The Growing Relationship Between China and Sub-Saharan Africa: Macroeconomic, Trade, Investment, and Aid Links

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China's economic ascendance over the past two decades has generated ripple effects in the world economy. Its search for natural resources to satisfy the demands of industrialization has led it to Sub-Saharan Africa. Trade between China and Africa in 2006 totaled more than $50 billion, with Chinese companies importing oil from Angola and Sudan, timber from Central Africa, and copper from Zambia. Demand from China has contributed to an upward swing in prices, particularly for oil and metals from Africa, and has given a boost to real GDP in Sub-Saharan Africa. Chinese aid and investment in infrastructure are bringing desperately needed capital to the continent. At the same time, however, strong Chinese demand for oil is contributing to an increase in the import bill for many oil-importing Sub-Saharan African countries, and its exports of low-cost textiles, while benefiting African consumers, is threatening to displace local production. China poses a challenge to good governance and macroeconomic management in Africa because of the potential Dutch disease implications of commodity booms. China presents both an opportunity for Africa to reduce its marginalization from the global economy and a challenge for it to effectively harness the influx of resources to promote poverty-reducing economic development at home. JEL codes: F01, F35, F41, N55, N57, Q33, Q43

> "We like Chinese investment because we have one meeting, we discuss what they want to do, and then they just do it.... There are no benchmarks or preconditions...."
>
> Sahr Johnny, Sierra Leone ambassador to Beijing, 2005

> "China's move into Africa is displacing traditional Anglo-French and U.S. interests on the continent."
>
> Martyn Davies, director of the Center for Chinese Studies Stellenbosch University, South Africa, 2005

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One of the most important economic developments in recent years has been the rapid emergence of China as a world economic power. A combination of sound economic management, policy reforms, and hard work has led to burgeoning economic growth of more than 8 percent a year for the last decade, thrusting China to its current position as the world's fastest growing economy. Fueled by pragmatic business considerations, motivated by a need to supply a growing industrial sector, and eager to find destinations for its cheap goods, Chinese firms have launched a worldwide quest for access to raw materials and markets in Central Asia, Latin America, East Asia, and Sub-Saharan Africa. Through a gradual approach to reform, a carefully managed exchange rate,[1] and a variety of interventionist policies, Chinese policymakers have helped reduce the role of the state sector and lay the foundations for a more dynamic and export-oriented private sector. The Chinese economic boom has had repercussions in the world economy and influenced global trade and finance.

This article surveys the main trade, investment, and aid links between China and Sub-Saharan Africa and assesses the principal dynamics of the relationship. It also examines the indirect macroeconomic effects of China's policies on Africa, particularly in relation to global output, savings, and commodity prices. Using trade and commodity price data, the article seeks to understand the nature of the Sino-African trade relationship and focuses on two important sectors—oil and textiles. It concludes by briefly examining the potential positive and negative effects of Chinese trade and investment in Africa.

China's Africa Policy and the Beijing Consensus

The empirics of China's growth and expansion are impressive. China has been one of the world's fastest growing economies in the last decade and has recently surpassed Italy to become the world's sixth largest economy after the United States, Japan, Germany, France, and the United Kingdom and is slowly moving toward fourth place. According to official figures from China's National Bureau of Statistics, China's GDP reached almost 18.2 trillion yuan ($2.25 trillion) in 2005,[2] and China is accounting for an increasing share of global output. China's export performance has become formidable, as exports have increased dramatically over the last 5 years. And China has doubled the supply of global labor by adding more than 100 million workers to the global market. Thus, China is contributing to significant changes in the world economy.

The novelty of China's recent foray into Sub-Saharan Africa has caught the attention of journalists, but has generally escaped more rigorous analysis by researchers and policymakers. While China's impact on the United States or a Latin American economy is hotly debated, there has been little systematic

reflection on its impact on Africa. Nevertheless, there is a nascent literature combining both quantitative and qualitative work. A detailed study by four experts at the Development Center of the Organization for Economic Co-operation and Development in Paris examines the impact on Africa of Chinese and Indian ascendance with the goal of formulating strategies for poor countries to maximize the benefits and minimize the costs of engagement with these Asian powers (Goldstein, Pinaud, Reisen, and Chen 2006). Jenkins and Edwards (2005) recently concluded a study for the UK's Department for International Development (DFID) that investigates the effect of China and India's growth and trade liberalization on poverty in Africa using macro–micro linkages and analyzes the impact on Africa's imports, exports, third-country markets, and foreign direct investment. Finally, the World Bank conducted a study on Africa–Asia trade and investment linkages, using firm-level data (World Bank 2004). This article will contribute by providing a focused and empirical analysis of China's impact on the continent.

The signs of China's economic expansion are becoming increasingly manifest in Sub-Saharan Africa. Over the last decade, China has built a network of trade, aid, and investment links with close to 50 African countries, and there has been a rush to buy up concessions to Africa's natural resources. Chinese companies are mining oil in Angola and Sudan, building roads in Ethiopia, working with the electricity sector in Kenya, building infrastructure and developing the tourism industry in Sierra Leone, and servicing mobile phone networks in Kenya and Nigeria. Throughout Sub-Saharan Africa, Chinese companies are building vital infrastructure, including dams, ports, and roads, and helping to renovate government offices and other buildings. China's foreign policy is being increasingly driven by its domestic development strategy and the need for resources (Zweig and Jianhai 2005). However, the interest is not confined solely to natural resources, as Chinese firms have ventured into the light manufacturing and services sectors and entered into agroprocessing, apparel, and telecommunications. Meanwhile, Africa is increasingly awash with low-cost Chinese motorcycles, electronic goods, and T-shirts, benefiting the consumers in the continent.

Over the last several years, China has intensified diplomatic links with Africa. Under the auspices of the China–Africa Cooperation Forum of 2000, comprising 46 of 53 African countries, bilateral trade and economic cooperation have entered a new realm. In a symbolic gesture that carries much hidden weight, the Chinese foreign minister has maintained a policy of making his first official overseas trip each year to Africa. In January 2006, the Chinese government issued its official Africa policy, calling itself the world's largest developing country and seeking the establishment of a new strategic partnership with Africa marked by an intensification of dialogue on the political front combined with closer economic cooperation (China Ministry of Foreign Affairs 2006).[3] In November 2006,

a very high-level China–Africa summit, with the participation of more than 40 African heads of state, was held in Beijing to cement trade and investment relations between the world's fastest growing economy and the world's poorest continent. China's economic size in 2005, measured in purchasing power parity terms, is more than five times that of Sub-Saharan Africa, while its physical size is much smaller (IMF 2006). According to the World Bank's Atlas method, GNI per capita in 2005 was $745 in Sub-Saharan Africa, contrasted with $1,740 in China. However, there is a large convergence of interest based on economic complementarities and strong possibilities for mutual gain.[4]

As a rising power, China is altering some of the prevailing practices and parameters in development assistance. One analyst, Joshua Cooper Ramo, has termed the Chinese approach the "Beijing Consensus," with the development of new attitudes toward politics, development, and the global balance of power (Ramo 2004). China's distinctive approach involves a combination of aggressive diplomacy and the cultivation of friendly ties with a "no-strings attached" financial and technical assistance package. The only real prerequisite for Chinese assistance is support for Beijing's one-China policy (in relation to Taiwan, China). China's pledge of noninterference in countries' internal affairs and lack of lending conditions on governance or fiscal management have elicited positive reactions from several governments.[5]

However, China's lack of attention to governance, democracy, and human rights issues in Africa, as testified by its support of pariah regimes in Sudan and Zimbabwe and its delinking of aid from political reform, has raised concerns that the flow of Chinese aid may cause African governments to delay reforms that promote openness and accountability. Given the propensity for corruption in the management of natural resources, China's lack of attention to matters of resource transparency and mechanisms of oversight among its African partners has been a cause for concern. Moreover, the tendency of Chinese companies to import labor from China, coupled with allegations of poor labor practices and unfair competition against local enterprises, has generated an anti-Chinese backlash in several African countries, notably South Africa and Zambia. Finally, the disregard for environmental impact assessments risks derailing the progress that has been made on that front over the last two decades. In sum, there are fears that this neglect of governance and proper standards may be detrimental to many countries' overall development efforts.

Analytical Framework and Dutch Disease

An interesting paradox in development economics is the "resource curse," the poor growth performance of many countries with rich natural resources,

especially in Sub-Saharan Africa. Historical experience shows that rich endowments of oil and metals may weaken a government's incentives for diversification and promote wasteful expenditure. Both theoretical analysis and empirical evidence show that capital-intensive natural resource abundance creates opportunities for rent-seeking behavior and that this is an important factor in determining a country's level of corruption (Leite and Weidmann 1999). With this in mind, China's impact on natural resources and global commodity markets needs to be analyzed carefully.

To systematically examine these issues, this article analyses the channels of transmission between China and Sub-Saharan Africa—global macroeconomics, trade flows, and foreign direct investment and aid. Jenkins and Edwards (2005) identify several direct impact channels: growth of African exports to China (complementarity effect), increased competition from China in third-country markets (competitive effect), increased competition of China in African country markets (competitive effect), and effects of foreign direct investment (competitive or complementarity effects). Besides the direct impacts, China can exert an indirect impact by pushing up prices of primary commodities, even if the country does not export directly to China. Increased Chinese demand will affect global demand, which will also influence Sub-Saharan economies. While the direct impacts are easier to measure, the indirect impacts are less obvious and require more disaggregated data, although both impacts can have a positive effect on commodity prices. This article integrates the various transmission channels to obtain a unified perspective on China's impact.

The general analytical framework for examining China's impact on African economies and assessing the potential Dutch disease implications is based on the classic model of a small open economy developed by Corden and Neary (1983). It divides the economy into three sectors: a nontraded good sector (which includes services), a booming tradables sector (usually the extraction of oil or metals), and a lagging tradables sector (including other manufacturing and agriculture). Of the three goods produced, two are traded at exogenously given international prices and a third is a nontraded good whose price is determined by domestic supply and demand. The standard model assumes no distortions in commodity and factor markets.

Under this framework, a natural resource windfall (for example, due to a China-induced increase in world prices) will have two major consequences. First, the resource movement effect will result from the increased demand for labor and capital in the booming tradables sector (extractive industries) and away from the lagging nontradables sector. Second, the spending effect will occur as the booming export sector increases the demand for and prices of services in the nontradables sector, generating upward pressure on the real effective exchange rate and further weakening the lagging sector. In the Dutch disease scenario, the

natural resources boom will lead to an increase in national income, but will paradoxically lead to deindustrialization (and "deagriculturalization") and have an adverse effect on the competitiveness of the country's other exports. As a consequence, natural resource economies will tend to have larger service sectors and smaller manufacturing sectors than resource-poor economies.

With regard to the impact of China on Sub-Saharan African countries, the model's longer run predictions will depend on each country's factor endowment and comparative advantage. After a commodity boom, resource-abundant countries will tend to become more intensive in resource-based exports and less intensive in lower end, labor-intensive manufactures. Moreover, resource-rich countries will tend to finance inefficient economic policies by selling their resources on the market. However, following Sachs and Warner (1999), there is either a possible "big push" potential of commodity booms if the nontradables sector generates increasing returns or a risk of further deindustrialization if the tradables sector is the one that generates increasing returns. By contrast, in the case of resource-poor economies (which have only one tradables sector and one nontradables sector), a China-induced negative terms of trade shock will cause a contraction of the tradables sector coupled with an adverse effect on the nontradables sector. In sum, the impact of China on Sub-Saharan economies will depend critically on the country's factor endowments.

Global Macroeconomics

China, through the effects of its financial and trade policies on the international macroeconomic environment, exerts an indirect effect on economic management in Africa. As a global price-setter, its actions have major repercussions on world interest rates, output, and inflation. The Chinese have directly contributed to macroeconomic management in Sub-Saharan Africa by helping create the large commodity booms that have resulted in the inflows of capital into the continent. Moreover, by playing a key role in financing the large U.S. current account deficits through the accumulation of large foreign exchange reserves (which reached more than $850 billion in 2006), China has influenced the global macroeconomy. Strong export performance has given China the capital to bankroll these global imbalances. The acquisition by China's official sector of large amounts of foreign assets has raised the country's global importance, and China can be regarded as a very important force in world goods and financial markets (Reisen, Grandes, and Pinaud 2005). In the analysis of some experts China is providing "cheap savings" (together with cheap goods) for the world economy, and the U.S. current account deficit will be happily financed by Asian central banks for at least another decade (Dooley, Folkerts-Landau, and Garber 2003a, b). However,

Goldstein and Lardy (2005) argue that China's maintenance of an inflexible currency regime is actually the cause of global imbalances and may be a precursor of future macroeconomic instability. Moreover, while helping to hold down interest rates in rich economies, China may have indirectly created a global liquidity bubble (*The Economist* 2005).

Whatever the merits of the debate, China's large dollar reserves mean that a sale of U.S. Treasury bonds by the Chinese central bank could result in a fall in the dollar that would erode the price competitiveness for many African economies, which are not pegged to the dollar (unlike many Asian economies). The economies that would be most affected by a plummeting dollar would be the 14 Francophone economies of the CFA Franc zone, which are currently pegged to the euro and which would see a deterioration in their trade balances. Already since 2000 the strong euro has had an adverse effect on the real effective exchange rates of the two CFA zones and has hurt their competitiveness (Zafar 2005). The oil-exporting countries of Africa—Angola, Gabon, Nigeria—and most commodity producers on the continent could be negatively affected, because their export revenues are priced in dollars, and the cost of imports, mostly of European origin, are in euros. Central bankers in many African economies, particularly in the rand zone, will have to make exchange rate adjustments in the case of a fall in the value of the dollar.

A second potential channel of Chinese influence on Africa is through China's effects on global prices, interest rates, and commodity prices. First, China has helped to maintain low interest rates and bond yields through its financing of the U.S. deficit. There is some empirical evidence that high commodity prices are influenced by low real interest rates (Frankel 2006). Second, by contrast, supply-side factors in China are creating downward price pressures in a number of industrial sectors globally, including light manufactures like textiles and clothing, and high technology products (IMF 2003).[6]

Commodity Prices and Terms of Trade

One of the key variables through which China has affected the rest of the world economy is the impact on commodity prices and the resulting terms of trade effects. China has become a key driver of price dynamics in the metals market (IMF 2006). It is the world's largest consumer of steel, copper, coal, platinum, and cement, and it is responsible for much of the rise in *The Economist's* commodity-price index in recent years (*The Economist* 2004). Offsetting its downward impact on prices of global manufactures, rising prices for steel, soybeans, copper, oil, and platinum due to China's large appetite are affecting countries' terms of trade. Countries like Argentina, Australia, and Canada are seeing significant gains from commodity exports to China. Among the five basic food, energy,

and industrial commodities—grain, meat, oil, coal, and steel—consumption in China has eclipsed that of the United States in all but oil.[7]

While prices are still below what they were 50 years ago, the recent commodity boom, induced partly by low global inventories, has helped create an unprecedented bull market since 2001 with the result that global investment funds are diversifying portfolios away from lower valued stocks and bonds and into commodities. Hedge funds have become increasingly active on commodity futures exchanges, as investors sense that large profits can be made from commodity speculation. Commodities, in particular gold, are rapidly becoming hedges against inflation. Furthermore, since most commodities are priced in dollars, the recent decline in the dollar has helped fuel foreign commodity demand, thereby boosting commodity price levels.

The impact of China's growing demand has been particularly strong in Sub-Saharan Africa, where more than three-quarters of export revenues come from commodities. In 2004, real GDP in Sub-Saharan Africa accelerated to 5.1 percent, the highest in almost a decade, underpinned by the strength of the global economy and, even more, by oil and commodity prices (IMF 2005b). In 2005, economic growth reached 5.2 percent, with metal prices jumping more than 15 percent. The surge in prices due to China has generated rents for resource-rich countries as well as windfalls for companies in the extractive industries. While commodity markets are notoriously volatile, characterized by frequent boom–bust cycles, the rise of China and other large emerging markets may have led to a fundamental change in long-term price trends, and the world may be entering a period of sustained high prices, particularly of metals (IMF 2006). While metal prices are expected to retreat over the medium term as new capacity comes online, they will most likely not fall to earlier levels, in part because of the increase in production costs due to higher energy prices (IMF 2006).

To assess China's impact on terms of trade in Sub-Saharan Africa, a quantitative analysis was conducted for 2000–2005 using commodity price data from the World Bank and IMF, commodity production and export statistics from the Food and Agriculture Organization, terms of trade indices from the IMF, and data on China and world exports of commodities from the United Nations Commodity Trade Statistics (Comtrade) at the four- and two-digit Harmonized Classification (HS) level.[8] The goal was to calculate the relative contribution of China to the growth in global demand and consumption growth for African export commodities from 2000 to 2005, and then, based on an analysis of the commodity composition of exports and imports, assess China's overall impact on the terms of trade for each country, measured as the ratio of export prices to import prices (table 1). Countries were classified as winners, mixed winners–losers, and losers based on a qualitative assessment of the general effect of China on their terms of trade (figure 1). China's effect on oil and metal prices was considered a positive

Table 1. African Commodity Prices, Terms of Trade, and Chinese Demand, 2000–2005

Country	Export commodities	International price change, 2000–2005 (%)	China effect[a] (%)	Terms of trade index[b] 2002	2003	2004	2005	Change, 2002–2005 (%)
Angola	Oil	89.1	18.4	85.9	75.6	93.6	108.7	26.5
Benin	Cotton	−6.5	78.1	94.2	97.5	115.1	94.4	0.2
Botswana	Diamonds	38.6	−50.9[c]	83.3	85.5	68.5	83.9	0.7
Burkina Faso	Cotton	−6.5	78.1	84.5	77.0	74.7	60.3	−28.6
Burundi	Coffee	30.2	0.0	79.3	79.6	99.8	114.3	44.1
Cameroon	Oil	89.1	18.4	100.2	99.3	96.3	109.8	9.6
Central African Republic	Cotton	−6.5	78.1	82.8	84.9	70.9	66.4	−19.8
Chad	Oil	89.1	18.4	126.2	172.9	228.8	229.0	81.5
Congo, Dem Rep	Diamonds	38.6	−50.9[c]	107.8	124.6	129.1	131.1	21.6
Congo, Rep of	Oil	89.1	18.4	104.0	114.0	120.3	128.9	23.9
Côte d'Ivoire	Cocoa	69.8	1.0	135.1	119.1	100.5	109.5	−18.9
Equatorial Guinea	Oil	89.1	18.4	43.0	61.7	67.8	83.3	93.7
Ethiopia	Coffee	30.2	0.0	86.4	77.8	71.9	81.2	−6.0
Gabon	Oil	89.1	18.4	88.1	109.8	111.6	131.9	49.7
Ghana	Cocoa, gold	69.8, 59.4	1, 0	110.8	127.2	108.1	101.5	−8.4
Guinea-Bissau	Cashew nuts	−30.2	0.0	66.7	75.9	60.5	57.5	−13.8
Kenya	Tea	−27.2	0.0	101.6	83.9	77.8	71.5	−29.6
Lesotho	Cotton textiles	NA	0.0	104.7	85.3	72.7	67.0	−36.0
Madagascar	Vanilla	51.5	0.0	107.3	118.0	116.0	73.2	−31.8
Malawi	Tobacco	−7.1	5.5	82.7	80.7	79.7	71	−14.1
Mali	Gold, cotton	59.4, −6.5	0, 78.1	97.4	96.5	99.9	87.6	−10.1
Mauritius	Sugar	19.9	4.4	104.6	107.9	109.6	102.8	−1.7
Mozambique	Aluminum	22.5	23.3	93.8	91.8	103.4	107.7	14.8
Niger	Uranium	275.0	0	111.6	108.7	103.5	103.4	−7.3
Nigeria	Oil	89.1	18.4	89.1	91.3	110	148.8	67.0
Rwanda	Coffee	30.2	0	83.1	69.8	93	69.7	−16.1
Senegal	Fish	10.2	26.7	99.4	95.7	95.1	93	−6.4
Sierra Leone	Diamonds	38.6	−50.9	102.3	100.4	95.7	98	−4.2
South Africa	Gold, platinum	59.4, 160.2	0, −6.6[c]	103.2	105.2	105.2	102.5	−0.7
Sudan	Oil	89.1	18.4	97.8	105.8	120.9	116.1	18.7
Tanzania	Gold	59.4	0	92	86.8	79.6	78.9	−14.2
Togo	Cotton	−6.5	78.1	105.7	118.7	122.6	114.0	7.9
Uganda	Coffee	30.2	0	70.3	70.6	77.8	69.3	−1.4
Zambia	Copper	102.9	47.6	92.5	96.2	114.5	114.1	23.4
Zimbabwe	Tobacco	−7.1	5.5	96.5	90.9	84.6	79.1	−18.0

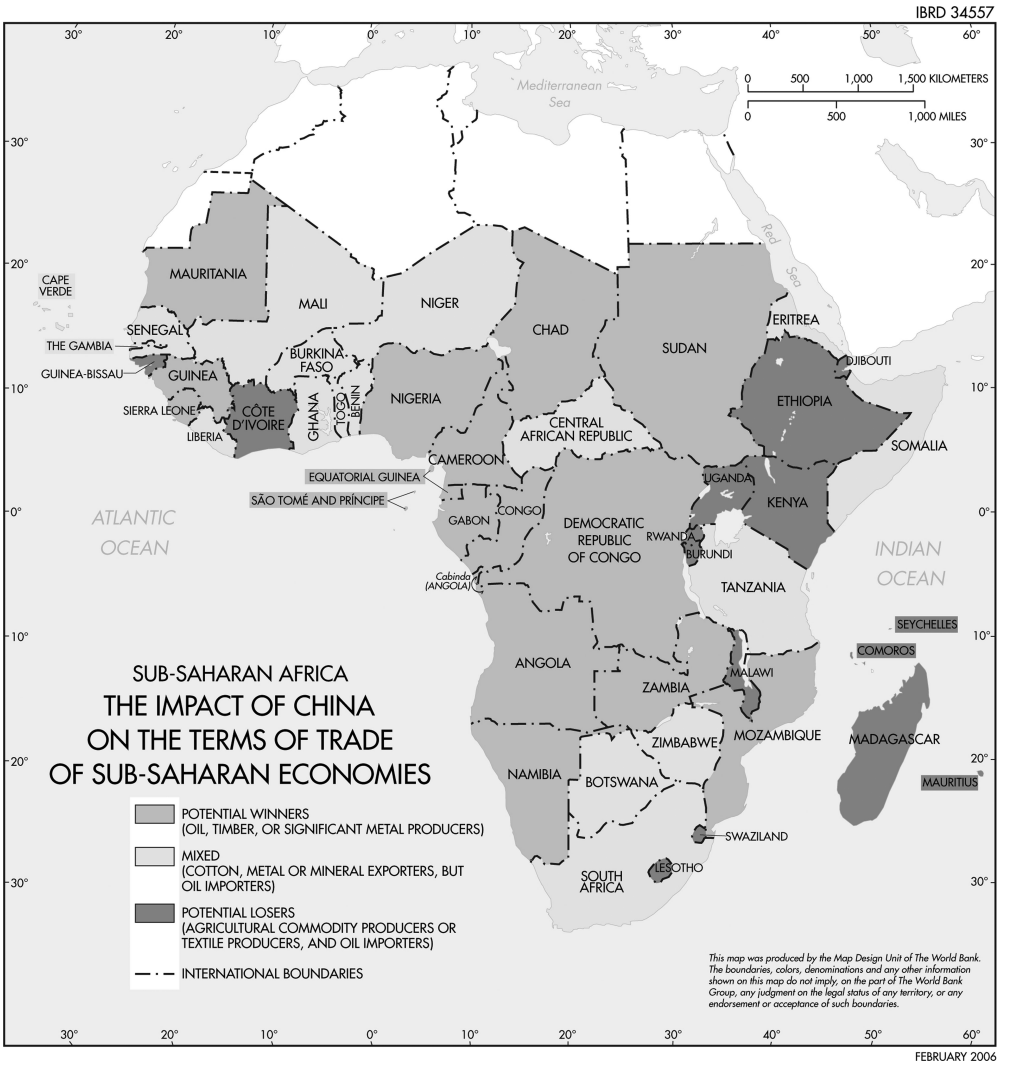
[a]The change in Chinese demand over 2000–2004 divided by the change in world demand over 2000–2004.

[b]The signs for gold and platinum are negative, because the large increase in Chinese imports could not compensate for a reduction in world supply.

[c]Export prices divided by import prices.

Source: Terms of trade and main export commodity data from IMF databases; commodity data from FAO statistics; commodity price data from World Bank Development Prospects Group; China and world import data from UN Comtrade; and price data for select commodities from industry websites.

Figure 1.



shock, while its downward effect on the prices of global manufactures, especially textiles and apparel, was considered a negative shock. The analysis seeks to isolate the effect of China from the effects of other countries on these economies. A measurement of the development and potential poverty-reducing impact is beyond the scope of the study.

- *Winners.* Oil exporters and resource-rich countries, like Angola, Gabon, and Sudan, and base metal exporters, such as Mauritania (iron ore), Mozambique (aluminum), South Africa (platinum), and Zambia (copper) have been

positively affected by the surge in international prices for oil, wood, and metals, due partly to increased China's import demand. From 2000 to 2005, international oil prices increased 89 percent, and China accounted for 18 percent of the growth in world demand for oil. Partly because of China's demand, world production capacity has been at its peak, and oil prices are unlikely to return to $20 a barrel. Similarly, aluminum prices went up by more than 20 percent, and copper prices have more than doubled between 2000 and 2005, and China is responsible for a significant increase in world consumption for both. Angola's terms of trade index rose from 86 in 2002 to 109 in 2005, and Zambia registered a parallel gain from 93 to 114. Finally, while gold prices increased by close to 60 percent in the last 5 years, Chinese demand plays a small but rising role for Africa's gold producers of Ghana, Mali, South Africa, and Tanzania.

- *Mixed.* For some resource-rich but oil-importing countries like Botswana and the Central African Republic, the effects of China have been ambiguous, since the upward pressure on metal prices has been partially offset by the higher oil import bill, with the impact on the smaller economies particularly strong. Since these countries do not export aluminum, copper, steel, or zinc, the China effect on their metal exports has been more modest. Cotton exporters (Benin, Burkina, and Mali) are benefiting from the slight turnaround in international cotton prices since 2004 due to increases in China's import demand, but suffer because of the higher cost of oil imports. China has long been the world's largest cotton producer and consumer, but in recent years its soaring economy and global textile demand have driven its cotton imports far beyond that of any other market's (USDA 2006).
- *Losers.* Oil-importing countries that are also textile exporters, like Madagascar and Mauritius, will suffer from negative terms of trade shocks resulting from the added costs of oil imports and the competition of China's textile imports, resulting in job losses and shrinkage in domestic manufacturing. Due to increased Chinese competition in third-country markets, these countries will lose world market share. Moreover, countries that are both coffee producers (Burundi, Ethiopia, Rwanda, and Uganda) and exporters of other agricultural commodities (Côte d'Ivoire, Kenya, Malawi, Tanzania, and Zimbabwe) as well as oil importers will be hurt, because agricultural prices have not increased over the last several years. China currently accounts for less than 1 percent of global coffee and cocoa consumption, and excess supply in world markets has already caused price collapses over the last few years. Moreover, these African countries do not have a strong comparative advantage in the production of any of China's main agricultural imports—wheat, corn, beef, and soybeans. As a result, these countries will most likely face a worsening of their trade balances.

China has had asymmetric effects on Sub-Saharan African economies and has contributed to widening the differential in the terms of trade indices of resource-rich and resource-poor economies. The impact of China on a country's terms of trade is a direct function of five key variables: the commodity composition of the country's trade (especially the percentage of oil or metals in its export basket), the importance of textiles in its overall trade, the relationship between world supply and world demand for the commodity, the dependence on imported oil, and the percentage of the increase in world demand for the commodity that is accounted for by China. China's effect on commodity prices has influenced macroeconomic performance and growth in these countries.

Policy Responses to Potential Dutch Disease

China's ascent poses a major challenge to macroeconomic management in Sub-Saharan Africa. To prevent a Dutch disease-induced deindustrialization, resource-rich countries need policies that will prepare them for a time when commodity prices may fall again. In the past, difficulty in predicting the likely duration of price shocks has limited the ability of African policymakers to manage commodity booms and slumps (Cashin and Pattillo 2000). But even with such uncertainty, the experience of several countries demonstrates that there is a set of key policies that will help these countries improve the management of their assets and escape the resource curse.

First, countries need to maintain fiscal prudence and avoid wasteful public expenditure by using windfalls to accumulate foreign exchange reserves. The use of savings or stabilization funds should also be encouraged, as Chad has done, although implementation problems remain. Second, countries need to use monetary policy to contain the inflationary tendencies that result from commodity booms. In some cases, a regional approach may facilitate the task. One of the major successes in the macroeconomic management of oil windfalls has been in the oil-rich Central African CFA zone, where regional integration and associated membership in the trade and monetary union has locked countries into macroeconomic policy reform and provided the framework for the regional central bank to use prudent monetary policy to maintain price stability (Zafar and Kubota 2003).

Moreover, countries need to use commodity windfalls to finance productivity-enhancing investments in the nontradables sector, especially through import-financed infrastructure and human capital development, and to prevent appreciation of the real effective exchange rate. These investments would be most effective in a nontradables sector with increasing returns and learning-by-doing

effects and could provide the micro-foundations for diversification in the services and manufacturing sectors. The successful experience of Botswana in managing revenue windfalls from diamonds suggests that strong economic performance can result from a combination of self-disciplinary fiscal rules under which mining revenue is used to finance investment expenditure coupled with solid institutional structure and effective anticorruption policies (Iimi 2006).

Finally, governance structures need to be established to have a transparent accounting of windfalls. The 2002 UK-sponsored Extractive Industries Transparency Initiative seeks to improve the transparency of company payments and government revenues in resource-rich countries. Representing a positive effort in the direction of improved governance, the initiative was endorsed by more than 10 Sub-Saharan African countries.

Trade

In the last decade, China has increased its integration with the world trading system and become the world's manufacturing hub as well as the largest recipient of foreign direct investment. Shielded from international competition for years through an edifice of protectionism, China has undertaken significant trade liberalization, partly in the context of the WTO accession. A system involving physical planning of foreign trade, which dominated China's trade until the 1980s and resulted in an irrational pattern of exports, has been replaced by a decentralized and market-determined trading system (Lardy 2003). Chinese ties with the world economy are seen in its rising trade with the African continent as state-owned Chinese companies search for raw materials for industrial expansion.

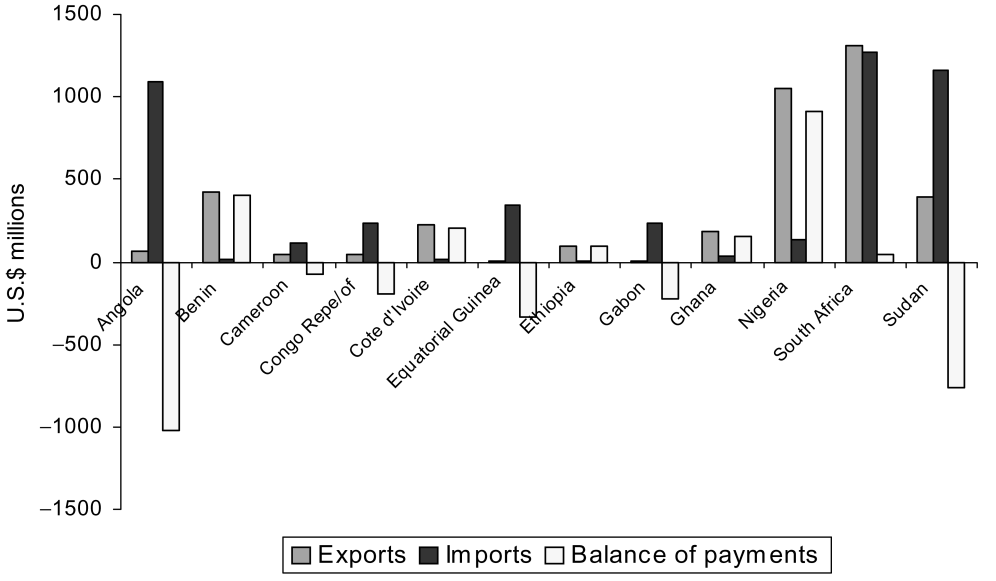
The stylized facts reveal an interesting story about changing trade patterns. First, there has been a dramatic increase in direct trade between China and Sub-Saharan Africa in the last few years, especially since 2001, resulting in trebling of trade volumes from close to $10 billion in 2002 to more than $40 billion in 2005 and more than $50 billion in 2006 (figure 2). Second, over the last 3 years, the relationship has been evolving in the direction of growing Chinese trade deficits with Sub-Saharan Africa. Third, China tends to import mineral fuels and metals from Africa and export cheap consumer and capital goods, and there is little trade in intermediate goods. Fourth, China's imports are concentrated among a small number of natural resource economies lacking product diversification in their export structure. More than 75 percent of China's trade takes place with four countries—South Africa, Sudan, Angola, and Nigeria (figure 3). Noncommodity exports from Africa to China are not significant, accounting for less than 10 percent of African exports and include textiles and apparel, processed

Figure 2. China's Trade with Sub-Saharan Africa, 1990–2006

Source: UN Comtrade data 2006.

food, and small manufactures. These exports tend to be technologically simple and are either finished consumer goods or intermediate inputs in the case of textiles. Finally, the dispersion of China's trade with Africa shows that resource endowments trump geographic proximity as an explanatory variable for trade flows.

Figure 3. China's Trade with the Top 12 Sub-Saharan African Countries in 2004



Source: UN Comtrade data 2005.

While China has an overall current account deficit with Sub-Saharan Africa, the aggregate numbers mask differences among countries (see figure 3). The largest bilateral deficits are with the oil producers, Angola and Sudan, while flows with South Africa, the continent's largest economy, tend to be more balanced. On the other hand, with countries like Nigeria, and to a lesser extent Benin and Ghana, China continues to maintain significant current account surpluses. One striking pattern is the redirection of Sub-Saharan African trade away from its traditional Western markets toward the rising Asian economies. While Europe and the United States represented more than two-thirds of African exports in 2003/2004, Asia's share has been rising progressively, while Europe's has been stagnating or even declining. China has become Sub-Saharan Africa's third largest trade partner after the United States and France, and it has increased its share of the African market from 5.8 percent in 2002 to more than 10 percent in 2004.

Trade flows between Sub-Saharan Africa and China closely follow what would be expected from comparative advantage and the predictions of the Heckscher–Ohlin model, with China exporting labor-intensive manufactures and high-technology products and Africa exporting raw materials and mineral fuels (table 2). While during the 1980s and 1990s, China exported mostly clothing, footwear, and light manufactured goods, during the first 5 years of the twenty-first century, there has been a shift toward higher technology exports, like electronic goods and machinery, which account for close to 50 percent of China's exports. One important factor is the absence of agricultural exports from Sub-Saharan Africa to China (excluding raw cotton), explained largely by the strong comparative advantages in agriculture of commodity-producing exporters like Argentina, Canada, and Chile.

The growing trade between China and Africa has benefited considerably from trade reforms in both regions. While regional trade agreements in Africa have helped reduce barriers and liberalize trade in the last two decades, under China's strategy of economic development average tariff rates have been reduced from 40 percent in 1986 to 10 percent in 2005 and average tariffs on industrial goods have been lowered from close to 25 percent in 1997 to less than 10 percent in 2005. Tariffs on agricultural goods have been reduced from under 47 percent in 1992 to 17 percent in 2004 (Hong 2005). Since 2005, China has provided zero import tariffs and exemptions on more than 180 products lines from 28 of the least developed African economies, commodities whose average most favored nation tariff rate in 2004 was 9.8 percent. However, tariff escalations and peaks persist on certain African exports, such as raw cotton, which had a tariff of 27 percent in 2005. Finally, China is in the process of ending its system of discriminatory licensing and import bans for bulk commodities, which may be beneficial for African exporters.

Table 2. China's Imports and Exports from and to Sub-Saharan Africa, 2004 (billions of U.S. dollars)

Merchandise imports		*Merchandise exports*	
Good	*Value*	*Good*	*Value*
Mineral fuels, oils and products	9.49	Electrical machinery equipment parts	1.40
Ores, slag and ash	1.37	Nuclear reactors, boilers, machinery	0.90
Natural and cultured pearls, precious stone	0.74	Vehicles other than railway/tramway rolling stock	0.77
Cotton	0.65	Cotton textiles	0.73
Wood and articles of wood	0.47	Footwear and the like	0.49
Iron and steel	0.37	Articles of iron or steel	0.48
Copper and copper articles	0.19	Articles of apparel and clothing	0.42
Tobacco and manufactured tobacco	0.12	Articles of apparel and clothing	0.37
Aluminum and aluminum articles	0.11	Synthetic filaments	0.33
Organic chemicals	0.07	Synthetic staple fibers	0.31
Nuclear reactors, boilers, machinery	0.05	Special woven fabric, tufted textile fabric	0.23
Other base metals, cements	0.04	Rubber and rubber articles	0.20
Inorganic chemicals, compounds of precious metals	0.04	Plastics and plastic articles	0.19
Pulp of wood and of other fibrous goods	0.03	Furniture, bedding, mattress	0.16
Oil seed, oleaginous fruits, miscellaneous	0.03	Articles of leather, saddlery and harnesses	0.14

Source: UN Comtrade 2005.

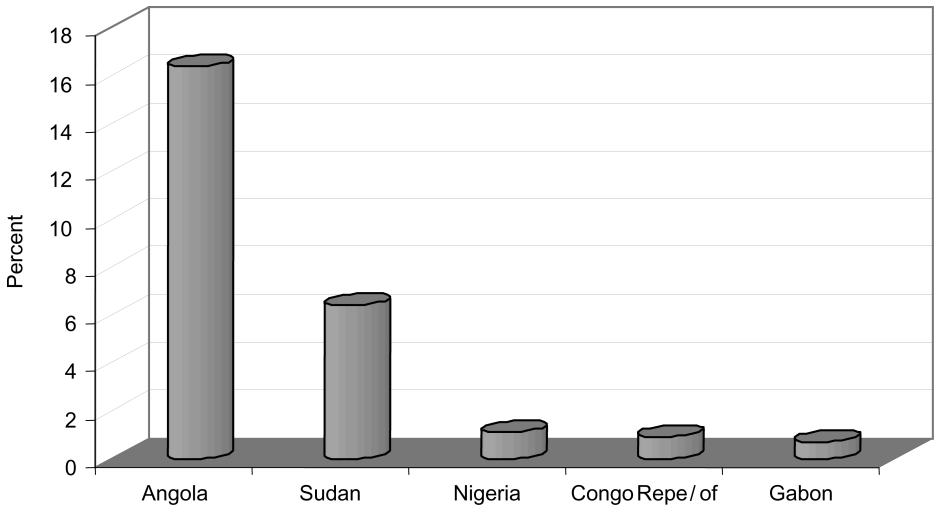
The Quest for Oil

China's growing demand to fuel large economic expansion amid an increasing shortage of raw materials and the needs of growing large- and small-scale industry have led it to intensify its search for oil, notably in the Middle East, Russia, and Africa. While historically China has met most of its energy needs by burning coal, a combination of environmental and financial reasons has led it to diversify. China's quest for oil is becoming an integral part of its foreign policy. As part of a global effort to gain energy security, China is spending billions of dollars on the promising African oil market, which has long been dominated by U.S. and European petroleum interests.

China's quest for oil has altered the world oil market and the supply and demand balance. Between 2003 and 2004, China's petroleum imports increased by more than 40 percent and accounted for more than 30 percent of incremental global oil demand (EIA 2005). By 2004, China had become the world's second largest consumer of petroleum products, surpassing Japan with total demand of close to 6.5 million barrels per day. Over the last several years, China's imports of African crude have increased exponentially, reaching more than 25 percent of total Chinese oil imports. In Sudan and the Gulf of Guinea, the sight of Chinese oil tankers has become commonplace, and as part of its global quest China is engaging nations shunned by the West.

The major beneficiaries of the Chinese boom have been Angola and Sudan (figure 4). Angola, currently Africa's second largest oil producer after Nigeria, is China's top supplier, providing more than 400,000 barrels per day, or close to 15 percent of China's oil imports, comparable to U.S. oil imports from Angola. Plagued by decades of war, burdened by reconstruction costs, and castigated by international development institutions for lack of transparency in oil revenue management, the Angolans have welcomed China's interest. In return for concessions and oil contracts, the Chinese are providing financial incentives. A $2 billion line of credit (1.5 percent interest over 17 years) by the EximBank of China has helped finance vital infrastructure in this post-conflict economy, and an additional $2 billion loan was granted in 2006. In Angola, Chinese workers

Figure 4. China's Imports of African Oil by Country as Share of China's Total Oil Imports, 2005



Source: IEA 2005, 2006.

are constructing office buildings, housing developments of up to 5,000 units, sections of railway damaged and neglected during the country's quarter-century civil war, a fiberoptic network stretching more than 100 miles, and hospitals, schools, and hundreds of miles of roads (Donnelly 2005). However, projects financed by Chinese money are obliged to contract only 30 percent of the work to domestic firms.

Sudan, Africa's largest country, accounts for 5 percent of China's oil imports. The Government of China has its largest overseas oil project there and has built a $700 million oil refinery. The state-owned China National Petroleum Corporation (CNPC) has invested more than $15 billion in Sudanese oil and helped the government capture more than $2 billion in oil windfalls in 2004. Half of China's overseas oil comes from Sudan, and 10,000 Chinese workers have been deployed to build a 900-mile pipeline linking the Heglig oilfield in Kordofan Province with Port Sudan on the Red Sea (Blair 2005). This has given the poor country a possible transit corridor to the greater shipping lanes of the Middle East and made Sudan one of the fastest growing economies in Africa. In 2005, China purchased half of Sudan's oil exports.

In January 2006, the state-owned Chinese energy company CNOOC Ltd announced the purchase of a 45 percent stake in an offshore Nigerian oilfield for $2.3 billion. Moreover, the Chinese have committed to build a rail system connecting Lagos with Abuja, the capital of Nigeria, and to install telephone services in rural areas of Nigeria using Chinese government loans of more than $200 million. Thus, in all these countries, and to a lesser extent in Gabon and the Republic of Congo, China has created lucrative partnerships.

China's aid for oil strategy has been to combine financial assistance and funding of construction projects to build influence in exchange for oil and create a network of reliable allies and suppliers. This strategy seems to be dictated by China's desire to avoid buying all its crude oil in the open market and to reduce its exposure to price risks by investing in exploration and development in countries that have oil fields but lack the capital or technology to develop them (Forney 2004). The Chinese government assists the national oil companies to purchase upstream assets through the provision of cheap capital and state-directed lending through the China Development Bank and the China Export Import Bank, one of the world's largest export credit agencies (Evans and Downs 2006). While there are some concerns that the use of public funds and below market finance to purchase assets may distort market-based competition, from the perspective of Chinese policymakers, China is a late-comer in the sector, and the security of these long-term energy supplies is essential to protect the country from price volatility as well as from rival buyers.

The impact of Chinese investment in the African oil sector has been mixed. Most importantly, the Chinese have contributed to financing infrastructure in

several poor, war-torn post-conflict countries. This focus on providing the infrastructural foundations for economic development in low-income economies is important for helping these countries emerge from poverty. However, China has not been actively involved in the public financial management of the windfall gains and has not linked its loans to these countries to social expenditure. The employment impact in this highly capital-intensive industry has been minimal, partly due to the large inflow of Chinese labor. There is a risk that this new relationship between developing countries will be one of resource extraction and that human capital development may be neglected. Finally, the concern among many Western policymakers is that China will undermine efforts by bilateral donors and international financial institutions to regulate revenue management and reduce corruption.

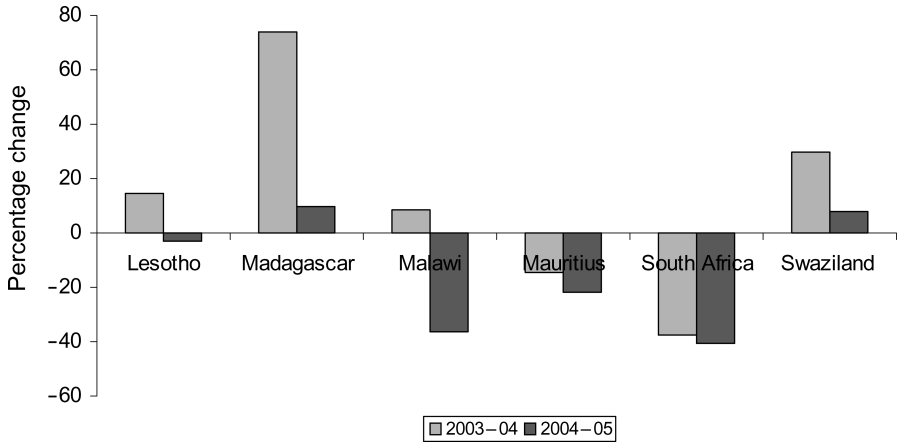
Textiles and Clothing

One of the main sectors with growing Chinese influence is clothing and textiles. Historically well protected, the textile industry has experienced major changes with globalization. The ending of the Multifiber Arrangement/Agreement on Textiles and Clothing on January 1, 2005, which had governed trade in textiles and clothing through quantitative restrictions and bilateral quotas for close to three decades, has become a contentious issue as it is causing a global realignment of the industry on the basis of competitiveness, and has intensified competition among developing countries seeking to find export markets.

The removal of quotas has reduced the competitiveness of African exports in the U.S. and Western European markets, which account for three-fourths of African overseas exports. African countries have been hurt by Asian competition despite the Africa Growth and Opportunity Act (AGOA), which allows duty-free access to U.S. markets for selected African exports provided the countries respect human rights and the rule of law. The removal of quotas, coupled with the erosion of preferences, has led to a decline in African textile exports, especially to the United States (figure 5). Since African exports are concentrated in formerly quota-restrained products, such as basic trousers, T-shirts, and sweaters, the end of quotas will significantly affect these products, with other developing countries expected to increase their market share (IMF 2005a). Initial studies suggest that China and India will dominate 80 percent of the global textile market following the phase out of quotas.[9]

The competition from growing Chinese imports in Africa, due to lower production costs and better technology, has also hurt the textile sectors in a number of African economies, notably Botswana, Kenya, Lesotho, Madagascar, Mauritius, South Africa, and Swaziland. While Africa's overall share in world textiles is

Figure 5. The U.S. Imports of Textiles and Clothing from Selected Sub-Saharan African Countries, 2003–2005



Source: IMF 2005a.

small, the share in output and employment in these countries is significant, and the effects of the end of the Agreement on Textiles and Clothing will vary by country. In recent years, there has been a contraction in the garment sectors in many of these countries, and projections suggest that the problem may worsen.[10] Chinese factories in several African countries, which had been set up to take advantage of easy African access to the U.S. market under AGOA, have departed overnight. Moreover, since most workers in the textile industry tend to be women, this has had negative implications for gender issues. There is a growing body of empirical evidence documenting job losses. Complaints are increasing from the South African textile industry, saying that cheap imports from China are threatening to wipe out local industry, where 60,000 jobs have been lost since 2002 (Thakalekoala 2005). In Mauritius, more than 10,000 people have lost their jobs, as dozens of textile factories have closed. In Lesotho and Swaziland, two poor, landlocked economies heavily dependent on textile production, more than 25,000 workers have been laid off in the last two years, although there has been some recent rehiring in specialized and niche activities.

Throughout textile-producing African economies, the increase in China's imports has met with concern by both government leaders and industry representatives. Possible new safeguard mechanisms under WTO provisions providing for import controls in the presence of market-disruptive activities may give some relief to African industry, and African firms may invoke antidumping clauses. However, these options can last only until the beginning of 2008. China would

still be allowed to increase its textile exports to the United States and Europe during that period by 7.5 percent a year, and even if China loses some exports through controls, African countries would still face competition from other Asian economies, like India and Pakistan. The recent enactment in December 2006 of the AGOA Investment Incentive Act in the United States, which extends until 2012 the exemption that allows African producers (excluding Mauritius and South Africa) to use fabric from third countries to manufacture clothing and still obtain duty-free access to the U.S. market, will help temporarily protect African industry. However, over the longer term growing international competition in textile production will require appropriate policy responses by African governments to boost competitiveness.

Chinese Investment in Sub-Saharan Africa

In parallel with the surge in trade, Chinese investment and aid on the continent have also increased dramatically, driven in part by market considerations. From $20 million a year in the early 1990s, Chinese foreign direct investment (FDI) in Africa jumped to close to $100 million in 2000 to close to $400 million by 2005 and reached more than $1 billion in 2006, a growth rate higher than Chinese FDI to any other part of the world.

Historically, of the Chinese-owned investment projects in Africa from 1979 to 2000, in value terms manufacturing (especially spinning and weaving textiles and agroprocessing) accounted for 64 percent, while resource-based industries (oil, timber, and mining) accounted for 28 percent (World Bank 2004). However, the volume and share of Chinese FDI in resource extraction in the mining and petroleum sectors has surged in the last few years in parallel with the country's resource needs. Another growing sector for Chinese investment is construction and infrastructure, where Chinese firms have developed a reputation for low-cost and reasonable-quality roads. The country location of Chinese FDI in Sub-Saharan Africa is highly diversified, with South Africa, Zambia, and Sudan being important destinations. Chinese enterprises currently number more than 700, operate in 50 countries and employ close to 80,000 Chinese workers.[11] In contrast, African FDI in China is small, with the exception of several prominent South African companies in the services and mining sectors, including SAB Miller, which operates China's largest brewery, and Sasol, the energy giant, which is expanding its activities in China's coal mining sector.

In recent years, Chinese firms have emerged as competitors to U.S. and European firms, with Africa viewed as a potentially lucrative market for their lower cost exports. Chinese firms, while still representing a small fraction of Sub-Saharan output and employment, have attracted attention because of growing

visibility in key sectors and have frequently outbid Western companies on projects. From being primarily a host country for multinational enterprises, China has evolved into an exporter of capital. In a recent survey of Chinese firms that made outbound investments focusing on 150 domestic enterprises in eight Chinese cities, 85 percent of enterprises reported goals ranging from market seeking and resource seeking to gaining access to strategic assets (Yao and He 2005). One journalist described the range of Chinese FDI in this way:

> Zambia's Chambezi copper mines are being worked again, and supposedly exhausted oil reserves in Gabon are being explored. . .. Of the thousands of projects under way, 500 are being exclusively directed by the China Road and Bridge Corporation, a state enterprise, helping to place 43 Chinese companies among the 225 global leaders in the area. In Ethiopia China is involved in telecommunications; in the Democratic Republic of Congo it has done work for Gecamine, the state-owned mining company; in Kenya it has repaired the road linking Mombasa and Nairobi; and it has launched Nigeria's first space satellite. . .. (Servant 2005, p. 1).

Chinese FDI flows and business practices have several distinguishing characteristics. While there are important networks of private Chinese traders and retailers, many Chinese firms investing in Africa are state-owned enterprises that acquired minority or majority stakes in foreign companies and are heavily subsidized, with low capital costs and low profitability margins. Chinese firms tend either to own equity in the resource or to pursue long-term supply contracts and to have different risk profiles from other companies. Lyman (2005) sees China's time horizon as a challenge to the way that the U.S. firms have operated and argues that China's investments through state-owned companies whose individual investments do not have to be profitable if they serve overall Chinese objectives of winning long-term access represent a new approach to business. Chinese firms in Africa tend to be explicitly encouraged by the government to invest abroad, especially in resource-intensive activities or in areas where there is a technological edge and manifest comparative advantage, such as textiles and apparel.

Moreover, Chinese firms in Africa frequently operate in enclave and extractive industries, excluding those in garments and textiles, and tend not to have many linkages with local firms, especially in global production chains. The driving force behind Chinese FDI in Africa has been the growing domestic demand for raw materials (UNCTAD 2006). In the case of textiles, it is the continuation of liberal rules of origin allowing Sub-Saharan African countries to import inputs from cheap suppliers outside AGOA, which will help them participate in global networks. Chinese firms tend to rely on their own low-cost labor and do not invest heavily in the training and education of African workers. The lack of Chinese

investment in indigenous manufacturing, coupled with low production of intermediate goods in Africa, has generated fears of deindustrialization. As a result, the potential demonstration and spillover effects from FDI, prevalent in many parts of the world, are minimized in Sub-Saharan Africa.

China is rapidly becoming an important aid donor to Africa, and its role is beginning to overshadow that of many traditional Western donors, although precise figures on the magnitude and terms of the Chinese loans are not easily available.[12] Aid is being used principally to facilitate trade and improve access to natural resources. In a recent Sino-African summit in 2006, Chinese President Hu Jiantao promised to double Chinese aid by 2009 and to provide $5 billion in preferential loans and export credits to Sub-Saharan Africa over 2006–2009. He also pledged to set up a $5 billion China–Africa development fund. In a recent tour of eight African countries, President Hu promised billions in no-interest loans, prompting concerns among Western aid donors that China's lending may be generating new debt in many economies that have recently been granted debt relief from official creditors. However, the initial evidence suggests that some of China's lending is in grant form. Moreover, in 2004, China cancelled close to $1.2 billion in debt for 31 African countries, and new debt relief has been promised. China is upscaling humanitarian and health assistance by sending medical workers and agricultural experts to a range of post-conflict countries, from Rwanda to Sierra Leone, and has pledged to increase aid to Africa for HIV/AIDS and malaria prevention and treatment. Finally, more than 10,000 African students will visit China in 2006 and 2007 for professional training.

Conclusions

China's economic ascendance represents a shift in the international economy and a change in some of the parameters that have been guiding the world trading system. The implications of China's rise will be felt increasingly over the next decades, and the Sino-African relationship will only intensify in coming decades in line with China's resource requirements. Chinese aid and investment in Africa will grow exponentially in parallel with the trade surge and will remain unaffected by any slowdown in economic growth in China.

For Sub-Saharan Africa, China's economic boom has been a mixed blessing. On the positive side, China has helped accelerate economic growth in Africa by contributing to a strong commodity boom due to the upward swing in the prices of oil and metals exported by many African economies. Second, it has deepened trade and investment on a continent that has been marginalized from flows of international trade and global capital, and China is investing significantly in Africa's transport and education infrastructure. Third, it has given many Africans

access to low-cost consumer goods. Fourth, China's low-transactions–cost way of doing business and its noninterference in countries' internal affairs—eschewing political conditionalities on loans provided that countries adhere to its one-China policy—has won it some support in the developing world. Fifth, China's ascent has created more competition in the aid market and increased countries' bargaining power with donors. China may contribute to the continent's economic development and act as a force for change in Africa.

On the minus side are several important challenges and risks. First, there is some concern that Chinese investment in Africa will be based on capital-intensive natural resource extraction and will not contribute to local employment generation and the continent's long-term economic development. Second, China's influence on global energy demand and on oil markets will lead to increased energy prices for net oil importers in Africa and a worsening of their terms of trade. Third, the supply shock to world manufacturing, particularly in textiles, and the growing imports of cheap Chinese goods in Africa, coupled with increasing competition between Chinese and African textiles in third-country markets, threaten to hinder economic diversification in Africa and contribute to deindustrialization. In this context, a growing backlash against Chinese investment in the continent, amid allegations of improper labor and human rights standards, may gather momentum. Fourth, important issues like corruption and governance, which had moved to the forefront of the development agenda, may slide back down again. There may be some slippage in the progress that has been made in the development agenda with regard to transparency and civil society participation.

The ascent of China will influence the dynamics of Western aid to the continent and alter the landscape of development assistance. New working mechanisms between the lenders will have to be crafted. Moreover, the traditional donors and international financial institutions will have to work creatively to bring the Chinese into the broader development platform. Overall, China represents a great opportunity and challenge for Africa, and only history will give its verdict a half-century from now.

Notes

Ali Zafar is a macroeconomist in the Africa Region of the World Bank. His email address is azafar@worldbank.org. He would like to thank three anonymous referees for their valuable comments and suggestions on an earlier draft of this paper. He would like to thank the participants of a seminar where many of the ideas of the paper were discussed, as well as Bruno Bonansea for his help in preparing the map exhibited in the paper. This paper is part of a broader analytical effort in the Africa Region to understand the impact of Asia on sub-Saharan Africa.

1. The appropriateness of China's exchange rate policy and the magnitude of the yuan's undervaluation occasion considerable debate in the international macroeconomics literature. In several papers Dooley, Folkerts-Landau, and Garber (2003a, b) conclude that China's policy of maintaining a fixed,

undervalued exchange rate to the dollar is motivated by a reasonable need to promote manufacturing exports and growth and that this represents a credible economic policy regime that is maintaining global stability in a post-Bretton Woods world. Lau and Stiglitz (2005) argue that there is no credible evidence that the yuan is undervalued since China does not have a huge multilateral trade surplus and high inflation, two symptoms of undervaluation, and that it is U.S. fiscal policy and low savings, rather than Chinese exchange rate policy, that are the source of global imbalances. By contrast, Goldstein and Lardy (2005) find that the real trade-weighted value of the yuan is undervalued by 20–25 percent and that there are significant economic costs to China's maintenance of an undervalued currency, especially in relation to global balances, and that a revaluation is urgently needed. Prasad, Rumbaugh, and Wang (2005) argue that irrespective of the yuan's undervaluation, China needs greater exchange rate flexibility to provide a buffer against both external and domestic shocks.

2. There were serious retroactive revisions in China's GDP in 2004. New economywide data show that the service sector has been grossly underreported and that the Chinese economy was actually 17 percent bigger than previously estimated. The new figures show that the economy is not as dependent on investment as had been thought.

3. The foundation of China's Africa policy was laid in 1996 when Chinese President Jiang Zemin visited Africa and pledged to establish a long-term cooperative relationship. These ties were strengthened in 2003 when President Hu Jintao visited the continent. His repeated recent visits to Africa are also of important political significance.

4. China is a large and emerging economy with strong exports, large domestic demand, abundant capital, and excess savings (a domestic savings/GDP ratio of 50 percent), while Sub-Saharan Africa is a poorer region with low exports, weak domestic demand, scarce capital, and a savings rate of less than 20 percent of GDP.

5. At a recent China-Africa Partnership seminar held in August 2006 in Beijing, the United Nations advisor Jeffrey Sachs argued that China gives fewer lectures and more practical help than other development partners in the aid business and that lessons from the antipoverty experience in China, particularly on the use of high-yielding seed varieties and irrigation, could potentially be used to alleviate poverty in Africa.

6. In the medium term China can also indirectly affect African labor markets through its effects on global labor supply and the downward pressure on global wages. Richard Freeman of Harvard estimates that the entry of China, India, and the former Soviet bloc countries into the global economy will double the global labor supply and cut the global capital/labor ratio by 55–60 percent of what it otherwise would have been, thus shifting the balance of power in markets away from wages paid to workers and toward capital (Freeman 2005).

7. In 2004, China consumed 382 million tons of grain compared with 278 million tons in the United States, 258 million tons of steel compared with 104 million tons in the United States, and lagged behind only in oil consumption, with 6.5 million barrels per day compared with 20.4 million in the United States (Brown 2006).

8. The exercise is intended to give broad estimates, not precise magnitudes of change. In the absence of comprehensive sector by sector and commodity by commodity data, duration of terms of trade shock, and elasticity of world supply to world price, the numbers are approximate. A more precise micro-level anlysis using disaggregated numbers at the six-digit HS level will be needed to understand the impacts at the sectoral levels.

9. MacDonald and Vollrath (2005) provide a comprehensive look at the changes in the world textile and clothing trade and in cotton consumption following the abolition of the Agreement on Textiles and Clothing. They show the changes that will occur in the geography of world production. Spinanger (2005) also provides a good quantitative analysis of the winners and losers from the phaseout. Appelbaum, Bonacich, and Quan (2005) discuss the impact on the global textile industry of the rise of giant retailers and East Asian transnational contractors and identify policies poorer countries can enact to adjust to a world without quotas.

10. Mattoo, Roy, and Subramanian (2002) find that under current AGOA rules of origin, African

countries will be increasingly exposed to competition from other developing countries and that apparel exports may drop as much as 30 percent. Had AGOA provided unlimited access, the negative impact of the dismantling of the Agreement on Textiles and Clothing could have been fully offset.

11. The lack of precise sector by sector data precludes a more comprehensive understanding of the economic, distributional, and employment effects of Chinese FDI. Also, since rising wages in China are making it more difficult to find Chinese workers for expatriate jobs, this may mean that Chinese firms will start hiring more African workers, given the surplus labor on the continent.

12. China does not provide official statistics on its aid disbursements to Africa, and it is the Ministry of Commerce which supervises and manages the country's foreign aid portfolio. China Export-Import Bank, which helps to promote exports through the provision of export credit, is an integral part of China's aid machinery, but the reporting and disclosures have not been transparent. Also, since China gives aid to countries and sectors where Western capital flows are low, it is harder to have an official inventory of the aid transfers. China has not joined the donor platforms of the various global aid organizations, although its discussions with the Bretton Woods organizations in relation to aid are increasing.

References

Appelbaum, R., E. Bonacich, and K. Quan. 2005. "The End of Apparel Quotas: A Faster Race to the Bottom?" Paper 2. University of California, Santa Barbara, Center for Global Studies.

Blair, D. 2005. "Oil-Hungry China Takes Sudan under Its Wing." *Daily Telegraph*. April 23.

Brown, L. 2006. *Plan B 2.0: Rescuing a Planet under Stress and a Civilization in Trouble.* Washington, D.C.: Earth Policy Institute.

Cashin, P., and C. Patillo. 2000. "*Terms of Trade Shocks in Africa: Are They Short-Lived or Long-Lived?*" IMF Working Paper 00/72. International Monetary Fund, Washington, D.C.

China Ministry of Foreign Affairs. 2006. "*China's Africa Policy*" Beijing.

Corden, M., and P. Neary. 1983. "Booming Sector and De-Industrialisation in a Small Open Economy." *Economic Journal* 92(368):825–48.

Donnelly J. 2005. "Oil Wealth Helping Few of Angola's Poor." *Boston Globe*. December 11.

Dooley, M., D. Folkerts-Landau, and P. Garber. 2003a. "Dollars and Deficits: Where Do We Go from Here?" *Global Markets Research*. June 18. Deutsche Bank.

————. 2003b *An Essay on the Revived Bretton Woods System.* NBER Working Paper 9971. Cambridge, Mass.: National Bureau of Economic Research.

EIA (Energy Information Administration). 2005. "China Country Analysis Brief." Washington, D.C.: Department of Energy.

Evans, P., and E. Downs. 2006. "Untangling China's Quest for Oil through State-Backed Financial Deals." Washington, D.C.: Brookings Institution Policy Brief 154.

Forney, M. 2004. "China's Quest for Oil." *TIME Asia Magazine.* October 18.

Frankel, J. 2005. "Commodity Prices, Monetary Policy, and Currency Regimes." NBER Conference on Asset Prices and Monetary Policy, Cape Cod, Mass. Cambridge, Mass.: National Burea of Economic Research.

Freeman, R. 2005. "What Really Ails Europe (and America): The Doubling of the Global Workforce," *The Globalist*, June 3.

Goldstein, A., N. Pinaud, H. Reisen, and X. Chen. 2006. "China and India: What's In It for Africa?" Paris: Organization for Economic Co-operation and Development, Development Center.

Goldstein, M., and N. Lardy. 2005. "*China's Role in the Revived Bretton Woods System: A Case of Mistaken Identity.*" IIE Working Paper 05-02. Washington, DC.: Institute for International Economics.

Hong, C. 2005. "The Political Economy of Tariff Protection in China: Evidence from WTO Accession." Dissertation Paper 1. University of California at Davis.

IEA (International Energy Agency). 2005. "World Energy Outlook." Paris.

————. 2006. "Oil Market Report." Paris.

Iimi, A. 2006. "*Did Botswana Escape from the Resource Curse?*" IMF Working Paper WP/06/138. Washington, D.C.: International Monetary Fund.

IMF (International Monetary Fund). 2003. "Deflation: Determinants, Risks, and Policy Options—Findings of an Interdepartmental Task Force." Washington, D.C.

————. 2004. *World Economic Outlook: Advancing Structural Reforms*, Washington, D.C.

————. 2005a. *Regional Economic Outlook: Sub-Saharan Africa.* Washington, D.C.

————. 2005b. *World Economic Outlook: Globalization and External Imbalance*, Washington, D.C.

————. 2006. *World Economic Outlook: Financial Systems and Economic Cycles.* Washington, D.C.

Jenkins, R., and C. Edwards. 2005. "The Effect of China and India's Growth and Trade Liberalisation on Poverty in Africa." London: Institute for Development Studies/Enterplan.

Lardy, N. 2003. "Trade Liberalization and Its Role in Chinese Economic Growth." Paper prepared for the conference "A Tale of Two Giants: India's and China's Experience with Reform and Growth," International Monetary Fund and National Council of Applied Economics Research, 14–16 November, New Delhi.

Lau, L., and J. Stiglitz. 2005. "China's Alternative to Revaluation." *Financial Times.* April 25.

Leite, C., and J. Weidmann. 1999. "Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth." IMF Working Paper WP/99/85. Washington, D.C.: International Monetary Fund.

Lyman, P. 2005. "China's Rising Role in Africa." Presented to the U.S.–China Commission, July 21. Washington, D.C.: Council on Foreign Relations.

MacDonald, S., and T. Vollrath. 2005. "*The Forces Shaping World Cotton Consumption after the Multifiber Arrangement*." Electronic Outlook Report CWS-05c-01. Washington, D.C.: U.S. Department of Agriculture.

Mattoo, A., D. Roy, and A. Subramanian. 2002. "*The Africa Growth and Opportunity Act and Its Rules of Origin: Generosity Undermined?*" Policy Research Working Paper 2908. Washington, D.C.: World Bank.

Prasad, E., T. Rumbaugh, and Q. Wang. 2005. "*Putting the Cart before the Horse? Capital Account Liberalization and Exchange Rate Flexibility in China*." IMF Policy Discussion Paper 05/1. Washington, D.C.: International Monetary Fund.

Ramo, J. C. 2004. *The Beijing Consensus.* London: The Foreign Policy Centre.

Reisen, H., M. Grandes, and N. Pinaud. 2005. "*Macroeconomic Policies: New Issues of Interdependence*." Working Paper 241. Paris: Organization for Economic Co-operation and Development, Development Center.

Sachs, J., and A. Warner. 1999. "The Big Push, Natural Resource Booms, and Growth." *Journal of Development Economics* 59(1):43–76.

Servant, J.-C. 2005. "China's Trade Safari in Africa." *Le Monde Diplomatique*. May

Spinanger, D. 2005. "The End of Enchainment: Will the Removal of Textile and Clothing Quotas Bring Us Enchantment?" Paper prepared for the seminar "The WTO and the Doha Development Agenda," World Bank, 25–26 April, Washington, D.C.

Thakalekoala, T. 2005. "Unions Urge Governments to Protect Textile Industry." *Mail and Guardian online*. September 27.

The Economist. 2004. "A Hungry Dragon." September 30.

————. 2005. "China and the World Economy: From T-shirts to T-bonds." July 28.

UNCTAD (United Nations Conference on Trade and Development). 2006. *World Investment Report 2006: FDI from Developing and Transition Economies: Implications for Development.* Geneva.

USDA (United States Department of Agriculture). 2006. "Cotton: Trade." Washington, D.C.: Economic Research Service, Briefing Room.

World Bank. 2004. "Patterns of Africa–Asia Trade and Investment: Potential for Ownership and Partnership." Washington, D.C.: Africa Region, Private Sector Unit.

Yao, Y., and Y. He. 2005. "Chinese Outward Investing Firms." Beijing: Peking University, China Center for Economic Research.

Zafar, A. 2005. "*The Impact of the Strong Euro on the Real Effective Exchange Rates of the Two Francophone African CFA Zones.*" Policy Research Working Paper 3751. Washington, D.C.: World Bank.

Zafar, A., and K. Kubota. 2003. "*Regional Integration in Central Africa: Key Issues.*" Africa Region Working Paper 52. Washington, D.C.: World Bank.

Zweig, D., and B. Jianhai. 2005. "China's Global Hunt for Energy." *Foreign Affairs* 84(5):24–38.