How to prevent a global food and nutrition security crisis under COVID-19?

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Abstract

Purpose – The purposes of this paper are to review the impact on food and nutrition security of several pandemic emergencies and the 2018 food price crisis from a global perspective, examine the Chinese experiences and lessons in ensuring food and nutrition security for its citizen and propose policy actions to prevent a global food and nutrition security crisis.

Design/methodology/approach – The authors utilize a noncomprehensive review of peer-reviewed and nonpeer-reviewed literature, as well as a case study approach.

Findings – Under the ongoing COVID-19, China’s food and nutrition are relatively secure in short run largely due to governmental proactive policies but may face uncertainties in livestock production and imports of soybean in the medium and long terms. Given that the disease has spread to almost all countries in the world, global cooperation and coordination are needed to prevent systemic risks to global food and nutrition security.

Practical implications – The review and analysis of this paper will help policymakers in China and other countries to design strategies and actions to prevent food and nutrition security crisis under the ongoing COVID-19 emergency and other similar threats in the future.

Originality/value – This paper provides recommendations to prevent food and nutrition security crisis based on data, evidence and case studies.

Keywords COVID-19, Epidemic infectious diseases, Food and nutrition security, Vulnerable groups, Food supply chains

Paper type Research paper

Introduction

The COVID-19 outbreak, started in Wuhan, China in December 2019, is showing a new trend. While the situation in China has improved dramatically and the epidemic is largely under control, there have been widespread reports of outbreaks outside of China. Most of the countries in the world have reported diagnosed cases. In fact, Europe and USA have become the epicenters of the disease by mid-March. Less developed countries in Africa, South Asia and Latin America have also seen rapid increase of diagnosed cases since March. It is one of the largest global health crises after the Second World War as more than 3.5m cases have been diagnosed and 250,000 have died from the pandemic on May 7, and health systems are under tremendous pressures that have not been seen for decades (WHO, 2020a). However, if proper measures are not taken, it could also lead to a global food crisis. Due to restrictions of movement of people and goods and disruptions of supply chains and trade, food and nutrition security of many, particularly vulnerable population groups like children, women and elderly, will be severely compromised. Furthermore, the panic behavior could lead to global food price spikes and volatility, further exacerbating risks to global food and nutrition security. We have seen this panic behavior during Ebola, avian influenza and the 2008 food price crisis.
The objective of this paper is to review lessons and experiences on how recent pandemics and the food price crisis have affected food and nutrition security, analyze what measures could be taken nationally and globally by reviewing the Chinese experience and propose policy recommendations to prevent a potential food crisis under emergencies of COVID-19.

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**Global food security is under threat**

The world is already facing food and nutrition security challenges. According to the United Nations Food and Agriculture Organization (FAO), more than 820m people across the globe are suffering from hunger, although the Chinese number reported by FAO is grossly overestimated. Close to 144m children in countries around the world are stunted due to lack of proper food and nutrition (WHO, 2020b). And in many countries, hunger and malnutrition have been on the rise for the past three years due to conflicts and the refugee crisis, climate change and worsening inequality, with the Middle East and Sub-Saharan regions being particularly vulnerable.

It is almost certain that total number of hungry people will rise again in 2020 because of the outbreak of COVID-19. The lockdowns and restrictions of movement of goods and materials reduce food production due to lack of inputs and labor, and disrupted food supply chains and trade. Poor consumers might also have to pay higher food prices or lack of access to food at all. School feeding programs and social protection schemes could become dysfunctional. The indirect impact through slowed-down economic growth or even economic recession could affect millions of people’s livelihood and food and nutrition security. The pandemic is rattling global stock markets, and economic activity and investment have slowed dramatically in places where many people are ill, and movements are restricted to contain further spread of the virus. Signs of economic slowdown are most visible in China in the first quarter of 2020. The economic growth rate in the first quarter is reported −6.8% growth (NBS, 2020a). But as the virus has spread to Europe and USA and due to broader containment measures, including restrictions on travel, shutdowns of factories, constructions, shops, bars, restaurants and other gathering places and additional limits placed on services, the economic impacts are now spilling across countries. Fears for a global economic slowdown and even recession are increasing. As a result of the pandemic, the global economy is projected to contract sharply by −3% in 2020 compared to a projected 3% growth without COVID-19, much worse than during the 2008–2009 financial crisis (IMF, 2020).

This crisis differs from previous ones in that food and nutrition security in both developed and developing countries have been affected. But we focus on developing countries for two reasons. First, there is a lack of data in developed countries in tracking and monitoring hunger and poverty, and the measures used are different from those for developing countries. Second, majority of absolute poverty and hunger are in developing countries, and developing countries lack capacity to protect the poor during crises like COVID-19.

IFPRI’s global general equilibrium model, MIRAGRODEP, was used to simulate impacts on income, wages and key commodity prices across countries, and calculate the poverty impacts at the household level, using household models for about 300,000 households across the developing world. It found that for 1% point slowdown of the global economy, the number of poor using the poverty line of US$1.90 (2011 purchasing power parity price) would increase by 2%, that is, by 14–22m people (Vos et al., 2020). This means number of poor would increase by 80–130m due to the COVID-19 pandemic if there is a 3% economic contraction instead of a positive 3% growth if COVID-19 had not happened. The simulation results for the poverty impacts by region show a large regional variation depending on transmission channels. In absolute terms, the greatest regional poverty impact would be felt in

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sub-Saharan Africa, which will account for 40–50% of the global poverty increase. In relative terms, the impact of a potential trade shock would affect Africa’s poor more than South Asia’s, given that Africa’s economies are more dependent on trade than those of South Asia. However, a potential productivity shock, in contrast, would have a bigger impact on poverty in South Asia than in Africa because of the bigger adverse impact on nonagricultural sectors, which have a larger weight in South Asia (Vos et al., 2020).

Another study by UNU-WIDER estimated the impact of COVID-19 on global poverty in the short run due to direct consumption shocks (Sumner et al., 2020). They found that everything else equal, assuming a 5% contraction in per capita incomes, the world could witness a potential increase in the number of poor people, relative to the 2018 figures, of more than 80m for the US$1.9/day poverty line, of more than 130m for the US$3.2/day standard and of almost 124m for the higher line of US$5.5/day.

Global Report on Food Crises (GRFC) just released its 2020 report. At 135m, the number of people in crisis or worse (IPC/CH phase 3 or above, or acute food insecurity) in 2019 was the highest in the four years of the GRFC’s existence. The COVID-19 will add another 130m acute food insecure population, almost double of the number in 2019. Majority of these added food insecure population will be in Africa.

The nutritional status of vulnerable groups will be damaged due to the drastic declines in income primarily through declining demand for vegetables, fruits and animal-sourced foods, which are the main sources of essential micronutrients in diets. IFPRI research shows that in poor countries calories from nutrient-rich, nonstaple foods like eggs, fruits and vegetables are often as much as 10 times more expensive than calories from rice, maize, wheat or cassava (Headey and Ruel, 2020).

Lessons from previous epidemics
The frequency and impact of epidemic infections on the economy are on the rise (Jones et al., 2008, Allen et al., 2017), and especially animal-related infectious diseases are a heavy burden on public health, economy and society. Outbreaks of infectious diseases such as avian influenza (H5N1), influenza A (H1N1), severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and Ebola, not only endanger health but also cause disruption to transportation and supply chains and labor immobility, leading to hardship in economic development. In particular, the impact on the short-term economy is greater. At the same time, outbreaks can lead to food shortages and reduced household incomes and purchasing power, and they can pose a threat to food and nutrition security of the population, particularly children, women, the elderly and the poor.

The impact of SARS and MERS on food and nutrition security was relatively small. After the outbreak of SARS in 2003, China’s winter wheat harvest was delayed by two weeks. Guangdong and Zhejiang grain markets had a short-term panic rush, but the year-round agricultural production and prices were basically normal. China, Singapore, South Korea and other countries that were affected by SARS have strong resilient economies and societies, and they can resume agricultural production very quickly. These countries could also effectively connect domestic and international markets to ensure supply chains not to break.

However, the Ebola outbreak had a significant impact on the economies, agricultural production, markets and trade of West African countries, as well as a significant negative impact on food security and nutrition of the population in the region. According to the World Health Organization (WHO), the outbreak of Ebola virus in West Africa between 2014 and 2016 resulted in more than 28,000 infections and 11,000 deaths, mostly in Guinea, Liberia and Sierra Leone (WHO, 2016). Disruption in agricultural production, markets, labor, transportation and trade increased food consumption prices. Economy also slowed down dramatically. All of these posed serious threats to food and nutrition security of vulnerable population.
First, agricultural production was severely affected, and the local food supply was reduced in Guinea, Liberia and Sierra Leone. Some regions like Kailahun and Kenema in Sierra Leone were particularly hit very hard, and they are the main producers of food and cash crops. During the epidemic, the population was quarantined, and a large number of people left their hometowns in the second half of the year (ACAPS, 2014). Those left behind were restricted from moving. This not only led to missing important seasons of crop cultivation but also resulted in labor shortages during the harvest season for staple and cash crops, which ultimately led to a decline in agricultural production and higher food prices (FAO, 2016).

Second, transportation was disrupted, local agricultural products were difficult to sell and farm prices fell. Since the outbreak, few buyers and wholesalers came to buy agricultural products locally because of concerns of contagion, leading to sluggish sales of agricultural products and falling prices, and a decline in farmers’ incomes. There were no restrictions on domestic trade and travel in Guinea, but the largest distribution point was a decrease in agricultural trade with the rest of the world (FEWS NET, 2014). Segregation in some high-risk areas lasted for several months. As a result, potato prices in the Fouta Djallon region of Guinea’s highlands have fallen by about a third (FAO, 2016).

Third, the disruption of trade led to inadequate supply of imported food and serious damage to exports. Guinea, Liberia and Sierra Leone are all net importers of food. Trade between these and other countries was severely affected during the outbreak (FEWS NET, 2014). For example, the import of Thai rice in these countries was blocked mainly because the crew is reluctant to go to the affected countries for fear of contracting the virus, the transporters were unable to recruit the crew, and the transporters were concerned that they would be refused to go to other countries because the ships had gone to these countries (UkrAgro Consulting, 2014). Liberia’s food consumption is highly dependent on imports, and the amount of rice imported in rural areas has decreased significantly as transport costs increased and transportation was cut off from the capital city to rural areas. Senegal closed its border trade for five months from August 2014 to January 2015, which led Guinean producers and traders to halt exports of horticultural products such as potatoes to Senegal, and producer prices fell sharply, with huge losses. These factors exacerbate food shortages, hunger and poverty.

Fourth, food prices, particularly in urban centers, skyrocketed. In October 2014, the governments of Guinea, Liberia and Sierra Leone took measures such as quarantine and restrictions to prevent the spread of the virus causing market disruption, food shortages and panic among residents, pushing up food prices by an average of 24%. Some families had to cut back on food intake. According to the World Bank, rice prices in these areas had risen by more than 30%. In Liberia, cassava prices had gone up more than 1.5 times, according to FAO’s market assessment (Fan, 2014).

Fifth, the entire national economy was hit very hard. People were reducing demand for activities such as travel, visits and trade. Flights to Guinea fell sharply in mid-2014, with Senegal and Côte d’Ivoire closing their border with Guinea and with hotel occupancy in the capital city Conakry halving (World Bank, 2014). The World Bank estimates the economic loss from the Ebola outbreak between 2014 and 2016 at $2.8bn, including $600m in Guinea, $300m in Liberia and $1.9bn in Sierra Leone. Liberia’s real GDP growth slowed to 0.7% in 2014, from 8.7% in 2013. In Sierra Leone, GDP growth of 4.6% in 2014 was driven by expanding iron ore production, just as in 2013 when real GDP increased by 20.7%. Non-iron ore GDP growth in 2014 slowed sharply on account of the Ebola outbreak to 0.8%, from 5.3% the previous year. Real GDP in 2015 is estimated to have contracted by −21.5%. In Guinea, real GDP growth in 2015 was 0.1%, compared to a pre-Ebola forecast of 4.0% (World Bank, 2016).

Sixth, many residents are facing a food security crisis as a result of rising food prices and falling incomes. In the wake of the Ebola outbreak, individual employment in Liberia fell by
24%, with the number of employees in Montserrado down 47% (Bowles, 2016). Food security is threatened for the population of the affected areas, especially the poor, whose share of food consumption expenditure is as high as 50–70%, and rising prices for staple food lead to a decline in purchasing power and difficulties in obtaining food and other important goods and services. In December 2014, about half a million people in the three worst countries were severely food-insecure, as the FAO reported. Research by the International Food Policy Research Institute (IFPRI) shows that 1.2m people face severe food insecurity (Fan, 2016). According to FAO et al. (2019), the proportion of undernourished people in Liberia has rebounded, from 39.4% between 2004 and 2006 to 42.8% between 2014 and 2016, and the proportion of undernourished people in West Africa increased from 9.8% in 2014 to 11.5% in 2016.

Lessons from the 2008 food price crisis
Currently, an encouraging news is that global cereal markets are expected to remain stable, according to the UN FAO. The total world cereal production for 2019 amounted to 2,721m tons, an increase of 2.4% over the previous year. As a result of adequate supply, food prices declined 4.3% between February and March. Wheat price saw a moderate increase, while that of rice rose for three consecutive months due to high demand from the Middle East and Africa.

But if countries panic this time too, food trade and markets could be disrupted, albeit on a much larger scale. Kazakhstan, one of the world’s biggest shippers of wheat flour, banned exports of that product along with others, including carrots, sugar and potatoes. Serbia has stopped the flow of its sunflower oil and other goods. Russia is leaving the door open to shipment bans and said it is assessing the situation weekly (Bloomberg, 2020). But recently some countries began to roll back their export banks. Of at least 17 countries that sought to limit food exports to protect local supplies, about half have backtracked all or some of the measures (IFPRI, 2020).

The 2007–2008 food price crisis reminds us that export bans can drive food prices up and cause volatility. Prices of wheat and maize began to increase in 2007, partly triggered by bad weather in Australia and Argentina and high oil prices. Due to panic and pressure to protect domestic supply, leading rice exporters like India, Vietnam, Cambodia and Thailand imposed restrictions on or even halted rice exports in late 2007. Major importers such as the Gulf States and the Philippines had to sign contracts for imports at very high prices for fear that they might not have adequate supplies to meet domestic demand. All these led to more export bans and panic purchases. As a result, the international rice price jumped dramatically, increasing from $300 to $1,200 per ton from January to May 2008. Millions of poor families were hit hard as they had to spend more on food. Many small farmers also suffered because 40% of them were net food buyers (Headey and Fan, 2008).

There are many similarities between the current and previous export bans. Both have been triggered by potential supply shortages, and the panic worsened the situation. But the current export bans could potentially last longer as the pandemic is still ongoing and major food exporters like USA, Brazil and Russia are still combating the disease. Recently, G-20 and United Nations and its agencies like WTO, WHO, FAO and UNCTAD have all issued statement against export bans. We must continue to monitor the trade policies.

Chinese food and nutrition security under COVID-19
Since China was the first country to combat COVID-19, an assessment of the early impact on Chinese food and nutrition security is feasible and can provide insights for other countries in preventing food and nutrition security crisis.
China’s food production was strong in 2019, which provided a solid foundation for food supply. Grain output was 663m tons, almost 0.9% more than the 2018 level. Currently, the stock of rice and wheat is high and can meet domestic demand for one year. Grain imports accounted for only 1–2% of domestic consumption in recent years. While China’s soybean demand is mainly met by imports, which stood at 88.5m tons in 2019, the supply of soybean from Brazil and the US, two largest producers, is stable. There is no sign that the supply from these two countries will be disrupted by COVID-19.

In February, China’s consumer price index, a gauge of inflation, went up 5.2% year-on-year. But food prices surged 21.9%, largely due to pork price hikes triggered by the impacts of the African swine fever on hog production. On a month-on-month basis, national consumer prices rose 0.8%, while food prices increased 4.3%, led by an uptick in the prices of fresh vegetables and meat due to the outbreak of COVID-19. However, in March, both the consumer price index and food prices index declined on a month-on-month basis, which fell 1.2% and 2.7%, respectively. The prices of fresh vegetables returned to the normal price, similar to the same period of 2019. That means the impacts of COVID-19 on the food market became modest (NBS, 2020b).

But the epidemic may have a significant impact on the production of livestock and poultry products, and the market is expected to be largely volatile after the first quarter. Epidemic prevention and control measures on the movement of materials and people created challenges for livestock, particularly poultry, production firms. After the Spring Festival holiday, many agricultural enterprises are short of inputs, especially feed, lack of access to markets and insufficient workers who could not come back from the holiday due to the quarantine and restrictions. According to a survey of the enterprises conducted by the China Agricultural University in early February, the price of corn used for feed has risen by more than 100 yuan/ton, and the feedstocks of companies can only be used for 3–4 days. In addition, due to the restrictions on live poultry trading, enterprises cannot sell chicken and ducks, and seedlings, resulting in live bury of chicken seedlings. Chicken and duck smoldering phenomenon frequently occurred, and many breeding enterprises and farmers are on the verge of bankruptcy. Farmers have no incentives to restock. According to industry estimates, chicks and duckling fell by about 50%. If calculated according to the 40-days production cycle, the market supply will be significantly reduced after the first quarter. Coupled with the impact of African swine fever that is still ongoing, the gap between meat supply and demand will be very prominent. According to the statistics data from the national bureau, the pork production dropped by 29.1% and the total meat production decreased by 19.5% in the first quarter year-on-year (NBS, 2020c).

Spring planting is on the horizon, and lingering of the epidemic will affect the production of major crops such as grain, cotton, edible oil and sugarcane. Spring tillage preparation work is about to start in full swing. The epidemic may affect farmers to purchase seeds, fertilizer, pesticides and other inputs. Seed supply is also a major concern. According to the China Seed Association (CSA, 2020), the outbreak has adversely affected the production and operation of more than 90% of seed enterprises. Transportation and logistics were almost stalled, and more than 75% of enterprises face transportation challenges. Nearly 40% of the enterprise seed sales are zero, and the percentages of sales from total production not more than 30% of the total accounted for more than 75%.

Vegetable production has also been affected. A survey by the China Agricultural Policy Research Center at Peking University also showed that 24% of vegetable farmers’ production during the outbreak was affected by the outbreak, with an average reduction of one-third (Huang et al., 2020).

On January 30, 2020, the Ministry of Agriculture and Rural Affairs (MARA), the Ministry of Transport and the Ministry of Public Security jointly issued the “Emergency Notice on Ensuring the Normal Circulation Order of “Basket” Products and Agricultural Production...
Materials”, which strictly prohibits unauthorized interception, road breaks and traffic disruption of transportation of agricultural inputs and outputs, and ensures the normal flow of “basken” products and agricultural input materials.

A MARA document on February 10 specified incentives for farmers to start farming with necessary disease prevention and other measures to support agricultural production.

To resume livestock production, on February 15, MARA and two other ministries jointly rolled out measures to support the reopening of feed and meat processing enterprises as soon as possible and ensure smooth delivery of raw materials and products.

To encourage food imports to ease the pressure on food supply, the General Administration of Customs of China announced on February 16 that more countries and companies would be allowed to export agricultural and food products to China. The administration also pledged to speed up customs clearance, shorten the quarantine and review period and open green channels for agricultural products in key ports.

MARA has also published a plan for 2020, outlining targets for crop planting areas and measures to ensure grain production and supply, improve plantation structure and control chemical pesticide and fertilizer use in crop production.

With all these policies and measures in place, it is expected that China’s food supply in 2020 will remain stable, although meat prices are likely to remain under pressure due to the impacts of the epidemic on the livestock sector. Securing imports of soybean and meat will be key to avoiding further spikes in domestic meat prices.

How to prevent a global food and nutrition security crisis?

The COVID-19 is still spreading, and it is difficult to say when it would be contained. Compared to the previous crises, the severity and global scope of COVID-19 implies timely and decisive decisions must be taken. Global and national coordination are equally important. The pandemic will also trigger debates what future agrifood systems should be in order to prevent food shortages and hunger during crises and provide adequate nutritious foods for all citizens in long run.

First, there is a need to closely monitor food prices and markets. The Chinese experience has shown that transparent dissemination of information will strengthen government management over the food market, prevent people from panicking and guide farmers to make rational production decisions. The World Trade Organization, the World Health Organization, FAO, the World Food Programme, the World Bank and the Consultative Group on International Agricultural Research (CGIAR) should set up a working group to monitor prices, stocks, supply and demand, and trade not only at the global and national levels but also at the local, regional and community levels. Local monitoring is critical as roadblocks and restrictions on people’s movement can lead to food shortages in different areas. African Green Revolution Alliance (AGRA) has already set up a platform to monitor prices in Africa by working with telecommunication companies and the national government. Agricultural Marketing Information System (AMIS) hosted by FAO has responded by further building national capacity in tracking price and market information at the subnational level.

Second, it is necessary to ensure international and national agricultural and food supply chains function normally. China has set a good example of how to ensure food security during the current epidemic by, for instance, opening a “green channel” for fresh agricultural products and by banning unauthorized roadblocks. E-commerce and delivery companies can also play a key logistical role. For example, as lockdown measures have increased the demand for home delivery of groceries, e-commerce companies have come up with an in-app feature for contactless delivery, allowing the couriers to leave a parcel at a convenient spot for the customers to pick up, which rules out person-to-person interaction.

Third, social safety nets are needed to protect those who are the worst affected and most vulnerable. These safety nets, which could be in the form of cash or in-kind transfers (context
specificity is important here), should be accompanied by intervention by health and nutrition officials because investing in the health and nutrition of vulnerable populations could lower the mortality rate of diseases such as COVID-19 – as nutritional level and mortality rates are intricately linked. Social safety nets are also crucial in the postepidemic period to drive “reconstruction” efforts. Many countries are planning to introduce various stimulus packages for economy recovery. Part of stimulus packages must be used to set up the social protection systems for protecting vulnerable populations from the current and future crises.

Fourth, more investment is needed to build an even more resilient food system. Such investment must come from national governments as well as the international community as enhancing the capacity of developing countries to prevent or contain a food security crisis is a collective effort. In today’s highly interconnected world, contagious diseases such as SARS, Ebola, avian flu and COVID-19 could easily travel across borders. China has already planned to enhance its medium-term and long-term production capacity by using part of the stimulus package to invest in R&D, rural infrastructure and farmers’ education. But these investments should be well designed and implemented.

There is also a need to build safeguards for the prevention and control of zoonotic diseases. The international community needs to do more to prevent future outbreaks of zoonotic diseases such as Ebola, SARS and avian flu, including regulating meat, seafood and wildlife markets. Many zoonotic diseases originate in wildlife – HIV, Ebola, MERS, SARS, and possibly COVID-19 too, all originated in wildlife and jumped to humans. China introduced various laws, regulations and policies on wildlife markets after the SARS outbreak in 2003. More regulations and policies have been introduced again after the outbreak of COVID-19. It is equally important that these laws, regulations and policies are implemented, monitored and evaluated.

Moreover, it is important to ensure the smooth flow of global trade and make full use of the international market as a vital tool to secure food supply. And global institutions such as the World Trade Organization, FAO, World Bank and the International Monetary Fund must ask countries to not use COVID-19 as an excuse to issue trade protectionist policies. On March 19, UN Secretary General António Guterres called for solidarity. He said it is everybody’s responsibility to work together to contain COVID-19. The spirit is also essential to mitigating the effects of the virus on the global food supply chain.

References


Further reading


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