

The economic emergence of the world's most populous nation is having a big impact on everyone else. **Tony Venables** and **Linda Yueh** analyse which countries, industries and workers are likely to benefit and which may lose out from the continuing challenge of the China effect.

The China effect



China is a developing country in the midst of making the transition to a market economy. Yet it is already emerging as a major force in the world economy, and increasingly looks like a developed country – one that accounts for 20% of the world’s population, more than four times the size of the United States and nearly three times that of the European Union.

China’s size and integration with the world economy have contributed to uncertainty about the global inflationary environment; its currency has been a subject of contention; its trade has raised concerns for workers and firms in both developed and developing countries; its demand for energy has led to competition and conflict; it has rivalled the United States, the UK and developing countries as a destination for foreign direct investment; and the effects of its own overseas investments have begun to be felt across

the world. As a result, China has generated incremental growth in the global economy that has made its success significant for the welfare of other countries.

Here we present an outline of the China effect and set out some of the key numbers, drawing on data from the National Bureau of Statistics in China, UNCTAD, the World Bank and the World Trade Organisation (WTO). We argue that the rise of China will benefit the process of globalisation, but it will also raise significant challenges for national economic structures and competitiveness in the rest of the world.

Chinese growth and trade

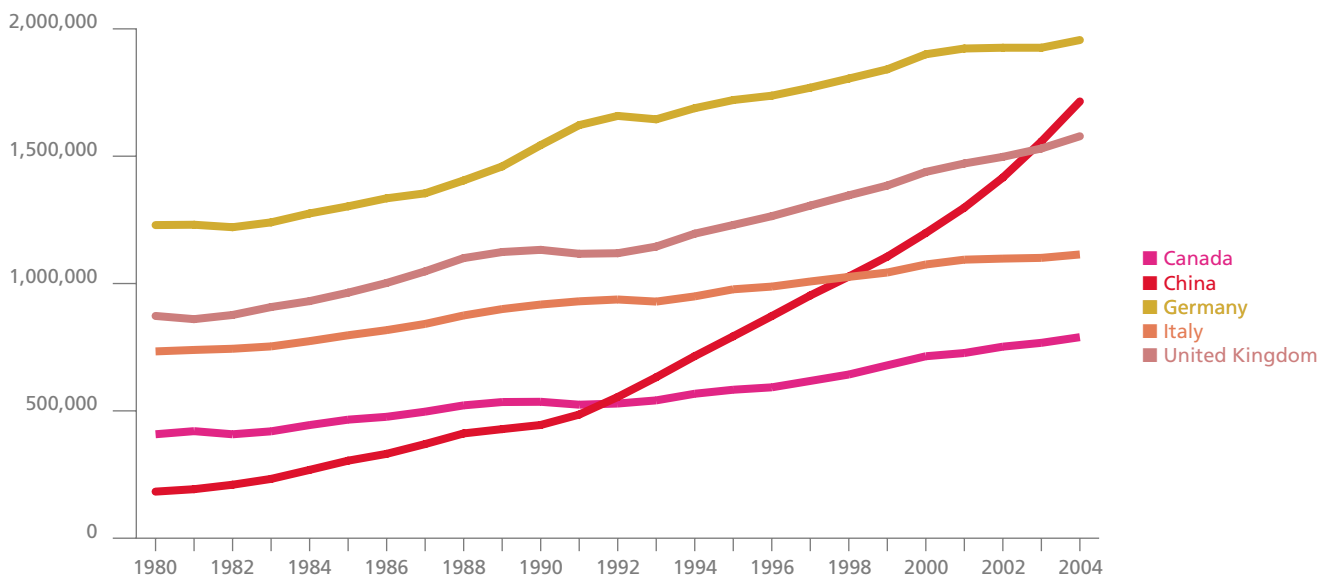
Since the process of economic liberalisation began in 1979, China’s economic performance has been remarkable. With an average growth rate of 9.4% a year in real terms, GDP has increased twelve-fold, while Chinese trade with the rest of the world has risen by a

factor of 30. As Figure 1 shows, China’s GDP has overtaken Canada, Italy and the UK in the last decade, and is on course to overtake Germany by 2007. It will soon become the world’s third largest economy, after the United States and Japan.

These numbers are at market exchange rates, so they grossly understate the real size of the Chinese economy once adjustment is made for the country’s relatively low cost of living. China’s per capita income at market exchange rates is \$1,700, but estimates of its per capita income adjusted for the cost of living (that is, at ‘purchasing power parity’) are four times higher, at \$7,200.

We can make a vivid comparison between the size of the UK and Chinese economies by comparing the two countries’ installed capacity for electricity generation. At nearly 400GW, Chinese generating capacity is around five times larger than that of the UK, and each year, China is adding capacity equal to the total UK capacity.

Figure 1:
Real GDP, in millions of US dollars, 1980-2004



Source: World Bank; note that figures are at current market exchange rates not ‘purchasing power parity’ (PPPs).

A startling aspect of China's economic performance is its degree of openness to international trade. Total Chinese trade (exports plus imports) amounts to 70% of its GDP, which compares with 37% for the UK and just 20% for the United States. China's trade/GDP ratio is all the more remarkable given that one of the main determinants of this number is country size – large countries typically have low shares of trade in GDP (for example, the United States compared with the UK).

One reason why China's trade/GDP ratio is so large is the valuation of the GDP denominator, which at market exchange rates understates the true size of the economy. But even allowing for this, the Chinese economy is extremely open, reflecting its export-oriented growth strategy. China now accounts for 7% of world merchandise exports.

Mechanisms of the China effect

How does the growth of such a big economy affect other parts of the world? The primary mechanism is via China's effects on the global supply of, and demand for, goods, services and assets. The resulting shifts in supply and demand cause changes in prices and hence lead to adjustment in other countries.

The changes that other countries experience can be broken down into 'quantity effects' and 'income effects'. Quantity effects involve some sectors of a national economy contracting and other sectors expanding, requiring workers to be reallocated. In these circumstances there may be adjustment costs, but if an economy is operating at full employment, they are likely to be temporary as workers are re-employed elsewhere.

Income effects involve changes in a country's 'terms of trade' – the relationship between the prices of its exports and imports. A country will be better off if the prices of its exports increase relative to the prices of its imports – and worse off the other way round. So if the China effect is to increase the prices of oil and other commodities while reducing the prices of some manufactured goods, commodity-exporting countries will have their incomes raised while commodity importers will have their incomes reduced.

Something similar will happen with manufactures, although here we have to look carefully at the composition of the

manufacturing trade of the countries concerned. Countries that tend to export goods similar to Chinese exports will lose out, while countries that import the goods that China is exporting will gain.

In addition to these national level effects, there will be gainers and losers within countries as the relative wages of different types of workers change. The simple prediction is that unskilled workers will lose and skilled workers will gain since what China brings to the world economy is a large increase in the supply of unskilled labour.

How does this happen? Again, the mechanisms are changes in the prices of goods, with the expectation that the largest price falls will be for goods where production relies on unskilled labour, such as textiles and garments. As Chinese exports of such goods expand, so their prices will fall, contracting production and employment of unskilled labour in other countries.

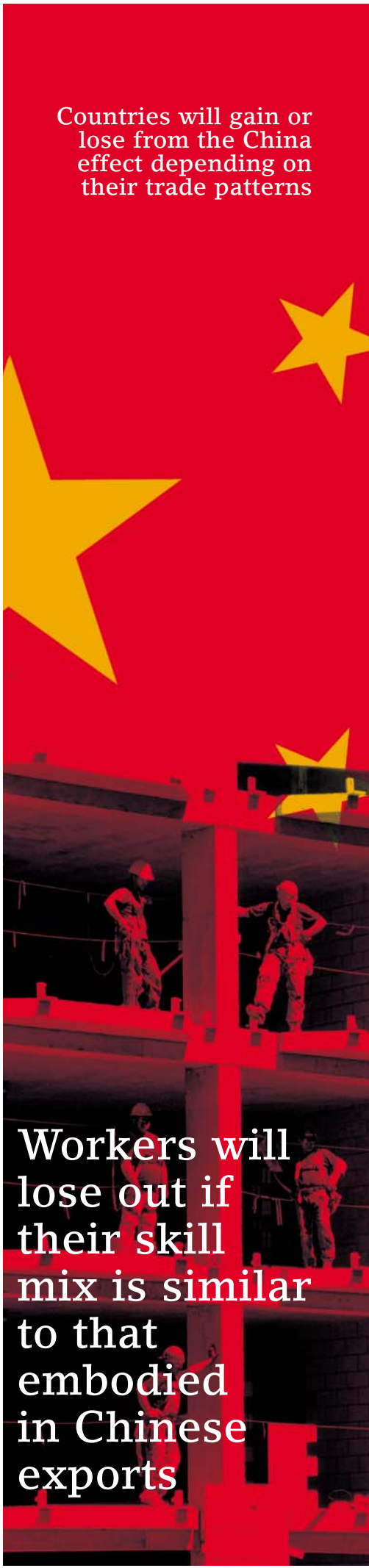
So, the overall predictions for the China effect are that other countries will gain or lose depending on their trade patterns. Similarly for workers: expect to lose out if your skill mix is similar to that embodied in Chinese exports – and to gain otherwise.

The changing structure of Chinese trade

Since the income and quantity effects of China are transmitted through trade, the next step is to analyse the composition of China's trade. Figures 2a and 2b show the growth of China's exports and imports, breaking them down into broad commodity and industrial groupings.

The first point to note is increasing Chinese imports of primary commodities. The reform of the state sector in the mid-1990s and the rise of the non-state sector have heralded a second industrialisation in China, which requires energy and raw materials. While these commodities constitute a relatively small share of total Chinese imports, they are large enough to impose a major impact on world markets.

Since the mid-1990s, China has become a net oil importer even though it is also one of the top ten world producers of oil. China is the world's second largest consumer of oil after only the United States. And, in 2004, with 4.4% of total world GDP, China consumed 30% of the world's iron ore, 31% of its coal, 27% of



Countries will gain or lose from the China effect depending on their trade patterns

Workers will lose out if their skill mix is similar to that embodied in Chinese exports

its steel and 25% of its aluminium. Between 2000 and 2003, China's share of the increase in global demand for aluminium, steel, nickel and copper was, respectively, 76%, 95%, 99% and 100% (Kaplinsky, 2006).

Highly speculative estimates suggest that demand from China is responsible for about 50% of the recent boom in world commodity prices. One effect of this is to redistribute income between other countries in the world. Thus, primary commodity exporters have experienced dramatic improvements in their export earnings and terms of trade, which have been paid for by importers of these commodities, some of them developed countries.

At the same time, Chinese exports of a range of manufactures have resulted in some substantial price falls. China's terms of trade for manufactured goods fell by 14% between 1993 and 2000 (Zheng and Zhao, 2002). As Figure 3 shows, its overall terms of trade worsened by 17% between 1980 and 2003 (UNCTAD, 2004).

Moreover, in one-third of 151 industrial sectors, the prices of Chinese imports into the European Union have fallen (Kaplinsky, 2006).

Which countries gain and which lose

from these changes? The answer depends on whether a country is an importer of these goods (hence benefiting from the lower prices) or an exporter. Lower prices of many basic manufactures have been beneficial for high-income countries that have already moved out of production in these sectors, and also for low-income countries without such manufacturing capacity.

Lower import prices have also contributed to a more benign inflationary environment. Former IMF chief economist Kenneth Rogoff finds that China's rapid global integration and remarkable growth have generated a favourable terms of trade shock that produces lower than expected levels of inflation in the global economy (Rogoff, 2006).

But what about the competitive threat that China poses? In some countries in Latin America (Chile, Costa Rica and El Salvador), 60-70% of exports are directly threatened by China's rise because of a similar export product mix (Lall and Weiss, 2005). There are concerns for other developing countries. For example, the phasing out of the WTO Multi-Fibre Agreement in 2005, which had previously limited China's exports of clothing and textiles, raised concerns for Bangladesh

and Sri Lanka whose export sectors are dominated by these goods. And while China's rise has induced more imports from its Asian neighbours, this has not been enough to offset displacement of their exports in third country markets (Greenaway et al., 2006).

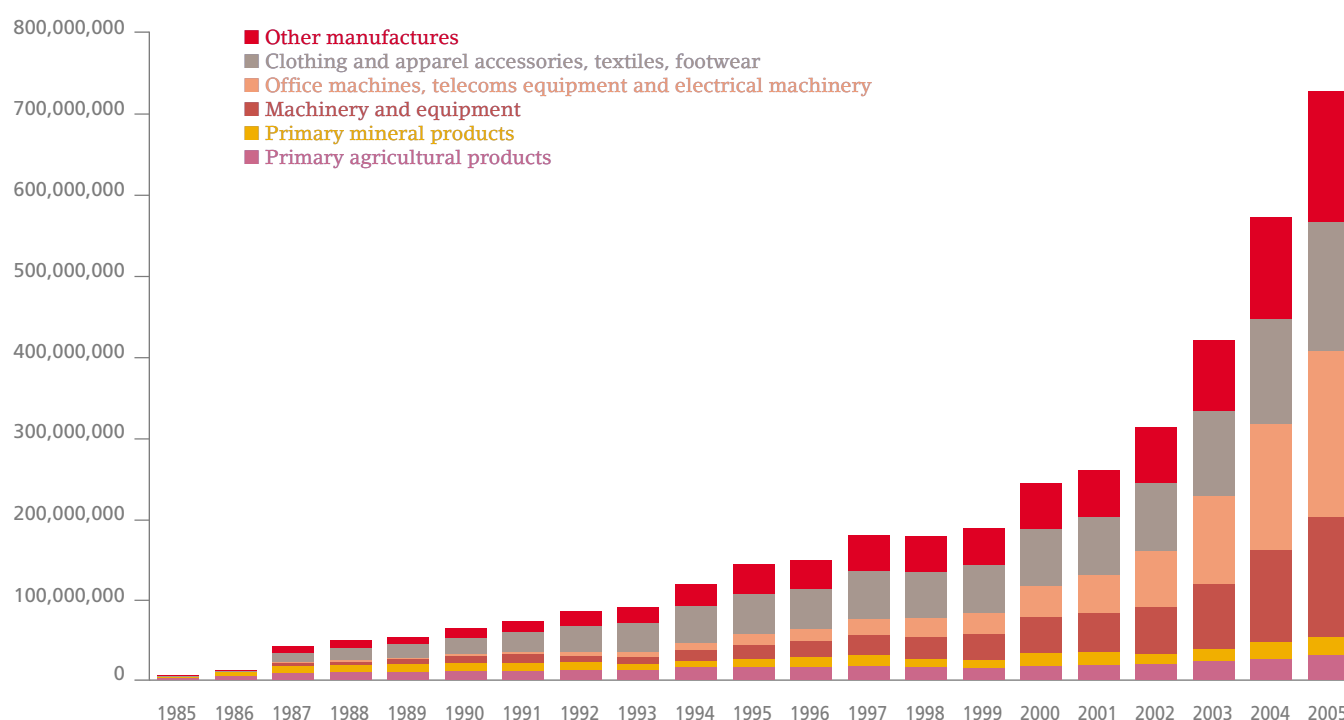
But exports of labour intensive products like clothing, apparel, textiles and footwear are a rapidly declining share of China's trade. These have gone from 40% of exports in the early 1990s to less than 20% now. Meanwhile, much of the fastest export growth has been in more advanced manufactured products, particularly electrical equipment.

Dani Rodrik argues that China's export structure is similar to that of a much higher income country (Rodrik, 2006). He looks at disaggregated trade data, and calculates for each commodity the average per capita income of countries exporting that commodity. (Thus, for example, aircraft are associated with high-income countries.) He then uses this to look at a particular country's export mix, and calculate the *predicted* income of the country, given its export mix.

On average, the prediction and the actual income coincide, as they must by construction. But this need not be true for

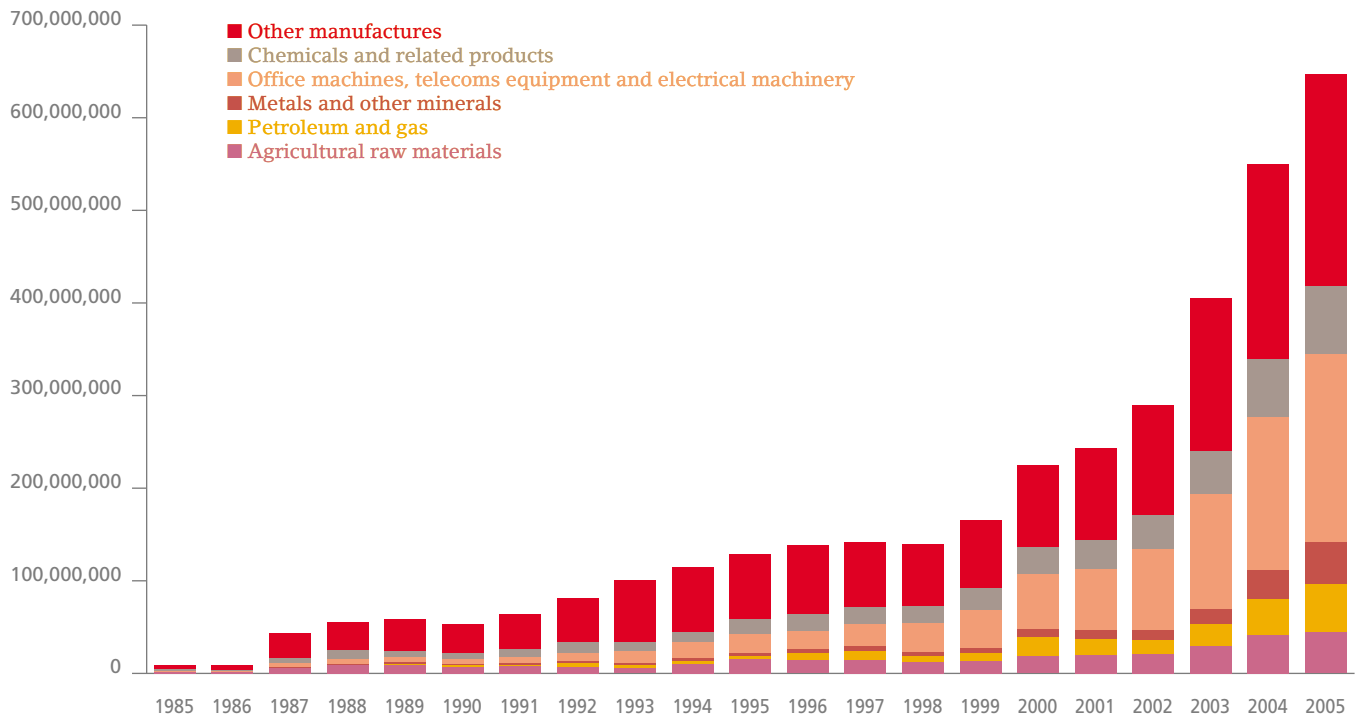
Figure 2a:

Total exports from China to the rest of the world, in thousands of US dollars, 1985-2005



Source: World Trade Organisation

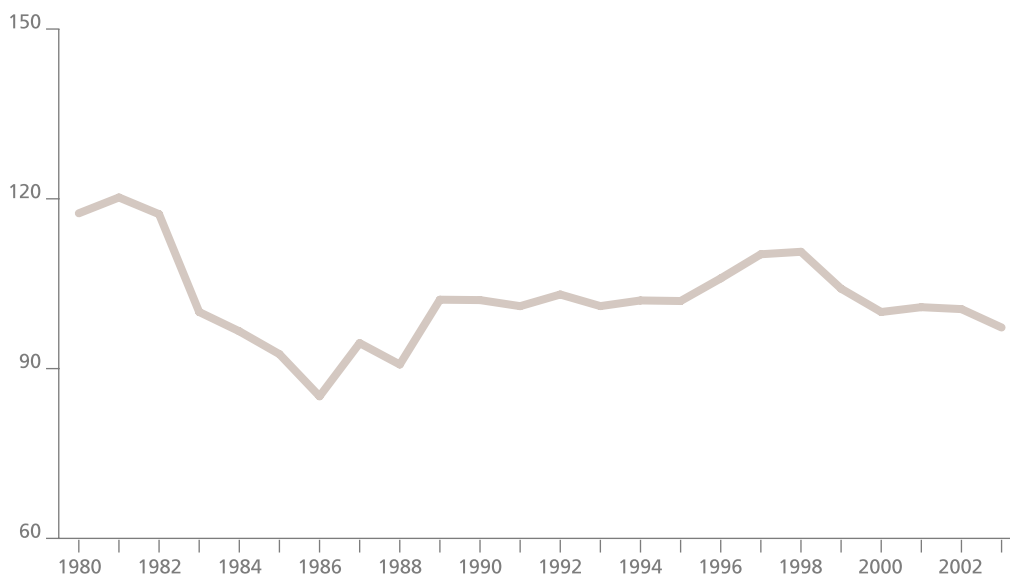
Figure 2b:
Total imports to China from the rest of the world, in thousands of US dollars, 1985-2005



Source: World Trade Organisation

China's comparative advantage is increasingly not determined by low cost labour

Figure 3:
China's terms of trade (2000=100) 1980-2004



Source: UNCTAD

all countries, and there are outliers. China's export mix is that of a country with per capita income three times higher. This supports the impression from the export data (in Figure 2a) that there has been significant upgrading of China's exports.

A key aspect of this upgrading is the growth of high levels of two-way trade in similar items, particularly electronics. This 'intra-industry trade' reflects cross-border production networks. For example, electrical and electronic equipment comprise 39% of all China's exports to Malaysia and 44% of China's imports from Malaysia. Electrical and electronic equipment are 33% of China's exports to, and 28% of imports from, Singapore (Wang, 2003). And the phenomenon is not limited to developing countries: vertical intra-industry trade between China and OECD countries is rising and accounted for around 20% of trade in the early 1990s (Hellvin, 1996).

Since around half of China's exports have been produced by foreign-owned enterprises in the past decade, the rise of intra-industry trade should not be surprising (Yueh, 2006). Multinational corporations seek low cost manufacturing bases and often diversify their production and supply chains.

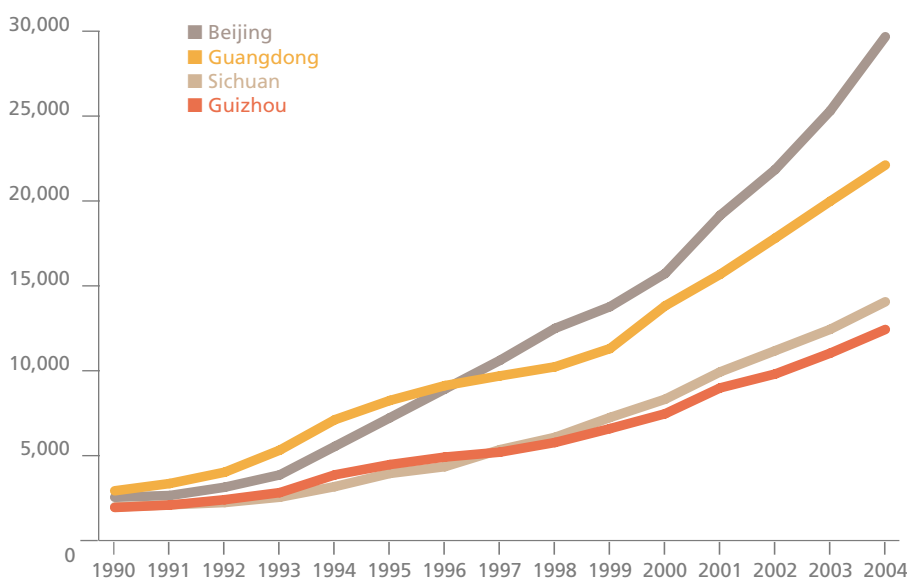
Wages, costs and comparative advantage

What is the China effect on wages? The simple prediction for the rest of the world is that skilled workers gain while unskilled workers lose. Richard Freeman draws attention to the doubling of the global labour force that has occurred in recent years as Asian and former communist countries have opened up to trade, and pointed to the likely impact of this on wages (Freeman, 2004). But neither the theory nor the evidence is quite this clear cut.

On the theory side, recent work points to the possibility that the use of offshoring and global production chains increases the efficiency of firms, enabling them to continue to maintain a presence in high-income countries (Grossman and Rossi-Hansberg, 2006). On the empirical side, there has been stagnation of the wages of unskilled workers, particularly in the United States. But the evidence suggests that skill-biased technical change has at least as much to do with this as does the rise of trade with developing countries like China (Machin and Van Reenen, 1998).

It is also interesting to record the changing patterns of wages in China. Figure 4 shows that economic growth has driven up wages in coastal areas, including

Figure 4:
Average annual real wages in selected provinces in renminbi, 1990-2004



Source: National Bureau of Statistics, China

China's export mix is that of a country with per capita income three times higher

Commodity exporting countries have benefited from growing Chinese demand for energy and raw materials

Chinese trade features high levels of two-way 'intra-industry trade', reflecting cross-border production networks

Beijing and Guangdong, to levels double those in interior provinces like Sichuan and Guizhou. There has also been an increasing skill premium, rising since the beginning of market-oriented reforms (Knight and Song, 2005). This may be because China's administered labour system meant that wages used to be centrally determined whereas they are now more closely linked to productivity or skills (Yueh, 2004).

What does this mean for the future? China's comparative advantage is no longer being driven simply by low cost, abundant labour. Some interior provinces may still compete on that basis, but for areas on the coast this advantage has been substantially eroded and competitive advantage is increasingly based on skills. China's industrial policies are aimed at technological upgrading, and China is now graduating well over a million scientists and engineers each year and a fast growing number of PhDs (National Bureau of Statistics, 2005).

This upgrading will alter the set of industries that experience competitive pressure from China, but we must avoid the fallacy of thinking that *all* sectors will suffer. Relative prices and exchange rates will change, and aggregate effects will turn on terms of trade effects, as described above.

Conclusions

China's remarkable economic growth in the past 27 years has propelled it to become the fourth largest economy in the world, recently surpassing the UK and closing in on Germany. Within the next couple of years, it is likely that the 'G3' will consist of the United States, Japan and China. China's WTO accession and its high degree of openness hold several implications for the global economy:

- First, there will be sectoral and employment shifts in other economies as some industries grow and others shrink. The development of outsourcing, offshoring and vertical production networks, together with the rapid skill upgrading of the Chinese economy mean that these effects will be felt not just in unskilled labour intensive industries.
- Second, countries that import from China (such as the UK) will gain from lower priced manufactures that

contribute to a low inflationary environment, while putting pressure on countries that compete in the same products (including those in Latin America). But vast Chinese demand for raw materials and commodities will redistribute income from countries that also demand these resources (developed countries plus other fast-growing industrialising countries like India) to countries that export these products (such as in Africa). With greater market opening after WTO accession, there will be the further prospect of horizontal intra-industry trade, which will benefit both developed and developing countries with competitive products and services to sell to China.

- Third, China's comparative advantage is increasingly not determined by low cost labour. A sophisticated technical mix of export products and a policy focus on science and technology have resulted in a diverse set of determinants of international trade with a great deal of provincial variability. The evidence suggests that China's growing competitiveness will put pressure on the productivity of firms and workers around the world.
- Fourth, there is some evidence of increasing wage inequality in developed countries arising from the growth of developing countries, including China. But China's skills upgrading suggests that it will not only compete in terms of cost, but also in more technically advanced goods, which would affect the returns to skilled labour elsewhere.

China's continuing rate of economic growth is not assured, the road to development is rocky and the transition to a market economy is rife with instability. Yet the country's remarkable success so far has already made its economic impact felt worldwide. Continued growth and global integration of China will undoubtedly be of importance for the world economy, and countries will need to focus on their competitiveness to benefit.

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For more on 'new economic geography', see Professor Venables' paper 'Shifts in Economic Geography and their Causes' (<http://www.kc.frb.org/publicat/sympos/2006/pdf/venables.paper.0901.pdf>) and other papers from the symposium on 'The New Economic Geography: Effects and Policy Implications', sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 24-26 August 2006 (<http://www.kc.frb.org/publicat/sympos/2006/sym06prg.htm>).

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