu 2009), showing that melamine had been detected in the infant formula sold by 22 domestic companies including Yili, Mengniu, Bright Dairy, Shengyuan, and Yashili. This caused great concern – some may say panic – about the safety of China’s infant formula (Wang 2008). From this moment onward, the Chinese dairy industry experienced a trust crisis as well as huge setbacks in its development (Zhang and Zhou 2008; Gong and Jackson 2012). Over a decade, associated governance structures and especially accountability structures, have attempted to rebuild public trust.

Daniell and Kay (2017) argue that the essence of an accountability system associated with food safety is that it provides regulations to restrain bureaucracy, inaction, buck-passing and blame-avoiding in state actors, impelling them to take responsibility on food safety supervision, information disclosure, and risk management. Their envisioned ideal accountability system ensures information transparency to the public and promotes communicative interaction (justification and discussion) between agents and citizens. Additionally, accountability structures should ensure that if an incident occurs, rectification including compensation or sanctions apply, in order to protect citizens’ interests, and to hold actors accountable (Bovens, Goodin, and Schillemans 2014).

Bovens, Goodin, and Schillemans (2014) distinguish several dimensions of accountability, including accountors and account-holders, uses of accountability and accountability mechanisms. In Western societies, scholars highlight both public and private actors engaging in accountability practice to deliberate, bargain, learn from each other and seek compromise to produce a collective output and to make equitable judgments. Accountability appears in two forms. On the one hand, accountability is seen as a *virtue*, contributing to democratic governance. As such, it takes the shape of substantive standards for good governance, such as responsiveness, a sense of responsibility, or a willingness to act in a transparent, fair and equitable ways (Warren 2014). On the other hand, accountability is seen as an *administrative mechanism* to assess how institutional arrangement operate in terms of efficacy and with what effects.

Klijin and Koppenjan (2014) conceptualized accountability mechanisms differently in various institutional contexts. In a democratic regime, multi-level accountability mechanisms and standards for accountable behavior and performance co-exist, and accountability is embedded in more complex networks than in traditional policymaking and public service delivery. In a bureaucratic regime, public managers are vertically accountable to their supervisors and political goals. Mostly in the former, network

situations, public officials have to consider other stakeholders in a horizontal mechanism of accountability. Patil, Vieider, and Tetlock (2014) focus on accountability from the process-outcome approach, arguing that outcome-oriented accountability emphasizes holding others accountable for their efforts, while process-oriented accountability stresses public servants' effectiveness. The former focuses on monitoring and sanctioning, while the latter stresses accountability norms, information disclosure mechanisms, and risk assessment and judgment systems to provide feedbacks for quality improvement. These dimensions of accountability systems are discussed by Chinese scholars as well. Zhang and Sun (2008) stress administrative accountability efforts to improve the institutional efficiency in the quasi-authoritarian context of China. In contrast to diverse stakeholders engaging in accountability practice in Western countries, China displays an administrative accountability system steered by the state, in which societal actors are unable to participate to hold the governmental actors accountable for their malpractice (Yan and Nie 2009; Yang 2012). As part of this, Chinese scholars conducted fierce debates upon who should be held accountable for the Chinese milk and infant formula safety crises (Delman and Yang 2012). Feng (2011) argued that the relevant dairy companies should be held accountable by the state, including the raw milk-producing households, illegal staff at the raw-milking purchasing stations who added melamine, and the companies who sold the melamine-tainted infant formula. Ge and Peng (2012) stressed that the dairy companies should assume responsibility of civil compensation to victims, as well as receive legal punishment. Others argued that accountability surrounding the milk scandal should not be limited to the market. Li (2009) explains that local governments, responsible for food safety supervision, have to be held accountable as well. Song, Cao, and Lv (2017) illustrate this by showing that local governments focused on stimulating economic development and market interests at the expense of food safety. More concretely, Le and Chen (2018) argue that the quality of melamine-detection in milk power (timeliness and effectiveness) by the Bureau of Quality and Technical Supervision is poor and Yan (2010) and Peng et al. (2015) showed that local governments tend to conceal food safety scandals and protect local companies rather than support information transparency.

This led several scholars to conclude that the whole accountability structure was flawed and shared in the responsibility for the milk scandal, through defective procedures and regulations, bureaucratic culture, and unclear responsibilities following from segmented supervision patterns (Liu and Yan 2011; Song and Wei 2012; Xu 2014). With respect to the issue of power distribution, Huang (2011) argues that unclear responsibility boundary setting between supervising departments led to power overlaps and vacuums, and buck passing. According to Huang, power centralization in government in the form of a coordination agency could have tackled these issues. However, Lai (2013) and Wang and Li (2007) argue that power centralization is not a solution, as it will create absolute power over food safety, and with it, corruption, and ultimately a failure of accountability. To Liu (2010), Lai (2014) and Edwards (2012), the traditional concepts of a food safety supervision system as a controlling and regulating organization monopolized by the state is outdated and unable to restore public trust. The Chinese academic debate around food safety exhibits a trend toward co-governance and stakeholder participation in the infant formula safety regulation and accountability. These movements emphasize participation and consultative dialogue between decision-makers and

interest parties and invite public debate, interaction, and inclusiveness (Yang, Horstman, and Penders 2020a). Additionally, Lai (2013) and Zhang and Han (2018) point out that the Chinese food safety governance system should not only emphasize the construction of administrative and social accountability systems but also integrate the process-oriented accountability approach to favor a stringent regulation and accountability system, information transparency and the scientific risk assessment. Chinese academics traditionally stress punitive accountability after failure, which means that activating accountability in the aftermath of a crisis puts huge accountability pressure on the local states to enhance the efficiency of crisis responses and punish local officials severely under pressure of public opinion. Such speedy and forceful punitive accountability risks inaccurate and unjust actions, while process-oriented accountability favors diagnosing which processes have potential effects on the bad outcomes and improve the quality of judgment.

Inspired by these conceptual developments in accountability around food safety, coinciding with changes in the Chinese food safety control systems (Jia and Jukes 2013), we empirically study the accountability dynamics around the Chinese milk scandal. We ask how diverse stakeholders attribute meaning to changing accountability infrastructures and dilemmas associated with infant formula safety governance. We ask whether different stakeholders, officials as well as non-officials, perceive this historical developmental trajectory of infant formula safety governance and its future differently.

This study aims to, primarily, empirically chronicle perspectives and views on the development of governance of food safety in China, and secondarily, provide input to discuss the feasibility of concepts such as democratic accountability, stakeholderism, and multi-level governance, developed in Western, academic and political discourses, in the Chinese context.

2. Methods

To study in the dynamics of the governance of infant formula safety and public trust in China, we qualitatively studied the perspectives of relevant stakeholders on food safety governance, supplemented with a policy document analysis. We focused on three main themes: (1) government and the accountability system, (2) risk assessment, and (3) risk communication. These themes were determined to be the most salient, based upon a review and analysis of Chinese academic literature on food safety governance (Yang, Horstman, and Penders 2020a).

The empirical core of the study consists of interviews with diverse stakeholders in the Chinese provinces of Hubei, Hunan and Henan. Data was collected through 16 semi-structured interviews with food safety experts, government representatives, employees of dairy companies, media professionals, and consumers (see Table 1 for a more detailed overview). The study sample was purposefully selected: participants were approached based upon their experience, expertise and involvement in the governance of infant formula safety in their region.

In the interest of establishing access and trust with potential respondents, we informed them about the academic aims of the interviews. Prior to the interviews, a very concise interview guide summarizing the research's main objectives and themes was provided to all respondents. The interview guide listed the following themes: (a) transitions of power

Table 1. Informants characteristics and description of function.

Informant ID	Gender	Description
ID1	Female	Vice Dean; Public Health Bureau; supervising the safety of primary food production
ID2	Male	Director; Industrial and Commercial Bureau; focused on circulation of dairy products in market
ID3	Male	Dean; Food and Drug Bureau; supervising infant formula safety, risk control and consumers complaints
ID4	Female	Vice Dean; Animal Husbandry and Veterinary Bureau; focused on supervising cow-breeding safety
ID5	Male	Vice Dean; Quality and Technical Supervision Bureau; focused on personnel training, food safety communication & technological support
ID6	Female	Vice Director; Agricultural Bureau; supervising catering safety
ID7	Male	Expert; Risk Assessment Center
ID8	Male	Professor; Agriculture University; focused on food safety supervision and governance
ID9	Male	Expert; Food Safety Communication Center
ID10	Female	Journalist; Media
ID11	Male	Editor; media
ID12	Male	Manager; Dairy Company
ID13	Male	Executive; Cow-breeding factory
ID14	Female	Infant formula retailer
ID15	Female	Young mother; using domestic infant formula
ID16	Female	Young mother; using foreign infant formula

distribution in supervising departments, (b) development of political and social accountability systems, (c) information disclosure and information transparency, (d) risk assessment and the value of expertise. These themes were operationalized in questions about concrete processes, activities or practices in the specific organizations employing the respondents, or, in the case of the interviews with young mothers, their private lives. Accordingly, the questionnaire used was tailor-made. In order to achieve an in-depth understanding of the governance of infant formula safety and public trust in China, the interviews were semi-structured, providing room for respondents to tell their story as they saw fit.

The interviews were conducted between February and April 2018 in China (Hubei, Hunan, and Henan provinces) and were conducted in Chinese. All quotes reproduced here were translated by the first author. Performing a qualitative study in China, including fieldwork and interviews, is complicated. In practice, the sensitive political environment and low social trust make it unfeasible to get access to potential participants via formal ways in the quasi-authoritarian regime of China (Heimer and Thøgersen 2006). For instance, local officials are reluctant to participate in field investigations for fear of negative reports, damaging state reputations, and the consequential administrative accountability. Chinese citizens also generally distrust interviews conducted by strangers, and are reluctant to openly express personal opinions. To address these issues, we adopted informal strategies, including the exchange of small gifts and the use of mutual acquaintances as mediators to establish first contact and to build a private, trusting relationship with potential participants before data collection. Given that infant formula safety in both government and dairy companies is considered politically sensitive, in most cases, interviews could not be conducted at the respondents' work places, and interviews could not be recorded. We encountered multiple sensitivities, for instance, Chinese local government officials were privately restrained by their superiors to talk to strangers or journalists about controversial topics. The source of such restrictions is the so-called "second session" (the second session of the 12th National Committee of the

Chinese People's Political Consultative Conference) in March 2018, concerning the potential issues such as online rumor management, as well as governmental reputational damage (Nie 2016). Detailed note taking and verbatim transcription from memory immediately afterward, allowed us to maintain original connotations and quotes for our analysis.

Subsequent thematic analysis was guided by the theoretical discussions about governance and accountability (Bovens, Goodin, and Schillemans 2014). Important themes that we identified most often and that we stressed the most by respondents were the supervision and accountability system, risk assessment, information disclosure and supervision dilemmas. We identified more detailed sub-themes via deductive manual iterative coding of the data.¹ Subsequently, exemplary data extracts were selected from the key sub-themes for inclusion as quotes (Collins 2019).

3. Results

The elements of process-oriented accountability infrastructures move beyond punitive justice after failure and include the construction of norms and procedures of supervision and accountability, information transparency, and scientific risk assessment (Patil, Vieider, and Tetlock 2014). In order to understand how stakeholders and respondents frame problems with such accountability structures in China, we display stakeholder narratives on governance and accountability structures, risk assessment and risk communication.

3.1. Governance and accountability

In 2004, several years before the infant formula scandal, a new segmented supervision system was set up by the Chinese central state. It distributed responsibilities for food category across governmental departments with different expertises on both national and local level (Fan 2004). State actors explained that this multi-sector supervision system meant that every supervision body maintained its specific expertise. An official in a local Public Health Bureau summarized this as follows:

The Agricultural Bureau was responsible for the supervision on primary agricultural products, the Public Health Bureau focused on the market sector, the Quality and Technical Bureau stressed regulation on the food processing, and the Food and Drug Bureau focused on the coordination of food safety supervision and managing food safety incidents. (ID1)

Another official, at the Industrial and Commercial Bureau, offers a rationale for why this infrastructure was required:

Dairy safety was conventionally supervised by a single regulatory agency to ensure food hygiene. With the shift from “food hygiene” to “food safety” after 2003 [...], a single supervision body failed to ensure food safety. As response, multiple supervision bodies were created to conduct food safety regulation “from farm to fork”. (ID2)

Officials in the Quality and Technical Supervision and the Agriculture Bureau argued that these distributions of tasks and responsibilities were far from perfect, required constant maintenance and, in some case, supplementary policies. Yet despite these

deficits, they argued it remained effective, especially after a series of food regulatory tools, such as food safety analysis and evaluation policies, food recall procedures, and food additive control, were amended:

Supervision loopholes arose in the segmented model with the increasing risky food chain, such as the lack of specific laws, poor inspection equipment and etc. As response, new norms were created and inspection technologies were updated, and these strategies have improved the efficiency of segmented model and favoured public trust to a large extent. (ID5)

However, a member of the Food and Drug Supervision Bureau voiced criticism of segmented accountability. He argues that supervision on infant formula safety through the segmented model was very likely to cause unclear responsibility boundaries among supervision bodies, resulting in both power overlaps and vacuums:

In the case of big-headed baby incident,² unsafe infant formula occurring in market resulted from regulatory deficits that multiple regulatory agencies shirking responsibilities one another gave rise to power vacuum and overlap [...]. (ID 13)

An official in a local Animal Husbandry and Veterinary Bureau admitted that indeed such deficits existed in the segmented model. She pointed out that the Food Safety Commission, a coordination agency at the council level was established in 2010 specifically to overcome power overlaps and vacuums (ID4). She argues:

Complementarily, Food Safety Commission was created to distribute tasks to different regulatory agencies, build collaboration mechanisms among multi-level departments, ascertain the causality of milk incidents and hold officials accountable for their malpractice. (ID4)

In contrast, an academic we interviewed offered unveiled critique, stressing that a coordination agency was nowhere near enough. Neither the centralized model nor the segmented model was adequate. The “human” factor caused supervision deficits which ought to be taken into account, requiring Chinese central state intervention (ID8). He described this intervention as follows:

The “Outline for the Accountability Implementation” was created by the central state within several months following the China Milk Scandal in 2008 in an effort to hold supervision bodies and companies accountable, and prevent power abuse of local states [...]. (ID8)

An official in the Food and Drug Bureau underlines this narrative, arguing that the administrative accountability system played an active role after the melamine scandal in 2008, in stimulating information transparency, initiation and implementation of remedies and restoring public trust in governments (ID3). As an immediate consequence, a reporter at *Hubei Daily News* we spoke to, argued that, the “five dragons” (five supervision bodies) involved in the milk chain supervision at both national and local level must be held accountable:

There are thousands of agencies regulating from farmers to milk purchasing stations and factories, so why can't melamine be detected [...]? Frontline food regulators conducted perfunctory supervision on infant formula safety [...], and they should be punished severely. (ID3)

Managers at both a dairy company and a co-breeding factory stress that the relevant companies involved in melamine milk production chain must be accountable too, including the melamine producers, retailers, adders, and Sanlu company in particular (ID12,13). One of them argues:

These players involved in melamine incident intentionally misused, adulterated and sold milk with melamine, causing death and illness of babies [...]. They must be sentenced for the bad consequences of illegal milk production. (ID12)

Where managers and the journalist above point to concrete actors and their accountability, the academic quoted above directs his critique to the level of the infrastructure. Not merely the governments and companies but the accountability infrastructure itself, the segmented model, exposed unclear responsibility boundary setting and should itself be held answerable for the melamine incident:

A coordination agency and the administrative accountability system failed to cure deficits in the segmented model, and the role of the coordination agency was criticized by citizens [...]. (ID8)

On top of this, the accountability deficits criticized above in terms of its procedures, regulations, dynamics, relief system and cultures, also gave rise to account-holders playing “hide and seek” with the public and the media’ (ID3,8)

When a crisis occurred, local states leaders conventionally passed the buck to their subordinates to avoid accountability. Meanwhile, under the pressure of negative media report, several officials were punished severely for their negligence of duty during the milk incidents, nonetheless, these officials were promoted or reinstated after public concerns subsided. (ID3)

Against this background, an official in the Food and Drug Supervision Bureau explains that a centralized supervision model and a strict accountability system were created by the Chinese central state after the milk scandal, to tackle issues of unclear responsibility boundary setting and accountability deficits (ID3).

In 2013, the central state conducted a governmental reform to merge regulatory agencies at the local level. Meanwhile, the central state updated the Food Safety Law in 2015, in which a stringent government accountability was created to constrain misfeasance and nonfeasance of governmental actors [...]. (ID3)

The professor and journalists we interviewed argued independently from one another that this new centralized supervision model is likely to suffer from the corruption that comes with absolute power that lacks an efficient accountability system. They called for external accountability structures populated by other stakeholders beyond government to help alleviate this (ID8, 10, 11). The professor explains those calls were, in part, taken into account:

A co-governance system was created to allow industry associations, citizens, media, and third party organizations to engage in the food safety regulation to hold food regulators accountable [...]. In the case of governmental failure, the social accountability mechanism plays a critical role through media exposure and information disclosure on social media. (ID8)

However, journalists argue that the established administrative accountability system is not as effective as portrayed by officials (ID10, 11). They invoke an event that took place 2013–2016 concerning Abbott milk powder to show that local supervision bodies were still unable to carry out administrative accountability as structured above, because they again found means to avoid blame and pass the buck:

Since 2013, increasing consumers complained about unsafe Abbott infant formula to local states, [...]. However, these states refused to conduct investigations and to hold Abbott accountable on the ground of that the quality of Abbott had been inspected and certified by authorities, evidence provided by consumers was insufficient and the lack of transregional mechanisms disabled local states to handle complaints about unsafe milk purchased from other places. (ID10)

Meanwhile, the Quality Supervision Bureau shirked the responsibility of investigation on unsafe infant formula to other agencies after receiving risk assessment reports of unsafe Abbott milk from CER, a third-party testing agency by claiming CER sending these reports to wrong place [...]. (ID11)

A journalist at *Hubei Daily News* argues that in this case, victims had to seek out the media and third-party allies themselves. Non-governmental stakeholders were sought to hold Abbott accountable after governmental failure:

People News and *Eastday News* reports about Abbott safety issues fuelled public concern. Abbott had to compensate victims to alleviate the negative media report. Nonetheless, Abbott still claimed no safety issue in their milk, shirking responsibilities and maintaining corporate reputation. (ID11)

These new additions to a more informal accountability infrastructure, outside of government control, encountered active resistance. A journalist in *Xiaoxiang News* encountered many instances of such resistance and offers an example. For instance, third-party testing institutions lacked state authorization, allowing Abbott to question their legitimacy:

CER research, a third party testing agency, released a risk assessment report “Abbott marches toward malnutrition and unsafety” in December 2013, claiming the quality of Abbott milk failing to meet national standards. Subsequently, Abbott openly doubted the legitimacy of CER and the accuracy of these risk assessment reports. Meanwhile, Abbott contacted and induced risk assessors who involved in the milk quality risk assessment to deny this claim [...]. With the escalation of debates between Abbott and CER, citizens were confused about who was credible. (ID10)

As a consequence, our journalist respondent argues, social accountability thus came to a deadlock, not solely due to a lack of legitimacy and authority granted by the state, but because of a lack of collaborative structures among non-state stakeholders (ID11).

Against this backdrop, Chinese central state had to intervene again, to curb institutional fragmentation and weak incentives in the accountability infrastructures at the local level. Reporters describe that the central state was powerful enough to “simply” instruct local government to take administrative accountability toward Abbott in May, 2014 (ID10, 11). As one of journalists argues:

In the last five years, approximately 17,000 cans of fake Abbott infant formula were sold in Chinese market [...]. To curb deficits in cross-regional supervision, intergovernmental collaboration mechanism at the local level were established to hold illegal sellers [...].

Meanwhile, the central state conducted a strict risk assessment on Abbott milk to ensure milk chain safety. (ID10)

Stakeholders display different attitudes and experiences toward the segmented or centralized accountability infrastructures, as well as with respect to possibilities to participate in newer social accountability structures. Officials disagree on the distribution of responsibilities and the location of accountability and in the light of (re-)centralization, academics and journalists call out for more public participation in accountability infrastructures. The current accountability infrastructures risk that local governing bodies continue to avoid blame and passed the buck around. Other stakeholders attempt to take up critical roles to facilitate transparency and discussion, but are severely limited because, as non-state actors, they lack state authorization to do so. A consequence of this is that they are left on their own and participate in an accountability infrastructure in isolation, lacking any mutual coordination.

3.2. Risk assessment and public trust

A risk expert we interviewed, argued that “a shift from food safety crisis response to risk management is deemed crucial to the construction of food safety governance models, in which risk assessment is the most technical part” (ID7). Risk assessment is treated as scientific basis for the formulation of standards and political decision-making. However, a reporter we interviewed argues that Chinese science keeps very close ties with politics in risk assessment (ID10). A member of a risk assessment committee is not so concerned about this:

Experts in risk assessment committees were selected by the state. They conducted scientific investigations and provided evidence for governmental decision-making. Meanwhile, citizens trusted experts and believed they are capable to make professional decisions. (ID7)

As a series of food safety incidents occurred, journalists argue, experts and the wider public grew to perceive risk differently, ultimately leading to the view that “Experts were conspiring with politics” (ID10). More scientific experts were enlisted by the state to speak truth on its behalf, which was criticized as “science entangled with government” (ID10). A journalist argues:

Before the 2008 China Milk Scandal, most experts in risk assessment committees were nominated by governments to serve as spokesperson of states to legitimize the decision-making, and conducted science popularisation to enhance public trust in states. (ID10)

This exists in stark contrast with requests by citizens for independent expert risk assessment without state intervention (ID15). However, in the Chinese context of “big government, small society”,³ risk assessment was unlikely to remain independent as experts were keen to secure status through institutional resources as well as government affiliation. One of the academics we interviewed argues that “In risk assessment, the more resources the experts relied on from the state rather than social organizations, the more those experts listened to the government” (ID9).

Another academic points out that in an attempt to counteract the government affiliation and preferences of experts, and cater to diverse risk perceptions among stakeholders, a mechanism for public participation in risk assessment, to help facilitate

pluralistic discussion, was in fact created by the central state in 2010, after the 2008 milk scandal. He argues,

The national risk assessment committee now includes not only political experts and policy-makers, but also experts from academic institutions, hospitals, laboratories, third party, and companies. These experts represent different benefits, and they discuss, bargain and compromise during the risk assessment, favouring justice of judgement and information transparency. (ID8)

Nonetheless, journalists identify a deficit in public participation in risk assessment. Citizens share the concern that the contemporary risk assessment system has not formed the desired pluralistic interaction between scientific experts, policy-makers, representatives of business, NGO and citizens (ID15, 16). A reporter confirms the view that consumers continue to be mere recipients of policy as opposed to actors in the science-policy nexus. This flows from policy-makers and scientific assuming that lay people cannot conceptualize the scientific uncertainties associated with technical risk assessment (ID10).

A media editor underlines the issue that expertise and technologies applied for risk assessment constrain lay public engagement (ID11). To overcome this problem, he argues that third-party testing institutions could act as the representatives of public to engage in technical risk assessment.

In contrast, a journalist stresses that for third-party testing agencies to participate in risk assessment fully, their authority and independence would have to be raised first. She argues that otherwise, it would very likely diminish public trust when the third-party agencies expressed mostly or only business interests (ID10).

However, a professor argues that there are many forms of knowledge (including but not limited to scientific, managerial, and lay knowledge) and that different risks and strategies stem from different contexts. Citizens should be considered lay experts who are entitled to epistemic justice (Fricker 2007), similar to experts in the technical deliberations to contribute knowledge (ID8). That is, a measure of respect for the experiential knowledge they bring into risk assessment of food safety:

Technical experts who stress conducting scientific risks assessment on food safety fail to constantly monitor food safety issues in daily life. While citizens are very much concerned about food quality and developed rich experiences to detect food safety issues to ensure individual health. During risk assessment, integrating lay expertise and experience would help to detect and mitigate food safety risks. (ID 8)

While the risk assessment expert is satisfied with current assessment infrastructures, academics, and journalists each express their own concerns. This results in a tension between the top-down model supported by the expert, and public participation supported by non-state actors. After the milk scandal, a compromise was reached. It allows other stakeholders beyond the government to participate in risk assessment. As of 2015, the Chinese central state allows them to discuss, bargain, and compromise with one another, with the purpose of counteracting the association of risk and risk perception with the state alone, and, ultimately, to building public trust, even though doubt was cast on the public understanding of science. The process, however, continues to be highly orchestrated by the central state.

3.3. Risk communication and transparency

Next to accountability, and risk assessment infrastructures, knowledge claims and information discourse are of primary importance to transparency and public perception of infant formula safety. An expert in risk communication argues that the way information is disclosed can contribute to perceived uncertainties on food safety and affect public risk perception as well as public trust (ID9).

An official in the Public Health Bureau explained that since 2004 a top-down segmented information disclosure system was put in place, referring to five supervision bodies involving in food chain, releasing their information associated with food safety individually. Compared to the preceding command-and-control approach, one of the Bureau's officials argues, citizens could access the information in each link of the food safety production chain:

With the increasingly risky food chain, it is necessary to establish an information traceability system [...], to ensure information transparency from farmer to table. (ID1)

However, journalists vigorously oppose this view. They argue that the information asymmetry and information confusion among public specifically caused by the segmented model were by-no-means negligible. This segmented model allowed power overlaps and -vacuums to occur (see above) and they recognized similar problems in information disclosure (ID10, 11):

Deficits in the segmented model include the lack of information sharing mechanisms among multiple regulatory agencies, causing conflicts in information disclosure, avoiding negative information disclosure to retain governmental image and more. (ID11)

An official in the Quality and Technical Supervision Bureau, drawing from similar arguments, explains that for this reason a coordination agency was established in 2015: to achieve unitary information release and sharing with the purpose of information symmetry and to avoid public confusion:

For instance, a coordination agency was created in the Hunan province, [...]. Infant formula safety information from multiple regulatory agencies was audited by the coordination agency to ensure consistency before information disclosure. (ID5)

Nonetheless, one of the academics we interviewed maintains that a divergence existed between the information transparency suggested to exist, and the perceived transparency by the public (ID8). Additionally, local governments cannot solely perform food safety governance as increasingly intricate food safety issues emerge, non-state stakeholders are required to participate, such as food producers. A professor argues:

Local states cannot be the sole food regulator as they condone illegal behaviour of companies, bureaucracy, and insufficient capacity of administrative systems, which impeded the efficiency of food safety regulation. While companies maintaining information transparency and interacting openly with citizens about risks in infant formula safety would favour public trust. (ID8)

After the 2008 milk scandal, risk communication and information disclosure became and continues to be a contested topic (Zhu, Huang, and Manning 2019). Officials and other experts disagreed on whether disclosure and communication were adequate and

who should participate. After 2008, in practice, a market-focus emerged. This meant that some of the responsibilities were delegated to producers and consumers through information traceability systems. The purpose of these systems was to mitigate uncertainties by providing information “from farm to fork” in terms of infant formula safety. In them, the government provided legal and regulatory support, all food chain actors are informants and, citizens participate as non-state supervisors (ID8–11, 15). Nevertheless, despite disagreement persisting, citizens recognized advantages:

The online infant formula information traceability system was established by the state in 2013 to allow players in food supply chain to upload relevant information. Correspondingly, citizens can trace information related to infant formula, and give comments and share experience for milk purchase on this system, which largely effect consumers’ purchase choice and corporate reputation. To obtain a good reputation, companies compete on information transparency. (ID15)

However, journalists continue to point out the deficiencies in the information traceability system in terms of the authority of information providers and the accessibility of information, as well as high investment costs for businesses and continued risk of abuse. A journalist argues:

The construction and operation of the traceability system need much financial investment [...], decreasing companies’ motivation to utilize this system. Meanwhile, due to the complicate food supply chain in China, not all information of milk safety from farm to table has been recorded in this system. Moreover, consumers have to access to the information via special application, increasing inconvenience and reducing use rate among citizens. (ID10)

Officials operating under the segmented as well as central accountability infrastructure consider government the most efficient at risk communication and building public trust. In contrast, journalists and academics express their worry about the conflict between information exposed by both governments and companies and transparency perceived by public. They call for supplementing information traceability with public participation to benefit for transparency and public trust. When it comes to talking about risk, stakeholders in the food safety chain display significantly different positions when it comes to who ought to be involved and why.

4. Discussion

Our study shows that stakeholders engaged in discussing dynamics of infant formula governance view the governance and accountability landscape and its changes differently. Officials stress government reform, aiming to improve the efficiency of governance through various means such as the central model replacing the segmented model, strict accountability, top-down risk assessment, and segmented information disclosure facilitated by a coordination system. Academics stress the need for a decentralized forum where non-governmental stakeholders participate in governance and share accountability, rather than the public sphere being included nominally, a position largely shared with the young mothers we talked to. Members of the media perceive risks and benefits critically, as well as skeptically approach the co-governance system where and when

centralized models and public participation were fused. They continue to stress potential risks, such as the weak incentives associated with the top-down model, extremely limited capacity of public participation, and the lack of authority for third parties in the decentralized market.

As Chinese scholars previously documented, food safety governance and accountability systems exhibits movements toward both decentralization and recentralization of power (Cai 2015; Gu 2016; Yi 2013). Simultaneously, stakeholderism cautiously found its way into accountability, risk communication, and risk assessment, while simultaneously top-down control over local enforcement agencies was intensified (Yang, Penders, and Horstman 2020b). Unsurprisingly, in the light of the development described above, the accountability system was subject to a lot more resistance than many Chinese authors suggested (Wen 2013). Non-governmental stakeholders diagnosed gaps between ideals and outcomes of the accountability infrastructure. While those ideals stressed inclusive approaches to governance, consisting of top-down model and stakeholderism, actual practices exhibited at least three consistent features undermining those ideals. These are, first, that local supervision bodies were dodging responsibility, avoiding blame, and passing buck in the infant formula scandal by straightforwardly denying responsibility and suppressing evidence. Second, non-governmental stakeholders were in practice unable to hold a company accountable (Abbott, in this case) and social accountability thus was not allowed to develop in full. Third, the central state still remains to be the pivotal player to activate vertical accountability and perform any true imposition of remedies. The Chinese situation does not offer non-state actors the ability or authority to hold governments accountable, except when specifically authorized by that very same state. Differently from, as Warren (2014) argues, seeing the core of accountability in democracy and participation beyond the state, accountability in China very much centers on the state.

Our analysis also shows that despite being extremely limited, social accountability structures do operate in China. Stakeholder participatory accountability often allows for more information disclosure and public debate. However, because they lack power allowing enforcement themselves, they need to provoke the executive branch of the state to take remedial action through the power of adverse publicity and potential reputational damage (Collins and Quinlivan 2009). Nonetheless, neither the state nor the public is able to solely complete an accountability infrastructure where a number of stages or complex systems including reporting, informing, and discussing, imposition of remedies were involved (Mulgan 2014).

The analysis of decentralization and centralization pertaining to food safety governance suggests that future governance reform should not focus only on intensifying top-down accountability to improve institutional efficiency. Additionally, it should help build a participatory governance system that allows stakeholders to genuinely engage in food safety regulation, to construct public trust and adapt the bureaucratic apparatus to modern Chinese conditions. Central and local states can establish public-private partnerships to clearly set responsibility boundaries between various stakeholders in terms of information disclosure and risk assessment to prevent societal actors from being marginalized in food safety governance. Meanwhile, societal actors could enhance their collaborative capacities so that they can play a more prominent role in food safety governance, even under non-democratic

conditions. The same goes for open and reciprocal science communication between experts and citizens to help alleviate citizens' risk perception and favor public trust (Yang, Horstman, and Penders 2020a).

Kent, Loh, and Eibel (2005) argue that with the increasingly risky infant formula chain the national governments are expected to conduct rigorous monitoring and regulation on infant formula safety to protect human health. In line with this, Wu et al. (2018) stress a shift from the multiagency coordination system to the centralized supervision strategies aiming to insure milk safety. Our analysis displays the perceived value of strict accountability practices and the centralized regulation model as well, but we highlight stakeholders' concerns that professional and expert authority is eroded by centralization in a non-democratic context. Kang (2019) proposes the use of technology, such as traceability systems to enhance information transparency of infant formula chain. Meanwhile, Yin et al. (2017) point out that the traceability information attribute of infant formula would help to mitigate consumer risk perception and improve consumer trust in baby milk safety. These arguments align with stakeholders' narratives in our study. Besides, our study also reveals perceived deficits in traceability systems, such as the complicated dairy industry chain, the high investment cost frustrating companies to use the system and its inaccessibility minimizing consumers' willingness to use it.

5. Conclusion

The pivotal role of Chinese central state, which stepped in as the final authority in the milk scandal case, as it did in so many other cases, obscures the dynamics of accountability in Chinese society. Responsibilities and power, as well as the associated tasks of giving account and providing information, are perpetually contingent, limiting the ways in which our frames of understanding apply. Nonetheless, we can conclude that Chinese food safety governance infrastructures, and in their wake, risk assessment and risk communication infrastructures associated with infant formula, suffered from a specific, tripartite accountability deficit (Daniell and Kay 2017). A range of issues need to be solved, including the development of collaborative mechanisms amongst non-state actors, alleviating the weak capacity of public, trade-off of power distribution between state and stakeholders, weak incentives and institutional fragmentation in local government before achieving desirable accountability and multi-level governance.

Notes

1. These sub-themes include accountability & supervision at central level; accountability & supervision at local level; value of expert; information disclosure at central level; information disclosure at local level; risk communication between expert and public; accountability deficits.
2. Melamine was added to milk to obscure its low nutritional value. The afflicted malnourished children developed swollen heads as a result. In China, the scandal is also referred to as "big headed babies".
3. In the Chinese context, the term "Big government, Small society" was defined in the "planned economy" movement of Chinese academic views in the 1930–1940s.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This work was supported by the Chinese Scholarship Council [留学金 [2017] 3109].

Notes on contributors

Ronghui Yang is a PhD graduated from the department of Health, Ethics and Society in Maastricht University, the Netherlands. His thesis work deals with the cultures of accountability with respect to food and vaccine safety in China. He focuses on the intersections of scientific and political cultures.

Klasien Horstman is a Professor Philosophy of Public Health and leading the research program Inequity, Participation, Globalisation of the Care and Public Health Research Institute CAPHRI, at Maastricht University, The Netherlands. She is director of the Maastricht-Tomsk Center for Participatory Public Health. Her research focuses on the dynamics of science, society and politics in urban health, health promotion, infectious diseases prevention, AMR strategies and other public health issues, locally and globally.

Bart Penders is an Associate Professor in Biomedicine and Society, and Head of Department Health, Ethics and Society in Maastricht University, the Netherlands. His research deals with scientific collaboration in biomedicine and nutrition science. He studies how scientists collaborate to create knowledge, how they render such knowledge credible and how non-scientists are involved in the production of knowledge production and the ways in which they contribute to building its credibility.

ORCID

Ronghui Yang  <http://orcid.org/0000-0002-5492-8096>

Klasien Horstman  <http://orcid.org/0000-0003-4048-4110>

Bart Penders  <http://orcid.org/0000-0002-2661-9181>

References

- Atkins, P. 2016. *Liquid Materialities: A History of Milk, Science and the Law*. London: Routledge.
- Bovens, M., R. E. Goodin, and T. Schillemans, Eds. 2014. *The Oxford Handbook Public Accountability*. Oxford: Oxford University Press.
- Cai, C. 2015. "From "Big Government" to "Wise Government": The Logic of Chinese Government Transformation—from the Perspectives of Transaction Cost and Politics." *Public Administrative Review* 2: 99–124. CNKI: GGXZ201401007.
- Cohen, M., and Y. Otomo. 2017. *Making Milk: The Past, Present and Future of Our Primary Food*. London: Bloomsbury Publishing.
- Collins, H. 2019. *Forms of Life: The Method and Meaning of Sociology*. Cambridge: MIT Press.
- Collins, N., and A. Quinlivan. 2009. "Multi-level Governance." In *Politics in the Republic of Ireland*, 359–380. London: Routledge.
- Daniell, K., and A. Kay. 2017. "Multi-level Governance: An Introduction." In *Multi-level Governance: Conceptual Challenges and Case Studies from Australia*, 3–32. Australia: Australian National University Press. doi:10.22459/MG.11.2017.

- Delman, J., and M. Yang. 2012. "A Value Chain Gone Awry: Implications of the "Tainted Milk Scandal" in 2008 for Political and Social Organization in Rural China." In *Organizing Rural China, Rural China Organizing*, edited by A. Bislev and B. Thøgersen, 205–221. Lanham: Lexington Books.
- DuPuis, E. M. 2002. *Nature's Perfect Food: How Milk Became America's Drink*. Manhattan: NYU Press.
- Edwards, M. E. 2012. "Food Insecurity in Western US States: Increasing Collaboration between State Agencies and Nonprofit Organizations." *Food, Culture & Society* 15 (1): 93–112. doi:10.2752/175174412X13190510222020.
- Fan, X. 2004. "Taking Responsibility on the shoulders—Director Zheng.Y Talks about Implementing the "Decision of the State Council on Further Strengthening Food Safety Work"." *Journal of Chinese Food Safety Supervision* 5: 4–7. Accessed 9 July 2019. <https://www.ixueshu.com/document/13815a070e7e4cb6318947a18e7f9386.html>
- Feng, H. 2011. "Accountability, Regulatory Performance, and Economic States - Reflections on the Status of Public Security Incident Accountability." *Law Review* 3: 21–28. Accessed 9 July 2019. <https://www.ixueshu.com/document/9473a26bdfcfd7aa318947a18e7f9386.html>
- Freidberg, S. 2009. *Fresh: A Perishable History*. Cambridge: Harvard University Press.
- Fricke, M. 2007. *Epistemic Injustice: Power and the Ethics of Knowing*. Oxford, UK: Oxford University Press.
- Ge, Y., and Y. Peng. 2012. "Food Safety Supervision Situation and Suggestions for Small Food Workshops and Small Vendors." *Legal Expo* 12: 25–26. CNKI: CJFDTotal-FBZX2012121010.
- Gong, Q., and P. Jackson. 2012. "Consuming Anxiety? Parenting Practices in China after the Infant Formula Scandal." *Food, Culture & Society* 15 (4): 557–578. doi:10.2752/175174412X13414122382764.
- Gu, X. 2016. "Optimal Government Scale, Coordinated Economic and Social Development and Dispute between Big Government and Small Government." *Study and Explore* 1: 85–91. CNKI: CJFDTotal-JHXX201505012.
- Hastings, G., K. Angus, D. Eadie, K. Hunt. 2020. "Selling Second Best: How Infant Formula Marketing Works." *Globalization and Health* 16 (1): 77. doi:10.1186/s12992-020-00597-w.
- Heimer, M., and S. Thøgersen. 2006. *Doing Fieldwork in China*. US: University of Hawaii Press.
- Holtkamp, N., P. Liu, and W. McGuire. 2014. "Regional Patterns of Food Safety in China: What Can We Learn from Media Data?" *China Economic Review* 30: 459–468. doi:10.1016/j.chieco.2014.07.003.
- Huang, X. 2011. "Solving the Dis-function of Accountability System—from the Perspective of Food Safety Supervision." *Administrative Management Reform* 9: 36–39. CNKI: CJFDTotal-XZGL201109010.
- Jia, C., and D. Jukes. 2013. "The National Food Safety Control System of China—a Systematic Review." *Food Control* 32 (1): 236–245. doi:10.1016/j.foodcont.2012.11.042.
- Kang, Y. 2019. "Food Safety Governance in China: Change and Continuity." *Food Control* 106: 106752. doi:10.1016/j.foodcont.2019.106752.
- Kent, C., J. B. P. Loh, and H. Eibel. 2005. "Dairy Products with Reduced Average Particle Size." U.S. Patent 6,861,080. Kraft Foods Holdings.
- Klijn, E. H., & J. F. M. S. Koppenjan. 2014. "Accountable Networks." In *The Oxford Handbook of Public Accountability*, edited by M. Bovens, R. E. Goodin, and T. Schillemans, 242–256. Oxford: Oxford University Press. doi:10.1093/oxfordhb/9780199641253.001.0001.
- Lai, S. 2013. "Accountability, Inertia and Publicity: Research on Local Governments' Behavior Based on 97 Cases of Public Crisis." *Public Administration Journal* 2: 18–27. CNKI: CJFDTotal-GGGL201302002.
- Lai, S. 2014. "Power Allocation, Accountability and Local Government Food Safety Supervision Performance: Controversy and Inspection." *Public Administrative Review* 7: 120–142. CNKI: CJFDTotal-GGXZ201401007.
- Le, M., and W. Chen. 2018. "Analysis of Institutional Changes and Policy Characteristics of China's Dairy Industry under the Food Safety Crisis." *Finance and Economics* 231: 105–113. CNKI: CJFDTotal-CJLC201803012.

- Li, X. 2009. "Discussion on China's Food Safety Supervision System from Melamine Incident." *China Food Hygiene Magazine* 21: 208–211. CNKI: CJFDTotal-ZSPZ200903008.
- Lin, C. F. 2014. "Public-private Interactions in Global Food Safety Governance." *Food and Drug Law Journal* 69 (2): 143–160. <https://www.jstor.org/stable/26661265>.
- Liu, N., and X. Liu. 2009. "Issues and Countermeasures of Milk Dairy Safety in China." *Financial Economics Monthly* 6: 101–102. CNKI: CJFDTotal-JRJJ200912053.
- Liu, P. 2010. "Tracing and Periodizing China's Food Safety Regulation: A Study on China's Food Safety Regime Change." *Regulation & Governance* 4 (2): 244–260. doi:10.1111/j.1748-5991.2010.01078.x.
- Liu, Y., and C. Yan. 2011. "From Change toward Progress: The Experience from Melamine Incident." *Wuhan University Journal (Philosophy & Social Sciences)* 2: 80–87. CNKI: CJFDTotal-WSLD201102016.
- Martiin, C. 2010. "Swedish Milk, a Swedish Duty: Dairy Marketing in the 1920s and 1930s." *Rural History* 21 (2): 213. doi:10.1017/S0956793310000063.
- Mulgan, R. 2014. "Accountability Deficits." In *The Oxford Handbook of Public Accountability*, edited by M. Bovens, R. E. Goodin, and T. Schillemans, 545–559. Oxford: Oxford University Press. doi:10.1093/oxfordhb/9780199641253.013.0010.
- Nie, W. 2016. "Xi Jinping's Foreign Policy Dilemma: One Belt, One Road or the South China Sea?" *Contemporary Southeast Asia* 38 (3): 422–444. doi:10.1355/cs38-3c.
- Patil, S. V., F. Vieider, and P. E. Tetlock. 2014. "Process Versus Outcome Accountability." In *The Oxford Handbook of Public Accountability*, edited by M. Bovens, R. E. Goodin, and T. Schillemans, 69–89. Oxford: Oxford University Press. doi:10.1093/oxfordhb/9780199641253.001.0001.
- Pei, X., A. Tandon, A. Alldrick, L. Giorgi, W. Huang, and R. Yang. 2011. "The China Melamine Milk Scandal and Its Implications for Food Safety Regulation." *Food Policy* 36 (3): 412–420. doi:10.1016/j.foodpol.2011.03.008.
- Peng, Y., J. Li, H. Xia, S. Qi, and J. Li. 2015. "The Effects of Food Safety Issues Released by We Media on Consumers' Awareness and Purchasing Behavior: A Case Study in China." *Food Policy* 51: 44–52. doi:10.1016/j.foodpol.2014.12.010.
- Song, Y., H. Cao, and C. Lv. 2017. "Analysis of Spatial Effects of Food Safety Regulation." *China Science and Technology Forum* 9: 127–134. Accessed 9 2019 July. <http://www.zgkjlt.org.cn/CN/abstract/abstract9827.shtml>
- Song, Y., and X. Wei. 2012. "Administrative Accountability System Building in Food Safety Supervision in China." *China Administrative Governance* 12: 56–58. CNKI: CJFDTotal-ZXGL201212014.htm.
- Valenze, D. 2011. *Milk: A Local and Global History*. US: Yale University Press.
- Wang, K., and B. Li. 2007. "Food Safety Issues and Regulation." *Exploration* 4: 44–47.
- Wang, X. 2008. "Yili, Mengniu, Bright Dairy Milk Also Contains Melamine." *New Finance* 10: 92. CNKI: CJFDTotal-XCJI200810056.
- Wang, Y., E. Steckler, and W. M. Hoffman. 2020. "Spoiled Milk: A Chinese Mother's Struggle and the Rebuilding of Trust in State Dairy Enterprises." *Business and Society Review* 125 (3): 289–309. doi:10.1111/basr.12211.
- Warren, M. E. 2014. "Accountability and Democracy." In *The Oxford Handbook of Public Accountability*, edited by M. Bovens, R. E. Goodin, and T. Schillemans, 39–54. Oxford: Oxford University Press. doi:10.1093/oxfordhb/9780199641253.001.0001.
- Wen, H. 2013. "Analysis and Countermeasures on the Governmental Buck-passing in the Emergency." *Political Research* 6: 52–60. CNKI: CJFDTotal-POLI201306006.
- Wu, X., Y. Lu, H. Xu, M. Lv, D. Hu, Z. He, L. Liu, Z. Wang, and Y. Feng. 2018. "Challenges to Improve the Safety of Dairy Products in China." *Trends in Food Science & Technology* 76: 6–14. doi:10.1016/j.tifs.2018.03.019.
- Xu, X. 2014. "Problems and Countermeasures in Accountability System of Food Safety Supervision." *Theoretical Exploration* 4: 71–74. CNKI: CJFDTotal-LLTS201404015.
- Yan, H. 2010. "Reform of China's Food Safety Supervision System—Based on the Analysis of the Holistic Government Theory." *Academic Research* 5: 43–52. CNKI: CJFDTotal-XSYJ201005009.

- Yan, H., and Y. Nie. 2009. "Logic of System Option: The Evolution of China's Food Safety Supervision System." *Journal of Public Administration Research and Theory* 3: 12–25.
- Yang, R., B. Penders, and K. Horstman. 2020b. "Addressing Vaccine Hesitancy in China: A Scoping Review of Chinese Scholarship." *Vaccines* 8 (1): 2. doi:10.3390/vaccines8010002.
- Yang, R., K. Horstman, and B. Penders. 2020a. "Constructing the Accountability of Food Safety as a Public Problem in China: A Document Analysis of Chinese Scholarship, 2008–2018." *Journal of Chinese Governance* 1–27.
- Yang, X. 2012. "Comparison of the Independent Principles of Risk Assessment of Food Safety in Europe and China." *Administrative Law Research* 4: 122–128.
- Yi, S. 2013. "Analysis of 'Small Government', 'Big Society' and 'Civil Society'." *Marxism Research* 9: 128–133. CNKI: CJFDTtotal-STUD201309015.
- Yin, S., Y. Li, Y. Xu, M. Chen, and Y. Wang. 2017. "Consumer Preference and Willingness to Pay for the Traceability Information Attribute of Infant Milk Formula." *British Food Journal* 119 (6): 1277–1288.
- Zhang, D., and M. Han. 2018. "Power and Responsibility, Procedure, Transparency, Monitoring, Accountability—Restriction and Supervision Mechanism of Internal Power Operation in Universities." *China Higher Education Research* 1: 28–34.
- Zhang, H., and F. Zhou. 2008. "The Food Safety Regulation System and China Milk Scandal." *Theoretical Exploration* 6: 145–147. CNKI: CJFDTtotal-LLTT200806035.
- Zhang, X., and C. Sun. 2008. "China's Food Safety Supervision System: Situation, Problems and Solutions—Based on the Perspective of the Principal of Food Safety Supervision." *Economic System Revolution* 1: 45–48.
- Zhu, X., I. Y. Huang, and L. Manning. 2019. "The Role of Media Reporting in Food Safety Governance in China: A Dairy Dase Study." *Food Control* 96: 165–179. doi:10.1016/j.foodcont.2018.08.027.