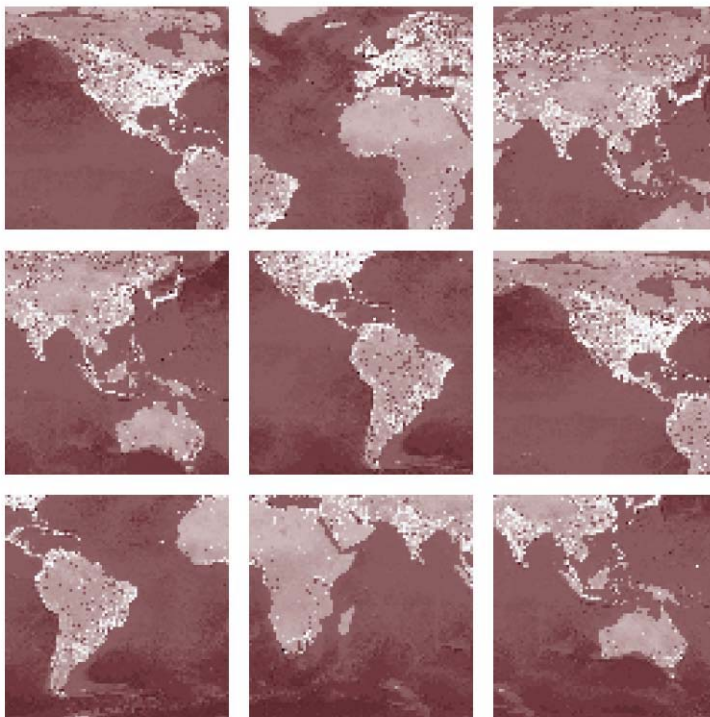


CHAPTER TWENTYONE

FOOD, GLORIOUS FOOD: AGRICULTURAL COMMODITIES

October 2007





FOOD, GLORIOUS FOOD: AGRICULTURAL COMMODITIES

Structural factors behind rising food prices in the BRICs—higher incomes and demand for alternative energy sources—mean that food-related inflationary concerns are unlikely to abate. Pressures for higher crop yields are likely to intensify environmental degradation. But the BRICs are key agricultural exporters as well as importers, and higher food prices might boost rural incomes.

Food price inflation has been in the news across both emerging markets and the developed world in recent months. Price spikes in dairy and sunflower oil contributed to a surprisingly high CPI figure in Russia last month, while meat and egg prices drove a 18%yoy rise in Chinese food price inflation in August—the highest rate in a decade. In Brazil, agricultural prices have been rising for several months, although overall inflation is set to remain below target.

Beyond short-term supply shortages driven by weather or disease, our Commodities research team sees structural reasons why agricultural demand will continue to rise in the BRICs—and thus why the inflationary pressures from food prices will persist:

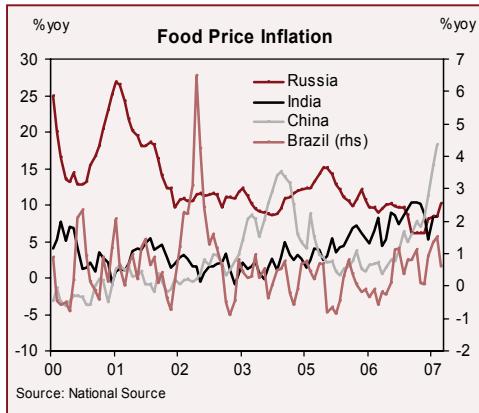
- As incomes rise across the BRICs, people are adopting a more protein-intensive diet. This is true even in India, with its strong cultural preferences for vegetarian diets. Demand for meat, eggs and dairy products has risen sharply over the past 15 years, and there is little to suggest that this growth has run its course.
- The global push for alternative energy sources is another source of long-term pressure. Globally, demand growth related to biofuels has surged on a per capita basis. If fully implemented, official plans to promote the use of biofuels around the world could increase demand for biofuels by 20% annually between 2005 and 2010.

The BRICs are key importers *and* exporters of agricultural commodities. Russia is the world's third largest importer of agricultural commodities, getting much of its fresh food from abroad, while imported cotton fuels China's textile industry. At the same time, India is the world's second largest exporter of cotton, Russia is the fifth largest exporter of grains, and Brazil dominates world markets for sugar, poultry and oilseeds. The overlap between imports and exports highlights the growing importance of intra-BRICs trade, which we flagged last month.

Demand for agricultural commodities also feeds the BRICs' critical environmental challenges (see our *BRICs Monthlies* of Oct. 2006 and Feb. 2007). Because urbanisation and industrialisation will absorb agricultural land and labour, yields will need to rise. While this will be good for productivity growth, it may exacerbate environmental degradation and further strain water supplies.

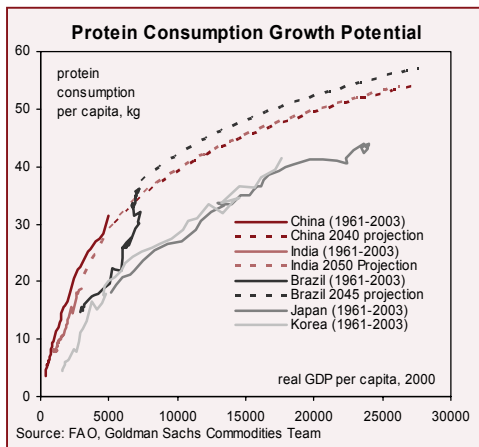
Thus far, higher food prices have not pushed core inflation significantly higher, though they are starting to feed through into other consumer goods and services. Central banks in China, Brazil and India have made clear their concerns about the lasting impact of high food prices. If inflation does remain contained, higher agricultural prices could support rural incomes, particularly in India and China, where roughly 60% and 40%, respectively, of the labour force are employed in agriculture.

Sandra Lawson, Raluca Dragusanu and Swarnali Ahmed
October 17, 2007



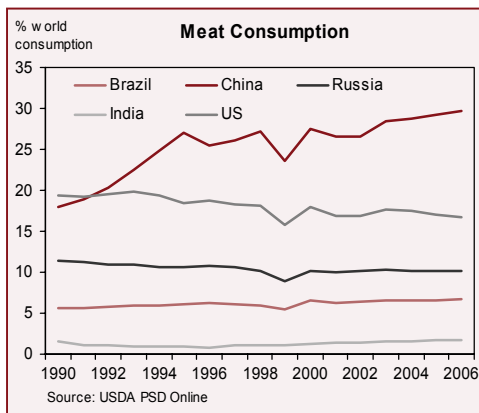
Food Price Inflation Rising Across BRICs

- Global agricultural prices have seen a structural change over the past two years, much as the energy and metals markets have since the early part of the decade. Heightened demand from the BRICs and growing demand for alternative energy sources have put strains on food supplies around the world.
- Food price inflation is now visible across many emerging markets, notably including the BRICs. In China, food price inflation ran at 18%yoy in August—the highest rate in a decade. The recent stabilisation in pork prices suggests that this pressure may abate, but we do not expect it to disappear.



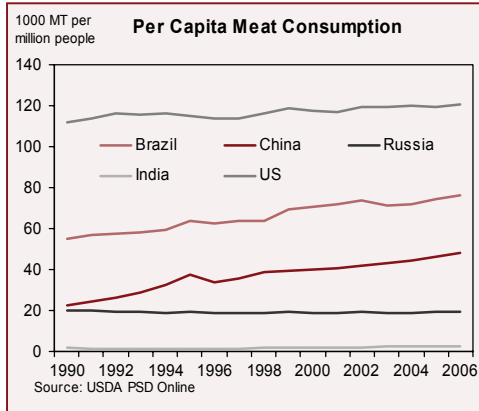
Higher-Protein Diets Likely in China, India and Brazil

- Rising wealth levels of BRICs and other emerging markets, especially among the growing middle class, have led to improvement in diets, incorporating more meat, dairy and eggs. This increase in protein demand will continue to increase livestock prices and demand for feed.
- Our expectations that per capita incomes will continue to rise across the BRICs over the next decade point to sustained growth in protein consumption. By 2017, we expect per capita incomes to triple in China, double in India and Russia, and increase by 50% in Brazil.



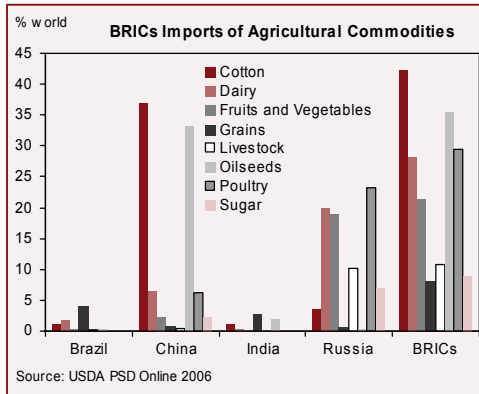
BRICs Consume More Than 'Their Share' of Meat ...

- With 43% of the world's population, the BRICs together account for nearly 50% of global consumption of pork, beef, veal and poultry. China alone accounts for 30% of world meat consumption. Its share rose significantly over the 1990s and the early part of this decade, but has remained steady in recent years, even as China's relative consumption of other commodities has increased dramatically.
- In contrast, the shares consumed by India, Russia and Brazil have remained steady for the past 15 years, while the US share has declined.



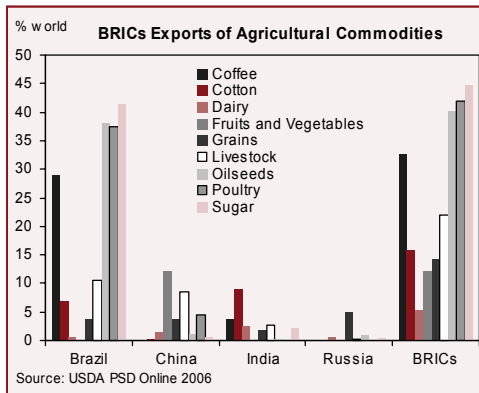
...As Seen in Rising Per Capita Consumption

- Lower incomes per capita and cultural preferences mean that all of the BRICs lag US meat consumption on a per capita basis. Even Brazil consumes just two-thirds of the US on a per capita basis. At the other end of the spectrum, in India, per capita meat consumption is just 2% of the US level. Despite cultural preferences for a vegetarian diet, Indian meat consumption has nonetheless risen by 40% since the early 1990s.
- Chinese per capita meat consumption has more than doubled over the past 15 years, while Brazil's has risen by more than one-third over the same period.



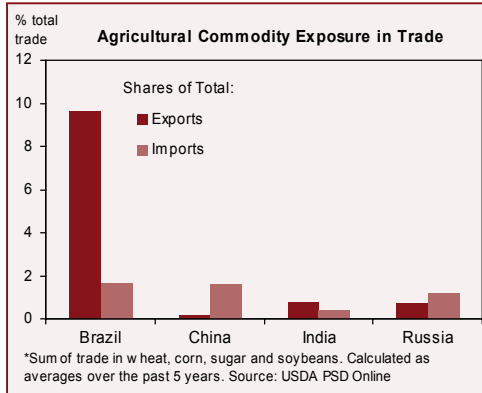
Russia, China Are Among Top Agricultural Importers

- Russia is the world's third largest importer of agricultural commodities, particularly poultry, dairy, and fruits and vegetables. With just 2% of the world's population, Russia consumes close to 20% of the world's poultry.
- China also ranks among the top ten importers of agricultural commodities. It remains the largest importer of cotton—the critical raw material for its textile exports—but these imports should fall over time as China's export industry continues to climb the value chain. The OECD and FAO estimate that China will become the largest importer of oilseed meals and consolidate its position in imports of oils and oilseed as biofuel production expands.



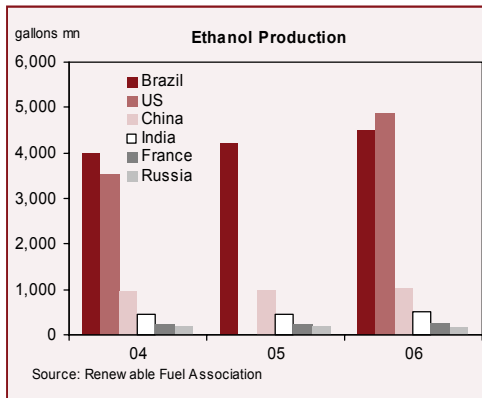
BRICs More Visible in Agricultural Exports

- The BRICs' presence in the world agricultural commodities markets is growing. Russia is now the world's fifth largest exporter of grains and India is the second largest exporter of cotton, while Brazil dominates the world markets for sugar, poultry and oilseeds.
- China's exports of fruits and vegetables have jumped this year, rising from 12% of world exports in this category in 2006 to above 50% in 2007 to date. Yet this strong export growth may not continue for long, since domestic consumption of fruits and vegetables should increase as incomes continue to rise and internal transportation links improve.



Brazil Is the BRICs' Largest Agricultural Exporter

- As the world's fourth largest exporter of agricultural commodities, Brazil stands to profit most from the expected rise in agricultural prices. Our Latin America Research team estimates that under the 2007 commodity price outlook, Brazil's terms of trade (ToT) should increase by at least 4%. This would be expected to lead to real exchange rate appreciation of around 1.8% against the \$, using our GS-DEER valuation framework.
- The effect is smaller in the rest of BRICs, with a slightly positive impact in India, and small projected decline in China and Russia.



BRICs Are Among Top Global Producers of Ethanol

- With a significant comparative advantage conferred by advanced technology, Brazil has become a pioneer in the production of sugarcane-based ethanol. Brazil is expected to increase production by 145% from 2006 to 2016, which could allow it to become the world's top exporter of ethanol.
- According to the OECD and FAO, Chinese fuel ethanol production is expected to more than double, to 3.8bn litres, by 2016, from 1.55bn litres in 2006. As most of the production is expected to be based on corn, corn use is expected to more than double by 2016.