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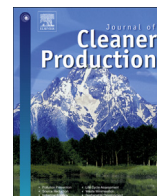
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Consumer trust in different food provisioning schemes: evidence from Beijing, China



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ABSTRACT

Consuming safe and sustainable food requires trust. Consumer trust in food can be established in different ways, including through personal relationships or various institutional arrangements established by government, private companies and/or civil-society organisations. The recent increase in food-safety incidents and sustainability concerns in China suggests a dwindling trust in the current government-dominated food governance arrangement. This paper investigates whether emerging alternative trust arrangements and modes of food supply are better able to build consumer trust in contemporary China. Based on a survey of urban middle-class consumers in Beijing using various (i.e., alternative and conventional) food-supply modes, the role and importance of personal and institutional trust arrangements are compared. We found that even among the wealthier and more educated consumers in Beijing, only a small proportion regularly use alternative food-supply schemes; most rely on conventional wet markets and supermarkets. Buying food is primarily constrained by convenience, freshness and the price of food and less by food-safety concerns. In Beijing, trust in food-safety information remains largely derived from the government and less from the market (private certification schemes) or civil society. These findings contribute to the increasing body of knowledge on the embedded character of food consumption and on the relevance of designing policy strategies that connect institutional context and particular consumption practices. In our conclusion, we argue that to secure safe and sustainable food provision, the present government-based trust regime in China requires strengthening through linking up with market- and civil society-based trust regimes, complemented by elements of personalised trust.

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1. Introduction

In 2013, European consumers discovered that their beef might consist of horsemeat, and American consumers wondered whether they could still trust their organic spinach after an *Escherichia coli* outbreak. Following the 2008 melamine crisis, Chinese consumers remained concerned when buying milk, particularly for babies and small children. These are only a few examples of a seemingly endless series of food scandals that have occurred around the world (Bánáti, 2011). Although most experts claim that food safety has been improved over the years through superior technologies, better monitoring devices, stricter control measures and more elaborate

legal frameworks, these food-safety arrangements seem to have repeatedly failed to generate the necessary trust among consumers. Increasing distrust in formal schemes to guarantee safe food has resulted in a recent blossoming of alternative food networks (AFNs) in large cities to improve food quality, reduce the environmental impact of food production and enhance consumer trust (Jarosz, 2008).

The current literature on trust and food seems to be preoccupied with a juxtaposition between personalised trust, which is characterised by alternative, local, small-scale food networks, and institutionalised trust as a component of conventional industrial food-supply systems. Consumer trust in food from short supply chains and small-scale production is considered to be 'personalised'. That is, trust is established and maintained through knowledge regarding the origin of food and the way in which it is produced (Pollan, 2008). In contrast, large-scale supply schemes rely on

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'institutionalised' trust based on strict, science-based, government regulations applied by private firms and controlled by public authorities (Seuring, 2013; Vergragt et al., 2014). This article aims to question this juxtaposition by analysing consumer trust in food safety in urban China, where food provision has evolved into large-scale industrialised systems and also where alternative food networks have recently been introduced.

This paper starts with a brief description of consumer trust in China and the recent emergence of AFNs. Subsequently, the concept of trust is discussed in detail and in connection with food risks to identify different trust-in-food arrangements. These arrangements are applied in a case study on food consumers in Zhongguancun Sub-District in Beijing. China's capital aims to become a world city by 2050 and considers environment and health as the primary challenges to achieving this goal. We conclude by discussing different strategies for building trust in food among urban Chinese consumers.

2. Food safety in China

The contemporary food supply in China is complex because of the country's large size, its millions of smallholders connected to (often distant) markets through unevenly developed physical, commercial and institutional infrastructure and the rapid growth of urban centres, which have increased the physical and social distance between food producers and consumers (Scott et al., 2014; Zhu, 2011; Garnett and Wilkes, 2014). For decades, the predominant goal of China's food policy has been to secure affordable food for a large, increasing population of low-paid workers, occasionally to the detriment of the environment and human health (Cheng, 2012).¹ Economic progress has resulted in a shift away from a grain-based to a substantially more meat- and poultry-based diet (Lam et al., 2013; Yang et al., 2011), which has made food more susceptible to safety risks.

The recurrent food-safety incidents and scandals that have resulted from this complex food system with its focus on food security have undermined Chinese consumer trust in the safety of their food (China Consumer Association, 2006; Grunert et al., 2011; Wu et al., 2011). In 2012, food safety moved to the top of the list of issues regarding which the Chinese were most concerned (FORHEAD, 2014). The country's 2009 Food Safety Law is the primary food regulation aimed to control national food quality and safety (Jia and Jukes, 2013). The law consists of formal food-safety standards, monitoring and control mechanisms and various requirements for certified safe, green and organic food (Pagnattaro, 2010).² However, this regulation seems to have failed to generate trust in food among consumers (Cheng, 2012; Veeck et al., 2010; Zhejiang Consumer Association, 2009). This regulation has been criticised for its lack of effectiveness (Lam et al., 2013; Zhu et al., 2013). Until 2013, at least 13 governmental agencies were involved in food-safety management and supervision, with many institutional frictions and overlapping responsibilities (Bai et al., 2007). The 2013 institutional reform was a major step towards achieving better coordination between the relevant agencies and overcoming their institutional faults. However, additional time is required to assess the reform's effects. Another major step was the revision of the 2009 Food Safety Law, which would make it one of

the world's most stringent such laws. This revision was approved by the State Council on May 14, 2014, and after three separate rounds of comment, implementation is expected for 2015.

Trust in private food-safety regulation in China is also low (Liu et al., 2012). Generally, few food products are privately certified (Tao et al., 2011), and where private labels are present, consumers distrust them because they are perceived to be counterfeit or received in return for financial inducement rather than a guarantee of food quality/safety (Sun and Collins, 2013; Wang et al., 2009). Private food-production and processing firms are mostly small and inconspicuous. Thus, they lack vulnerability when faced with loss of reputation from food scandals. Legal procedures are ineffective, and firms easily change brands and names following a scandal. With respect to food safety, Chinese consumers distrust industrial-scale food producers, which are believed to place their own profit ahead of consumer safety and environmental concerns (Chen, 2013) and therefore not considered to guarantee food safety. As Mol (2014) argues, with the absence of transparency regarding food quality and safety in supply chains, private food-safety regulation does not function, which forces China to rely predominantly on inadequate state regulation.

This context of shortcomings in the public and private regulation of food safety in the mainstream food supply has inspired recent experiments with AFNs (Shi et al., 2011). AFNs are 'emerging networks of producers, consumers, and other actors that embody alternatives to the more standardised industrial mode of food supply' (Renting et al., 2003, p. 394). AFNs constitute a broad category of initiatives to provide consumers access to safe, more sustainably produced food. Over the last five years, the market for such 'alternative' food has rapidly expanded (ITC, 2011; Zhou et al., 2013), and new schemes to supply vegetables and other food from the producer directly to the consumer have emerged. For instance, box schemes, farmers' markets, home grown food (Si et al., 2015; Qi et al., 2008). Consumers in these markets are generally wealthy urban families with young children, families with members who have health problems, overseas returnees and foreigners (also from Taipei and Hong Kong), as well as young and white-collar workers (Scott et al., 2014). There is no official inventory, overview or systematic literature on these AFNs for China. Only anecdotal information could be collected on the diversity, scale, organisation, financial models, consumer involvement and geographical spread of these AFNs in China. Generally, AFNs create more direct – often face-to-face – relationships between producers and consumers, introduce new forms of transparency in agricultural production practices (e.g., farm visits, webcams), private forms of (food and food production) inspection and control (via intermediary organisations, private standards, supervising committees, third-party control), secure higher prices for farmers and reduce environmental impacts. Most AFNs are local and small-scale and serve a relatively small group of consumers, although a number of initiatives have enlarged their coverage and enhanced their professionalism and scale as their businesses have grown.

This paper focuses on the role that AFNs play in building trust in food among consumers in China. We analyse the extent to which consumers participate in AFNs and the factors that affect their trust in different AFNs.

3. Conceptualising trust in food

In recent decades, trust has become a prominent theme in sociological debate because of the increased awareness of the presence of risks (as anticipations of undesirable future events; Beck, 1992) and the need to address uncertainty (because the future is contingent). Trust combines knowing, not-knowing and the unknowable (Gross, 2007) and involves by definition, as Möllering

¹ E.g., the first Chinese agro-industry with large national companies, the dairy industry (Wang et al., 2008), was also the sector affected by one of the most severe food-safety crises: the melamine crisis.

² In 2009, organic agriculture in China was practiced on 2 million hectares, involved 4000 enterprises and represented a domestic market of over 1.9 US\$ billion (ITC, 2011).

(2001) argues, a leap of faith. Trust does not mean ignoring contingency but reflecting uncertainty while still enabling practical action (Möllerling, 2001). Different forms of trust have been identified. After they are presented, they will be applied to the case of consumer trust and food.

3.1. Sociological perspective on trust

Trust is an input of everyday social interaction and an output of such interaction (Goffman, 1963) because individuals must manage their uncertainty regarding the behaviour of other human beings, regarding technology and regarding nature. Trust means that individuals involved in interactions expect others to follow 'normal' patterns and routines in social life (Sztompka, 1999) so that the continuity of social reality can be taken for granted (Garfinkel, 1967; Goffman, 1959). Trust reduces complexity in everyday life (Luhmann, 1991) and is a lubricant for cooperative behaviour (Misztal, 2001). Most social activities are strongly routinised and embedded in networks and practices. Thus, they are rarely subject to active reflection, and the presence of trust is often not visible. Only when routines are disrupted and expectations not met is trust breached, which results in anomic reactions and confusion (Garfinkel, 1967).

Giddens (1990) distinguished two different forms of trust: personalised and institutionalised. Personalised trust is process-based (i.e., self-enhancing through repeated interactions) and builds on moral obligations between individuals who share an emotional bond (Misztal, 1996). This form of trust is reproduced through social practices in localised networks in which individuals interact closely, often face-to-face. When such trust relations are breached and the continuity of social relations interrupted, questions emerge regarding whom to trust and what additional action is required to re-establish trust. However, in modern societies, in which many interactions involve distant strangers and are mediated through formal institutions, trust arrangements can no longer be only personalised but must be predominantly institutionalised (Giddens, 1990). Institutionalised trust is abstract and established through interactions between laypersons and representatives of formal institutions. Often institutions are represented by experts who embody the correctness of the institution's abstract principles (Sydow, 1998). Through institutions, (personalised) trust is dis-embedded and re-embedded through so-called face-work in personal interactions with its representatives. An institution is trusted not necessarily for all its elements but on the basis of repeated interactions with its representatives, the correctness of its principles and the trust others have vested in it. The presence of systems of control that 'guarantee' that individuals within an institution act according to the agreed-upon and institutionalised norms, values and expectations may contribute to institutionalised trust (Möllerling, 2005). However, institutionalised trust is more vulnerable than personalised trust because it is always conditional and lacks the multidimensionality of face-to-face interaction. In addition, because individuals 'have to act' in modern societies, they cannot remain paralysed for long when their trust in institutions is undermined. Therefore, 'active trust' is required, whereby individuals choose which institution and which expert to trust. For Giddens, 'active trust reflects contingency and change in an on-going process of reflexive constitution' (Möllerling, 2005, p. 22).

3.2. Trust and food

Trust in food is essential because individuals consume food without having complete information regarding its quality, safety and sustainable production. 'Food crosses the barrier between the 'outside' and the 'inside' world of the body. We thus incorporate all

or some of the food's properties (...). Consequently, it is vital to identify, know and trust foods in both the literal and the figurative senses (Kneafsey et al., 2008, p. 12).

Trust in food is shaped through on-going social dynamics between the different actors and institutions involved in food production, distribution, monitoring and consumption (Kjaernes et al., 2007; Sodano et al., 2008). It is built through and embedded in different concrete social practices (Oosterveer and Spaargaren, 2011). Consequently, different trust-in-food arrangements are possible, involving personal relationships, institutions, or combinations of these factors. In personalised trust, the mutual dependencies between the participating actors are emphasised (Kjaernes et al., 2007), whereas institutionalised trust relies more on formal regulations and inspections and on generalised symbols, such as brands, generic labels, official control organs and country/region of origin. In this case, 'trust hinges on citizen evaluations of institutional performance. Institutions that perform well generate trust, while those that perform badly generate scepticism and distrust' (Kjaernes et al., 2007, p. 28).

Trust in food is generally stable because 'food related practices, as part of everyday life, are usually highly routinised' (Kjaernes et al., 2007, p. 26). That is, individuals buy the *usual* food items from their *regular* provider to prepare their *familiar* dishes. Only when daily routines are interrupted, for instance, through a food-safety incident or through changes in a household's biography or personal lifestyle, trust in food may be undermined, existing practices questioned and alternative arrangements sought. When trust in institutional arrangements is undermined, individuals may seek personalised forms of trust in food, with higher levels of value-sharing and reciprocity. Personalised trust-in-food is based on the personal characteristics of the food producer/provider established through face-to-face interaction in the supply chain with customers/consumers, which provides the consumer full access to the involved food-production practices. Alternatively, institutionalised forms of trust in food may be rearranged (Poppe and Kjaernes, 2003) by reducing the complexity and scale of modern food provisioning or by involving other (trustworthy) societal actors.

3.3. Institutionalised trust-in-food regimes

Trust in food that is supplied via complex large-scale supply chains must be built at least in part through public and private institutions (e.g., producing firms, labelling schemes, state food-control agencies, scientific expertise) that are expected to perform rationally, efficiently and systematically (Oosterveer and Spaargaren, 2011; Spaargaren and Oosterveer, 2010). Different arrangements of institutionalised trust in food may emerge that involve multiple institutions (Halkier et al., 2007) with different trust-building practices. Thus, different trust regimes, i.e., 'relatively stable and coherent set(s) of definitions of and institutional approaches to food safety' (Sassatelli and Scott, 2001, p. 238), emerge, among which we distinguish three ideal types: government-based trust regimes, market-based trust regimes and civil society-based trust regimes. Each of these regimes involves governmental authorities, private companies, civil-society organisations and consumers in varying combinations.

Government-based trust-in-food regimes build on national and local authorities intervening to prevent food producers from selling low-quality, unsafe or dangerous food. Urbanisation and the industrialisation of food processing radically change the relationship between food producers and consumers, and stronger governmental control is therefore required (Oosterveer and Sonnenfeld, 2012). Quality requirements, control systems and administrative fines assure the safety of processed food, such as bread, milk and meat, on which urban dwellers depend. The

government assumes full responsibility to protect citizens through a command-and-control approach. Authority is in the hands of the national government, whereas implementation occurs through subordinate state bodies (Lang et al., 2009). Professional agencies are expected to establish science-based food-quality and food-safety standards, and private food companies must adhere to these standards. Specialised food inspection and control services are established to prevent violation of these regulations.

In such regimes, consumer trust in food is typically institutionalised by building on the legitimacy of the state as the defender of the public interest. Public authorities gain legitimacy and trust by applying results from scientific research. A collaborative network of civil servants and scientific and legal experts is central to the creation and maintenance of this regime.

Market-based trust regimes emerged when food provisioning globalised and became more technology-intensive. Many governments are unable (and occasionally unwilling) to fully control all domestically produced and imported food items, and other modes of quality and safety control are introduced, such as private certification schemes (e.g., HACCP, GlobalG.A.P., BRC and ISO14001)³ (Unnevehr and Jensen, 1999). In collaboration with private auditors and certifiers, the food-processing industry and retailers take the lead in this process by imposing strict conditions on their suppliers and thereby become important actors in food-safety governance (Halkier and Holm, 2006; Paul, 2011). Market-based trust regimes entail more flexibility than government-based regimes but face more complications due to a lack of coordination and possible tensions between private and public interests, tasks and responsibilities.

In market-based trust regimes, consumer trust in food is predominantly institutionalised and based on a combination of corporate responsibility, the reputational capital of companies, legal requirements and the power of leading firms.

Civil society-based trust-in-food regimes emerged in recent decades in many OECD countries. These regimes are based on two premises. First, many individuals have little trust in the other two regimes because 'populations are generally aware that food may be contaminated, that governments cover up scandals, and that corporations may pursue profit at the expense of safety and quality' (Kjaernes et al., 2007, p. 175). Second, in the context of globalisation, national governments lack the capacity to effectively control global flows of food, whereas companies fear to harm their profitability and often act insufficiently and belatedly when food safety is at stake. In response, civil-society organisations, such as environmental NGOs and consumer organisations, introduce innovative and flexible tools to guarantee safe and sustainable food (Goverde and Nelissen, 2002; Karkkainen, 2004; Spaargaren and Oosterveer, 2010). Examples include certification and labelling schemes (such as organic), consumer guides, web-based information schemes and information campaigns. In this manner, these organisations complement and occasionally replace governments and private companies. Compared with governments or private companies, civil-society organisations are more capable of building public trust (Edelman, 2009) because they combine (assumed) neutrality and disinterestedness, with specialised expertise, transparency, a (generally) unquestioned reputation and rapid communication (Anheier et al., 2002). Civil-society organisations may shape trust relations between local actors and when actors are at a distance by developing flexible devices for the distribution of (risk) information and introducing alternative systems of food

provisioning (Boström and Klintman, 2008; Dicken et al., 2001; Mol, 2001).

Civil society-based trust-in-food regimes build consumer trust through standards development, labelling and certification schemes, and innovative forms of information exchange. Central roles are played by community organisations and NGOs in collaboration with certification and auditing firms and the media.

4. Consumer trust in (alternative) food provisioning in Beijing

The provision of food in China is dominated by the government-based trust regime. However, because this regime is under pressure as a result of recurrent food-safety incidents, alternatives have emerged. Based on a review of scientific publications, news reports and other documents on various food-provisioning schemes in China, we identified four categories of alternative food network. Each category displays specific mechanisms with respect to production–consumption relations. These mechanisms range from self-provisioning to sustainable and safe food supply guaranteed by a third party. The alternative schemes operate next to the conventional schemes of wet markets and supermarkets (Garnett and Wilkes, 2014). As Fig. 1 shows, the (social and geographical) distance between producers and consumers increases from category I to IV, as does the scale of production. Therefore, we assume that personalised trust declines from category I to IV and that institutional trust increases. When comparing these categories, we are particularly interested in the intensity and quality of the interactions between producers/providers and consumers and in how trust is built through different combinations of personal and institutional mechanisms. Analysing these dynamics provides an understanding of the different trust regimes that are emerging in addition to conventional government-based trust.

4.1. Methods

To answer the questions 'to what extent do consumers participate in AFNs and what factors affect consumer trust in various AFNs in China', we surveyed consumers regarding their knowledge of AFNs, whether they participate in these schemes, and whether and why they trust food from these schemes (compared with the conventional food-provisioning system) (see Annex B for the questionnaire). Through the questionnaire, the main consumer characteristics and the degree of consumer trust in food management and supervision in provided information and in certification schemes were determined.

Beijing was selected for the case study because various alternative networks for the provision of food operate in the city. An objection could be made regarding possible bias in the selection of the respondents for this study. However, we would argue that the focus on urban, well-educated consumers in Beijing provides better insight into changes in consumer trust in food and in the future prospects of AFNs as a response to consumer concerns than a larger spread would. First, because many AFNs exist only in Beijing (e.g., weekend vegetable markets) and second, because this group of consumers may be expected to be in the forefront of innovations in food provisioning, the views of these consumers may foreshadow future developments for wider groups. Among the 16 administrative districts and counties in the city, Zhongguancun Sub-District in Haidian District was selected because numerous universities and research institutes are located there (the sub-district is known as the Chinese Silicon Valley). The local residents represent the best-informed, best-educated and best-paid population in China, factors that are often found to be indicators for AFN participation. See Map 1 for the district's location in Beijing.

³ HACCP: Hazard Analysis Critical Control Point; GlobalG.A.P.: Global Good Agricultural Practice; BRC: British Retail Consortium; ISO14001: International Organisation for Standardisation 14001.

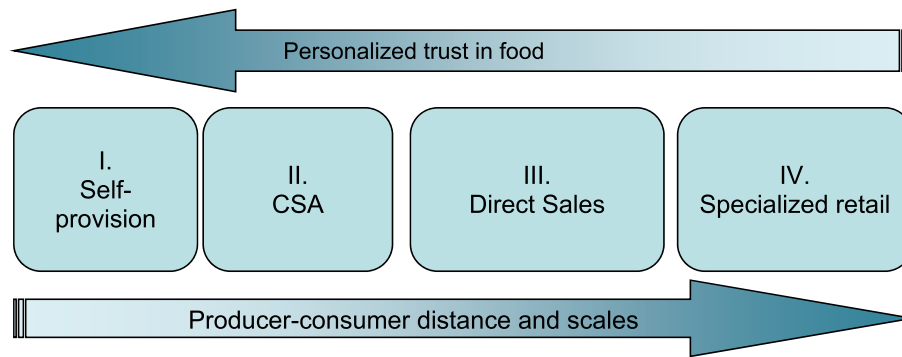


Fig. 1. Categorisation of mechanisms for alternative food provisioning in China.
Source: authors.

Explanation

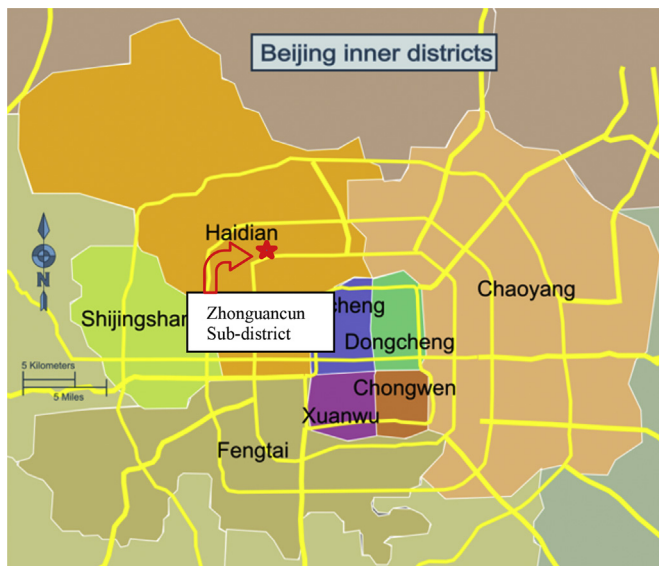
- I *Self-provision*: garden rental plots in which food is grown by consumers, with little or no differentiation between producers and consumers
- II *Community supported agriculture (CSA)*: producer-consumer partnerships, in which a group of individuals supports a farm and shares risks and benefits of food production. Long-term relationships and high personal involvement. Occasionally box schemes are used to deliver fresh produce (packed in a box) on a regular basis to subscribing consumers
- III *Direct sales*: producers sell directly to consumers
 - a) At farmers' markets (including on-farm sales and pick-your-own schemes): produce for sale is of local origin, food sellers are involved in production, and consumers interact face-to-face with producers. Entails spot relationships.
 - b) Internet sales by the producers with home delivery of fresh farm produce. Occasionally, box schemes are used to serve regular customers
- IV *Specialised retail*: third parties facilitate supply to consumers and ensure food safety and sustainability
 - a) E-stores as a third-party sales platform to sell safe (primarily organic) food to consumers from selected agro-food production origins.
 - b) Fixed agreements between (cooperative) farmers and supermarkets, restaurants and canteens.
 - c) Specialised traders/shops with competence in food safety, quality and sustainability (organic shops).
 - d) Mobile vegetable markets (initiated in 2011 by the Beijing government and the Ministry of Commerce to reduce the intermediary links).

Based on the information provided by the Zhongguancun Sub-District Committee, six of the total 33 residential communities were selected to represent different levels of income (i.e., high, middle and low), of infrastructure and facilities, and of housing prices (Map 2).

In total, 400 households were randomly sampled, approximately in proportion with the number of households per community (Table 1). The survey was conducted in person by trained university students between 5 and 11 March 2013.

4.2. Results from the case study on Zhongguancun Sub-District, Beijing

Through site visits, workshops, news reports, internet searches and a study of the literature, we confirmed the presence in Beijing



Map 1. Map of Beijing.

Source: <http://wikitravel.org/upload/shared//5/5a/BeijingInnerDistricts.png>.



Map 2. Zhongguancun Sub-District and the selected residential communities in Beijing.
Source: Zhongguancun Sub-District Office website: <http://zgjd.bjhd.gov.cn/zgjd/xqdt/>.

Table 1
Number of households sampled from selected residential communities.

Residential community	No. of households	Sampled	Description
Taiyangyuan	3000	77	Newer neighbourhood
Huaqingjiayuan	3000	82	Newer neighbourhood
Zhichunli West	1130	51	Older neighbourhood
Beili	1900	70	Older neighbourhood
Huangzhuang	1678	63	Older neighbourhood with well-equipped infrastructure
Xinkexiangyuan	1300	57	Newer neighbourhood
Total	12,008	400	

Note: 'Newer neighbourhood' refers to a neighbourhood with large-scale green space, plentiful parking and a leisure park with sport facilities; 'older neighbourhood' refers to a neighbourhood with little (or nearly no) green space and limited (or no) parking.

Source: Zhongguancun Sub-District Office website: <http://zgqjd.bjhd.gov.cn/zgqjd/xqdt/>.

of all four categories of AFN. The majority of productive farms are located in suburbs around the urban area of Beijing, and the organic farmers' markets do not have fixed locations. Access to internet-based schemes is equal for all consumers. Thus, consumers could potentially be exposed to all such schemes. Table 2 provides typical examples and descriptions of AFNs in the Beijing area. The nature and dimensions of 'alternativeness' differ between these examples. Several AFNs only represent 'alternative' systems of providing food to consumers. Others have also adopted environmentally sustainable production practices.

Not surprisingly considering the study area, the respondents were mostly highly educated women with a relatively high income (Table 3), which renders the survey not representative of Chinese consumers in general or of Beijing food consumers. However, the survey enables one to draw conclusions regarding the role of alternative food networks and how they build trust among consumers. Because this group of well-educated, well-informed consumers can

be viewed as a vanguard of food-safety conscious middle-class consumers, this survey may offer insights into future developments with respect to consumer trust in food in urban China.

This survey found that consumer participation in the various AFNs was low except for specialised retail (Table 4). More than 75% of the consumers had no experience with self-provision, direct sales or consumer-supported agriculture (CSA), i.e., AFNs (categories I, II and III). More than 60% of the consumers completely relied on conventional schemes for accessing fresh agricultural produce. For 75% of the respondents, convenience was the most important consideration in their choice of where to buy vegetables (Fig. 2), which may explain why conventional food-provisioning schemes remained their preferred option. Access to supermarkets and wet markets was easy, whereas most of the AFNs were located in distant suburbs or the city centre. These locations require consumers to spend more time (a scarce resource in a hectic urban lifestyle), effort and often money. Only 32.3% of the respondents

Table 2
Alternative food networks in Beijing, 2013.

Categories	Typical examples	Description
I. Self-provision	Little Donkey Farm	An urban farm formed by three sub-areas: Taohuayuan, Shanshuijian and Xuanmengyuan; the land is leased to citizens for cultivation. The leaseholders pay for the right to farm. The farm also provides vegetables directly to the consumers through a CSA scheme.
	Kangshengyuan family farm	Based on ecologically integrated farming: poultry – manure – composting – planting.
	Shangda Wolianfu farm	Developed by the Shangda Wolianfu company. Located in Longkou village, Fangshan District, the farm covers an area of more than 13 ha and aims at agro-ecological practices with no chemical inputs and no GMO techniques.
II. CSA	Community-supported agriculture CSA union	The preparatory committee of the CSA union was established on 8 January 2010 by the Centre for Village Construction of Renmin University, China, and unites as well as represents 9 CSA farms in and around Beijing.
III. Direct Sales	Beijing organic farmers' market	Initiated by volunteers involved in ecological agriculture. Aims to create a platform for producers and consumers who share similar ideas regarding organic food. Supports local production and consumption. Uses supervision and certification through a 'participatory insurance system' to ensure greener and safer agricultural production.
	Online sale by producers	E.g., Yueyi vegetables, Shangda Wolianfu plantation, Tangshan 100-year Lvyuan agricultural company, Zhenggu agricultural development company.
IV. Specialised Retail	Youyou Life	Youyou is based on e-business; it has established its own logistics system to supply organic food produced at organic farms around Beijing to local households in the city.
	My Store	This B2C organic products store is the 'first platform' for information-sharing in the organic sector; established by the Shangengyuan biological technology development company in 2012.
	Benlai Life	Internet sales platform; food delivered directly from the chosen agro-food production bases, with quality control that covers production, management, certification and standards, monitoring, detection, consumption and transportation.
	Tuotuo Gongshe	The first online supermarket for organic and safe food.
	Farm-university joint pilot project	A joint farm-university pilot project, initiated by the Ministry of Education in 2009, to improve food safety on campus via an internet-based platform that provides information on reliable suppliers of fresh agricultural products to all universities. To date, over 70 university canteens in Beijing purchase from the recommended suppliers.
	Mobile weekend vegetable markets	Pilot project initiated in 2011 by the Beijing government and the Ministry of Commerce. It supports vegetable farmers in suburban areas of Beijing and aims to establish a vegetable-retailing network with zero processing, short-distance transportation, low losses and low expenses; not necessarily organic.
	Organic store	Diandianlu organic food store.

Sources: site visits; various documents; online sources.

Table 3
Characteristics of survey respondents (N = 400).

Indicators		N	%
Gender	Male	143	35.8
	Female	257	64.3
Age	<20 years	2	0.5
	20–40	128	32.0
	40–60	136	34.0
	>60	134	33.5
Educational background	Junior high school (and below)	78	19.5
	High school	118	29.5
	University (and above)	204	51.0
Family income (Yuan/month)	<5000	197	49.3
	5000–10000	145	36.3
	>10000	58	14.5

Source: this survey.

Table 5
Consumer trust in various food-provisioning schemes (Likert 5-point scale: 1 = high distrust, 5 = high trust).

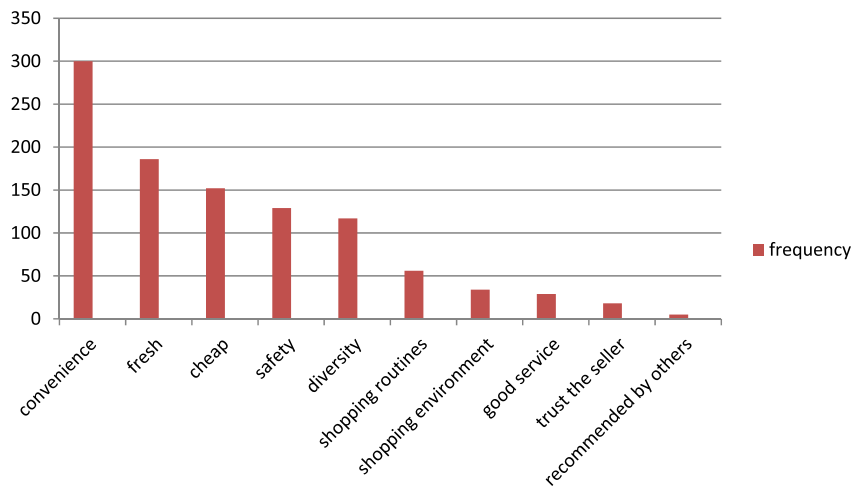
	Mean	Std. error	Std. deviation	Deviation
Wet markets	3.45	.046	.924	.854
Supermarkets	4.05	.039	.777	.604
Citizen gardens/farms	4.01	.051	1.021	1.043
CSA	3.56	.048	.964	.929
Farmers' markets	3.31	.048	.951	.904
Internet sales by producers	2.75	.050	.999	.999
e-stores	3.68	.044	.877	.770
Mobile markets	3.23	.047	.936	.877
Organic stores	3.47	.055	1.092	1.192

Source: this survey.

Table 4
Consumer participation in various food-provisioning schemes (N = 400).

	Conventional		Self-provision		CSA	Direct sales		Specialised retail		
	Wet market	Super-market	Citizen gardens/farms	CSA		Farmers' market	Internet sales by producers	e-stores	Mobile vegetable markets	Organic stores
Never	5%	4%	77%	84%	75%	78%	50%	53%		66%
Occasionally	32%	26%	18%	12%	20%	17%	31%	40%		29%
Often	63%	70%	5%	4%	5%	5%	19%	7%		5%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: this survey.

**Fig. 2.** Factors that affect the consumer's mode of food purchase (several answers possible; N = 400).
Source: this survey.

considered food safety to be an important factor in determining where to buy their food.

The supermarket (conventional) and citizen gardens/farms (AFN) were the most trusted schemes,⁴ whereas internet sales (AFN) were the most distrusted scheme (Table 5). When converted to the four distinct AFN categories, the self-provision scheme was trusted most by the respondents, followed by the conventional scheme, CSA and specialised retail (Fig. 3). Thus, despite the recent high incidence of food scares in the country, the overall level of consumer trust in food remained high for all provisioning schemes except direct sales. According to the respondents, the most relevant

factors in determining their assessment were personal experience (64%) and comments from other consumers (38%). Only 8.5% and 10% of the respondents mentioned trust in producers and adequacy of the provided product information as relevant factors, respectively (Fig. 4). Because trust seems primarily based on personal experiences and comments from peers, it is not surprising that respondents with no or little participation in AFNs had limited knowledge of and trust in these schemes.

Consumer trust in food is based not only on the actors that provide food but also on the actors that provide guarantees and information regarding food products as well as the actors involved in supervision.⁵ With respect to providing guarantees for food

⁴ An analysis of the relationship between familiarity with schemes and trust in the different trust arrangements is provided below.

⁵ For the quantitative details, see Appendix A.

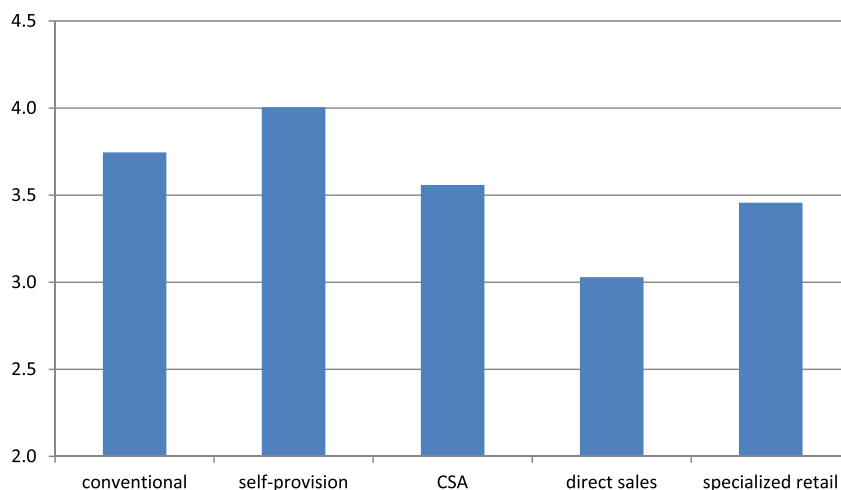


Fig. 3. Consumer trust in different categories of food-provisioning scheme (N = 400; 1 = high distrust, 5 = high trust).

Source: this survey.

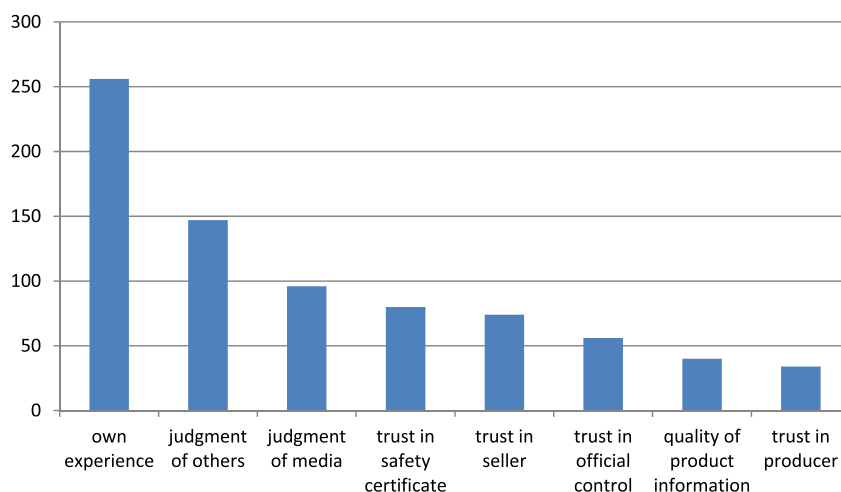


Fig. 4. Prevalence of mentioned factors that affect consumer trust in (various) food-provisioning schemes (N = 400).

Source: this survey.

safety, approaches that directly involve consumers are most trusted, followed by third-party certifications⁶ and certifications from farmer cooperatives. Certifications from sellers were least trusted (Fig. 5a). Regarding the Chinese *quasi* third-party certification schemes ‘hazard-free’, ‘green food’ and ‘organic’, which are often not considered to be genuine third-party certifications; Scott et al., 2014), 97% of the respondents had heard of the three certification schemes. However, only 27% could differentiate between them, and only 13% of their shopping decisions were significantly affected by the schemes. This outcome explains why self-provision and CSA AFNs are more trusted than the other schemes. Government authorities, certification bodies and supermarkets are all perceived as relatively reliable sources of information. Distinct from Western countries, in China, NGOs are less trusted with respect to providing information on food (and on other environmental issues; He et al., 2012, 2013; Zhang et al., 2013 (Fig. 5b). This phenomenon is related to the fact that NGOs are less developed and less professional in

China. Thus, people's knowledge of most NGOs is limited.⁷To supervise food safety, particularly the media but also governmental authorities and consumer associations are considered to be more trustworthy than NGOs (Fig. 5c). This result supports the impression that food safety in China is primarily media ruled (Liu et al., 2013; Mol, 2014).

Finally, we tested whether there is a relationship between those respondents familiar with an AFN and their trust in the AFN scheme, in information supplied by the government, and in information from supermarkets. We used the independent t-test to determine the significance of the differences (Table 6). The results reveal that respondents familiar with Internet sales, e-stores, mobile markets and organic stores have a significantly (<.05) higher trust in an AFN scheme than those not familiar with such a scheme. Remarkably, consumers who are familiar with CSAs, citizen gardens/farms and farmers' markets do not have significantly (<.05)

⁶ E.g., certificates, such as GLOBALGAP and IFS, issued by Intertek, AssureQuality, etc.

⁷ Chinese NGOs are less professional in two respects. First, Chinese NGOs are weak because they typically lack money, are small-scale and find it difficult to hire suitable staff. Second, Chinese NGOs are not genuinely independent. To register as a legal organisation, a Chinese NGO must obtain government permission.

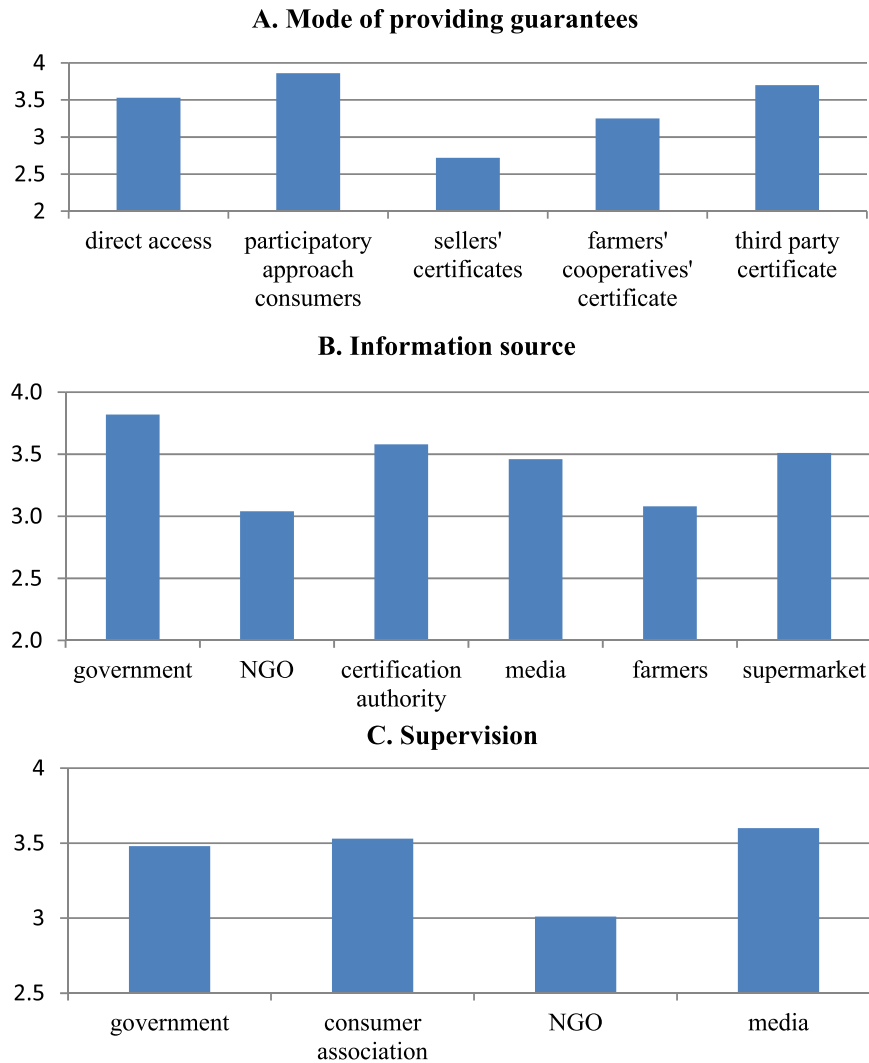


Fig. 5. Consumer trust in actors involved in food systems (N = 400; 1 = high distrust, 5 = high trust).

Source: this survey. Note: 'Direct access' refers to the familiarity of the sellers through face-to-face communication or acquaintances; 'participatory-approach consumers' means that consumers participate in (aspects of) the production of the food, including self-provision, monitoring through farm visits and picking food; 'sellers' certificates' refers to labels issued by food sellers (including supermarkets). NGOs, which provide information on food, include domestic NGOs (e.g., *Caituan*, which is organised by consumers who care about food safety, and *My Store*, the Internet selling platform) and international NGOs (e.g., *Slow Food*). 'Consumer association' refers to the organisation *Xiaofeizhe Xiehui* established in 1984 by relevant state actors and consumer representatives that aims at the supervision of commodities and services and can be characterised as a semi-governmental or a semi-non-governmental organisation.

more trust in these schemes than consumers who are unfamiliar with them. In addition, we found no convincing relationship between familiarity with a scheme and the trust that respondents feel regarding information provided by the government or a supermarket. We observed that respondents familiar with an AFN express somewhat higher trust in supermarkets than those not familiar with an AFN. However, this difference was only significant (<0.05) in the case of e-stores and citizen gardens/farms. Regarding trust in governmental information, respondents familiar with an AFN do not significantly differ from those not familiar with an AFN. In all cases, the respondents trusted governmental information more than information provided by supermarkets.

A remarkable finding is the high trust in government in general and the low trust in official food-safety controls. One way to explain this contradictory finding is that government as a general category refers to the central government in a more abstract, general sense, which remains highly trusted, whereas 'official controls' refers to the activities actually performed at the local level, whereby trust disappears. Overall, these findings do not support a clear confirmation of

our initial hypothesis that consumer distrust in the conventional food supply results in higher trust in alternative food networks.

5. Conclusions

In the context of rapid transformations in the food-provisioning system such as is the case in China, frequent food-safety crises may undermine consumer trust. Therefore, building and maintaining consumer trust in food is critical. However, different strategies may be adopted to achieve this goal. Our case study demonstrated that in response to consumer concerns in Beijing AFNs are being introduced. These AFNs rely less on institutionalised trust and government control and involve more personalised face-to-face trust-building. Although these AFNs emerged in response to repeated and widespread food-safety crises in China, our study demonstrates that even among the wealthier and more-educated consumers in Beijing only a small proportion regularly uses alternative food networks. Most consumers continue to largely rely on (conventional) modes of food provisioning through wet markets

Table 6

Relationship between familiarity with AFN schemes and trust in the various trust arrangements (N = 400); (UK = unknown; K = known).

Scheme (category mentioned in Fig. 1)		N	Trust in the scheme		Trust in information from supermarkets		Trust in information from government	
			Mean	Sig	Mean	Sig	Mean	Sig
Citizen gardens/farms (I)	UK	309	3.96	.13	3.44	.01	3.85	.24
	K	91	4.14		3.73		3.70	
CSA (II)	UK	337	3.55	.90	3.48	.21	3.83	.74
	K	63	3.57		3.65		3.78	
Farmers' market (III)	UK	300	3.28	.30	3.48	.40	3.81	.67
	K	100	3.39		3.58		3.86	
Internet sales (IV)	UK	313	2.58	.00	3.48	.23	3.78	.14
	K	87	3.36		3.61		3.95	
e-stores (IV)	UK	201	3.46	.00	3.40	.03	3.80	.72
	K	199	3.90		3.62		3.84	
Mobile markets (III)	UK	213	3.08	.00	3.49	.75	3.86	.44
	K	187	3.39		3.52		3.78	
Organic stores (IV)	UK	266	3.33	.00	3.45	.10	3.85	.39
	K	134	3.74		3.62		3.75	

Source: survey.

and supermarkets. Convenience, freshness and the price of food determine their choices rather than food-safety concerns.

The Chinese consumer's trust in food is primarily based on personal experience and on the judgments of other consumers. The face-to-face provision of food and information through AFNs may be attractive because it can provide more trustworthy information on products and production processes. However, the small scale and local nature of most AFNs limit the prospects of their becoming the dominant solution for larger groups of consumers, particularly urban consumers. Therefore, institutionalised trust remains crucial, and among the various institutional alternatives, the government is still considered to be the most reliable source of information and supervisor of food safety. In this respect, Chinese consumers differ from their European counterparts, whose trust in market actors and particularly in civil-society organisations is substantially higher.

These findings contribute to the on-going debate on sustainable food consumption, in which several scholars have argued that only providing more information on the sustainability of food does not result in substantial behavioural change (Leire and Thidell, 2005; Spaargaren and Oosterveer, 2010). Food consumption must be understood as a social practice embedded in specific institutional, cultural and political contexts. Therefore, strategies to promote sustainable food consumption should be based on a detailed understanding of consumer practices in accessing food and the institutional framework of food-supply chains.

At present, the principal strategy to improve food safety applied by the Chinese government is to minimise the role of the numerous, difficult-to-monitor smallholders, increase the scale of food production and strengthen the leading role of larger firms in national food-supply chains. If transparency throughout the supply chain is increased and crises are actively prevented by increasing the responsibility of chain actors, this strategy has potential. The recent institutional reform of food-safety administration and the upcoming revision of the 2009 Food Safety Law emphasise governmental control that holds individuals responsible for misconduct, recording food-safety performance in the credit record of food producers, and publishing information on misbehaviour through public and financial institutions. This policy change may build on the abstract trust that Chinese consumers have in the government in general if the relevant institutions and civil servants enforce the change in practice. The institutionalised government-based trust regime might be additionally strengthened by including elements from market- and civil society-based trust regimes, such as information on the origin and life-path of a food item (facilitated through recent developments in information and

communications technology (ICT)). Despite these conclusions, this study also confirmed that when institutionalised forms of trust are insufficient, elements of personalised trust may contribute to enhancing the trust of Chinese consumers in food, either through direct provision via AFNs or through face-to-face interactions at the access points of larger supply systems.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.jclepro.2015.09.078>.

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