

# As Odd As It Sounds, Could China At Some Point Face a Food Shortage/ Distribution Problem?

**T**he drumbeat of disappointing economic news from China has been getting louder. How bad is China's situation in reality?

No one knows for sure because of the thorough lack of economic transparency. Some western analysts wonder whether Beijing could soon face a significant food-shortage problem. Global strategist Pippa Malmgren argues that China can't grow enough food at home. "There just isn't enough water or arable land to sustain the population. They can source food from abroad, but only if they can pay for it," she notes.

Of course, the collapse of the property sector has put heavy strain on China's finances. Debt payments and commercial revenues from the Belt and Road Initiative are down. Australian and Brazilian beef exports to China, in particular, have collapsed. "Is China buying less because it simply can't pay for more?" asks Malmgren.

Meanwhile, China is no longer the cheapest place in the world to make things. Foreign direct investment into China is at a thirty-year low. Mexico, many believe, is becoming the new China.

The most bewildering development, Malmgren argues, is the recent CNN report that showed large Chinese companies setting up their own militias. Is this a sign that the Chinese elite see a ruthless scramble to control food sources coming? Or is all this mere interesting speculation?

**Nine distinguished analysts tackle the question.**





*China will not go hungry.*

**FUXIAN YI**

*Senior Scientist, University of Wisconsin-Madison*

**D**espite a slowing economy and rising geopolitical tensions, China will not go hungry. China imports one-fifth of its grain because of the international market system, not a shortage of arable land. And there is huge potential for China to increase its domestic food production further.

China's cereal yield has increased from 2,937 kilograms per hectare in 1980 to 6,380 kilograms per hectare in 2022, equivalent to the 2005 yield in the United States. Reaching the current U.S. yield level would imply an additional 27 percent increase in cereal production, which is achievable in the near future. China has an additional 57 million hectares of undeveloped arable land, albeit with lower yields than the existing 128 million hectares.

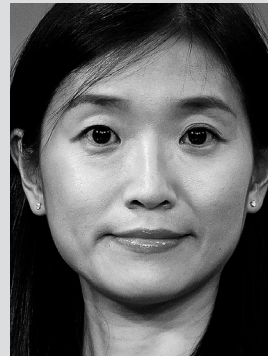
China currently has seven million hectares of aquaculture area and that will continue to increase because of its long coastline. China also has 261 million hectares of desertified land, some of which could be transformed into arable land through drip irrigation and soil improvements—as is already being done in the formerly barren Maowusu Desert. Similarly, China's 393 million hectares of grassland (which is larger than India's entire land area) has significant potential to produce additional meat and dairy products. The spread of indoor farms and white agriculture (in which microorganisms turn straw into feed) also promises to increase food production dramatically.

China's rural labor force is indeed shrinking rapidly, but the growing adoption of agricultural mechanization and scale production is making up for it. China has abundant coal reserves and coal-to-liquid technology and is making progress in developing renewable energy, so even if crude oil imports are blocked because of sanctions, China has enough energy for fertilizer production and agricultural mechanization.

It bears mentioning that eating more is not necessarily better. An excessive food supply can lead to a greater incidence of obesity-related diseases and higher medical costs. Among developed countries, the United States

has the highest per capita daily supply of calories and protein, but the shortest life expectancy and the highest medical costs, whereas the opposite is true for Japan. In 2021, China's per capita daily dietary energy supply was 3,396 calories, which was equivalent to the 3,362 calories in the United Kingdom and higher than Japan's 2,659 calories. In 2018–2020, China's per capita daily protein supply was 105 grams, which was also equivalent to the 104 grams in the United Kingdom. Even with a sharp reduction in grain production and a halt to imports, China will still have more food supply per capita than Japan does now.

China's population is already shrinking and aging rapidly. Even if China is fortunate enough to stabilize its fertility rate at the current level of 1.0, its population in 2050 will be 16 percent smaller than it is today. Aging also reduces per capita food consumption. For example, the per capita daily protein supply in Japan, Italy, and Greece decreased from 95, 113, and 116 grams in 2000–2002 to 87, 105, and 106 grams in 2018–2022. That said, China's food demand and imports will soon peak.



*China has no looming hunger problem.*

**ZONGYUAN ZOE LIU**

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**W**ith less than 10 percent of the planet's arable land, China produces one-fourth of the world's grain and feeds one-fifth of the world's population. China's 2023 grain output reached a record high of 695.4 million tons, the ninth consecutive year that China has had a grain harvest of over 650 million tons. China currently ranks first in the world in the production of cereals, cotton, fruit, vegetables, meat, poultry, eggs, and fishery products.

Despite its domestic production, China has been a net importer of agricultural products since 2004. Today, it imports more of these products, such as soybeans and corn,

than any other country, primarily for feed rather than human consumption. Between 2000 and 2020, the country's food self-sufficiency ratio decreased from 93.6 percent to 65.8 percent. Changing diet patterns have driven China's growing imports of edible oils, sugar, meat, and processed foods. In 2021, the country's edible oil import-dependency ratio reached nearly 70 percent, almost as high as its crude oil import dependence.

Chinese President Xi Jinping's approach to strengthening food security is to achieve self-sufficiency, emphasizing increasing domestic supply. Since he took office in 2013, Xi has frequently said that "the rice bowls of the Chinese people must always be held firmly in our own hand and filled mainly with Chinese grain." To mitigate supply disruption, the government has established stockpiles of food such as corn, rice, wheat, and pork. To boost domestic production, the Chinese government introduced a support price for wheat to protect farmers from losses in 2006. It also set a "farmland red line" policy with a target of preserving no less than 120 million hectares (an area slightly larger than Sweden) of arable land for crop farming. So far, it has been able to maintain this target. In 2022, President Xi raised the target for high-quality farmland to 66.7 million hectares and urged the nation to protect fertile black soil. The Chinese government has also invested heavily in agriculture tech to boost productivity. For example, China has recently developed competitive domestic chicken breeds that may end a forty-year dependency on imported breeds. China has also invested heavily in alternative proteins that can be added to animal feeds or for human consumption, raising the hope of reducing its dependence on imported animal feeds such as soybeans, the largest U.S. agricultural export to China by value.

On the demand side, most notably, the government has worked to reduce food waste through initiatives such as the "clean plate campaign." A Chinese Academy of Sciences survey found that Chinese consumers in big cities wasted up to eighteen million tons of food in 2015, enough to feed up to fifty million people annually. The government has used administrative and legislative measures—such as the Food Conservation Act Plan (2021), the Food Safety Law (2021), the Seed Law (2021), and the Food Security Law (2023)—to combat food waste, improve food safety, protect seeds and the seed industry, and develop comprehensive measures to improve China's food security.

The government has also worked to strengthen food supply chain security, providing funds to stabilize domestic agricultural production and invest in the global agriculture industry and overseas farmland. It has sought to diversify import sources and advance global agricultural cooperation. In short, China does not have a looming hunger problem.



*A theory that's  
not true.*

**DEAN BAKER**

*Senior Economist, Center for Economic and Policy Research*

**C**hina is clearly facing economic problems. It is also not at all transparent about its situation, but that should not be the basis for making up absurd stories about the country facing collapse. The idea that China is facing widespread starvation is close to absurd.

I can claim little knowledge about the state of China's agriculture, and it is entirely plausible that bad climate conditions could leave the country with a serious shortage of domestically produced food. But the next step, that China will somehow be unable to buy the food it needs on the world market, requires a sharp turn away from reality.

China is sitting on trillions of dollars of foreign reserves. Is there any reason to believe that other countries will not gladly sell China whatever food it needs for the dollars, euros, and other international currencies it holds? Or is the argument that a leadership that is obsessed with preserving domestic stability will choose to leave these reserves sitting idle in the vaults rather than using them to feed its population?

The country's current reserves could almost certainly pay for a decade or more of imported food, but there is little reason to believe China would even need to tap into them. The current fear of other major economies is that they are about to be inundated with cheap electric cars and other manufactured goods from a country with a shortfall of domestic demand.

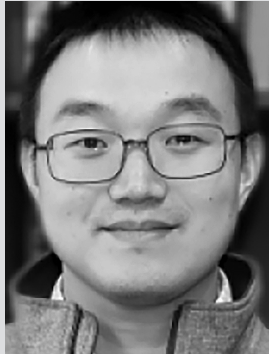
We don't know the extent to which the United States, Europe, and other Chinese trading partners will respond with tariffs or other import barriers, but there is little doubt that China will be earning plenty of foreign exchange with exports for the foreseeable future. In almost any plausible scenario, these earnings should easily be enough to cover its needs for imported food.

Furthermore, if China is about to massively increase its need for imported food, that news has not hit world markets yet. The price of rice is about 15 percent above its level of a decade ago and below peaks hit during the financial crisis. Wheat and corn prices are actually below their levels from a decade ago.

The lack of solid information from China should not be a ticket for spreading absurd fantasies. Back when China still had its covid lockdowns in place, there were many commentators who insisted that China had no choice because its vaccines were ineffective.

That turned out not to be true. When it abruptly ended the lockdowns, there was a massive wave of covid and almost certainly more than a million deaths, but as a share of its population China did far better than the United States and indeed most European countries. In short, its vaccines were quite effective. The country obviously continued its lockdowns for other reasons than the fear of a massive wave of deaths.

The story the country faces mass starvation can be put in the same category as the story of ineffective vaccines. It is clearly not true and laughable on its face.



*There are reasons to worry about China's long-term food security.*

**ZHUN XU**

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China is one of the largest food producers in the world, and at the same time, a major food consumer. In the last twenty years or so, China saw a surge in food imports, both directly through rice and wheat and indirectly through edible oil and meat. In 2000, China imported only about three million metric tons of cereals (wheat, rice, and coarse grains). In 2021, China imported more than sixty million metric tons of cereals.

An assuring fact is that China maintained a stable and increasing grain output in the last twenty years. According to the official measures, China in 2021 produced almost 60 percent more grain than it used to back in 2003, the lowest point of the current century. In 2021, China's net cereal imports were about 10 percent of the domestic supply. In other words, China today still manages to produce most of its domestic food consumption.

However, there are reasons to worry about long-term food security in China. Some studies have argued that China's official statistics at least since the 2000s

have considerably overstated the domestic food output level. This would suggest a lower food sufficiency ratio in China. Moreover, China's food production has been heavily based on chemical inputs. Besides the severe ecological damage, the efficiency of chemical applications in generating higher yields has declined steadily. Meanwhile, the Chinese government has been encouraging more consolidation of rural farms and the development of large agrarian capital. This may help in certain aspects, but given the well-documented inverse relationship between farm size and yield, such agrarian change likely would lead to at best a stagnant food output, if not a clear decline.

Additionally, the Chinese diet has undergone notable changes in recent decades, incorporating substantially more meat and dairy than in previous years. China has already become the largest dairy and meat importer in the world, and imported more than 60 percent of world soybean exports, mainly for use as animal feed. A meat-based American type diet costs much more water, energy, and land than a traditional plant-based one and is not sustainable anywhere. Continuing with the dietary shift would suggest a growing reliance on imports from abroad.

Considering these factors, should China persist with the ongoing patterns of production and consumption, it will encounter significantly greater risk and uncertainty in ensuring food security for its population in the years ahead.



*The idea that China cannot produce enough food to feed its population does raise some interesting questions.*

**RICHARD JERRAM**

*Chief Economist, Top Down Macro*

It is ridiculous to suggest that an upper-middle income country won't be able to feed itself in today's world, especially one that has been running a current account surplus for over two decades. If you don't have enough of something essential that you need, then you just trade, or even run down accumulated foreign assets, in order to buy it.

And even if you are facing a genuine squeeze on your ability to fund imports of food, then you can just cut back

on less important things, like European luxury goods. Counterfeits did a good enough job in the past, if it's the choice between a handbag or a sack of rice. China isn't going to go hungry.

That said, the idea that China cannot produce enough food to feed its population does raise some interesting questions, especially as climate change is already putting pressure on global supply. If China is increasingly forced to enter international markets in order to procure food supplies, it is such a large player that there could be significant price effects. That produces a terms-of-trade shift in favor of food exporters and will exacerbate poverty in some low-income countries where food already accounts for a sizable share of disposable income for much of the population. There could well be low-income countries that struggle to feed their population in this scenario, and I would look for the risk of civil unrest there, rather than in China.

The issue also raises interesting questions on the limits to China's strategic ambitions. If military conflict—perhaps due to an invasion of Taiwan—produces a blockade, then food could be an important part of economic security. However, there are probably more vital dependencies on industrial raw materials that would have an impact before a shortage of food begins to bite.



*The only risk of mass hunger in China comes from the insidious rise of free market economics.*

**JAMES K. GALBRAITH**

*Lloyd M. Bentsen, Jr., Chair in Government/Business Relations, LBJ School of Public Affairs, University of Texas at Austin, and author, Entropy Economics: The Living Basis of Value and Production (University of Chicago Press, forthcoming)*

Oh, dear. China doesn't produce all of its own food. Come to think of it, neither do I. Apparently unlike "some Western analysts," I live in town. When I need food, I go to a store. This is the principle of "truck, barter, and exchange" made popular some time ago by Adam Smith.

We learned, or should have, from Amartya Sen that famine happens for political reasons, not because food is

short. So it was in Bengal in 1943, and even in Ireland in 1845—wheat was exported even though the potato crop had failed. In China in 1960 also—exports to Eastern Europe continued while peasants starved.

China has been importing food ever since. It is the world's largest importer of wheat, corn, rice, soybeans, and meat. It also has the world's largest foreign exchange reserves, because it is the world's largest exporter of manufactures, now including cars. That Chinese labor is no longer dirt cheap is proof of success.

Should China start running trade deficits, would it be unable to buy food? Of course not. Even after all the reserves were spent, sellers would accept Chinese debt, just as they now accept U.S. dollars; the RMB would become a reserve currency.

And suppose the "West" should cut China off? Then Russia could redirect its huge food surpluses to China. Today, for instance, Russia exports about 45 million metric tons of wheat each year; China imports about 12 million metric tons.

Having just eliminated extreme poverty by vast political effort, China is unlikely to repeat the Great Famine. Today, the only risk of mass hunger in China comes from the insidious rise of free market economics, propagated inside China by academics trained in the West. This is precisely the force that, under the British, brought famine to Ireland and to Bengal.



*China's biggest food challenge arises from the demand side.*

**JAMES E. GLASSMAN**

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China's ambitious economic agenda has created many challenges that include feeding her population. But because China's food issues are mostly a result of improving economic circumstances and rising living standards—high-class challenges—they don't seem to be threatening. Managing food supplies for a population of 1.5 billion people does seem daunting, particularly in the case of China, whose development has been centrally

orchestrated rather than guided organically by market forces as in other developed economies (real estate imbalances symbolize the unique features of China's story). But the challenges can be overstated.

Food production does face building headwinds. It has slowed in recent years and that's partly a natural outcome of rapid economic development. But poor regulation and environmental damage have contributed to soil and water contamination and limited the amount of arable land. The World Bank's Food Sustainability Indexes are informative: on the one hand, China ranks favorably (twenty-third place out of sixty-seven countries) in terms of overall food sustainability, a metric based on three criteria including food loss and waste, agricultural sustainability, and nutritional challenges. Yet China ranks poorly in terms of agricultural sustainability. And lately, scandals in the domestic food industry have undermined confidence in some products and shifted preferences for food products made elsewhere.

However, China's biggest food challenge arises from the demand side. China's economic progress has raised living standards and demand for higher-quality food. Her undernourished population has fallen in half, from 16.2 percent of the population at the turn of the millennium to 8.6 percent in 2017, according to the Food and Agriculture Organization. "Undernourishment" is an indicator of chronic hunger and is defined as not acquiring enough food to meet the minimum dietary energy requirements for a year.

China has numerous options. Genetically modified technologies, which have not been popular, are one. Purchases of agricultural land abroad are another. Overseas investment in food production is another option (China's purchase of America's Smithfield Foods in 2013 comes to mind). And China's development of aquatic food production is reported to account for more than half of global aquaculture output. At the same time, China, like many, is relying increasingly on global food sources (the most important markets for China include Brazil, the United States, Canada, Australia, New Zealand, Indonesia, Thailand, Hong Kong, Argentina, and France). But her reliance on imports can be exaggerated. China currently imports about \$200 billion of food annually. Although that is up significantly from \$9 billion in 2000, it is only 1.1 percent of GDP currently compared with 0.7 percent of GDP two decades ago.

Does China have the financial resources to rely on outside food sources on her own? For one, China's imports are not much of a burden for her economy. Despite China's growing import volume, and rising share of food products, imports overall have been shrinking as a share of GDP. They grew steadily in earlier decades, peaking at almost 30 percent of GDP a decade ago. But since then, they have been falling as a percent of GDP, to 17

percent most recently as China's economy has expanded. As a percentage of GDP, imports are back to where they were before China joined the World Trade Organization in 2001. In any case, China is in a strong financial position with \$3.3 trillion of international reserves. China's reserves continue to expand, because her current account surplus of \$200–\$300 billion annually means that capital inflows from trade in goods, services, and investment income exceed outflows.

The shift of foreign direct investment from China to other regions is a common feature of economic development. It is a natural response to shifting incentives as China's economy advances up the economic ladder. China's progress has by design lessened the appeal of her markets for global manufacturers looking for locations that offer attractive costs. If China no longer draws foreign direct investment in manufacturing operations, her improving purchasing power more than compensates for her shrinking appeal as a cheap source of manufacturing.

In this sense, China's food challenges could be interpreted as a sign of economic strength. China's imbalances understandably raise worries about the potential for domestic instabilities to threaten global stability. However, China's economic successes, with all of her challenges, almost certainly have contributed to global economic and social stability.



*China is well-positioned across the board.*

**ANDREW DEWIT**  
*Professor, School of Economic Policy Studies,  
Rikkyo University*

**C**hina certainly confronts myriad challenges, but starvation doesn't appear to be on the menu. The world's largest food importer, at \$140 billion in 2023, China is also by far the world's largest global investor in agriculture.

China has many other strategic investments that seem likely to help put food on the table. One area of aggressive investment—both domestic and overseas—has led to China's increasing control of supply chains

for copper, rare earths, and other critical minerals. The International Energy Agency forecasts that these minerals will become the focus of global resource trade, rising from 11 percent of 2019's \$1.5 trillion total to 47 percent of \$0.9 trillion under a 2050 net-zero emissions scenario. And if anything, the IEA assessment understates the value of these critical minerals. Its survey is focused on the role of critical minerals in solar panels, electric vehicles, and other devices used in clean energy. Among other items, the IEA overlooks weapons systems and ammunition, artificial intelligence's compound semiconductors and data centers, and other sectors whose critical-mineral demand is also ballooning alongside clean energy.

China dominance of critical-mineral supply chains is impressive, reaching an incredible 90 percent of global rare earths and between 60–70 percent of graphite, cobalt, nickel, and lithium. This dominance has been built over decades, via massive investments in projects, international collaboration, and mining/refining technologies. To be sure, the OECD/IEA countries are rapidly adopting policies to reduce their critical-mineral dependence on China. But the desired de-risking from China isn't happening, in part because the Chinese have the deep pockets to weather eye-watering price volatility and thus push competitors to the margins. Indeed, conversations at global conferences on mining reveal that all the talk of onshoring away from China is largely just talk. In reality, China continues to be the key source of investment.

Materials matter: China's control of upstream supply chains has helped it become the global leader in solar panel and battery manufacturing, and rapidly gain ground in electric vehicles, transmission networks, advanced nuclear, and other lucrative realms of critical mineral-intensive cleantech. China's lead is also built on mountains of human capital. In 2022, the Chinese were training 1.4 million geologists, engineers, and other mining specialists, whereas the United States had a mere six hundred enrolled. Canada, Australia, the United Kingdom, and other American partners evince similarly minuscule numbers, and hence Anglo-America is collectively bracing for an unprecedented shortage of skilled people over the next few years.

China's investments in critical minerals also dovetail with those in agriculture, as we see in Latin America. The region represents 14 percent of global food production plus about half of global lithium reserves and just under 40 percent of copper reserves. In 2000, China's trade with the region was a mere \$12 billion, but in two decades mushroomed to \$330 billion. Observers expect that figure to double to \$700 billion by 2035. So China looks comparatively well-placed for secure and abundant imports of food and critical minerals in return for its exports of consumer goods, high-tech infrastructure, and other key technologies.



*China seems able to maintain the food supply—for now.*

**HONGYI LAI**

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**F**or now, China seems able to feed its population with food produced at home and abroad. It may only need to cope with rising costs and possibly negative returns for domestic grain producers and paying for grain at a high price with its foreign reserves, especially in the case of rice. Its ability to sustain the food supply could be tested if production is disrupted by a dramatic change in weather, if the transport of its food imports is disrupted by catastrophic events such as war and embargo, and if it cannot effectively contain frauds and corruption in building up its grain reserves.

China has been importing a considerable amount of food for domestic consumption. As much as 60 percent of the Chinese population had rice as their grain intake. In 2022, China imported five million tons of rice, the largest in the world. The costs for producing rice in China have been rising in the recent decade, resulting in a negative return to rice production in 2022. Its rice-producing areas and rice output have been shrinking over the past three years. This may increase China's need for imports.

On the other hand, imports constituted roughly 2 percent of China's rice consumption in 2023. China's dependence on imports of other food products, such as corn and wheat, is far higher, reaching possibly 8 percent of their respective consumption. Still, given the seemingly moderate dependence on food imports, China does not seem to experience a food shortage. In recent years, the price of rice has remained steady albeit at a relatively high level, and those of wheat and corn have gone up noticeably in the past five years in southern China. Despite censorship, there is no dramatic news regarding mass hunger in the urban streets or the villages in the nation, which could be difficult if not impossible to hide from social media or word of mouth.

China's economy is still hamstrung by the sluggish real estate market, a slowdown in information technology and certain service sectors, a jump in unemployment, and slashed wages in a wide range of sectors. This results in

weak public confidence in economic prospects, cautious spending, and numerous belt-tightening measures. A tiny percentage of the population whose economic welfare and even well-being have been ruined in recent years might have turned violent, orchestrating news headline events of reckless acts of revenge against innocent people in public areas.

Sensing simmering mass discontent, China's rulers might indeed be concerned with upcoming instabilities or conflict. The unusual recruitment of militias by state-owned enterprises reflects this concern and indicates the state's resort to Maoist-type organizations for the control of riots or protests without draining the official resources.

China's ability to accumulate its foreign reserves might have well passed its peak and was taking a hit in 2022. It might be recovering after early 2023, and has been helped by an apparent recovery of exports in early 2024. For now, China seems to be able to afford the food imports and maintain the food supply. ♦



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