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Behind China's "Grain Miracle": More than Meets the Eye?

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Synopsis

China reports remarkable increase in grain production every year. Besides concerns over the reliability of its statistics, China's "miraculous" grain production growth may not be sustainable.

Commentary

ACCORDING TO China's official statistics the country's grain production last year amounted to nearly 590 million tonnes, the ninth consecutive year of increase in its grain production. Against the backdrop of the global food crisis, China's grain 'miracle' certainly contributes to global food security.

However, there are domestic and international concerns over the reliability of the official grain production statistics and the sustainability of China's grain production growth.

Reliability of China's statistics

Official statistics on China's agricultural sector are known to be unreliable. Over-reporting of grain production statistics during the Great Leap Forward period led to catastrophic famine and China's over-reporting of its fisheries production in the late 1990s caused wide international concerns. Hence, it is not surprising that China's current "Grain Miracle" is doubted. For several reasons, concerns over China's recent grain production statistics are not unfounded.

Firstly, China's phenomenal grain production growth has been achieved in the period of notable decline of arable land, both in quantity and quality; rapid outflow of rural labour force as well as severe environmental pollution. Coincidentally, while China is celebrating the "grain miracle", the country's grain imports also reached a new historical high. In 2012, China's grain imports reached 80 million tonnes, representing 14% of the domestic grain production in 2012. In the meantime, China imported nearly 14 million tonnes of staple grains (rice wheat and corn), a 156% increase over imports in the previous year.

This dramatic increase in grain imports, including of rice, wheat and corn, soybeans and tuber crops, inevitably invites questions on the reliability of China's grain statistics. Lastly, the Chinese authority's reluctance to release its grain reserve data further contributes to doubts over its grain production statistics. Western media reports suggested that China had massively over-reported its grain production.

To be fair, given China's huge size and the fragmented nature of its agricultural sector, collecting agricultural statistics is inherently an extremely challenging task. And as grain issues are highly politicised in China, local government officials are inclined to exaggerate their grain production, which could lead to over-reporting of grain production at the national level.

Sustainability of China's grain production

Notwithstanding concerns over the reliability of China's statistics, it is undeniable that the country's grain sector has made remarkable achievement in recent years for the simple reason that China has been almost unscathed by the global food crisis in 2008 and the dramatic rise of global food prices in the last two years. Still, an important question is the sustainability of China's grain production capability. Towards this end, it is crucial to understand the contributing factors to China's grain production miracle in recent years.

China's grain production increase is partially attributed to the expansion of grain production areas. From 2004 to 2012, China's grain production area has increased by 12%, contributing to 32% of the country's grain production increase. Since 2004, China has introduced a variety of policies such as the Direct Grain Subsidy to stimulate the country's grain production. These policies together with dramatic rise of the rural labour cost have resulted in a significant shift in China's agriculture production structure.

Farmers respond to the government's stimulus policies by allocating more resources, quite often diverting them from other agricultural products to the production of grains. This leads to the structural shift in agriculture from non-grain crops to grains. The share of grain production area has increased from 99.4 million hectares in 2003 to 110 million hectares in 2011. This structural change, which causes fluctuations in the production of non-grain agricultural products, is contributing to demand and supply imbalances of non-grain agricultural products, leading to rapid rises and falls of the prices of those non-grain agricultural products.

The remaining two-thirds of grain production, the authorities claimed, was contributed by average grain yield growth - China's average grain yield increased by 22% in the same period. Yet, a careful analysis of the data tends to suggest that China's average yield increase is credited to the expansion of the country's staple-grains (rice, wheat and maize) production.

However while grain in the Chinese context includes not only staple-grains but also soybeans and root tubers, China's grain support policies only focus on production of staple-grains. This has resulted in significant difference in profitability among different grain crops, in particular, between soybean and root tubers and staple-grains, which is leading to a structural shift within China's grain production, particularly from soybean to maize.

In the past nine years, China's maize production area increased by 45%, accounting for 92% of the country's total grain production areas increase. In the meantime, maize production increased by nearly 80%, making up close to 60% of the country's total grain production increase.

Structural shift

As soybean is included in China's grain production, this dramatic shift from soybean to maize production has major statistical implications. Given China's soybean yield is only one-third of the yield of maize, the structural shift results in a significant increase in the country's average grain yield. However, this yield increase has only statistical meanings; it is highly unrealistic for China's grain production growth to be sustained through expansion of staple-grain production area given severe land shortage and limited space for further reduction in China's domestic soybean production areas.

Faced with severe food and water shortages, over-emphasising grain self-sufficiency not only brings huge economic and social costs, but also jeopardises long term sustainability of China's agricultural sector. China will have to revise its food security strategy by further integrating itself into the global food system, and actively utilising both domestic and international resources to safeguard its food security.

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