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REVIEW

The prospects for China's food security and imports: Will China starve the world *via* imports?



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Abstract

China's food supply and demand have significant implications for both China's own national food security and that of the world. This study reviews China's food security prospects and their implications, focusing on international trade in the coming decade. The results show that China's policies for ensuring food security will be enhanced and China will move to sustainable agriculture. Most studies anticipate that China will increase its food and feed imports in the coming decade. China's overall food self-sufficiency is likely to fall from 94.5% in 2015 to around 91% by 2025. The greatest increases in imports are likely to be soybean, maize, sugar, and dairy products. However, within the production capacity of the major exporting countries and of many food-importing developing countries, China's additional imports of 3 to 5% of its total food consumption in the coming decade are unlikely to threaten global food security. Indeed, the projected imports of feed and several foods could provide opportunities for many exporting countries to expand their production and save global resources.

Keywords: food security, food supply, import, China, global

1. Introduction

China has made remarkable progress in agricultural production since the economic reform initiated in the late 1970s. The average annual growth of agricultural GDP

reached 4.5% from 1980 to 2015, which was about four times China's population growth over the same period (NBSC 2016). The production of nearly every agricultural commodity has increased. The most significant growth has been recorded in horticulture, livestock, and fishery products (NBSC 2016).

In the meantime, food demand has also increased significantly, and consumption patterns have changed. Within the past four decades, after the population growth rate peaked (1.66%) in 1987, it began to decline and fell to less than 0.5% after 2009 (NBSC 2016). The major driving forces of food demand have gradually shifted from population growth to rising income and urbanization, leading to significant changes in food demand and consumption patterns since the late 1980s (Fan *et al.* 1995; Huang and Bouis 1996; Huang *et al.* 2010). Because of these changes,

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the demand for food grain has been falling since the mid-1990s, and demand for horticultural products, edible oils, livestock, and aquatic products, as well as for high-quality and safe foods has increased considerably (Ma *et al.* 2006; Gale and Huang 2007; Bai *et al.* 2010).

The relative changes in food production and demand growth have affected China's position in the global food trade. Amid a continuously increasing food demand, China has shifted from a net food exporter to a net importer over the past decade (see Fig. 1). Among agricultural commodities, China's leaders are particularly concerned about grains¹, but China's self-sufficiency declined from 97% in 2001 to 86% in 2014 (NBSC 2015). The most rapidly rising import is soybean. Its import reached 84 Mt in 2016. Meat imports have also increased in recent years (NBSC 2016).

Given the sheer size of its population (1.375 billion people in 2015), China's food security has attracted great attention during the past several decades. While doom-laden predictions in the early 1990s that China would distort global trade and starve the world in the early 21st century (Brown 1995) have not been realized, the recent increases in food and feed imports have again come under scrutiny both in China and the rest of the world. If China repeats past experiences of significantly rising food imports in similar land-scarce neighboring countries such as Japan and South Korea, it could have huge global implications (McMichael 2000; Otsuka 2013). There is also increasing concerns about the threat of unsustainable agricultural production to China's long-term food security (e.g., soil degradation and groundwater over-exploitation; Zhang *et al.* 2013; Lu *et al.* 2015).

Previous reviews of China's food supply and demand

projections have provided some insights into the prospects of China's future food security². For example, a review paper by Lv (2013) focused on studies about China's grain production and demand projections toward 2020/2030. His review showed a wide range of both the production and consumption of grain in China, with both pessimistic and optimistic views on the country's grain imports. However, most of the pessimistic projections were made in the 1990s and early 2000s, and often stemmed from inappropriate assumptions about China's production potential (Alexandratos 1996; Fan and Agcaoili-Sombilla 1997). On the other hand, the optimistic projections of China's food security often underestimated the rising demand for meats and feed (e.g., Li 2005; Ma and Niu 2009). Norse *et al.* (2014) reviewed China's supply and demand projections toward 2020 for grains and other major foods, showing that, on average, China will be close to self-sufficiency in rice and wheat and about 90% self-sufficiency in maize and other coarse grains by the 2020s. While they concluded with an optimistic view that China's food security would not be at risk, they cautioned against the environmental degradation and sustainability of China's agriculture (Norse *et al.* 2014). One of the major points made in the previous review papers is that China's food production and imports will heavily depend on the policies governing domestic production in the future (Lv 2013; Norse *et al.* 2014).

While future food policies are of critical importance in shaping China's food supply and trade, none of the studies reviewed by Lv (2013) and Norse *et al.* (2014) considered the recent changes in China's food policies. As shown by Huang and Yang (2017), policy changes have occurred not only for national food self-sufficiency targets but also

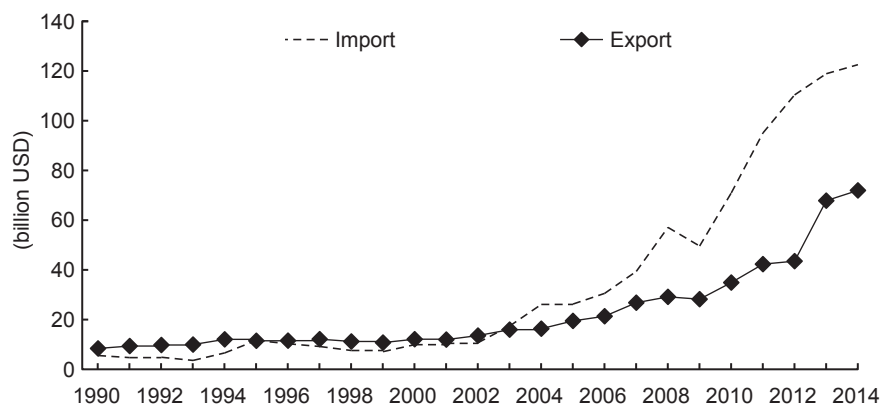


Fig. 1 China's food imports and exports, 1990–2014 (billion USD). Source: FAO (2017).

¹ In China, grains include cereal (rice, wheat, maize, and coarse grains), soybeans, sweet potato, and potato.

² Though several papers have reviewed the driving forces of China's agricultural growth in the past decades, such as Zhou (2016), this study mainly focused on the projection of food supply and demand in future.

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