

CHINA'S RESOURCES DEMAND AT THE TURNING POINT



CHINA'S RESOURCES DEMAND AT THE 'TURNING POINT'

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Prepared for the Rio Tinto – ANU China Partnership

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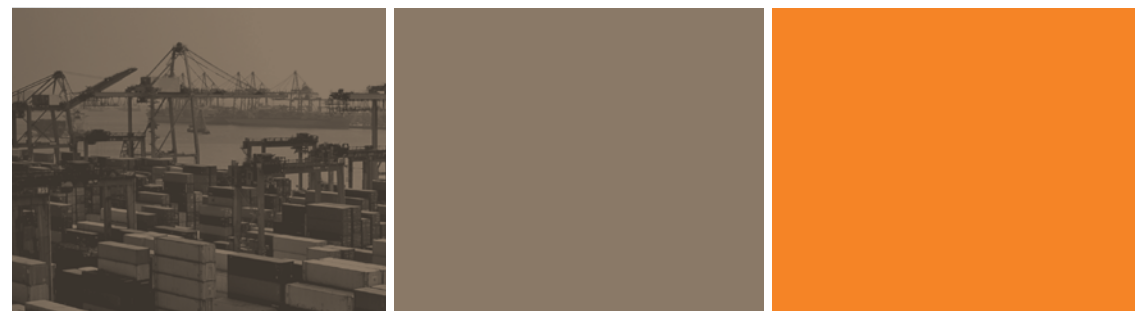


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FOREWORD

Future generations will see China's current transformation as the economic story of our age.

China's rise has generated great prosperity and it is important that we develop a better understanding of the country's prospects. While none of us knows exactly how long China's economic growth will continue, an understanding of the key elements of that growth will assist us in making the necessary strategic decisions.

Capacity is being added at a rapid pace. Will the boom subside in the near term? Will structural barriers interrupt growth? Or will societal pressures turn China in on itself?

In asking these questions, academics Ross Garnaut and Ligang Song have made some bold predictions. Far from believing the China boom is about to end, they think it may just be gathering pace.

The authors are not alone in their optimism. Many academics, commentators and business people mythologise China's potential. So how should we assess these claims?

Garnaut and Song have examined the structure of growth in China. They point out that while the rate of growth in China has been consistent for over twenty years, some key structural aspects of growth in the country have changed.

China is a different economy from what it was in the 1980's and 1990's. It has become capital intensive. It is closely linked to the global economy. In some areas, cheap labour is not as abundant as it once was. In simple terms, Garnaut and Song think China has reached a structural 'Turning Point'.

An idea first put forward around 50 years ago, the 'Turning Point' is that point in economic development at which surplus labour in the countryside dries up and real wages begin to rise. A similar point was reached in the development of Japan and Korea.

In both these economies, other major changes occurred around this point. The economy begins to export different goods and services. Industrial production becomes more capital intensive. Domestic demand and consumption patterns change.

If the 'Turning Point' concept holds true for Chinese development, this has fundamental implications for China's future imports of minerals, metals and energy.

Garnaut, Song and others contend that China's output could expand anywhere between four to eight times from 2000 to 2020. This is not itself remarkable. In 1987, China's output was 1,542 trillion yuan, whereas in 2006 it was 8,743 trillion yuan (in constant prices). This represents comparable growth.

However, if China does achieve this level of growth again to 2020, it will be post the economic 'Turning Point' and the growth process will be different in key respects:

- China's growth will be vastly more resource intensive. This implies that the pressure of Chinese demand on global resource markets is now only in its early and moderate stages.
- Minerals prices will remain, on average, much higher in real terms than has been the case in the last quarter of the twentieth century.
- The increase in China's demand for metals over this period (2000 – 2020) may be comparable to the total demand of the industrial world today.

If Garnaut and Song are right, the implications for the global economy are staggering.

This report

This report, a product of the Rio Tinto – ANU China Partnership, summarises the findings of Garnaut, Song and colleagues, on the question of the 'Turning Point'. The findings inform, but do not necessarily reflect the views of Rio Tinto.

Launched in April 2005, the Partnership between Rio Tinto and the Australian National University seeks to provide an independent perspective on emerging economic, social and political developments in China and to identify strategic issues and trends which might impact world markets for metals and minerals.

This report has been prepared for distribution to managers in Rio Tinto who seek a deeper understanding of developments in China, the challenges of the resources boom and China's 'Turning Point'.

Charlie Lenegan
Managing Director
Rio Tinto Australia

THE CHALLENGE OF THE RESOURCES BOOM

WHAT HAS HIT US

The mythical proportions of the Chinese economy are legendary.

Familiar stories tell of entrepreneurs who hoped to sell one pair of socks to every person in China, or others who wanted to lengthen the tail on every shirt sold.

The consistent theme in these stories is the gigantic Chinese population and its confounding potential as a market, both as a market for final goods and as a market for labour inputs.

One of the drivers most commonly identified for the record levels of foreign direct investment into China has been the quest to tap the purchasing power of the 1.3 billion people who live there.

Given the intensity of the mining boom in Australia over the last three years, some in the mining industry may feel they are beginning to get a hint of what providing one pair of socks to each and every person living in China might actually be like. And yet, as it stands, China's consumer demand still remains weak, relative to the growth in its economy.

China's consumers aside, the other, much more robust driver commonly seen to be attracting foreign funds to China also revolves around China's gigantic population. In this case, it is Chinese not as consumers, but as workers. China's seemingly endless supply of cheap labour has been the engine of its export boom.

We are familiar with the process by which the Chinese economy moves workers from the fields, where many were unproductive, to urban factory floors, where they have become the most competitive source of unskilled and semi-skilled labour in the world.

This dynamic has driven down prices for basic manufactured consumer goods across the world, keeping inflation at bay in some markets, and hollowing out the manufacturing industries of wealthy countries everywhere.

As familiar as this picture seems, after twenty years of growth, it is possible it may finally be changing.

Where China has until now thrived on its capacity to add more workers without increasing wages, imagine if the mythical cheap workforce was now 'running out'.



CHINA'S LABOUR 'SHORTAGE'?

At first blush, the idea that China is 'running out' of labour may seem ludicrous. There are still more than 300 million farmers in agriculture, as well as what seems to be a serious under employment problem in the countryside.

But there are structural barriers that impede the movement of the large underemployed rural workforce towards the dynamic coastal towns. And there are other structural barriers that impede the more remote provinces from becoming exporting powerhouses like those in the east.

The result is that, in 2004, the cost of unskilled labour in China's most efficient eastern provinces began rising, in some cases, rapidly. Reportedly, some producers sought to move to other parts of China, while others looked to countries like Vietnam and Cambodia.

The labour shortages that occurred in parts of China three years ago were temporary and could be eased by the reform of labour markets. So it may have been too early to say that China had entered a new phase of general labour shortage. Nonetheless, the labour shortage sent an important message to investors – that the old era of easy and abundant access to labour at low rates was coming to an end.

A MOVE AWAY FROM LOW-SKILLED MANUFACTURING

Normally, higher wages are likely to push up production costs and therefore either to reduce profit margins or force technological upgrading.

Higher labour incomes often contribute to stronger consumer spending and generate stronger inflationary pressures. Yet data over the last couple of years in China has not provided strong evidence of such an impact.

So how have returns on investment held up so strongly, despite the rapid rate of increase in unskilled wages?

One reason is rapid growth in productivity. A second has been a shift from more labour intensive activities to less labour intensive activities within each industry, across a range of sectors.

The more labour-intensive sectors (for example textiles, garments and parts of the electronics sector) are now showing signs of declining growth in their returns on capital, or even of falling returns on capital.

High savings rates and high levels of foreign investment have kept the cost of capital low. This has provided some benefit to all industries, and larger benefits towards the capital-intensive end of the spectrum.

A RECOGNISABLE PHENOMENON

The interplay of forces whereby labour becomes relatively more scarce and the economy shifts towards more capital intensive production follows a pattern of development seen through Western Europe, the United States, Japan and other economies in east Asia.

The point after which these effects come to reinforce each other was dubbed the 'Turning Point' by economist Arthur Lewis in 1954.

Lewis said that the capitalist industrial structure develops by drawing labour from a non-capitalist 'subsistence' agricultural sector. The existence of 'surplus labour' in the subsistence sector ensures that during an extended period of rapid modern sector growth, wages remain steady, because the supply of labour exceeds demand. The surplus is captured as profit. That is, until the labour shortages start to emerge.

While the point at which a scarcity of labour first became apparent in China may have been 2004, the point where the shortages first genuinely represented more than a temporary mismatch between demand and supply in labour markets will always be difficult to pinpoint exactly.

What we can say with confidence is that labour scarcity will intensify. The pool of agricultural labour left to draw on will continue to shrink, while the demands of the urban economy will grow larger in absolute terms each year.

SIGNIFICANCE FOR AUSTRALIAN MINERS

From the point of view of the mining sector, perhaps the most interesting aspect of China reaching the 'Turning Point' is the resulting move towards higher per capita incomes, urbanisation and capital intensive industry.

These factors are important to the minerals sector because of some key economic relationships between these factors and demand for metals and energy, observed in the past in Japan, Korea and elsewhere.

The primary relationship is between the level of per capita income and the per capita demand for metals and energy. In short:

- Per capita demand for metals and energy increases rapidly around the point where per capita income enters the range of US\$ 2,000 – \$ 5,000 in current values.

In Japan's case, the rapid growth in per capita demand for metals and energy was maintained until income per capita reached around US\$ 20,000, when there was a marked reduction.

China's GDP per capita in 2006 was US\$ 2,001.*

The relationship between growth in per capita income and the increase in per capita demand for metals and energy is commonly cited in mining industry circles. It has analogues in countries all over the world. But the strength of the relationship varies from country to country.

That is to say, most countries increase their demand for metals and energy per person markedly when per capita income reaches around US\$ 2,000 – \$ 5,000, but some do so to a greater degree than others. Three factors in particular seem to influence this.

Economies which are more urban, more investment-reliant and more export oriented tend to have a more accelerated increase in demand for metals and energy per capita as they grow.

Sure enough, these are all aspects of China's economy which stand out.

* In current US\$ prices

CHINA'S SPECIAL CASE

To return to the idea of the 'Turning Point' then, in many ways, China is no different from other countries that have passed a similar point of development.

Following the 'Turning Point', the same sequence of events has occurred in all other successful north east Asian economies. As the relative cost of labour increases, the cost of labour intensive goods rises. Capital intensive production becomes more profitable than labour intensive production. Incomes also rise more rapidly.

Like other economies before it, China has passed the 'Turning Point', so per capita income will rise more rapidly than many expect. China is entering a per capita income bracket where demand for metals and energy relative to population is likely to increase dramatically.

In other ways, however, China is different. Apart from its size, it is also increasingly urban, investment-reliant and export-oriented.

These three factors mean a rapid increase in income and capital intensive production will have a much greater impact on Chinese demand for metals and energy over the next twenty years than in equivalent periods of development in other economies.

If the expected relationship between income per capita and metal and energy demand is maintained over the next twenty years of Chinese growth, then the country is entering a period of resource-intensive demand unique in world history.

FIRST JAPAN, THEN KOREA...

CHINA FOLLOWS A PATTERN OF RESOURCE DEMAND

Much can be learned about the likely relationship between economic growth and the demand for resources in China from the experiences of its north east Asian neighbours during their industrial and economic transformations.

Different economies use metals and energy at different rates as they grow. South Korea's intensity of energy and metals use has tended to be higher than Japan's at any given level of gross domestic product per person.

In Japan, the energy intensity of economic output has been lower than the global average, while in South Korea it has been higher. As gross domestic product increases to somewhere in the range of US\$ 2,000 – \$ 5,000 per person in today's values, energy consumption per person increases rapidly and stays at high levels until, in Japan's case, income averaged about US\$ 20,000 per person. Then there was a marked softening in the energy intensity of economic output (Figure 1a).

So far the energy intensity of China's output has been even higher than South Korea's at the corresponding level of gross domestic product per person. This is especially so for coal (Figure 1b), reflecting China's large endowment in this energy source.



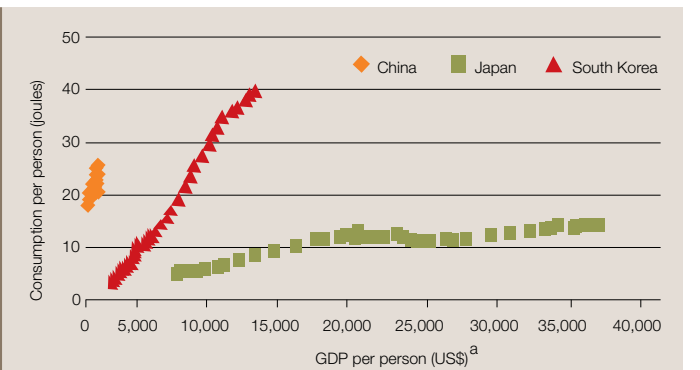
Figure 1a

Total energy consumption relative to income in east Asian economies.



Figure 1b

Coal energy consumption relative to income in east Asian economies.



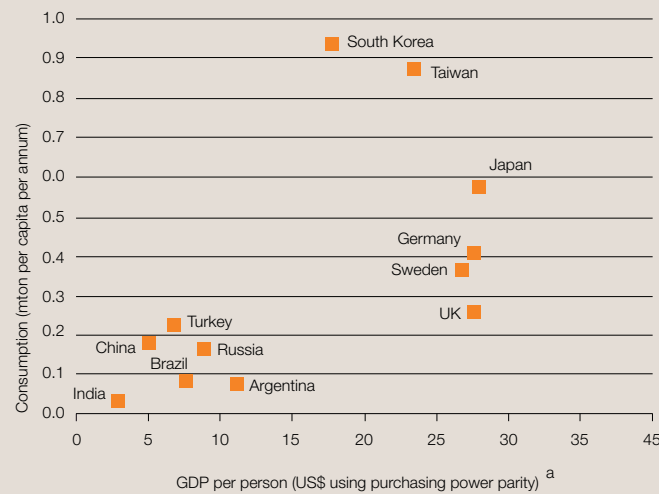
a. Based on national accounts gross domestic product per person in constant 2000 US dollar terms. Data source: Author calculations using data from US Department of Energy, *International energy annual 2004*, and World Bank, *Key development data & statistics*.

THE ROLE OF INVESTMENT

In Japan and South Korea the steel intensity of output has tended to be high by global standards, particularly high in South Korea (Figure 2). At its current level of output per person, China's steel intensity lies between the intensities of Japan and South Korea at comparable levels of output, but closer to the latter's number. Small resource endowments per person have made north east Asian economies exceptionally dependent on imports.

As outlined in the previous section, structural factors drive the differences in energy and metal intensities of economic growth at different stages of development. Three factors are especially powerful: investment, exports and urbanisation.

Figure 2
Steel consumption relative to income.



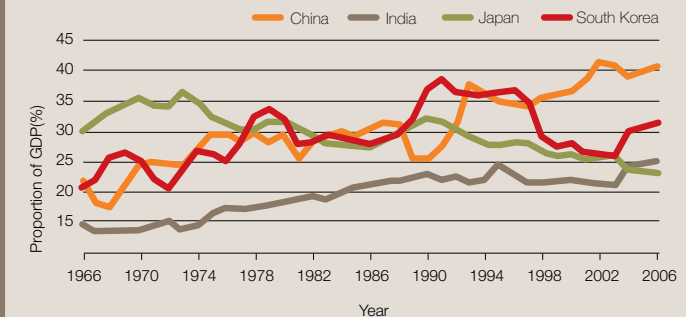
a. Purchasing power parity exchange rates for China.
Data source: Westpac Institutional Bank.

Generally, economies that have higher levels of investment relative to output use energy and metals more intensively as they grow. China is no exception. This tendency has led to the unusually high metals and energy intensity of output in north east Asian economies during their rapid growth, as exceptionally high investment has been a characteristic of their growth.

China has maintained very high levels of fixed investment. China's high and sustained level of investment as a proportion of GDP has been exceptional even in north east Asia (Figure 3). This trend shows no sign of falling (Garnaut and Huang 2005) and can be expected to support unusually high levels of metals and energy intensity in China's growth in the foreseeable future.

In China energy and metal products have accounted for higher proportions of investment than they have of total economic output (Figure 4).

Figure 3
Investment as a proportion of GDP in China, Japan, South Korea and India since 1965.



Note: Author estimates for 2005 and 2006.
Data source: Calculated using data from R Garnaut and YP Huang, 'The risks of investment-led growth', in R Garnaut and LG Song (eds), *The China boom and its discontents*, Asia Pacific Press, Canberra, 2005, pp. 1-18, and World Bank, *World development indicators 2006*.

Figure 4
Energy and metal products as proportions of investment, exports and output in China.

	Investment		Exports		Total output	
	1997	2000	1997	2000	1997	2000
	%		%		%	
Coal and petroleum	2.09	5.58	1.51	1.92	1.91	3.35
Metal products	11.29	13.56	6.94	7.81	6.25	6.28

Source: Calculated using the National Bureau of Statistics, *Input-output table of China*, China Statistics Press, 1997 and 2000.

THE ROLE OF EXPORT ORIENTATION

Economies that export a large share of their output tend to use more steel and energy as they grow than countries that export a smaller share.

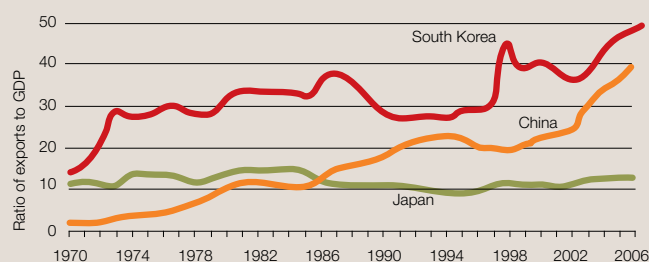
China's level of export orientation is shaping up to be relatively high on a global scale. It is much greater than Japan's, but less than South Korea's (Figure 5). But it is still rising strongly and will continue to do so.

Firstly, as outlined above, the level of export orientation is a key determinant of the strength in the basic relationship between rising incomes and increased demand for metals and energy. China's high level of export orientation means demand for metal and energy will be higher per capita as China grows than was the case in Japan, over the equivalent period of development.

Secondly, the make up of China's exports – in particular, how capital intensive they are – is an indicator of the 'Turning Point' itself. When labour becomes relatively more expensive, exports tend to become more capital intensive than labour intensive. This has happened in China (Figure 6). This suggests the 'Turning Point' in China has been reached.

Figure 5

Export orientation of north east Asian economies.

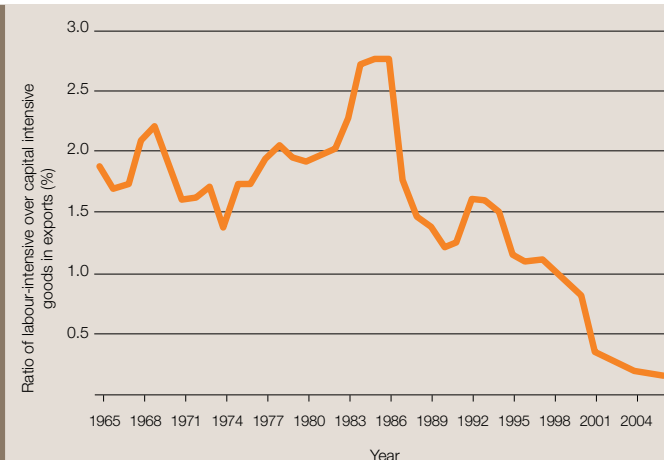


Note: Author estimate for 2006.

Data source: World Bank Group, *World development indicators (WDI)*, World Bank online database.

Figure 6

Ratio of labour-intensive goods exported to capital-intensive goods exported by China.



Note: Labour-intensive goods are defined as agricultural products, food, textiles and clothing. Capital-intensive goods are defined as mining products, fuels, iron and steel, chemicals, pharmaceuticals, machinery and transport equipment, telecommunications equipment, electronic data processing and office equipment, integrated circuits and electronic components, and automotive products. Author estimate for 2006. Data source: World Trade Organization, *International trade statistics*, Statistics database.

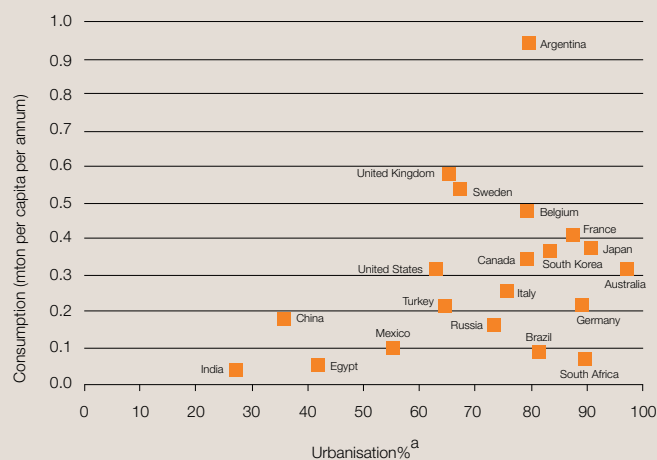
THE ROLE OF URBANISATION

As the proportion of a country's population living in urban areas rises, so too does the use of steel per person (Figure 7, see over) until urbanisation reaches around 60 per cent.

China's early industrialisation was characterised by artificial constraints on migration from rural areas to urban areas. As a consequence, urbanisation in China remains considerably less than in other countries at similar levels of development, historically and in the contemporary world (Figure 8, see over).

The absolute constraints on movement have now been removed, but disincentives remain (Du, Gregory and Meng 2006). The impact of these disincentives is likely to lessen. This lessening, coupled with the large and increasing differentials between rural and urban living standards, is likely to lead to increasing urbanisation, which is linked to exceptional growth in demand for metals and energy.

Figure 7
Steel consumption per person relative to urbanisation.



a. Urbanisation is defined as the proportion of urban population in the total population.
Data source: Westpac Institutional Bank.

WHAT IT MEANS FOR RESOURCE DEMAND

The age of endless supplies of cheap labour are over.

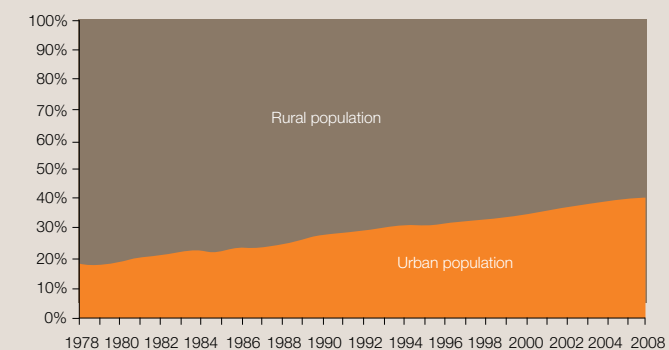
Recent increases in the cost of skilled labour suggest China has reached a 'Turning Point'. As incomes rise, so will the use of energy and metals. Use of energy and minerals will increase more rapidly in China per dollar of growth, because its economy is becoming more urban, export oriented and dependent on investment than most.

What are the headline implications of this for global resource markets of the future?

The increasing size of China's economy, both absolutely and relatively, will magnify its impact on world energy and metal markets beyond recent high levels (Figures 9 and 10). As it grows China will need more metals and energy per dollar of GDP than it has done over the past two decades.

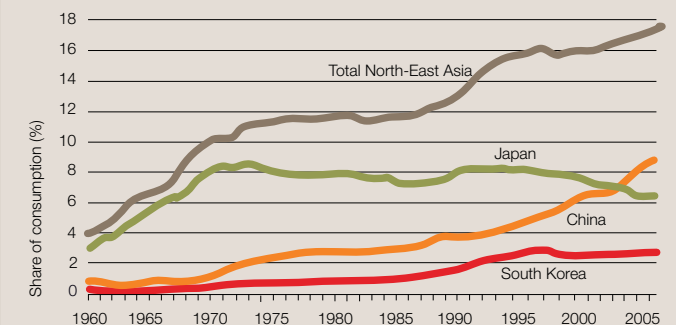
In twenty years time, assuming there is no dislocation to its growth process, China is likely to consume more energy and metals than all of the industrialised economies today.

Figure 8
Rural-urban composition of China's population.



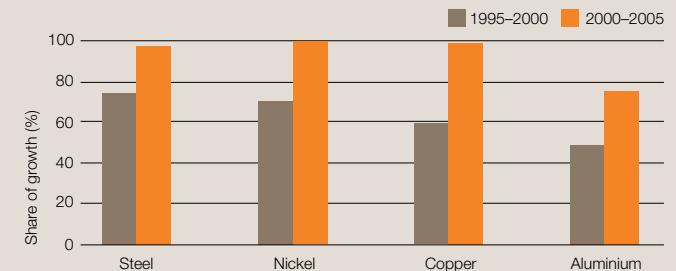
Note: Author estimate for 2006-08.
Source: World Bank Group, *World development indicators*, World Bank online database.

Figure 9
Shares of world consumption of petroleum by north east Asia since 1960.



Note: Author estimate for 2006.
Data source: US Department of Energy, *International energy annual 2004*.

Figure 10
China's shares of the growth in world demand for key metals.



Data sources: For 1995 to 2003 Macquarie Research-Metals and Mining, *Commodity database*, for 2004 and 2005 Department of National Land and Resources of China, Statistics database.

THE CASES OF COPPER & ENERGY

A closer look at the use of copper and energy in growing economies further illustrates the relationship between increases in per capita income on the one hand and increases in demand for metal and energy on the other.



THE CASE OF COPPER

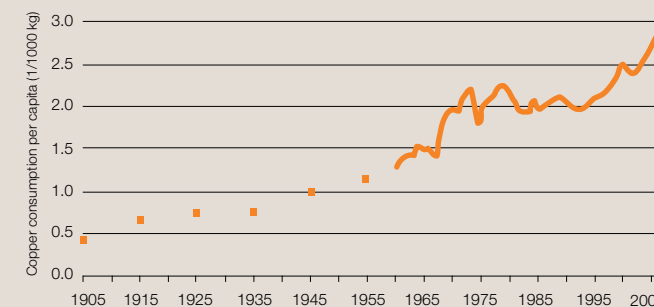
Copper consumption per person in the world is highly sensitive to average global incomes.

Copper consumption has fallen sharply when there has been any setback to incomes as a result of depression and recession, and risen when incomes have grown (Figure 11).

Consumption has grown most rapidly when large economies have been experiencing rapid industrialisation and when global economic conditions have been relatively buoyant. Japan's rapid economic growth in the 1960s and early 1970s is the most recent completed episode of accelerated growth in the demand for copper. With the rapid industrialisation of China, the world seems to have entered another episode of rapid growth in demand for copper.

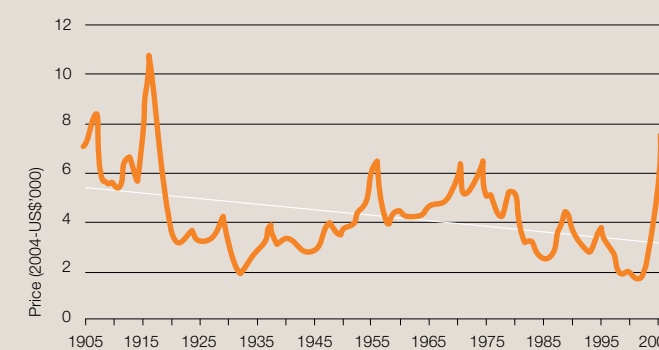
The price of copper in real terms can be well above the long-run average if increases in global demand require large additions to mining capacity (Figure 12). The periods up to and including the First World War, and from the late 1950s to 1974, stand out for their high average prices.

Figure 11
World copper consumption per person since 1905.



Note: Data are for years indicated until 1960 when data became annual. Author estimate for 2006.
Data source: Macquarie Research-Metals and Mining, *Commodity database*.

Figure 12
World copper price in real terms since 1905.



Note: Author estimate for 2006.
Data sources: Plotted using data from Westpac Economic Research.

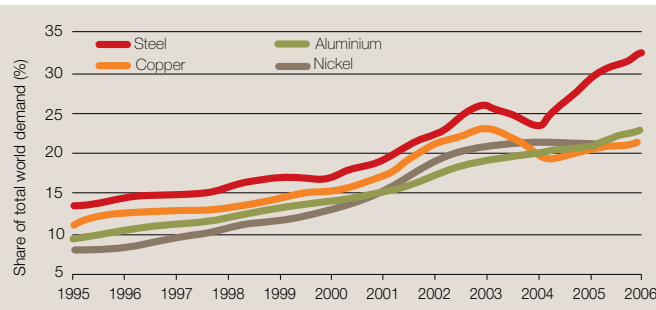
The periods between the World Wars and the last quarter of the twentieth century stand out for their relatively low average prices. In August 2006 prices were in the range of those in the 1890s and early 20th century, and above those generated by the Japan boom in the 1960s and early 1970s.

The extent to which the recent strong growth in consumption of copper reflects a 'China boom' is illustrated in Figure 13. Since 1995 China's share of total world consumption of copper (and other major industrial metals) has risen steeply, although demand growth was checked in 2004 by controls on investment expenditure.

The increase in China's share of world consumption over the past decade means that a given rate of growth in China's demand will have a larger impact on growth in world demand.

Figure 13

China's share of total world demand for key metals since 1995.



Note: Author estimate for 2006.
Data sources: For 1995 to 2003 Macquarie Research-Metals and Mining, *Commodity database*, and for 2004 and 2005 Department of National Land and Resources of China, *Statistics database*.

THE CASE OF ENERGY

Unlike the case of copper (and other metals), China's energy demand has been met mainly from domestic resources.

China was a significant oil exporter in the early years of reform and remained a coal exporter in the first few years of the twenty first century. But recently China became a large net importer of energy (Figure 14).

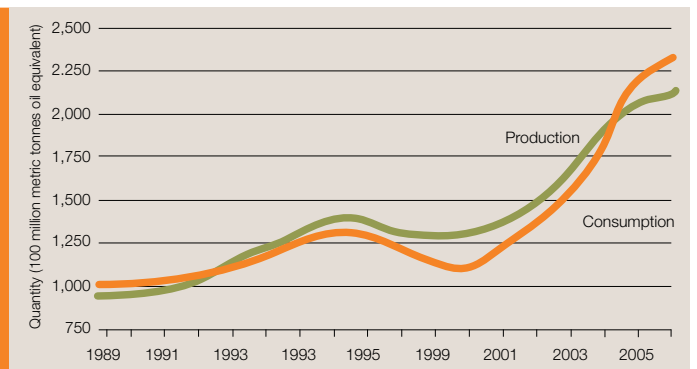
China's energy demand has been growing more rapidly than economic output since 2002. This follows several years of relatively low energy intensity in economic growth following the removal of distortions in the price system along with other parts of the legacy of central planning. There is considerable scope for increased energy efficiency – by, for example, bringing all prices to international levels – although considerably less than the gains already achieved.

As already noted for north east Asia, high energy intensity in economic growth has been associated with rapid urbanisation, high investment, and high and increasing export orientation. The high energy intensity of growth through the middle stages of industrialisation has also been observed in other economies. For example, it was present in the United Kingdom through the middle decades of the nineteenth century (Humphrey and Stanislaw 1979, p. 41), later falling to relatively low levels.

Over the past fifty years, the relationship between world demand for energy, petroleum in particular, and world prices has been very different from the corresponding relationship for metals.

Figure 14

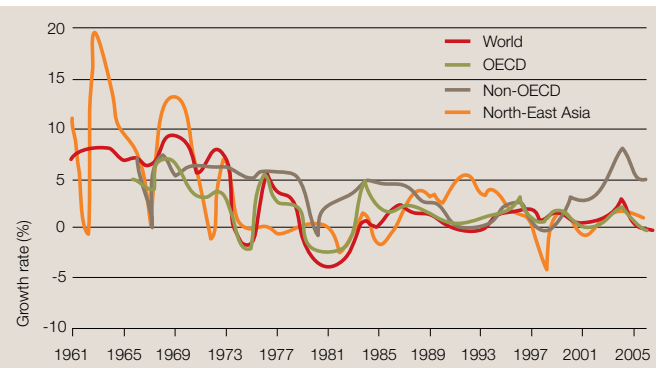
China's energy production and consumption since 1989.



Note: Author estimate for 2006.
Data sources: YM Wei, Y Fan, ZX Han and G Wu, *China energy report: strategy and policy research*, China Science Press, 2006, and authors' own calculations for 2005 using BP, *Statistical Review of World Energy*, BP energy statistics, BP Global.

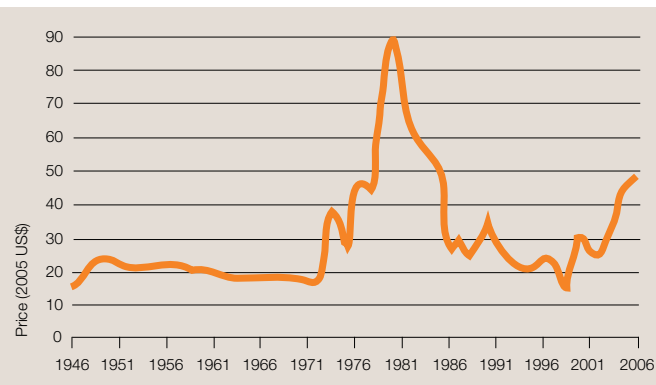
For a long period – from the end of the Second World War until around the time of the oil crisis in 1973-74 – global demand for petroleum grew strongly while prices in real terms were stable at low levels or falling (Figures 15 and 16). The difference derives from the special circumstances of supply in the petroleum industry. The political circumstances of the Middle East after the Second World War were conducive to rapid expansion in oil supply capacity. Uncertainty about the continuation of those conditions encouraged rapid rates of depletion of known reserves, even when prices were judged to be lower than average expectations of prices in later years.

Figure 15
Growth in demand for petroleum since 1961.



Note: Author estimate for 2006.
Data source: US Department of Energy, *International energy annual 2004*.

Figure 16
Crude oil price in real terms since 1946.



a. Adjusted for inflation.
Note: Author estimate for 2006.
Data sources: International Energy Agency, *Monthly oil statistics*, Statistics database, and *Energy Information Administration*, US Department of Energy, Energy database.

The industrialisation of Japan and later South Korea therefore occurred in an environment of abundant cheap oil. North east Asia's share of global oil consumption rose strongly, at first mainly through Japan's demand and later through South Korea's.

The oil market began to tighten in advance of the OPEC-led restrictions on supply in the early 1970s. Indeed, this tightening can be seen as establishing the conditions for effective action by the OPEC cartel. Constrained growth in supply and higher prices were reflected quickly in lower rates of demand growth.

The growth in China's demand became a major element in the global petroleum story from the mid-1990s, and especially from 2005, when China became a large net importer of energy, mainly in the form of petroleum. China's rapid and energy-intensive growth ensures that its influence on the world petroleum market will continue to grow. That influence accounted for much of the price increase in 2005 and early 2006.

China's influence will be greater in the future, mainly for petroleum, but also for natural resources required in a wide range of alternative energy sources, notably uranium.

HOW MUCH FURTHER DOES CHINA'S DEMAND HAVE TO RUN?

So long as the established path of rapid economic growth in China is not disrupted by internal or external political dislocation, the pressure of China's demand will continue to grow. Under this scenario, China is only now reaching the 'Turning Point' and demand is in its early and moderate stage.

Lin (2006) discusses the likelihood that China's output will quadruple over the next two decades, as well as the possibility that it will increase almost eightfold over that period. From one perspective, that is not at all surprising or even novel.

The greater of these prospects requires a rate of growth that was close to being achieved over two decades and longer by Japan, South Korea, Taiwan, Hong Kong and Singapore, and by China itself during the past twenty-five years. In other words, China's economy would need to do only marginally

better than it has done since the 1980s to increase eightfold over the next twenty years. Several factors suggest this is likely. These include the current large gap between China's productivity levels and the world frontiers, its uniquely high investment rates (Garnaut and Huang 2005) and its rapid rate of integration into the international economy compared with Japan and South Korea.

For reasons explained earlier in this report, China is entering a stage of growth in which the relationship between incremental output and incremental demand for energy and metals is exceptionally strong.

China's domestic production of most resource-based commodities is rising at a substantially lower rate than its domestic demand. Over the next two decades, China's demand for resources on world markets will be proportionately larger and will extend over a longer period than the demand of industrialising Japan in the 1950s and 1960s.

The increase in China's demand for metals during the next two decades may be comparable to total demand from the industrialised world today. The increment in China's energy demand may be somewhat less than this, because of the exceptional conditions that support North America's current high demand, the supply constraints on energy in its most economically convenient form (liquid petroleum) and the global environmental conditions that may constrain the use of energy in its present form.

It is therefore likely that global prices for resources will remain on the high track for the foreseeable future – at average levels that provide incentives for continued rapid growth in supply for a long time.

But how will those prices compare with the exceptional levels of 2006 and early 2007?

The prices of metals will not be as high on average as they were then, because current prices provide ample incentives for new investment and adequate expansion of global production capacity. But they will remain on average much higher in real terms than they were during the last quarter of the twentieth century, when growth in global demand for metals was slow.

The story for energy prices is complicated by the geological and economic constraints on petroleum supply, especially in liquid form. If there were no opportunities for substitution, the balancing of global demand and supply would require continually rising liquid petroleum prices.

However, if markets come to reflect the view that oil prices of at least US\$ 40–50 a barrel – two-thirds of the 2006 prices – are here to stay, there are a wide range of capital-intensive economically viable substitutes for liquid petroleum. These include liquids from converted gas and coal, oil from shale and tar sands, biofuels of various kinds and, for the generation of electricity, nuclear energy.

Over time, it is likely that energy prices will fall, although the uncertainty about future prices and commercially new technologies and their immense capital requirements could hold prices above the average long-term levels for many years.

With continued strong pressure on global oil supplies and the concentration of global production in locations that are vulnerable to political instability and disruption of supply, prices may spike from time to time.

China's relatively rich endowment in coal will support a disproportionately large expansion of its energy supply from that source, which would go some limited way to ameliorating China's demand pressures on global energy markets – unless an effective international regime controls 'greenhouse' emissions.

The 'Turning Point' idea suggests that over the coming years China's imports of metals and energy will rise to levels well beyond those of any other country at any time.

However, it is worth recalling China faces many risks. Some of the primary risks include:

- Internal political unrest, threats to security or trade flows;
- Risk of major upheaval in China's banking or corporate sectors;
- Environmental damage leading to reduced capacity, or very rapid increases in the cost of environmental amenity and repair.

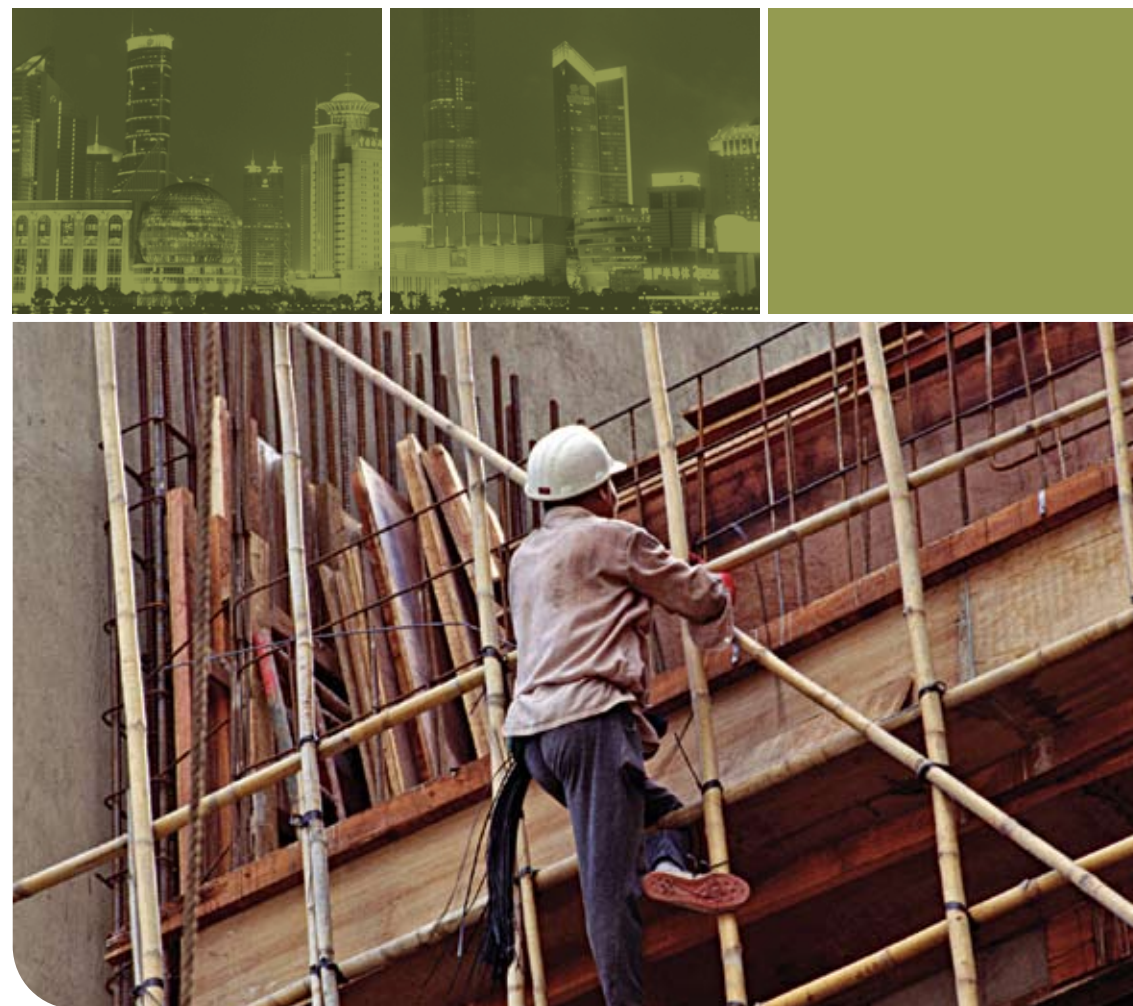
On the upside, China's growth gives the country's leadership powerful incentives to develop the political and economic institutions necessary to manage sustainable and secure development, as well as a strong interest in political stability throughout the region and the world.

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