

China briefings

Overview of changes and drivers in China's food system



Photo:
Wangfujing food
market in Beijing

Lori Branham
via Flickr

Summary

Economic growth and urbanisation are two of the most important influences on China's food system, leading to changes in the structure of production, to shifts in food demand and contributing to huge growth in livestock production and in meat, milk and fish consumption. Future challenges for policy makers include ongoing environmental degradation, health risks associated with dietary change, and public concern over food safety.

China's food system has undergone dramatic quantitative and qualitative change over the past three decades. Smallholder production continues to dominate in horticulture and aquaculture, though business and policy drivers are supporting a shift towards larger-scale, more intensive forms of livestock production. Key current drivers of change include economic growth, agriculture policies, and a changing demographic structure. Urbanisation has profoundly impacted both demand and

supply within the food system and will continue to shape changes in the future. Mounting food safety concerns, and local and global environmental change, will also affect the food system. Chinese government policy is faced with the task of delivering good nutritional outcomes, and managing changing demand while maintaining food security (in a broad sense of the term) and improving the environmental sustainability of the system as a whole.

CHINA BRIEFINGS OVERVIEW OF CHANGES AND DRIVERS IN CHINA'S FOOD SYSTEM

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Written by Huw Pohlner based on Garnett, T. and Wilkes, A. (2014) *Appetite for change: Social, economic and environmental transformations in China's food system*.

With thanks to the authors for additional comments and corrections.

A 'food systems' perspective

- This report adopts a 'food systems' approach to analysis. This approach combines insights from the physical and social sciences to highlight interrelations between causes and consequences. It examines:
 - The *physical flow* of goods;
 - The social, economic, environmental, and cultural *forces* that influence this flow;
 - The social, economic, environmental, and cultural *consequences* resulting from this flow; and
 - The *interactions* between consequences and drivers.
- This approach is informed particularly by life cycle analysis, the concept of food security, the concept of global environmental change, and discourses around sustainable consumption.

China's food system – change since early 1980s

- China remains virtually self-sufficient in key commodities and is an important exporter of some foods.
- A major exception is oilseeds: imports of oilseed for animal feed have grown substantially in line with rapidly increasing demand for meat and other animal products.
- Agricultural production in China has historically been dominated by staple grains but is now shifting toward higher value horticultural and animal products.
- On the demand side, consumption of grains has fallen while that of animal products, vegetable oils, sugar, processed foods, confectionary and alcohol has increased significantly.
- Food supply chains are becoming longer, more complex and more industrialised, as well as increasingly internationalised.
- However, consolidation and concentration in some supply chains (e.g. livestock) continue to coexist with smallholder production (e.g. horticulture and aquaculture).

While the volume and value of agricultural output in China has increased over the past 45 years, its contribution to national GDP and employment has fallen. Agriculture accounted for 40% of GDP in 1970 and only 11% in 2007. It employed 80% of the workforce in 1970 and 38% in 2009.

Current drivers of change

Economic growth

- Increasing incomes have been the most significant driver of change in China's food system.
- Increases in agricultural productivity and volumes have contributed to overall economic growth in China.

- Vice versa, economic growth has also led to changes in the agricultural sector, as regards the number of people employed, methods/scale of production, and post harvest supply chain developments.
- Rising prosperity means consumers can afford more food and are demanding more varied diets. It has also driven a rise in dining out, and led to changes in values and expectations surrounding food.

Food security policies

- Chinese policy places strong emphasis on achieving and maintaining self-sufficiency in basic protein and energy providing grain crops.
- Policies supporting agricultural production have been crucial in ensuring that output has grown faster than population and that changing consumer demands are met. Ample fiscal resources and increasing policy attention to rural and agricultural issues have been important enabling factors.
- Increasingly, the concept of food security has been considered in more broad terms in China, with efforts targeting not just supply but also accessibility and affordability, quality, utilisation, and stability of these factors over time

See Health transformations: nutrition and diet

- Recent policy documents also emphasise nutrition, development of the food processing industry, and food safety, and are tentatively starting to consider issues of rising overweight and obesity.

Changing population structure

- Urbanisation has:
 - Proportionately reduced the workforce in rural areas, leading to shortages of agricultural labour in some areas;
 - Increased the need for transport, refrigeration, and municipal waste management infrastructure and systems;
 - Increased the overall prevalence of more sedentary lifestyles, changing metabolic and nutrient requirements;
 - Increased people's exposure to marketing and outside influences, generating new consumption demands;
 - Increased spending power, and hence altered consumption patterns both in urban populations and in rural areas through the flow of remittances and cultural influences; and
 - Placed pressure on agricultural land as demand for urban and industrial construction land increases.
- Population ageing means fewer people will be able to engage in physically demanding agricultural activities, and new health risks and nutritional needs will emerge.

Urbanisation continues to proceed rapidly, increasing from 19% in 1979 to 51% in 2011 and is projected to exceed 77% by 2050.

China's population in 2013 was 1.34 billion and is anticipated to peak at about 1.4 billion by 2030 before declining thereafter.

Future drivers of change

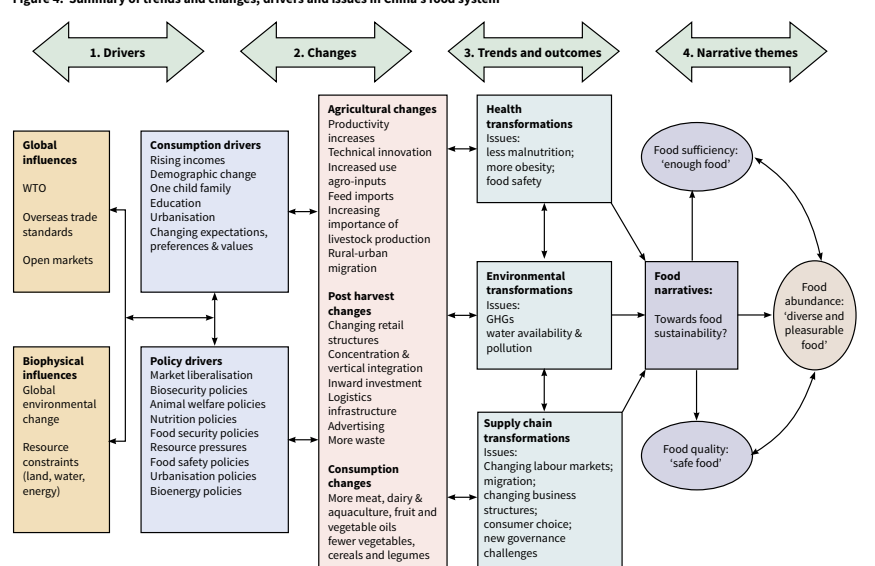
- Income growth and urbanisation are projected to continue, and will be major drivers of increasing and changing demand.
- Food safety concerns have so far prompted Government efforts to support increased scale of production and vertical integration of supply chains; this may continue to be the policy approach in coming years. Traceability systems and other market entry requirements may promote changes in supply chain relationships.
- Environmental changes caused by agricultural production, urbanisation and industrialisation could negatively impact the food system by undermining the quality and availability of *land* and water resources in China; at the same time, global climate change will likely affect not only domestic growing regions but also the foreign soils upon which China's imports depend.

Table 1: Summary of main changes in China's food system in the last 35 years

	1980-early '90s food system characteristics	Emerging food system	Key actors	Shaping influences	Comments and caveats
Farming characteristics	Smallholder production for local consumption and collectivised distribution	Continued small scale production with increasing consolidation and concentration in the livestock sector (Late 90s – present)	Coexistence of smallholders with larger commercial enterprises supported by government incentives; joint ventures in various forms with overseas companies	Economic development, urbanisation & industrialisation policies; food security policy framework;	While the percentage of population engaged in agriculture has fallen, absolute numbers have increased; significant variation in degree of consolidation (e.g. greater in livestock sector but limited in horticultural sector)
Inputs to farming process	Organic materials, e.g. manure	Increasing use of: mechanisation, use of new plant and animal breeds, fertilisers, pesticides and irrigation	Concentration in fertiliser production enterprises; US/European genomics companies in collaboration with Chinese companies	investments in R&D; land reform; subsidies for inputs and for larger scale enterprises; market liberalisation	
Agricultural workforce	Family labour	Agricultural wages rising; average age of farmers rising; feminisation of agricultural labour			
Post harvest supply chain (manufacturing, transport, storage)	Localised distribution; little processing or refrigeration	Longer national supply chains; development of international supply chains (imports and exports); increase in food processing; increased use of refrigeration	Small food processing enterprises; rise of major players; Chinese investment in overseas companies; inward investment by multinational companies	Policies to improve grain storage and to promote food processing; market liberalisation	Regional variation and rural / urban variation; coexistence of longer and international supply chains with localised supply chains
Retail	Government stores and wet markets	Rise of supermarket and convenience formats coexistent with wet markets	Still diverse; Chinese national chains, regionally important retail formats; international retail brands (e.g. Walmart)	Government modernisation policies; food safety concerns; rising real estate costs	Ongoing popularity of wet markets notwithstanding government policies; significant rural vs urban variation
Out of home catering	Limited	Explosion of out of home eating ranging from street stalls, to traditional restaurants to Western style fast food outlets serving both western and Chinese foods	Diverse; from street food through to international chains (e.g. Starbucks, McDonalds)	Market liberalisation, urbanisation and lifestyle/cultural changes; rising incomes	Variation between urban and rural areas, between larger cities and smaller conurbations
Dietary patterns	Rice and vegetable based with important regional variations (e.g. rice in south and wheat and more animal products in North)	Reductions in grain consumption; increased consumption of animal products (meats of all kinds, fish and aquaculture products, eggs, milk) vegetable oils, sugars, processed foods, confectionery and alcohol		Agriculture and nutrition policies; rising incomes; market liberalisation	Differences in consumption patterns between urban and rural areas, Eastern and Western regions, climatic regions, by educational and economic status and by age

For a more detailed discussion, see the original report here.

Figure 4: Summary of trends and changes, drivers and issues in China's food system



For a more detailed discussion, see the original report here.

Policy implications

- 1 Recent relaxations of national grain self-sufficiency targets could further alter the nature of production in China and increase the degree of integration with world food markets.
- 2 The growing burden of chronic diseases related to diet and lifestyle change in China could trigger more robust government action.
- 3 Food safety is an increasingly important contributor to consumption choices in China. New legal requirements and consumer choices are likely to further transform supply chains.
- 4 Environmental change increases uncertainty and risk within the food system, and will place additional pressure on natural resources required for agriculture, such as land and freshwater.
- 5 As the structure of production and consumption has changed in China, post-harvest greenhouse gas emissions have increased, requiring new policy interventions.
- 6 Livestock production and associated consumption has rapidly emerged as a major driver of agricultural growth, but is increasingly posing serious threats to public health, food safety and environmental sustainability.

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Overview of changes and drivers



Supply chain transformations



Environmental transformations



Health transformations



Socio-cultural transformations



Focus on livestock



Focus on dairy



Focus on aquaculture



Summary, conclusions and policy implications

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Food Climate Research Network

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