

## Juuso Kaarevirta, Tuuli Koivu and Aaron Mehrotra: China and food price developments

Inflation has picked up significantly in several countries in recent months, due mainly to energy and food commodity prices. For example, the world market price of wheat has more than doubled in the past year. Food price developments have boosted inflation particularly in emerging economies where a significant proportion of households' income is used to purchase food. As a response to rising food prices the countries have often restricted exports and set price ceilings on domestic prices of foods. The increasingly widespread use of these measures however increases price pressures in other countries and only slightly delays the pressure on domestic prices. The measures also hinder the functioning of the pricing mechanism and the demand-side effects on quantities and the structure of production. Food price pressures have also been fuelled by higher incomes and living standards in emerging economies, and therefore price pressures are probably a more permanent phenomenon and not just an effect of a short-term supply-side shock.

### Income developments and demand for food

Chinese inflation started to increase in late-2006 as a result of rising food prices, which account for one-third of the Chinese consumer price index. Although price increases are partly explained by supply-side shocks (pork prices rose sharply as a result of an animal disease), demand-side factors (higher standard of living) have probably played a role. One way of analysing the persistence of inflationary pressures is to examine the impact of income on the demand for food, ie by calculating the income elasticities. If production does not react quickly to growing demand resulting from an increase in income, price pressures will mount. Income elasticities of various foodstuffs in China have been calculated using data mainly from 1978–2007 (Table 1). For example, an income elasticity of 1.00 means that a 1% rise in income boosts consumption of the food item by 1%. If income elasticity is high, the consumption of a foodstuff keeps on increasing significantly in an environment of favourable income developments.

An increase in living standards boosts particularly the consumption of milk and meat in China (Table 1). Income elasticity is highest for beef, milk, powdered milk and vegetable oil. Rising incomes also significantly impact the demand for

mutton, pork and eggs. The results show that, by contrast, the consumption of grains or rice decreases with rising income. The results are in line with the usual assumptions on the way rising income affects the demand for various foodstuffs. Similar results arise from comparing consumption of foodstuffs in the various Chinese income brackets.

**Table 1. Income elasticity of foodstuffs in China**

Foodstuff	Income elasticity	Foodstuff	Income elasticity
Rice	-0.07	Chicken	0.25
Wheat	0.03	Mutton	0.89
Other grains	-0.53	Whole milk powder	0.99
Sugar	0.31	Eggs	0.78
Vegetable oil	1.09	Milk	0.92
Beef	1.58	Butter	0.40
Pork	0.63	Cheese	0.43

*Source: Authors' calculations, based on OECD-FAO statistics. Income variable is real GDP per capita.*

### Measures to dampen the increase in prices

China has in the past year been very active in controlling the rise in food prices and preventing its adverse impact. The administration has sought to reduce price pressures by increasing domestic supplies. Self-sufficiency in the key agricultural products, particularly grains, has for long been a major objective in China, and farmers have been encouraged to grow grains.

The supply of food has been boosted by subsidies and other measures. Appropriations for supporting the production eg of pork and grains (whose prices have risen fast) have increased significantly in the past year. Farmers' production has been directed also via investment subsidies. Moreover, supply has been supported by influencing farmers' production costs. A 100–135% export tax was imposed on fertilizers (whose prices have increased rapidly) in the past year, to safeguard domestic supply. In the coming years, Chinese agricultural production is estimated to increase favourably, particularly that of meat and milk. Recently, the Chinese government has sought to dampen price pressures also by drawing on strategic stockpiles. On the other hand, the government aims to boost the strategic stockpiles of eg soybeans.

The impact of higher food prices on living standards of certain population groups has been

alleviated by compensating for the higher cost of the food basket with an increase in income. The compensation paid to soldiers, as well as the income support provided to the poorest city dwellers, have been raised. The central government has also instructed local government officials to monitor the situation closely, and restrict price increases, if necessary. Direct price controls have been imposed also on production costs of food, eg the price of fertilizers and energy.

## China largely self-sufficient in food

Foreign trade in Chinese agricultural products is fairly limited. The top priority of agricultural policy has been self-sufficiency in the most important agricultural products. China has achieved its objective of self-sufficiency in grain production (Table 2). It is a net exporter of grain, even though net exports of several grains have declined in recent years.

Maize accounts for the majority of Chinese grain exports (5 million tonnes in 2007), and exports of maize have grown rapidly in recent years. The administration tried to curb the rise in grain exports in December 2007 by abolishing some of the tax cuts on exported rice, maize, soybean, and flour ground from them. In January 2008, even tighter measures were introduced in the form of a temporary export tax on 57 different grain products. Moreover, in 2008, an export quota has been set on 11 grain products, and strict criteria have been imposed on export licences. At the same time, the import taxes on some foodstuffs were reduced. As a result of the tighter export restrictions, maize exports were virtually nil in January–April. The export tax did not affect the export of rice. International organisations expect China to remain a net exporter of rice but to become a net importer of wheat in the middle of the next decade and a net importer of other grains even sooner.

China is a net importer of sugar, oil seeds (eg soybeans) and vegetable oils. Over 40% of global trade in oil seeds is imports to China, and the majority of seeds imported by China are soybeans. Imports cover ca half of Chinese soybean consumption. In January–April 2008, the imports of soy and vegetable oil increased by 15–20% y-o-y, and the rise in the global price of soybeans is reflected also in the Chinese market. Despite the high income elasticity of vegetable oil, growth in the consumption of oil seeds and vegetable oil is forecasted to decrease significantly in the coming

years. This would also slow the growth of imports. On the other hand, domestic production is also expected to grow, as higher prices encourage some farmers to shift production from grains to soybeans.

**Table 2. Chinese net exports, 1,000 t**

	2001	2006	2007*
Rice	1,659	191	-46
Wheat	420	1,582	1,092
Other grain (eg maize)	6,667	2,623	1,312
Oil seeds	-10,833	-32,520	-34,883
Vegetable oil	-1,719	-7,369	-8,008
Pork	53	464	496
Powdered skim milk	-35	-79	-79

Source: OECD-FAO Agricultural Outlook 2007–2016; \*) forecast

The growth in meat consumption has not yet cut the exports of Chinese meat. China is a major exporter of pork; it exports 1% of its domestic pork production, which accounts for nearly 10% of global trade. In January–May 2008, exports of pork were virtually unchanged from the previous year. China is expected to remain a net exporter of pork, although exports are not expected to grow very much. China also exports a significant amount of chicken even though the trade is broadly in balance. In 2004, avian influenza cut the trade in chicken by 50% and it has still not recovered to the level of 2003.

Of animal-based products, China imports butter, and cheese and exports eggs. The imports of powdered milk have increased rapidly in recent years, and an increasing amount of the powdered milk traded in the global market is imported to China. These imports are expected to continue to grow rapidly.

## Global markets have a limited impact on China

Despite the growth in the demand for food, China has succeeded in remaining self-sufficient in the most important agricultural products, and China is a net exporter of most grains and meats. In previous years, domestic grain prices in the Chinese market have followed surprisingly closely developments in the world markets. China has however partly succeeded in avoiding the surge in global grain prices in recent months by increasing the supply of foodstuffs in China. In the event of a poor harvest, China's self-sufficiency would be threatened, and it could be difficult for China to protect itself from price fluctuations in the global markets.

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