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China's grain imports surged dramatically in 2012**And there are many popular arguments as to why China will need to import a lot more grain in the future****The strains in Chinese agriculture are real, but so are the productivity gains****www.gavekal.com**

How To Feed A Dragon

China's ports witnessed something unexpected last year: ships delivering ton after ton of foreign grain. In 2012, China imported more than 11m tons of rice, wheat and corn (maize)—three times more than in 2011. Because China maintains a strict 95% grain self-sufficiency target, this unexpected surge prompted speculation about China's ability to feed itself, and what that could mean for soft-commodity prices. Foreign farmers and commodity analysts have been here before: from almost nothing at the turn of the century, Chinese soybean imports surged to two-thirds of world exports by 2010, pushing up global prices by 200%. Are grain imports—and global grain prices—set to follow their lead?

Investors betting that China's grain imports will keep growing seem, mistakenly, to have logic on their side. China is short of farmland, while every year millions of farmers leave the fields for better opportunities in the cities. It is hard to imagine how the country can continue to increase grain production. Meanwhile, demand is on the rise: as incomes grow, so does consumption of meat, which must be fattened with grain. These facts are correct—yet the conclusion that grain imports will continue to surge is misplaced. Despite all the constraints facing Chinese agriculture, grain output grew significantly over the past decade. And although Chinese people are eating more meat, the fastest growth in this trend is already over. China will import some grain to top-off supply when harvests are poor or, as in 2012, to take advantage of low international prices. But these imports should remain a small share of total domestic consumption.

Producing more from less

Maintaining a high level of self-sufficiency in grain is a major challenge. China already consumes a quarter of the world's rice and corn, and one-sixth of the world's wheat, despite having only 7% of the world's arable land. Nearly all available land has been cultivated since the 1980s, while much has been lost to urbanization. Researchers at the Chinese Academy of Social Sciences believe that the "red line" of 120m hectares of farmland—the minimum set by the State Council to ensure that China can feed itself—has already been breached. Water scarcity is an equally serious problem, especially in the North China Plain, where most winter wheat is grown. And though China still has an excess of rural labor, farmers increasingly rely on non-agricultural income to pay their bills, which means boosting grain production is no longer their top priority.

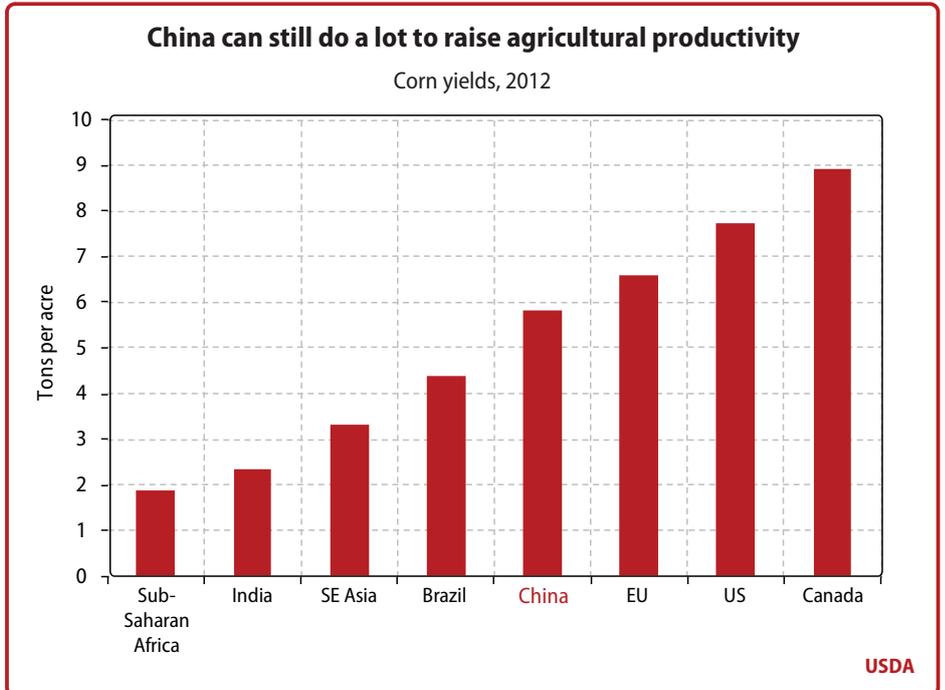
Yet, despite these constraints, China still has plenty of room to raise grain yields. On average, China produces 5.8 tons of corn per acre—a very decent haul, but still well behind the 7.8 tons US farmers manage to squeeze out of the soil. Some of the difference can be explained by physical endowments like weather and soil quality. US yields are also higher because farmers plant genetically modified corn that China refuses to import. But significant yield improvements can still be made from better soil

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Even without adopting GMOs, there are still things China can do to boost grain output

Government policies can also keep encouraging farmers to switch to grains from other crops

management, irrigation technologies and pest control. Improving agricultural extension services to teach old farmers new tricks—such as using plastic sheeting to keep the soil warm and retain moisture—remains the best way to reach this goal. China’s efforts in this direction mean its grain harvests continue to break records even as its farmland shrinks.



The government can also keep production rising by keeping the incentive for farmers to switch from soybeans to corn. China puts high tariffs on all imports of corn, wheat and rice above a yearly quota of 7.2m tons, which makes additional imports extremely expensive. By contrast, soybean imports face few constraints. As a result, soybean imports keep growing and domestic corn prices remain elevated, encouraging farms to switch to corn. Chinese farmers planted an additional 1.4m hectares of corn in 2012, about half of which came from replacing soybeans. Although domestic soybeans are around twice the price of corn by volume, corn’s much higher yields make it more profitable in many regions.

Higher subsidies, too, can spur grain production. China’s agricultural subsidies are far lower than in many developed countries. The OECD estimates that China’s farmers effectively receive 17% of their agricultural income from government monetary transfers, compared to the OECD average of 19%. But farmers in neighboring South Korea (45%) and Japan (53%) are far more heavily subsidized. Higher subsidies, however, must be correctly targeted. China now pays subsidies to landowners based on land area, but it would be much more effective to subsidize farmers based on their production. Some new subsidies along these lines are popping up, but remain the exception.

The next step will be reforming land rights and rural banking services. Larger farms are no guarantee of higher grain yields, but greater consolidation and more investment is needed make China’s farming sector more efficient. Farmers are allowed to rent or transfer their land to other farmers or agribusinesses on a temporary basis, but have no right to sell or

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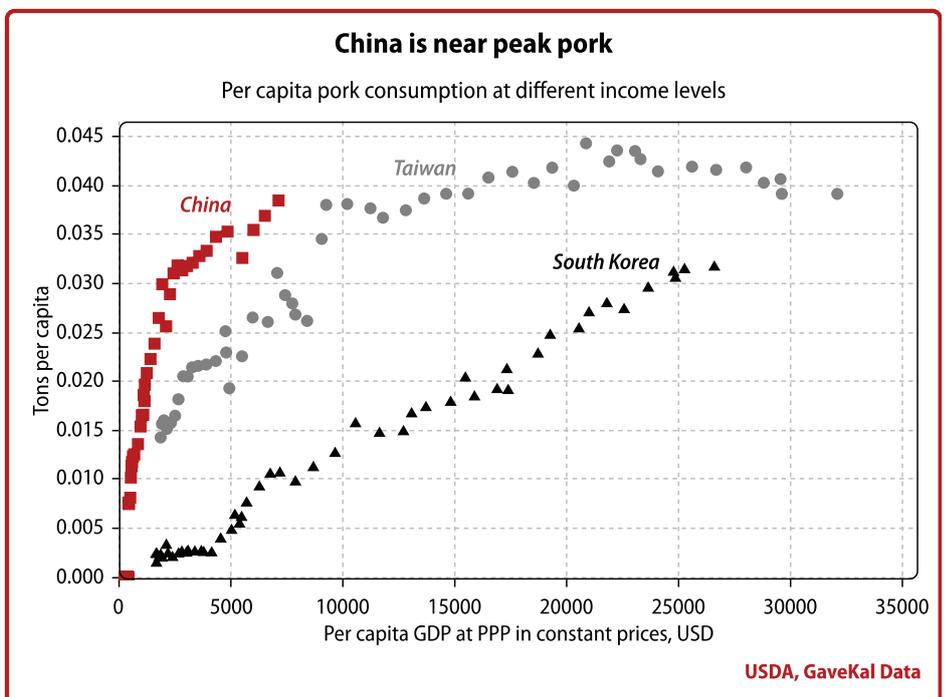
Even with rising incomes, China is unlikely to replicate an American-style diet

China's meat consumption has been growing rapidly but is likely to slow from here

mortgage their land. In this year's "Number One Document," the government promised to step up its drive to boost economies of scale and professionalization in agriculture. Beijing will oversee a five-year effort to clarify and register farm households' land rights, a necessary condition for consolidating land holdings. Although privatization of land remains off the agenda, these reforms should go some way towards boosting productivity.

China has plenty of potential, then, to increase domestic grain production. But will new supply be sufficient to meet people's growing appetite for food? Estimating future demand is tough. If Chinese people begin to stuff their faces like Americans, China will certainly have to import more grain. The average American eats a gluttonous 3,800 calories per day, 25% more than the typical Chinese. Yet appetites in China are much more likely to resemble those in South Korea, where the average calorific intake flattened out at 3,000 calories in the early 1990s. Average calorific intake in China, which inched up from 2,840 to 2,970 in 1996-2006, shows signs of following suit. In fact, people may eat less in future. Aging Japanese consumers eat fewer calories today, on average, than they did 20 years ago. Since China is also set to age rapidly over the next few decades, falling per-capita consumption could keep grain demand in check.

That said, what people eat matters as much as how much they eat. Chinese grain demand is mainly driven by growing demand for meat. In 1980, just one-fifth of China's corn and wheat was consumed by livestock; today that figure is more than half. And fattening cows and pigs requires many more calories of grain than consumers subsequently get from their stir-fried beef or crispy pork ribs. So even if Chinese consumers watch their calories, a more meat-heavy diet will require more grain. The shift to larger, more professional farms—which feed hogs with grain rather than kitchen scraps—will also boost grain demand. Yet if Chinese consumers follow the lead of their cousins in Taiwan, where pork consumption grew rapidly throughout the 1970s but leveled off in the mid-1980s, growth in meat consumption is set to slow.

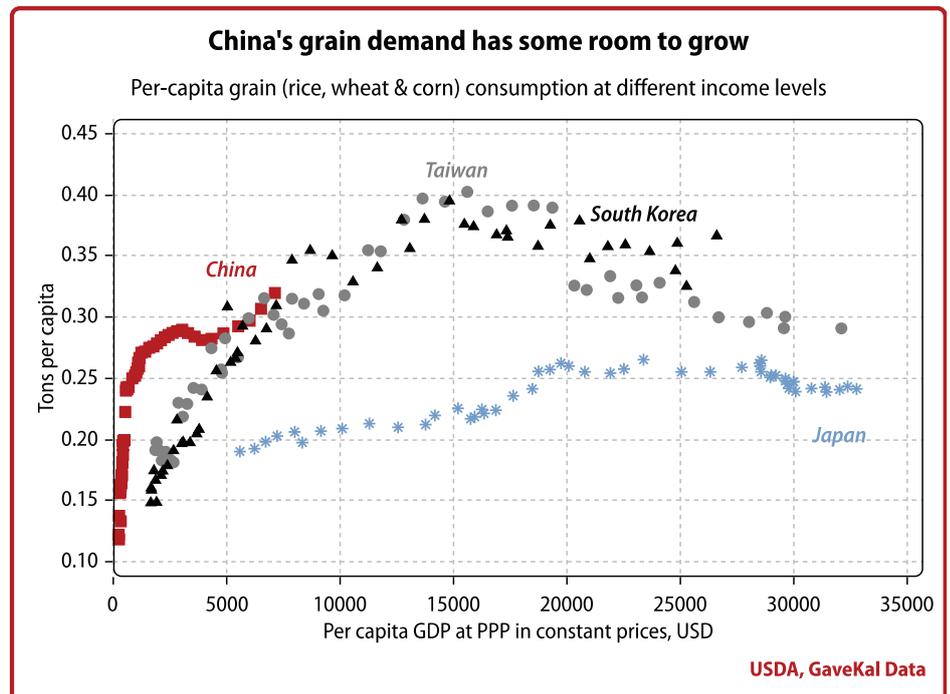


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The trajectory of other Asian countries suggests China's grain demand can grow modestly from current levels

China is unlikely to abandon its totemic target for grain independence, and should be able to meet it

In all likelihood, Chinese grain consumption will rise over the next 15 years, but only slowly. If China's rice, wheat and corn consumption follows the path set by South Korea and Taiwan, it will peak at around 400 kg per capita per year. Using UN population estimates, that means China's total annual rice, wheat and corn demand will rise from 470m tons today to about 560m tons when the population peaks in 2025. In order to grow an additional 90m tons of grain by 2025, China would need to increase production by an average of 1.5% per year over the next 13 years. That is eminently achievable in a country which saw grain production rise by an annual average of 3.6% in the last decade.



So there is no reason why China cannot maintain near self-sufficiency in grain production if it so desires. And retreat on this front seems unlikely: China may have abandoned self-sufficiency in soybeans, but grain has greater emotional resonance in a country where the staple foods are rice and noodles. Yet imports will continue, albeit on a relatively small scale, for a number of reasons. Because harvests vary significantly, grain imports may be necessary when supplies are tight. State-owned grain-trading companies turn to imports to refill state grain stocks, which they release into the market to supplement supply or to lower domestic prices. Many agricultural economists think a large chunk of 2012's high corn imports went into refilling stocks.

China will also continue to make bulk purchases in the international market whenever prices are low. China's quotas allow traders to import a small amount of grain—roughly 4% of domestic consumption for corn—at low tariffs. Any imports above the quota are taxed at extremely high levels. It is therefore logical for Chinese grain companies to import as much as the quotas allow when global grain prices fall. Han Jun, deputy director of the Development Research Center, a central-government think-tank, says most rice and wheat imports in 2012 were taking advantage of cheap global prices, which were 30% below those at home. Imports have far more to do with price arbitrage than domestic supply constraints.