

The Effect of China on Global Prices

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- *Since China joined the World Trade Organization in December 2001, Chinese exports of consumer goods and imports of primary commodities have grown dramatically and are having major effects on the respective supplies and demands for these commodities.*
- *Globally, prices of consumer goods such as clothing, toys, and electronics are falling relative to other consumer goods and services, while the relative prices of commodities such as oil and metals have risen.*
- *Such relative price movements can have temporary effects on inflation, but monetary policy can adjust to keep inflation close to target over the medium term.*

Anyone walking through a local discount retailer during the past few years will have noticed an abundance of inexpensively priced goods, many of them labelled “Made in China.” At the same time, gasoline prices have risen to levels not witnessed for more than a quarter of a century, apparently driven up by China’s ever-rising demand for oil. From our drive to work to shopping on weekends, it seems that China is increasingly affecting our daily lives through the prices of the goods we buy. And Canada is not alone. Similar trends have occurred in all of the industrialized economies, suggesting that the “China price effect” is a global phenomenon.

This article examines the nature of these relative price changes and China’s role in causing them. The analysis presented here suggests that, over the past five years or so, the growing supply of China’s exports has exerted downward pressure on the prices of consumer goods, while its rising import demand has put upward pressure on global commodity prices. Yet although China appears to be affecting the prices of some goods relative to others, it is unlikely that the China price effect has had, or will have, a persistent effect on aggregate measures of inflation, such as core inflation, because inflation-targeting central banks have the tools to adjust policy to keep inflation close to target, thereby offsetting any persistent upward or downward inflationary pressure, regardless of its source.

China’s Integration and Global Prices

Over the past 25 years, China’s economy has grown at an annual average rate of 9.7 per cent. On a purchasing-power-parity (PPP) basis, the Chinese economy is now estimated to account for over 15 per cent of world gross domestic product (GDP), and it is predicted that per capita GDP in China will exceed US\$8,000 by the

end of 2007.¹ By that measure, China is now richer than a number of East Asian rivals such as Indonesia and the Philippines. Much of this growth has been associated with an even more rapid increase in China's trade. Between 1980 and 2001, in current U.S.-dollar terms, exports grew at an annual average rate of just over 14 per cent, and since 2001, the annual growth rate of exports has approached 30 per cent. As a result, China is now the world's third-largest trading nation, with China's trade accounting for over 7 per cent of global trade.²

China's growth and integration into the global economy generally reflect the impact of its policies to foster growth and economic development.

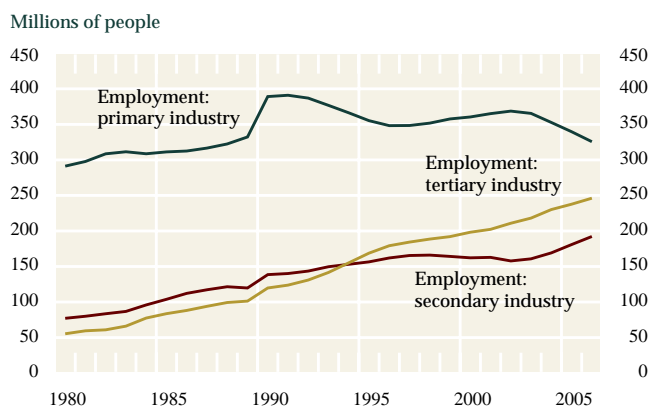
China's growth and integration into the global economy generally reflect the impact of its policies to foster growth and economic development. Before beginning its reforms in 1979, China had largely shut itself off from the rest of the world. In an effort to feed its large population, China's labour force was directed to work primarily in rural agriculture, while its exports were constrained by state plans and typically consisted of some key commodities, including oil, which were sold to earn the hard currency required to finance imports of capital equipment. During this period, China was extremely poor but largely self-sufficient. When reforms began in 1979, China set out gradually to transform the way it ran its economy. Instead of remaining inwardly focused, it elected to use trade as a means of drawing its abundant and underemployed labour out of agriculture to transform imported raw materials and inputs into manufactured goods for export as well as into new factories and infrastructure that have

laid the foundation for growth. This process helped China to shift 200 million workers out of primary industries, such as agriculture, into secondary industries, such as construction and manufacturing, or the tertiary sector, which is mainly services (Chart 1).

In the first few years of the reform process, China was not large enough for its industrialization policy to have a significant impact on global markets. But in the past 10 years, and particularly the past 5, there is growing evidence that China has had important effects on the world economy through its contribution to world trade. In particular, as its trade has grown, China has become the dominant source of global supply and demand in some key sectors of world trade. Chart 2 shows that China's net exports now represent 39 per cent of world trade in semi-durable consumer goods, and 24 per cent of world trade in durable consumer goods, up from 26 per cent and 12 per cent, respectively, in 1995.³ Likewise, China's imports account for 15 per cent of world trade in primary industrial supplies (unprocessed, non-food commodities) and 4.5 per cent of world imports of unrefined fuels and lubricants.⁴

Interestingly, as China's exports of consumer goods and imports of raw materials increased, the prices of these goods changed over time in a manner con-

Chart 1
China: Employment by Industry



1. Because many (non-traded) goods and services are much less expensive in China than in the United States, simply converting China's GDP into U.S. dollars at the market exchange rate of 7.73 yuan per U.S. dollar (as at 1 April 2007) would understate the true size of the Chinese economy. A PPP conversion rate (2.095 for 2007) is therefore used for making international comparisons. Data on GDP, GDP per capita, and PPP conversion rates are from the International Monetary Fund *World Economic Outlook* database, April 2007.

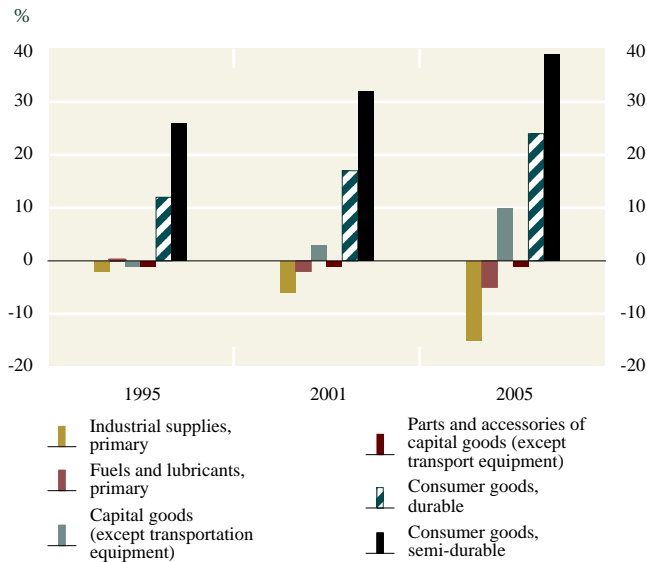
2. WTO Statistical database, 2006. Note that trade figures are calculated in U.S.-dollar terms, with conversion done at market exchange rates (not PPP-adjusted rates).

3. As a rule of thumb, durable consumer goods are manufactured household items that can be expected to last in excess of five years; and semi-durable goods those that last between two and five years. Televisions and household furniture are common examples of durable consumer goods, while clothing and children's toys are considered semi-durable consumer goods.

4. Figures are for China's net exports as a share of world trade in the specified industry.

Chart 2

China's Net Export Share in Global Trade (Selected Industries)



Source: United Nations Comtrade database

sistent with China's growing influence (Chart 3 and Chart 4). In particular, the prices of durable and semi-durable (DSD) consumer goods have fallen relative to the core consumer price indexes (CPI) in the industrialized countries, while world oil and metals prices have grown faster than U.S. CPI.

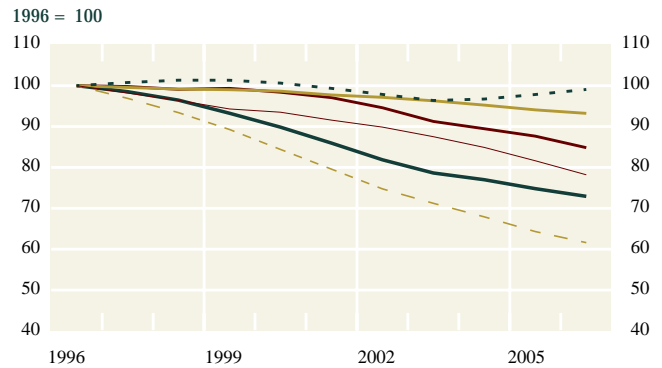
China has become the dominant source of global supply and demand in some key sectors of world trade.

However, this trend in relative consumer goods prices was present in the data even before China started to open its economy to world markets in 1979, and largely reflects the declining prices of goods relative to services in the CPI bundle. Baumol (1967) explained this trend by arguing that productivity growth was greater in the goods sector compared with services. As documented by Gagnon et al. (2003–2004), this was indeed the case in the major industrialized countries during the 1990s. But Gagnon et al. also point out that increased openness to international trade (especially from the emerging economies of Asia) is likely to have been playing an

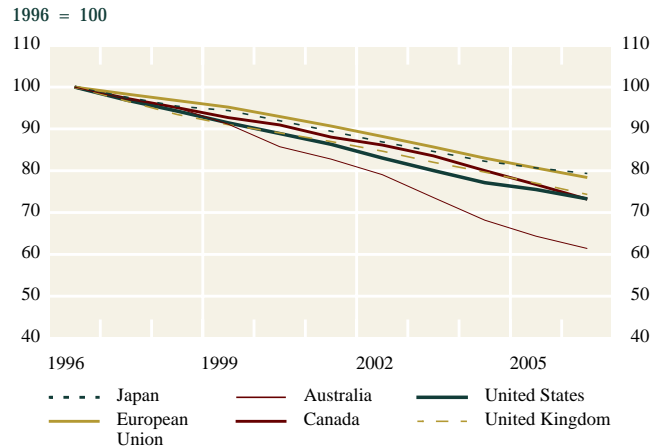
Chart 3

Price of Consumer Goods (Excluding Automobiles) Relative to Core CPI

Semi-durable goods



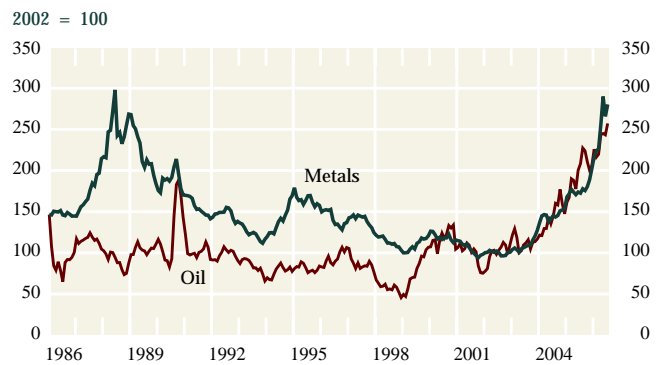
Durable goods



Source: National statistical agencies, Bank of Canada calculations

Chart 4

World Commodity Prices, Deflated by United States CPI



Source: International Monetary Fund *World Economic Outlook*, September 2006

important role in more recent years.⁵ Given the rapid growth in the importance of China's trade over the past 5 to 10 years (as highlighted in Chart 2), the next two sections focus on this relatively recent development and its impact on the relative prices of consumer DSD goods and commodities.

China's Export Supply of Durable and Semi-Durable Consumer Goods

There are two main causes of China's dramatic increase in consumer goods exports — China's growth and its policy of trade liberalization. China's growth has been driven by several factors (Francis, Morin, and Painchaud 2005). Most studies have found that just under half of post-reform growth in China has resulted from improvements in total factor productivity (TFP), which reflects the efficiency with which China's resources are used. One important source of TFP growth is the reallocation of farm workers into more productive sectors such as manufacturing and services (Heytens and Zebregs 2003). Interestingly, as Chart 1 shows, the service-oriented tertiary sector has typically grown slightly faster than the industrial secondary sector. Beginning in 2003, however, employment in the secondary sector (including construction and manufacturing) has been growing rapidly (at 5 per cent, compared with 3.7 per cent before 2003) and appears to have drawn labour directly out of primary industries, mostly agriculture. Of the key secondary sectors, some of the greatest employment expansion has been in industries responsible for the production of DSD consumer goods. Increased employment in the electronics, garment, leather goods, and furniture industries, for example, accounts for more than one-third of the overall increase in employment in secondary industries (Table 1). Since the production of these types of goods is widely viewed as being labour intensive, this reallocation of labour could be expected to have resulted in a disproportionate increase in the supply of these goods on world markets.

Rapid capital accumulation, the other main source of China's growth, would normally tend to favour the production of more capital-intensive goods. In this

5. Other explanations for the decline in consumer goods prices relative to the prices of services include difficulties in measuring quality improvements (especially for services); improvements in retail trade productivity—the so-called “Walmart effect” (Basker 2007); and an increasing demand for services compared with goods (owing to such factors as the aging of the population). On the commodity side, shocks to supply associated with weather and geopolitical tensions also play a role in affecting the relative prices of commodities.

Table 1

Share of Total Increase in Employment in China's Secondary Industries, by Sector, 2000–06

	%
Electronics and communication equipment	17
Electric machinery and equipment	10
Garments and other fibre products	9
Textile industry	8
Leather and related products	7
Furniture manufacturing	3
Other	46

Note: Data are based on survey results, and coverage is incomplete. These statistics should therefore be considered indicative.

Source: CEIC database

instance, however, there are two important qualifications. First, in China, much of the investment is being allocated to construction and infrastructure development; and second, China's industrial policy (designed in part to create jobs for China's surplus agricultural labour) guided much of the remaining investment towards the labour-intensive export sector. The overall effect of growth on the output mix has therefore favoured the export-producing sectors over the import-competing sectors.

Just under half of post-reform growth in China reflects the efficiency with which China's resources are used.

Trade liberalization also offers a good theoretical explanation for the increased supply of Chinese-produced DSD consumer goods. When China reduces import barriers, it frees up resources in protected sectors to flow into those exporting industries in which China has a comparative advantage. In addition, when industrialized countries reduce their import restrictions, it directly increases the supply of imported goods available in these markets from countries such as China. Thus, trade liberalization, on the part of both China and the industrialized nations would result in an increased supply of those goods in which China's comparative advantage is the greatest.

By the time China acceded to the World Trade Organization (WTO) in December 2001, many of the major obstacles to trade had been removed or eliminated as

Table 2

China: Applied Tariff Rates, 2001–05 (%)

	2001	2002	2003	2004	2005
Simple average applied rate	15.6	12.2	11.1	10.2	9.7
Industrial products	14.3	11.1	10.1	9.3	8.9
Motor vehicles	30.1	–	–	–	14.8
Textiles and clothing	21.1	17.5	15.1	12.9	11.5
Textiles	20.7	–	–	–	10.9
Clothing	24.1	–	–	–	15.8
Iron and steel	7.8	–	–	–	5.1
Agricultural products	23.2	17.9	16.3	15.0	14.6
Dairy	35.9	–	–	–	12.5
Grain	51.9	–	–	–	33.9
Oilseeds	32.0	–	–	–	11.1

Source: WTO (2006)

part of its export-led growth strategy. Nevertheless, upon accession, China undertook a number of important additional measures to further liberalize trade. These included significant tariff cuts (Table 2); the phasing-out of import quotas on such items as motor vehicles, petroleum products, rubber, iron, and steel; streamlining import-licensing requirements; and, importantly, removing restrictions on the right to trade. Before China's WTO accession, the right to trade was restricted to 35,000 Chinese enterprises. In some sectors, the right to trade was designated by the government, and import licences often prevented firms from reselling to the Chinese domestic market; instead, importing firms were required to use the imports for export.⁶

By 2005, 35 per cent of world trade in clothing and apparel was being sourced from China.

Although the key reductions in trade barriers resulting from joining the WTO occurred in China, accession also ensured that China's trade would be governed by the same set of agreements as other WTO members. This meant, for the most part, that Chinese-produced goods gained equal access to the markets of WTO

6. Joining the WTO also had important legal and institutional consequences. Importantly, it bound the Chinese government to continue with the process of market liberalization. The effect of this commitment on businesses operating in China was probably important, but is difficult to quantify.

members at the most-favoured-nation (MFN) tariff rates—that is, joining the WTO effectively levelled the playing field for Chinese goods that might otherwise have been discriminated against by the imposition of differential tariff rates.

Joining the WTO also meant that China benefited from the removal of quotas on textiles and clothing as negotiated under the WTO Agreement on Textiles and Clothing (ATC). China had been the world's largest exporter of clothing since 1995 (accounting for 22 per cent of world clothing trade at the time), but quotas in the major industrialized markets nevertheless severely limited Chinese clothing exports. As the quota system was gradually phased out after 2001, China's clothing exports accelerated, and by 2005, 35 per cent of world trade in clothing and apparel was being sourced from China.⁷

There are three main channels through which the quota reduction affected clothing prices in industrialized countries. First, the quotas caused the prices of Chinese clothing imports in industrialized countries to be higher than they would have been under free trade. As a result, over time, the import prices of these Chinese goods fell as the quotas were eliminated. Second, China is simply a cheaper source of clothing than many of its traditional competitors (such as Hong Kong or Turkey). Given the greater choice, consumers have been able to substitute towards the cheaper product. Third, increased competition from China has induced producers elsewhere to increase efficiency and reduce prices. Since clothing accounts for a substantial portion of the semi-durable consumption basket (almost 50 per cent in Canada and Europe, for example) these effects have likely had a significant impact on the prices of semi-durable goods in those industrialized countries that have phased out clothing quotas over the past five years.⁸

Effect on the relative prices of DSD consumer goods

Much of the problem with identifying a China effect on the prices of domestic consumer goods is the lack of readily available and reliable data on the prices and

7. China has not fully benefited from the ATC quota phase-out because the United States and Europe maintained some quotas, which were extended past 2005 under safeguard clauses negotiated as part of China's entry into the WTO. These will expire at the end of 2007 in the case of Europe and 2008 for the United States.

8. The end of the system of quotas on clothing and textiles did not imply free trade in these goods. In the case of Canada, for example, the MFN tariff on clothing is typically 17 or 18 per cent.

quantities of Chinese-made goods in the advanced-country CPI baskets. Alternative approaches must therefore be used. One such approach is to try to “account” for the impact of China on import prices by breaking down the total import price (or, alternatively, the consumer price) into a share from China plus a share from the rest of the world (plus a share attributable to domestic production in the case of consumer prices). The effect of China on import prices then comes from three sources: the contribution of an increase in China’s share (referred to as the import-penetration effect); the effect of changes in Chinese prices; and the indirect impact of increased competition from China on exporters in other countries and domestic producers (for consumer goods prices).⁹

Chinese goods are getting cheaper compared with similar DSD goods produced locally or abroad.

Using this accounting methodology, Nickell (2005) calculates that, between 2000 and 2004, China and India combined may have reduced CPI inflation pressure in the United Kingdom by just over half a percentage point per year through the import-penetration channel alone. For the United States, Kamin, Marazzi, and Schindler (2006) estimate that, between 1993 and 2002, the growing share of Chinese imports lowered import-price inflation by around 0.8 of a percentage point per year, translating into a small effect on consumer prices of around 0.10 of a percentage point per year. Pain, Koske, and Sollie (2006) find that, between 2001 and 2005, this import-penetration effect caused U.S. CPI inflation to be reduced by 0.12 of a percentage point in the United States and 0.13 of a percentage point in the euro area.

While the results are suggestive, there are limitations to the accounting approach. Importantly, for our purposes, the results do not identify the effect of China on DSD consumer goods relative to overall CPI. An indirect way of detecting a China effect on DSD prices is to examine the amount of expenditure on Chinese goods relative to total expenditure for a given category of consumer goods. If the imported good is a reasonable

9. The direct effect of China on Canadian consumer prices is discussed in more detail in Morel (2007).

Chart 5
Share of Consumption Expenditure on Chinese-Made Goods, by Country



Source: United Nations Comtrade database, national statistical agencies, and author’s calculations

substitute for local goods, then the expenditure share of the imported good will rise as its price falls. Chart 5 shows that households in industrialized countries have been allocating an increasing share of their DSD consumption expenditures to Chinese goods, indicating that Chinese goods are getting cheaper compared with similar DSD goods produced locally or abroad, and over time are thereby contributing to downward pressure in core CPI goods.

China’s Import Demand for Oil and Metal Commodities

The flip side of China’s export supply is its import demand. As discussed, China’s industrialization policy

has created a demand for commodities and industrial supplies to be used in the production of its exports and for construction and infrastructure investment. Although China has a large resource sector, with over 10,000 mining enterprises employing five million people, in recent years, domestic output has been unable to keep up with domestic demand. This has created an import demand for commodities—especially primary commodities. This section looks at how China’s demand for commodities is affecting the global prices of oil and metals.

Effect on global oil prices

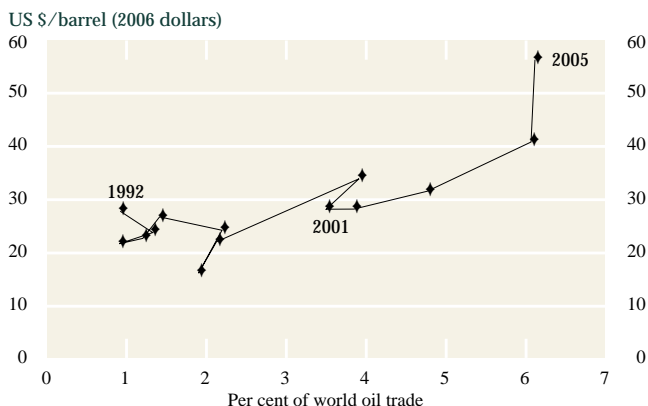
In the case of oil, between 2002 and 2004, China’s oil consumption, driven by particularly rapid growth and a restructuring of its economy towards energy-intensive sectors, increased 28 per cent, or by approximately 1.5 million barrels per day (BP 2007). Consequently, China’s share of world oil imports grew from approximately 3.5 per cent in 2001 to over 6 per cent of world oil trade in 2005.

During the 2002–04 period, although China’s import demand was growing strongly, the impact on the world oil price was moderate (Chart 6). One reason was that the increase in China’s demand at the time seems to have been perceived as temporary; hence, producers responded to what they thought was a short-term price rise by expanding production.¹⁰ The U.S. Energy Information Administration (EIA), for example, predicted in its 2004 forecast that China’s demand for oil for 2005 and 2010 would return to levels that it had predicted in its 2002 forecast.¹¹ Likewise, starting in 2002, the IMF consistently underestimated China’s growth and did not significantly raise its projection of China’s medium-term growth, from 8 per cent to 9 per cent, until 2006 (Chart 7). In response to these developments, global oil production rose, and spare capacity within the Organization of Oil Producing and Exporting Countries (OPEC) fell from an average of 3.7 million barrels per day between 1994 and 2002 to 1.5 million barrels per day between 2003 and 2005

10. Essentially, a resource producer can maximize the value of the resource by arbitraging across time: if the current price is higher than the expected future price, then the producer will increase output today to gain from the higher price. This response tends to dampen price movements caused by short-term changes in demand. Nevertheless, bottlenecks in the transportation, extraction, and refining stages resulting from the constraints on capital and labour mean that there is a limit to the arbitrage process, and commodity price rises may not be completely offset.

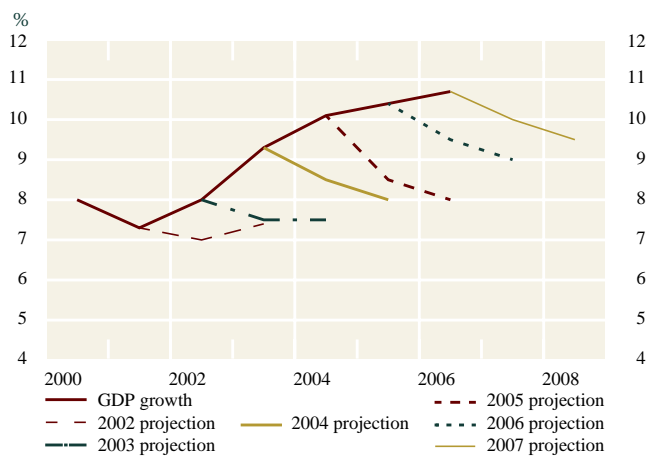
11. Rosen and Houser (2007) illustrate a similar point using the International Energy Agency’s forecast for China’s demand for oil in 2002.

Chart 6
China’s Crude Oil Imports (% of World Total) and the World Oil Price



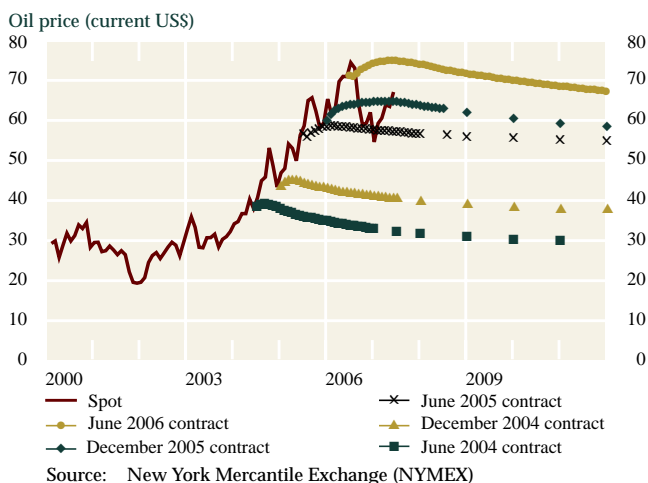
Source: United Nations Comtrade database, IMF Commodity Price database, and author’s calculations

Chart 7
Growth of China’s GDP and IMF Projections



Source: IMF World Economic Outlook, various years

Chart 8
Spot and Future Oil Prices, 2000–



Source: New York Mercantile Exchange (NYMEX)

(International Monetary Fund 2007).¹² It was these production responses that helped to moderate price rises at the time.

However, in 2006, at roughly the same time as the IMF began to make significant upward revisions to its outlook for China's growth, the EIA revised up its forecast for China's long-term oil consumption and then made another, more significant, upward revision in 2007, suggesting that the temporary increase in demand was now expected to be permanent. This change in expectations helps to explain why oil prices rose rapidly at this time.¹³

Around 2005–06, the evidence suggests that the market decided that what at first appeared to be a temporary increase in the growth of China's GDP and its demand for oil was likely to be permanent.

The impacts of the changing perception of China's demand for oil are nicely illustrated by oil futures market data (Chart 8). Prior to the middle of 2005, despite the growing demand from China, the oil futures market predicted that oil prices would fall from their spot prices (a phenomenon referred to as "backwardation") because of a belief in the market that the spot price at the time reflected a temporarily high level of demand relative to supply, which would be quickly alleviated, causing futures prices to fall. But, by the middle of 2005, the futures price curve had flattened out considerably, predicting that the oil price would remain close to US\$55 per barrel. By early 2006, most of the backwardation in the futures price had

12. OPEC spare capacity refers to production capacity that can be brought online within 30 days and sustained for 90 days. Note that the period starting in 2003 was also one when the markets experienced numerous supply shocks, including the beginning of the war in Iraq—although the rundown in spare capacity significantly exceeded what was required to make up for forgone Iraqi production.

13. Theory suggests that the upward revision in future demand should produce an increase in long-run commodity prices, and that producers in the current period would have an incentive to conserve their supply to sell in the future. Thus, compared with a temporary demand shock, the supply response is slower and tends to produce an immediate and persistent increase in the commodity price. This increase in the long-run price, however, is also a signal to markets to increase investment in the extraction and refining sectors. Thus, the price rise may be partially offset over time by increased production capacity.

been eliminated, with the oil price generally expected to rise from its spot price in the future.

Thus, starting around 2005–06, the evidence suggests that the market decided that increases in the growth of China's GDP and its demand for oil, which at first appeared to be temporary, were likely to be permanent. As a result, oil prices rose dramatically at a time when the increase in demand was deemed permanent and was exacerbated by already low capacity utilization.

To investigate the impact of this unexpected demand shock on global oil prices, Elekdag et al. (2007) use the Bank of Canada's Global Economy Model (BoC-GEM) to simulate the effect of an increase in East Asian productivity growth (in both traded and non-traded sectors) and energy intensity of oil usage.¹⁴ They find that a surprise shock to China's oil demand could have pushed up oil prices by 20 per cent on impact and caused the long-run price to rise by as much as 60 per cent. Cheung and Morin (2007) use an econometric analysis to estimate the impact of emerging Asia on oil and metals prices. They find that there was a structural break in the data at the time of the 1997 Asian crisis—most notably for oil.¹⁵ Since then, metals and oil prices, which had historically moved with the business cycle in the industrialized countries, have become increasingly aligned with emerging Asia's industrial activity. The results of these studies do not explain all the movement in oil and commodity prices, but they do suggest that China is having a significant and increasing effect on world commodity prices.

Effect on global metals prices

In many respects, China's impact on the world metals market is even more dramatic than its impact on the oil market. Between 2001 and 2006, metals prices almost tripled, with China accounting for more than 50 per cent of the increase in world demand for key metals such as aluminum, copper, nickel, and steel. Interestingly, though, with the exception of nickel, China managed to account for an even larger share of the increase in global refining capacity over the same period. In contrast, despite having a large mining sector, Chinese mine production failed to keep up (Table 3), implying that China was creating an excess

14. BoC-GEM is a sophisticated dynamic-stochastic general-equilibrium model of the world economy. For more details, see Lalonde and Muir (2007).

15. The authors attempt to identify whether the change in demand is coming from a trade channel or a growth channel. Unfortunately, given the limited amount of data in the post-2002 period, they have trouble deciphering between the two effects.

Table 3

China: Metals Demand and Supply, 2001–06

	China's share of world consumption and production growth (%)				China's domestic consumption and production growth (annual average) (%)			
	Alumi- num	Cop- per	Nickel	Steel	Alumi- num	Cop- per	Nickel	Steel
Refined consumption	59	54	58	60	20	10	23	19
Refined production	76	84	34	69	23	15	17	23
Mine production*	29	12	9	30	17	6	7	19

* Mine production for steel refers to iron ore production (in terms of metal content).

Source: World Bureau of Metal Statistics, except steel: International Iron and Steel Institute, Japan Iron and Steel Federation, United States Ecological Survey, and author's calculations

demand for unprocessed metals in the form of metal ores and concentrates.

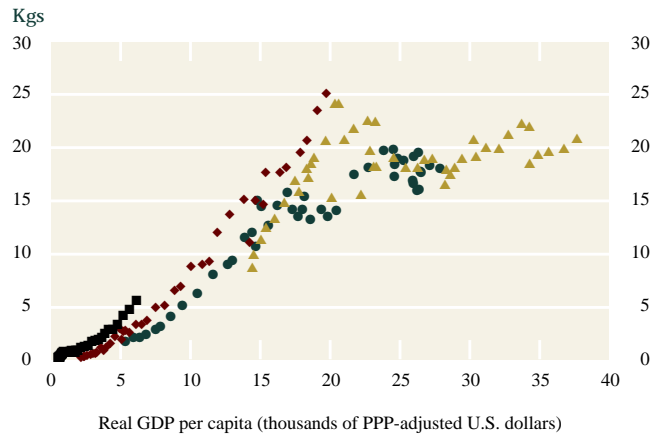
On the consumption side, China's demand for metals is largely a function of its economic development. For an economy with per capita GDP approaching US\$8,000, China's per capita demand for aluminum, copper, and steel is very much in line with that experienced by other countries at similar levels of development (Chart 9). Compared with advanced countries, however, China's demand for metals depends not only on the level of income, but also on how the metal is used. As Garnaut and Song (2006) argue, metals demand is particularly sensitive to the rate of urbanization and investment. For example, aluminum demand in China is more a function of domestic investment than household consumption when compared with industrialized countries. In 2002, construction accounted for 31 per cent of aluminum use in China, compared with 18 per cent in the advanced economies, whereas use in cans accounted for only 2 per cent of demand in China versus 12 per cent in advanced economies (Alcan 2004). Thus, in addition to its income growth, China's recent boom in construction and investment also helps to explain its commodity demand.

China's rapid increase in the production of refined metals is more difficult to explain (Rosen and Houser 2007). In part, it likely reflects laws and trade restrictions that limited the import of commodities, forcing domestic users to purchase locally produced metals, while firms producing for export had access to world markets. Although this practice has been gradually phased-out

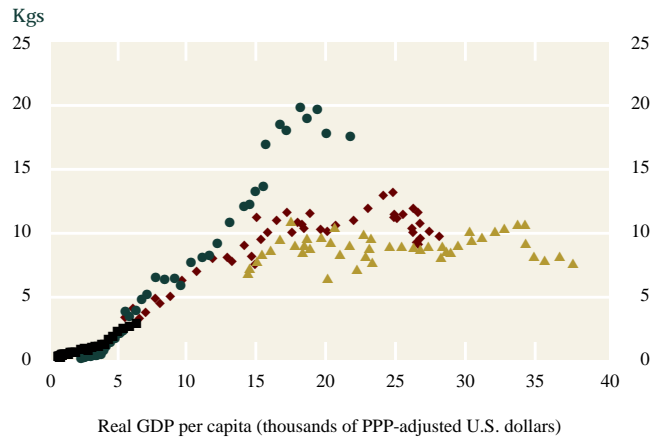
Chart 9

Per Capita Consumption of Metals

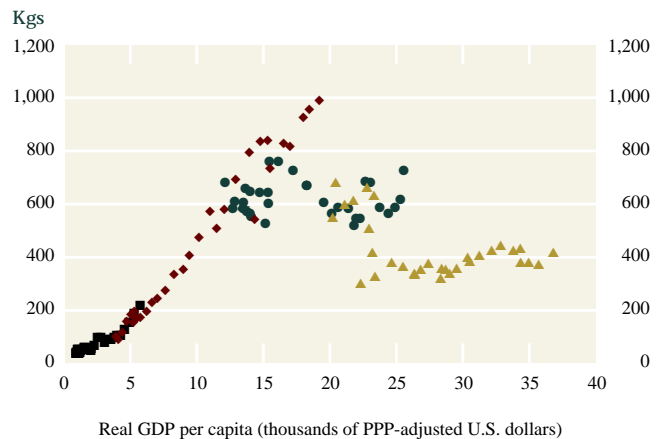
Aluminum



Copper



Steel

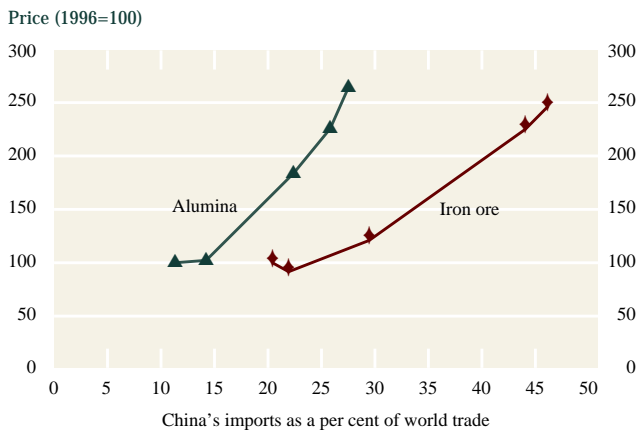


● Japan ▲ United States ◆ Korea ■ China

Source: IMF World Economic Outlook, 2006

Chart 10

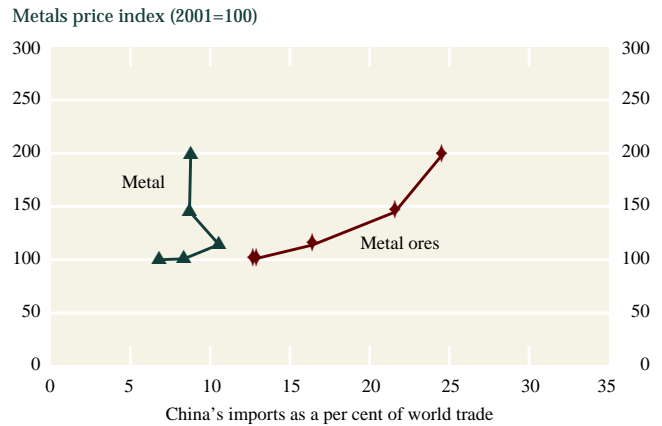
China's Impact on the Prices of Alumina and Iron Ore



Source: United Nations Comtrade database, IMF Primary Commodity Price database, and author's calculations

Chart 11

China's Import Demand and World Metals Prices, 2001-05



Source: United Nations Comtrade database, IMF Primary Commodity database, and author's calculations

since China acceded to the WTO, it remains applicable to the import of some commodities, such as iron ore (WTO 2006). In the case of aluminum, another factor that has encouraged the development of a refining industry is access to subsidized electricity (Alcan 2004). Low environmental standards and poor enforcement of those standards is also a problem in the Chinese metals-producing sector, although it can be a cost advantage (IOSC 2003, 2006). In the nickel-refining industry, for example, to save costs, Chinese firms have recently resorted to importing a low-grade ore (nickel laterite) used in the production of nickel pig iron—a substitute for nickel. Its use generates significant cost savings for Chinese firms, but the refining process produces high levels of pollutants (ABARE 2007; Lennon 2007). Whether China's advantage in producing refined metals persists as market forces penetrate the energy sector and demand for better environmental protection increases remains to be seen. In the interim, however, it seems likely that China will continue to be a major source of refining capacity.

Although growth in China's metals-refining sector has largely matched the rapid growth in consumption demand for refined metals, at just over 8 per cent, China's import share of the world refined-metals trade, while large, remained almost unchanged between 2002 and 2006. Yet growth in the demand for unrefined metal ores and concentrates has been dramatic: in 2002, China accounted for 13 per cent of world trade in metal ores; by 2005, it accounted for 25 per cent. Provisional estimates suggest that by 2006 it may have

exceeded 30 per cent.¹⁶ Not surprisingly, the prices of unprocessed metals such as alumina and iron ore have been highly correlated with China's import demand during recent years (Chart 10). Likewise, the increase in the world prices of refined metals have also shown a stronger association with the increase in China's import demand for metal ores and concentrates than with its demand for refined metals (Chart 11).

As with oil, although metal-producing resource companies likely anticipated China's rise and the associated increase in demand, the rate of increase in recent years and its permanence may have come as a surprise, creating an unexpected rise in world prices. In addition, given the scale of costs associated with developing new mining projects, it is likely that supply has been slow to adjust. As a result, mining companies have been straining to meet demand, and prices have risen and have remained elevated. In the longer term, since resource companies have revised their estimates of China's growth and the derived demand for metal ores upward, the capacity constraints ought to be grad-

16. China's growing and dominant share of world mineral ore markets is apparent in the market for alumina, where China's imports accounted for 12 per cent of world trade in 2002 and, by 2005, had reached 23 per cent; in the market for copper ore, where the corresponding figures are 14 and 23 per cent; and in the market for iron ore, in which China's import share of world trade had reached a staggering 46 per cent by 2005, up from 22 per cent in 2002. It is difficult to calculate figures for nickel, because of the significant impact of the substantial increase in the importance of cheap low-grade nickel ores during recent years, which tend to distort China's import figures. Ideally, a measure based on metal content could solve this problem, but such data are not readily available.

ually alleviated, and metals prices can be expected to fall. This future price decline is more likely for the most abundant metals, such as aluminum and iron, compared with such relatively scarce resources such as oil, where the scarcity value of the resource contributes a greater share to its price.

China's Effect on Global Inflation

In the long run, the rate of inflation in countries outside China is ultimately determined by monetary policy, not by China's impact on the relative price of oil or clothing. That said, central banks have had to contend with a series of large and persistent trade shocks emanating from China that may have surprised them as much as they have surprised the IMF or mining companies. Given the lags associated with monetary policy actions, these shocks can therefore be expected to have an effect, albeit temporary, on measured inflation.

Nevertheless, it is not well understood how China's trade, which is thought to act on real variables and relative prices, affects nominal prices and measured inflation. Possible channels include the weighting of goods in the CPI basket—the impact of some relative prices (such as DSD consumer goods) on measured inflation may be more important than others (such as energy); an effect on firms' price-setting behaviour owing to increased import penetration associated with competitively priced imports of Chinese DSD consumer goods; downward pressure on wages, which reduces production costs; and upward pressure on production costs stemming from higher commodities prices.

Given China's size, and the rapid acceleration in its trade following its WTO accession, it is therefore not surprising that some observers (such as Nickell 2005) see China as playing a significant role in the inflationary process, at least over the short term. At this point, however, given that the relative price effects on DSD goods and commodity prices are somewhat offsetting, and that monetary policy in most industrialized countries is forward looking and aimed at price stability, definitive empirical evidence that China is a net source of disinflation (or inflation) remains elusive.

Conclusion

This article has explored the role that China plays in determining global prices and, in particular, the effect that China is having on the relative prices of consumer goods and commodities via its export supply and

import demand for these goods. The evidence suggests that, following its accession to the WTO, China played a significant role in restructuring global trade and hence affected relative prices. In the market for clothing, the phase-out of quotas seems to have significantly increased the availability of inexpensive clothing from China. As a result, the global clothing market has become more competitive, clothing prices have fallen, and expenditure on imported Chinese clothing has risen. A similar pattern seems to be present in other DSD consumer goods markets. In terms of commodity imports, China's economic and trade developments appear to have grown much faster than expected, causing a larger-than-anticipated increase in global demand for oil and metals. Together, these two effects help to explain the recent change in the relative prices of these goods.

Looking forward, China continues to have a large supply of labour in the primary sectors of its economy, which can be expected to continue its migration into the DSD consumer goods sector for some time. This process will help to keep downward pressure on the relative prices of these goods.

China's demand for oil and metal commodities can be expected to grow strongly for a number of years to come.

For oil and metals, China's size and growth are likely to remain among the key factors driving the growth of global demand for some time. By way of comparison, in per capita GDP terms, China's current level of development is not dissimilar to that of Japan in the early 1960s. Thus, if Japan's experience is relevant, China's demand for oil and metal commodities can be expected to grow strongly for a number of years to come. To keep markets in equilibrium, either prices will rise or the supply side will adjust. History suggests that supply does adjust, but that the adjustment will be slow, given the scale of the required adjustment, the lags involved in establishing the necessary capacity, and caution surrounding the risks associated with increases in demand being driven by a single market. Hence, the relative prices of commodities can also be expected to remain somewhat elevated.

Finally, although this article has focused on the effect of China, the emergence of other labour-abundant emerging economies, such as India, which are likely to follow in China's footsteps, must be acknowledged.

There will no doubt be some differences in how these economies affect global markets and prices, but China's rise suggests that the relative price effects could be significant.

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