

More of everything

Does the world have enough resources to meet the growing needs of the emerging economies?

THE average income of the 5.5 billion people on this planet who live in emerging economies has been growing at a cracking pace: an annual rate of over 5% in recent years. As people grow richer, they want more cars and household appliances as well as better homes and roads. This, in turn, means a huge increase in the demand for energy and raw materials.

Emerging economies already account for over half of the world's total energy consumption. Since 2000 they have been responsible for 85% of the increase in world energy demand. China alone accounted for one-third of the increase in world oil consumption. The developing world's demand for industrial raw materials is also rising rapidly. China's share of world metal consumption has jumped from less than 10% to around 25% over the past decade. In the three years to 2005 the country accounted for 50% of the increase in world consumption of copper and aluminium, almost all the growth in nickel and tin and more than the entire rise in demand for zinc and lead (which means the rest of the world consumed less of them).

Some of the extra demand in China reflects a shift in production from other parts of the globe, but most of it is a net boost to global demand. Since 2000 world energy consumption has been increasing at an annual average of 2.6%, twice as fast as in the previous decade. Yet China and other emerging economies have only just begun to make an impact on commodity markets.



Given the size of their populations, their use of raw materials is still modest. For instance, China uses only one-third as much copper per person as does America. Its oil consumption per person is only one-thirtieth that of America (see chart 8).

China's current demand for raw materials per person is roughly at the stage of Japan's and South Korea's during their respective economic take-off. If China follows a similar path to South Korea's as its income rises, then its total oil consumption could increase tenfold in absolute terms over the next three decades, and yet it would still be using 30% less oil per person than the United States does today.

Currently about 90% of China's energy is produced at home, but in future the country will need to import much more of it. A study by Deutsche Bank predicts that its oil imports will jump from 91m tonnes to 1,860m tonnes by 2020. The bank also reckons that copper imports will rise from 3m tonnes to 20m tonnes. No wonder China is forging close trade links with commodity producers in Africa, the Middle East, Australia and Latin America.

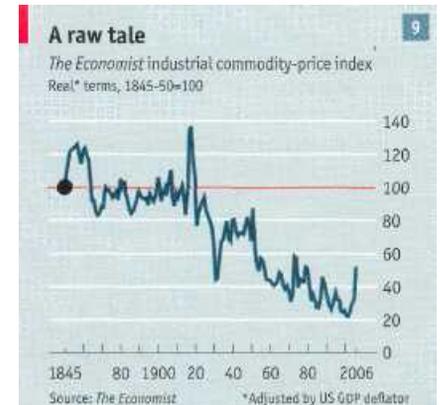
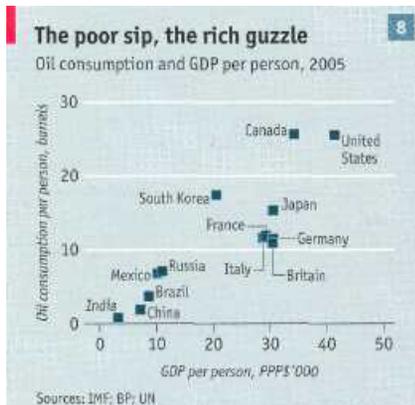
Rising demand in emerging economies has caused oil and commodity prices to surge in recent years. The prices of both oil

and metals have roughly tripled since 2002. This has been good for commodity producers, most of which are developing economies. The past few years have seen the sharpest rise in commodity prices in modern history, with metal prices in real terms gaining twice as much as in the booms of the 1970s and 1980s.

Previous commodity booms have always been followed by slumps. Indeed, the long-term trend in commodity prices has been firmly downwards. Even with the recent rise, prices in real terms are less than half of what they were in the mid-19th century (see chart 9). The shift in developed countries' output from metal-bashing industries to services has curbed demand, as have technological advances that have provided substitutes, such as fibre optics instead of copper wire. Better technology has also improved rates of mineral extraction, increasing supply.

Different this time?

However, some analysts claim that the world is now in the middle of a "super-cycle", fuelled by soaring demand in emerging economies, which will keep prices high for the foreseeable future. Demand from emerging economies continues to grow strongly and supply remains tight, so the equilibrium price of raw materials does appear to have increased. But other experts argue that this is a speculative bubble and prices are unsustainable. According to Simon Hayley, an economist at Capital Economics, many analysts make the I



> mistake of extrapolating from the recent rate of growth in demand and underestimating the potential for increasing supply.

Farm output can be increased most quickly; stepping up oil production takes the longest. Higher oil prices will encourage more investment and production, but it can take up to seven years for new projects to come on stream. Meanwhile, higher prices help to curb demand by encouraging a switch to alternative fuels and changes in consumer behaviour, such as buying more fuel-efficient cars. Capital Economics expects the oil price to fall to \$50 a barrel by the end of 2007 from its current level of \$70, but other analysts expect it to stay above \$60 for several years. And strong demand with little or no spare capacity means a high risk of price spikes if supply is disrupted.

Prices of commodities other than oil are more likely to fall because supply and demand are more responsive to price. Reserves of metals are vast. According to Mr Hayley, total deposits of copper (inferred from geological evidence) would last 107 years and of iron ore 151 years at current rates of consumption. These deposits may not all be profitable to extract with current technology, but high prices will encourage technological advances. A study by Martin Sommer, an economist at the IMF, finds that copper prices are currently almost three times above the cost of the least efficient producers, a much higher ratio than at the peak of the 1980s boom.

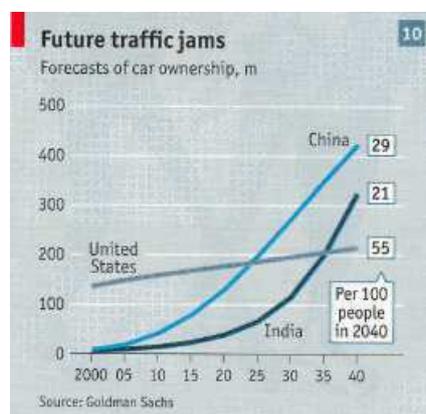
The problem is that years of low prices have caused underinvestment, and producers have been caught out by the jump in demand. But in the long term capacity should catch up and prices will fall. Global spending on exploration for non-ferrous metals rose to \$5 billion in 2005, from \$1.9 billion in 2002. High prices are also encouraging users to look for alternatives.

Commodity bulls argue that China has reached the most commodity-intensive stage of its development: industrialisation, urbanisation and infrastructure all use lots of raw materials. If China's growth remained as commodity- and energy-intensive as at present, supply would struggle to catch up and there could indeed be further upward pressure on prices. However, the country's investment boom cannot continue at its current pace. The government aims to shift the balance of growth from exports and investment towards private consumption, which implies slower growth in the demand for raw materials. The Chinese leadership has also announced a target of a 20% cut in energy use

per unit of GDP by 2010.

The risk is that new supplies of commodities will come on stream just as global demand starts to slow, causing prices to drop sharply. The commodity boom may anyway have been exaggerated by speculation as new investors piled into the market. However, an analysis by the IMF suggests that speculative investment has had much less effect on metal prices than it has on oil prices.

Mr Sommer's study, using a model that estimates both future demand and future supply, forecasts that by 2010 prices of



copper and aluminium in real terms will fall by 53% and 29% respectively as supply increases. This is broadly in line with prices in the futures market, which signal a 44% average fall in metal prices in real terms over the next five years, whereas oil futures are close to the current spot price.

Such a drop would still leave metal prices well above their level at the start of this decade, in contrast to previous booms after which price rises were always fully reversed. This is because global demand is likely to continue to grow much faster than it has done in the past. Even if the growth in China's demand for commodities slows in future, it will remain faster than in rich economies. Because of the country's increasing weight in the world economy, this will keep up global demand.

Moreover, as China's demand for raw materials slows, India's is likely to take off. India currently consumes only one-eighth as much copper and one-third as much energy per person as does China. India's export growth has been led by business and IT services, which use fewer raw materials. But India needs to expand its manufacturing to create more jobs, and to improve its dreadful infrastructure. UBS reckons that India's raw-material demand will triple

over the next ten years as capital expenditure and infrastructure spending increase.

A study by Ting Gao, Cameron Odgers and Jiming Ha, at China International Capital Corporation, forecasts that annual growth in China's demand for copper will slow from an average of 14% over the past 15 years to 9% between 2006 and 2020, whereas India's will accelerate from 7% to 20% over the same period. Even if demand in the rest of the world continued to grow at the same pace as before, this would lift the annual rate of growth in global demand for copper from 3.5% between 1990 and 2005 to 5.3% over the next 15 years. For other commodities, too, the growth in global demand is forecast to speed up, even as growth in China slows down. The authors conclude that commodity prices will remain historically high.

Over the next few decades, one of the main determinants of increased oil demand will be higher car ownership in emerging economies. At present there are only two cars for every 100 people in China, against 50 in America. Goldman Sachs forecasts that China's car ownership will rise to 29 per 100 by 2040. The total number of cars in China and India combined could rise from around 30m today to 75m by 2040 (see chart 10)-more than all the cars on the world's roads today. Even so, car-ownership rates in those two countries would still be only half those in America today.

Keep it green

Many people worry more about the environmental damage resulting from emerging countries' rising energy demand than they do about rising prices. Rapid industrialisation has already caused an alarming increase in emissions of greenhouse gases and air pollution. China has 16 of the world's 20 most air-polluted cities. America is still the world's largest spewer of carbon emissions, but China is expected to overtake it within a decade or so. A report by Zmarak Shalizi, an economist at the World Bank, forecasts that on current policies carbon emissions in China and India will more than double by 2020-though that would still leave China's carbon emissions per person at only one-third of the current level in America.

The world does not have the resources for another 5 billion or so people to behave the way that Americans do today. It may not be about to run out of energy and commodities, but higher prices will certainly force big changes in lifestyles. The era of cheap raw materials is over. •