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Sino-Africa economic and Chinese foreign direct investment in Africa on bilateral trade relations

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The purpose of this paper is to investigate the impact of Sino-Africa economic and Chinese FDI on Africa trade relations. China's phenomenal economic growth rate has made the country rise to world leadership status, causing many analysts to ponder over its regional and international intentions and goals. Its investment is paying off now mainly in oil and other raw materials imports and manufactured goods. We used a panel data to analyze Chinese FDI exports to Africa, and a time series data to investigate the effect of its imports from Africa. The study shows that Chinese FDI in Africa has contributed significantly to increase Chinese exports to Africa as well as imports from Africa. It means that Chinese DI in Africa is an important factor for explaining the growth of the bilateral trade. The research found also that per capita income and annual percentage growth of domestic product of China have a positive effect on its import. China might experience significant backlash from other world powers due to its involvement in African affairs. This paper aims to highlight the tight rope which Africa and China have to balance in their new found relationship to keep it on a win-win situation.

Key words: Economic development, Sino-Africa, trade, FDI, growth.

INTRODUCTION

China's remarkable economic recovery in the past decades has gained considerable world attention. This has been stunning critics and friends alike. Due to a record economic growth rate, China has become the world's second recipient of investment capital after the US. China's deepening integration into the global economy and emergence as an economic power has seen its influence expand into Africa, reshaping political and economic relationships on the continent primarily to secure access to the African market and raw materials.

In order to establish a mechanism for regular bilateral exchanges, in October 2000, for the first time in the history of Sino-Africa relations, China proposed and held "the Sino-Africa cooperative Forum-Beijing 2000 Ministerial Conference". This was an important attempt for conducting collective dialogue and seeking common development. Africa is the second largest continent in the world with 54 countries and accounts for one third of all the developing world and more than one fourth of the total membership of the United Nations. Hence it plays an important role in the international political arena. Sino-Africa friendship has a long history. Both China and

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African countries share similar experiences and still face similar challenges in the global economy. They have always sympathized and supported each other especially in recent years. China is now playing the dual role as the sole balancing power to the US and as torchbearer for the Third World. Economically stronger than ever, carrying out a profound modernization of its military, successfully hosting the 2008 Olympic games and relishing its ascending international clout, China has redefined its geo-strategic vision, calling for multi-polarity and a new economic and political international order, and has re-engaged Africa at a scale never seen before. Throughout the 1990s China sought to strengthen its relations with individual African countries ranging from political, economic, trade and military, to cooperation on multilateral issues. An emphasis was clearly put on oil-producing countries and those with growing economies. Three primary interests have been driving China to Africa namely access to resources, access to markets, and pursuit of diplomatic allies on global issues. This paper examines the impact and implications which this renewed Sino-Africa economic relationship presents for Africa and China. It traces the evolution in Sino-Africa partnership discourse, examines the relation in the fields of energy, Agriculture, industrial, mining, education, trade and policy frame work of the unfolding relations and especially the Chinese FDI in Africa. The analysis of this paper points at key areas which require a delicate balance to be maintained for a sustainable economic cooperation between the two partners in the face of glaring western competitors in the midst of global challenges like climate change and the current global financial crisis.

Foreign direct investment (FDI) is usually defined as a transfer of package of resources across countries of the globe, which includes: capital, technology, management and marketing expertise (Odozi, 1995). As most developing countries experience a shortage of capital which is reflected in their savings gap to finance their investment needs. The only way to bridge this gap is through an inflow of foreign capital. In 2007, United Nations report (UNCTAD, 2007) points out that China is one of the major capital providers for developing countries in Africa. That means the economic linkage between China and Africa has been strengthened through China FDI in Africa during the past few years. Hence it is for this reason that this study is set out to investigate the effect of Chinese FDI on the bilateral trade. According to China's yearly statistics, Chinese trade and FDI in Africa has grown sharply over the last few years. In this study, we focus on the Sino- Africa economic and Chinese Foreign Direct Investment in Africa on Bilateral trade relations. To analyze the impact of Chinese FDI in Africa, we used panel data for twenty three Africa-countries (Table 1) in which China always invests every year so as to investigate the effect of China's FDI on its own export to those Africa-counties.

Furthermore, we used a time series data to look for the effect of China's FDI on its import from Africa.

Table 1. List of countries

S/N	Countries
1	Algeria
2	Angola
3	Benin
4	Botswana
5	Cameroon
6	Congo Demo.Rep
7	Congo Rep
8	Cote d'Ivoire
9	Egypt Arab Rep
10	Ethiopia
11	Gabon
12	Ghana
13	Kenya
14	Madagascar
15	Mauritius
16	Morocco
17	Namibia
18	Nigeria
19	South Africa
20	Sudan
21	Togo
22	Uganda
23	Zambia

HISTORICAL BACKGROUND AND DIPLOMATIC RELATIONS BETWEEN CHINA AND AFRICA

The foundation stone of China-Africa relations was laid at the Asia-African Conference (the Bandung Conference) held in Bandung, Indonesia from 18th-24th April, 1955. The stated goals of the Bandung conference were "to promote Afro-Asian economic and cultural cooperation and to oppose colonialism or neocolonialism by the United States, the Soviet Union, or any other imperialistic nation." The conference brought together, for the first time, 29 African and Asian nationalist leaders including Chou En Lai, premier of China by then. Significantly, Taiwan was not invited to the conference together with South Africa, Israel, South Korea, and North Korea. Most of the participants at the conference shared a history of colonization by Western States and a common desire to overcome the legacies of colonialism and forge closer ties with one another. Shortly after the conference, Chinese officials headed by Foreign Trade Minister, Yeh Chi-Chuang, and Vice-Ministers, Kiang Ming and Lu Hsu-chuang, embarked on trade missions to Africa. Between 1955 and 1965, trade between Africa and China increased nearly seven folds. Diplomatic relations also deepened during this period. The first Afro-Asia People's Solidarity Conference was held in Egypt in 1957. Between 1960 and 1965, China entered into relations

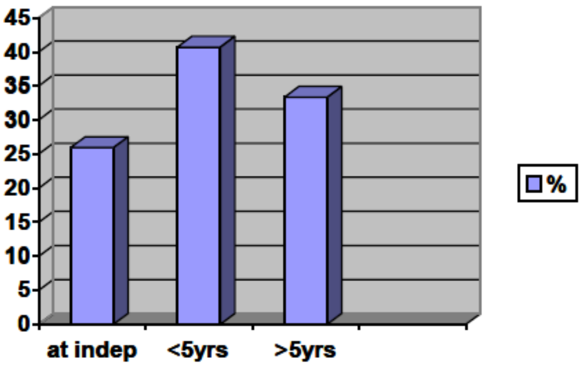

Figure 1. The percentage of African countries that established ties with China at independence, in less than 5 years of independence and over 5 years after independence before 1972.

with 14 newly independent states in Africa. Despite growing trade relations, China's interest in Africa during the 1950s and 1960s was ideological ratherthan economic. China's relationship with Africa took a nose-dive during the Cultural Revolution in China. However, in the 1970s China "embarked on an extensive aid program to Africa." Between 1970 and 1976, China committed about US$1,815 million to Africa. During this period China also sponsored several prestigious projects in Africa such as the TAZARA railway between Tanzania and Zambia. Africa was also of some help to China during this period. In particular, Africa was instrumental to China's success in gaining admission into the United Nations in 1971.

1960s showed a great deal of African independence coupled with Chinese-African interaction, with minor setbacks in this period. The first half of the decade was characterized by fast developing atmosphere in laying foundations for further ties. The recognition between China and the newly independent Africa countries served as leverage in their ties with majority of the African countries establishing ties with China at independence or within less than 5 years after independence (Figure 1 and Supplementary information).

This shows the zeal for China to establish friendly partnerships even at early stages of national programs. The relations of the decade began by exchanges and high level visits of leaders. The first Sub-Saharan African leader to visit China was President Sekou Toure of Guinea on September 14th, 1960. Since the founding of the People's Republic of China in 1949, Chinese leaders have attached high importance to developing relations with African countries. Jiang Zemin, Mao Zedong, Deng Xiaoping, Zhou Enlai to the present leaders has since been paying visits to Africa (Ian, 2006).

In the early 1960s Zhou Enlai made a ten-country tour between December 1963 and January 1964 to Africa. Relations at this time were often reflective of China's foreign policy in general. Premier Zhou En Lai vowed to support African people in what he called "their struggle to oppose imperialism and old and new [forms of] colonialism and to win and safe guard national independence". In 1956, the United Arab Republic (Egypt), led by Garmal Abdel-Nasser became the first African state to recognize the PRC. The Cairo Conference of 1957 in many ways marked a turning point in China's policy regarding the developing world (Africa), which resulted in the creation of the Afro-Asian People's Solidarity Organization (Joseph, 2006). Up to the late 1970s, Taiwan, checkbook diplomacy and Africa's close relations with the West had weakened Beijing's presence on the continent. But during the course of the last two decades, as China's diplomatic and economic clout grew, many African countries gradually cut off ties with Taipei and normalized relations with Beijing. Taiwan's initiatives were not enough to counter China's growing clout in Africa. In 1998, South Africa, one of Taipei's most important partners in the continent, cut off its diplomatic ties with Taiwan (while maintaining economic cooperation) and reestablished links with China. Senegal followed suit in 2004 and Liberia in 2005. Recently in August 2006 and 2007 Chad and Malawi, respectively normalized diplomatic relations with Beijing, Currently only 3 of the 54 African nations uphold ties with Taipei (Gambia, Swaziland, and Burkina Faso).

In the last three years, Chinese leaders (World Viewpoints, 2007) have been visiting Africa to strengthen the bilateral cooperation in various sectors. The African leaders likewise have in one common voice welcomed the partnership. The Chinese leaders like the current Prime Minister Wen Jiabao have categorically stated that China has no selfish interests in Africa but for equality and mutual benefit. While key leaders in Africa like former president of South Africa Thabo Mbeki hailed the historical Sino-Africa cooperation as of comradeship and support (Li, 2006).

Sino- Africa trade and economic relations, social development Trade

China started buying cotton from Egypt since 1956. Today, China imports a wide range of commodities from Africa. These include oil, iron ore, cotton, diamonds, logs and several other minerals. African agricultural products which have suffered from the cruelty of globalization now find profitable markets in China. Burkina Faso, Benin and Mali provide China with 20 percent of its cotton imports. Ivory Coast and Ghana are important sources of cocoa and Kenya sells large quantities of coffee and tea to China. Namibia and Sierra Leone provide large shipments of fish and fishmeal. The figures about China-Africa trade illustrate the depth of this economic cooperation. This trade rose by 700% in the 1990s. In 1999, the trade volume stood at US $6.5 billion. From 2002 to 2003, trade doubled to US $18.5 billion. In 2005, it stood at US $39.7 billion and again

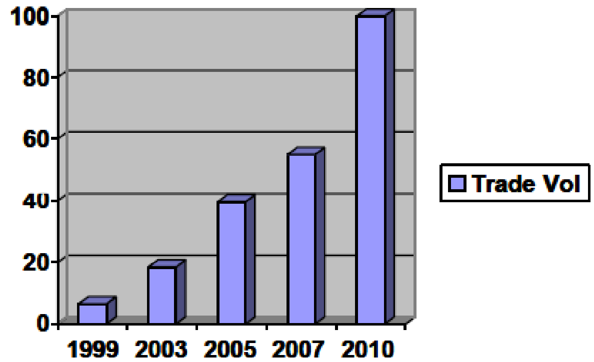

Figure 2. The historical and predicted trade volume between China and Africa.

jumped to US$50 billion in 2006. A year later in 2007, it rose to US$ 55 billion (Figure 2).

In February 2008, Chinese Premier Wen Jiab ao optimistically predicted that Sino-African trade would reach US$100 billion in 2010 removing China from its current third position into being Africa's first trading partner. This shows an exponential increase in the last ten years.

After ten years of continuous growth, China-Africa trade fell in 2009 due to the global financial crisis. However, by the year's end, trade has begun to recover as the decline gradually showed. During the first ten months of 2009, year on year monthly growth of trade was in negative territories. From November on, however, the trade volume began to increase compared to the same period of the previous year, and registered a 64.8 percent year-on year growth on December. According Sino-Africa trade and economic relationship, Annual Report 2010 this sharp increase resulted from a 16.2 percent growth in China's exports to Africa and 166.4 percent increase in its imports from Africa. As China-Africa trade relations are intensifying so are critical African voices that question the "real" nature of China's trade engagement opposing China's official discourse, which intends to present an alternative to the West. Trade Unions and business associations are increasingly calling for governmental intervention to limit and regulate the scope of China's dumping strategies, particularly with regard to textiles. Africa appears as the real loser in the global textile struggle, a view frequently portrayed in African and Western media reports, and illustrated in the drastic lay-offs of textile workers and the closing of manufacturing units throughout Sub-Saharan Africa. While the textile sector has been a major interest of media investigation, *entrepôt* states their trade communities have sparked less attention.

Oil

Oil has become a fundamental challenge for China, and at the same time it has become an important issue in the relations with Africa. Before 1992, China steadily ranks sixth among the world's leading oil producers, but since 1993, the country has become a major importer of oil products. This is due to the country's rapid economic growth, with a steady growing number of vehicles. Trade in oil is therefore among China's priority areas in Africa. Projected to become the world's biggest oil Importer soon after 2010, China seeks to expand its foothold in the African oil sector. The Beijing government has minimized its dependence on Middle East oil, which is politically unstable and has high content of sulphides, which requires special refining facilities unlike the oil from Africa (Sudan's oil) which has a low concentration of sulphides (Downs, 2006; Pan, 2007). As China continues to search for stable sources and also tries to acquire oil fields via direct investment, Africa has become its main target. China already has investment of Sudan, Chad, Nigeria, Angola, Algeria, Gabon, Equatorial Guinea and the Republic of Congo, Africa's frontline oil producers.

In Nigeria, Africa's largest exporter of crude, China National Offshore Oil Corporation (CNOOC) has paid US$2.7 billion for the right to explore oil, China has a 45% share was expected to produce 225,000 b/d by the end of 2008, BP-operated Greater Plutonic project China Petroleum and Chemical Corporation (Sinopec) has a 50% stake which was to pump 200,000 barrel per day by 2007, In Angola, China Petrochemical Corporation (SINOPEC) gained a 50% stake in the BP operated Greater Plutonic project. In Sudan where China National Petroleum Corporation (CNPC) helped develop Sudanese oil fields (in the chaotic 1990s), China receives 60% of Sudan's oil output. In Somalia, CNOOC has signed a production sharing deal with the transnational government of Somalia, one of the world's most volatile countries (China's Oil Imports, 2006). Africa is one of the most promising regions of the world for future oil production, in Ghana oil exploration is presently going on and by 2010 Ghana will start to sell its oil to the outside world. IHS Energy projects West Africa will account for 38 percent of global oil production growth through 2010, more than any other region except the Middle East (International Energy Agency, 2007).

Minerals In the mineral sector, China stretches its hands very far into Africa. President Hu Jintao's inauguration of an African economic and Trade Zone during his Africa tour of 2007 is proof of China's emerging monopoly in the mineral trade in Africa (Li, 2007).The Chinese controlled Chambisi Copper Smelter in Zambia is at the heart of this economic zone and is a joint venture between China Nonferrous Metal Mining (CNMC) and Yunnan Copper Industry (YNCIG). China also lays claims on vast mineral resources in neighboring Zimbabwe where President Robert Mugabe, spited by the west, has passionately embraced a "look east policy" with inspiration from China. In Angola, China outbid Brazil in 2005 for the sight to tap into iron ore deposits. In the Democratic Republic of Congo, China struck a deal in 2006 with US$ 8 billion dollars which gives China 68 percent stake in Grecamines. In the Ivory Coast, China exercises control over a manganese mine at Lozoua where it exports manganese to the Chinese market. In Gabon the state owned China National Machinery and equipment Import and Export Corporation struck a US$ 3 billion deal to mine Iron ore in Belinga. In Mauritania, China's Transtech Industry (together with a Sudanese company) have invested more than US$600 million in the construction of a railway line in exchange for an estimated 165m tons of phosphate used in the production of fertilizers(UNCTD, 2008) while China imports cobalt from the DR Congo, South Africa remains China's largest supplier of ore and manganese. In Sierra Leone where there are large deposits of diamonds and iron ore China is expected to take control of those minerals which are presently under the control of British and South African companies.

Education

To date, over 4,000 overseas students from nearly 50 African countries have graduated from Beijing Language and Culture University in the past 40 years. They undertake studies in various majors, including Chinese language, science, Arts and law.

China provides about 1, 200 government scholarships to African students every year. By the end of 2005, a total of 18,919 scholarships had been granted to students from 50 African countries, MOE figures show. China has also set up six non-profit Confucius Institutes in six African countries to teach Chinese language and culture. So far, through nearly 60 assistance programs, China has helped 25 African countries to develop neglected disciplines and train science and technological talents. China has also dispatched professional teachers to 35 African countries to assist them in developing higher and middle school education.

Tourism

Many African countries have witnessed a surge of Chinese tourists recently as more and more Chinese choose to visit the "magic" continent mostly during their seven-day National Day holiday that lasts from October 1st to 7th. The number of Chinese tourists to Africa reached 110,000 in 2005, doubling that in the previous year. African countries have already seen the huge potential in tourism therefore; governments and tour operators are seeking ways to penetrate into China's emerging tourist market. The number of Chinese visitors to Kenya, Zimbabwe, Angola, and a number of African countries has been on an upward trend in the last four years especially after China granted these countries the Approved Destination Status for outbound Chinese tourist groups in 2004, this increase contributes positively towards the recovery of Africa's tourism sector and significantly to the growth of the economy.

The World Tourism Organization predicted that China is to be the world's largest tourist market by 2020. Currently there are 16 African states that have been granted the Approved Destination Status by China. Regional giant South Africa, which is one of the first African countries to get the status, has long been active in tapping into China's burgeoning travel market (Giles and Marcus, 2008). The number of Chinese tourists to South Africa has increased from over 10,000 in 2003 to more than 40,000 in 2005. South Africa has sent a series of tourism exhibitions to big cities in China, such as Beijing, Shanghai and Chengdu, as part of its aggressive tourism promotion campaign. South Africa' hosting of the 2010 Football World Cup in June and July is expected to be a key draw for Chinese tourists especially if their national teams qualifies in the run up (Erica, 2007). Tourism to South Africa is currently dominated by arrivals from Germany, UK and the United States, but heavy investments on promoting South Africa's tourism in China has led to solid growth in Chinese travelers. Since the two countries established diplomatic relations in 1998, South Africa has become China's top trading partner in Africa with a growing trade volume of US$7.3 billion in 2005.

Agriculture

Agriculture is one of China's greatest concerns following its accession to the World Trade Organization (WTO). Many Chinese officials and farmers are investing in Africa when they were considering ways to cope with the challenges brought about by the WTO entry. Beginning in the 1960s, China initiated a large number of cooperative agricultural projects in the Republic of Congo, the Democratic Republic of Congo, Guinea, Mali, Mauritania, Niger, Sierra Leone, Somalia, Tanzania, Togo and Uganda. Most were initially aid projects, however, agriculture cooperation has continued up to the present time.

Aid

Besides trade in oil, minerals, agriculture and manufactured goods, aid is another key pillar in Sino-Africa economic cooperation. The most significant difference between China's aid to Africa and that of the west is that Beijing does not attach too many strings and "conditionalities" on its loan packages. Estimates put Chinese loans to Africa at US$19 billion as of 2006. These loans despite western outcry on humanitarian grounds have been seen as positive instruments for

Africa’s development. "What the Chinese are doing is taking a long term perspective of the ability to repay debts" says Donald kaberuka, President of the African Development Bank.

CHINESE FOREIGN DIRECT INVESTMENT IN AFRICA (FDI) ON BILATERAL TRADE

China has changed ideology after adopting the open door policy in 1980. China-African relations based primary on ideological (peaceful coexistence, mutual respect for sovereignty and territorial integrity, mutual non-aggression, non-interference in each other’s internal affairs, equality and mutual benefit) has changed to economic linkage and trade. From that, trade volume between China and Africa from 1990 to 2000 has increased sharply, from 1664 million in 1990; it reached 10597 million in 2000; about six fold.

Since the 1990s, the range of Chinese investment in Africa has broadened significantly. It has evolved from a few sectors such as resource development, including oil, agriculture and fishing to other areas such as textiles, consumer electronics, tourism telecommunications and road construction. By the end of 2006, the accumulated amount of Chinese investment in Africa totaled US$11.7 billion. In 2005, the total Chinese Direct investment in Africa was US$ 400 million, constituting 1.3% of total inflow of direct investment in Africa in that year. This investment driven by China’s booming economy is having a significant impact on Africa’s economic growth. There are currently between 800 and 900 Chinese enterprises doing business in Africa. The pressures of globalization and liberalization have also forced many African countries to open up to the outside world, thus embracing "easy-coming" investment from Chinese companies. A bulk of these companies are privately owned many of them are involved in building schools and hospitals for the local people where they have their investment, and they also pay attention to the localization of labor to hire local laborers (Li,2005).

The physical impact of China’s investment is seen in the transformation of the African landscape through infrastructural development and technology transfer. Among these achievements are the Chinese constructed TAZARA railway line in Southern Africa, a hydroelectric dam in Ghana and a mobile phone network in Ethiopia. China helped Nigeria in launching its satellite into space in 2007, one of the rare technological successes in Sub-Sahara Africa. These gigantic achievements add to the list of roads, railways, bridges, dams, hospitals, airports, schools, stadia and legislative building constructed by Chinese engineers. In this part we are to find out the impact of the Chinese FDI in Africa-China bilateral trade relations.

METHODOLOGY

We present the method that enabled us to examine in this section the effect of Chinese FDI on the Sino-Africa bilateral trade for the period 2003 to 2009. The research employed panel model to investigate the effect of Chinese FDI on Chinese Export to Africa and time series model to examine the impact of Chinese FDI on Chinese import from Africa. In the panel model, Chinese export to African countries is considered as dependent variable. China’s FDI in each of the host country and some macroeconomic indicators of the host countries [per capita income, annual percentage growth rate of gross domestic product (GDP), real exchange rate between RMB and local currencies, annual inflation rate of consumer price, credit available to domestic sector as percentage of GDP and military expenditure] are taken as independent variables. However, using the time series model, total value of Chinese Import from Africa is considered as dependent variable and total value of China’s FDI in Africa, China’s per capita income, China’s annual growth rate of GDP are taken as independent variables. Our primary objective in this study is to investigate whether Chinese FDI in Africa is for resource seeking motive as well as for market seeking behavior.

Theoretical assumptions

To achieve the objective that Chinese FDI in Africa, per capita income, annual growth rate of GDP and credit available to domestic sector in each of the host country are expected to have positive effect on China’s export to Africa. The positive effect of Chinese FDI on bilateral trade is supported in the literature by Buckley et al. (2002), Sun (1999), Zhang and Song (2000) and Jinping and Wenjun (2008). Based on the similar consideration, real exchange rate and military expenditure are expected to have a negative effect on China’s export to those Africa - countries. The real appreciation of Chinese RMB means the rise of the relative price in China to those of Africa - countries; this will negatively affect China’s export to those countries. A large proportion of the budget reserved for defense expenditures may imply future uncertainty which means the country is politically unstable; this will have a negative effect on Chinese exports to that country. Finally, inflation in those Africa countries will have a positive effect on China’s export to those countries because domestic product will become expensive, hence, will be forced to purchase (import) foreign goods. Also, Chinese FDI in Africa, Chinese per capita income and annual growth rate of Chinese GDP are expected to have positive effect on China’s import from Africa. Thus, a high level of both Chinese per capita income and annual growth rate of GDP will positively affect Chinese import from Africa.

Model specification

Panel model

The empirical model for explaining Chinese export to Africa is as follows:

$$\ln(EX_{it}) = B_0 + B_1 \ln(FDI_{it}) + B_2 (PGDP_{it}) + B_3 (GROW_{it}) + B_4 (REXCH_{it}) + B_5 (INF_{it}) + B_6 (CRED_{it}) + B_7 (ME_{it}) + U_{it}$$

Where EX = Chinese export to each country; PGDP = real per capita GDP (current per capita GDP divide by GDP deflator); GROW = annual percentage growth of GDP in the country; REXCH = real exchange rate (obtained by multiplying the nominal exchange rate with China’s Consumer Price index and then divided by domestic consumer price index); except of Congo Democratic Republic that we used China GDP deflator and Congo Democratic Republic GDP deflator, because of lack of

Table 2. Parameter for estimating panel model (random effect) by using Stata 10.

Variables	(1) Lex	(2) Lex	(3) Lex	(4) Lex
Lfdi	0.119*** (0.0161)	0.0647*** (0.0137)	0.0676*** (0.0139)	0.0665*** (0.0138)
Pgdp		0.000644*** (6.73e-05)	0.000631*** (6.80e-05)	0.000572*** (7.68e-05)
Rexch			-0.000393 (0.000319)	-0.000367 (0.000317)
Grow				0.00630 (0.0142)
Inf				0.00373 (0.00540)
Cred				0.0110 (0.00760)
Me				-0.130** (0.0617)
Constant	18.07*** (0.249)	17.65*** (0.197)	17.64*** (0.197)	17.65*** (0.320)
Observations	157	157	157	157
R-squared	0.292	0.582	0.587	0.608
Number of country	23	23	23	23

Standard errors in parentheses. *** p<0.01; **, p<0.05; *, p<0.1.

Table 3. Estimated results (from Panel model) of the Impact of Chinese FDI in Africa on the value of Chinese export to Africa after controlling heteroskedasticity

Variables	(1) Lex	(2) Lex	(3) Lex	(4) Lex
Lfdi	0.119*** (0.0231)	0.0647*** (0.0169)	0.0676*** (0.0171)	0.0665*** (0.0176)
Pgdp		0.000644*** (6.61e-05)	0.000631*** (6.64e-05)	0.000572*** (8.36e-05)
Rexch			-0.000393 (0.000253)	-0.000367 (0.000246)
Grow				0.00630 (0.0144)
Inf				0.00373 (0.00591)
Cred				0.0110 (0.00751)
Me				-0.130** (0.0602)
Constant	18.07*** (0.360)	17.65*** (0.223)	17.64*** (0.226)	17.65*** (0.345)
Observations	157	157	157	157
R-squared	0.853	0.913	0.914	0.919

Robust standard errors in parentheses. *** p<0.01; **, p<0.05; *, p<0.1.

Congo Democratic Republic consumer price index; INF = inflation, consumer price (as an annual percentage), in the country; CRED = Credit facilities available to domestic sector as a percentage of GDP, in the country; ME = Military expenditures as percentage of GDP in the country.

Time series model

The empirical model for explaining Chinese imports from Africa is specified as:

$$\ln(TIM\ t) = B\ 0 + B1\ \ln(TFDI\ t) + B\ 2\ (GROW t) + B\ 3\ (PGDP\ t) + U\ t$$

Where TIM = Total value of Chinese import from Africa every year; TFDI = Total value of Chinese investment in Africa every year; GROW = annual percentage growth rate of GDP in China; PGDP = real per capita GDP in China (current per capita GDP divide by GDP deflator).

Data and sources

Annual data series was used for the period 2003 to 2009. The data sets related to Chinese exports and Chinese imports are obtained from Statistical Yearbook; Chinese FDI in Africa is obtained from www.fdi gov.cn. Nominal exchange rate is obtained from UNCTAD data base. Per capita GDP, annual percentage growth rate of GDP, inflation rate, credit to domestic investor (CRED) and military expenditure are obtained from WDI (2010). A sample of twenty three (23) African countries was selected, for which data on most of the variables were available for this study. Estimated results for the impact of Chinese direct investment in Africa on the value of Chinese export to Africa are presented in Table 2. Table 3 presents once again the impact of Chinese direct investment in Africa on the value of Chinese export to Africa after controlling for heteroskedasticity. Table 4 presents the impact of Chinese direct investment in Africa on the value of Chinese imports from Africa.

EMPIRICAL RESULTS AND INTERPRETATION OF CHINESE FDI IN AFRICA ON BILATERAL TRADE

The variables FDI and PGDP are positively as expected and statistically significant at 1% level; it implies that FDI has a big impact on Chinese export to Africa. A particular

Table 4. Parameter estimated from time series data (with robust) by using Stata 10.

Variables	(1) Ltim	(2) Ltim	(3) Ltim
Ltfdi	0.458*** (0.0501)	0.372*** (0.0746)	0.322** (0.0562)
Pgdp		0.000150* (5.96e-05)	0.000234** (5.63e-05)
Grow			0.0523 (0.0444)
Constant	14.66*** (1.008)	16.06*** (1.411)	16.32*** (1.139)
Observations	7	7	7
R-squared	0.938	0.953	0.970

Robust standard errors in parentheses. ***, p<0.01; **, p<0.05; *, p<0.1.

Table 5. Test for Heteroskedasticity.

Variables	Résidu Square
Lfdi	-0.00599 (0.00529)
Rpgdp	-2.16e-05** (1.03e-05)
Rexch	-6.83e-05 (0.000136)
Grow	-0.00629 (0.00527)
Inf	-0.000121 (0.00190)
Cred	-0.000715 (0.000658)
Me	-0.0328** (0.0156)
Constant	0.420*** (0.0897)
Observations	157
R-squared	0.107

Standard errors in parentheses. ***, p<0.01; **, p<0.05; *, p<0.1.

interest is the coefficient of the FDI, as this indicates the elasticity of export with respect to outward FDI. From Equations 1 to 4, the coefficient of FDI variable is positive and statistically significant at 1% level, confirming the contribution of Chinese FDI to Chinese export to Africa during the period under study. The result show that a 1% increase in FDI leads to a 0.07% increase in export. This finding is consistent with our hypothesis that Chinese direct investment in Africa is for market seeking behaviour. The variable military expenditure is statistically significant at 5% level. The variables, real exchange rate, annual growth rate; inflation rate and credit to domestic investors are not statistically significant. Although insignificant, these variables have the correct signs in relation to Chinese export to Africa.

We have tested whether there is heteroskedasticity, and we found evidence of heteroskedasticity in Table 5 ($n*R^2 = 16.8304 > 14.07$). To correct that, we have used command areg with robust option and we got the output.

Since we are using time series data for estimating the impact of Chinese foreign direct investment in Africa on its import from Africa, the estimation methodology is very crucial. The major concern with the time series is that if non-stationary of data series persists then it may lead to spurious relationship. In order to avoid spurious regression, we have checked for unit roots (Table 6) for the variable using Augmented dickey fuller (ADF) and we have found that variable log import is stationary but log FDI, real income per capita and annual percentage growth of GDP are not stationary but have different level of integration so no risk of cointegration which might lead to spurious regression. The empirical results for the effect of Chinese direct investment in Africa on Chinese imports from Africa is in Table 3. The coefficient of FDI is positive and statistically significant at 5% level in Equation 3, 1% level in both Equations 1 and 2. This finding confirms our hypothesis that Chinese direct investment in Africa is for resource seeking motive. An increase of 1% of Chinese direct investment in Africa leads to 0.32% increase in Chinese imports from Africa.

The variable per capita income is also statistically significant at 5% level. Annual growth rate of GDP is not statistically significant but it has the correct sign. This implies that China has been importing raw material from Africa with a view to sustain its economic growth. By using robust option for time series regression, stata 10 control automatically for the heteroskesdacity problem, so we have just tested whether there is evidence of autocorrelation of the error term by using command durbina and the test give us a p-value equal to 0.6741,with null hypothesis of no serial correlation. As p-value is higher than 10%, there is no evidence of autocorrelation.

IMPLICATIONS AND PROBLEMS IN THE SINO-AFRICA RELATIONS

Africa has been greatly transformed by China’s growing presence on the continent, at the same time conflict has also surfaced with expanding interaction, particularly with labor practices and market strategies, competing commercial and national interests, China is blamed for flooding African markets, destabilizing local economies and selling goods of inferior quality to Africans. With Chinese businesses and manufactured goods flowing into Africa, conflict over differing labor practices and market strategies has arisen between Chinese and African enterprises. Chinese entrepreneurs rarely employ local workers in Africa. Rather they are accustomed to bringing laborers from China and most

Table 6. Test for unit root by using Augmented dickey fuller (ADF).

Variable	Test statistic	Critical value at 5%	P-value
Logarithm of total import (ltim)	7.908	3.6	0
Logarithm of total FDI (ltfdi)	0.785	3	0.8236
Real per capita income (rpgdp)	1.206	3	0.996
Annual percentage growth (grow)	2.032	3	0.2729

management positions are filled by Chinese nationals. Chinese company practices also lead to discontent among the communities in which these enterprises operate, who perceive that Chinese companies are not contributing enough to local economies and employment. Another source of conflict arises from the success of Chinese goods in African markets, which are often better quality and cheaper than local products. While African consumers are happy, parallel domestic industries (especially textile industries) suffer as a result. And as these relationships grow and the institutional tendrils become more enmeshed we see possible problems of African people, in western fears, being locked into China for many years to come but equally the Chinese are ‘locked’ into Africa, which brings its own risks.

The West also frets about China’s closeness with oil and mineral rich countries in Africa and its military connections with these states. Chinese infrastructure projects in the continent are also predicted to end up as white elephant projects.

Thabo Mbeki, former president of South Africa who was one of the leading figures in African diplomacy was one of the many Africans to raise concerns about unguided optimism in Sino-African relations. He is considered as the most prominent case of African "push-back" when it comes to dealing with China, especially in the area of trade. As proof of his determination to restrain China’ s unbridled trade advances, Mbeki’s government imposed quotas for Chinese textiles in an effort to revive and protect South Africa’s staggering garment industry which is threatened by cheap Chinese textiles. Mbeki’s move was a warning signal to China, and a lesson for the rest of African about cheap Chinese textiles, and a lesson for the rest of Africa on how to deal with the "new guest." Mr. Mbeki had earlier warned that African states run the risk of getting stuck in "an unequal relationship" with China. Elsewhere in the continent African leaders are caught between embracing a newcomer and retaining traditional alliances. Nigeria, one of America’s biggest oil suppliers in Africa is moving towards China with a lot of caution. Nigeria has made it clear that China will have to face competition from western energy companies and also national companies from India, South Korea and Malaysia. Despite China’s overtures her citizens have been caught up in the spade of kidnappings that characterize the volatile Niger Delta region. Ethiopian rebels also killed nine Chinese oil workers in the Ogaden region in April 2007. Another emerging phenomenon which has the possibility of intensifying the existing crack in Sino-African relations is the problem of migration. Population movements between China and Africa have increased steadily since the 1990s. While the estimated 900 thousand Chinese migrant workers in Africa invade jobs ranging from agriculture through street peddling to industry, it is a different situation for Africans in China. These Africans who live under the constant fear of deportation are subjected to color prejudice in the job market where teaching is their only option. To secure these jobs and keep them, are the twin challenges facing African migrant workers in a society where "native speakers" are preferred irrespective of academic or professional qualifications. Obtaining and or renewing work visas for Africans is the mother of all problems, besides discriminatory salaries they receive on basis of their color. For many of these educated Africans, driven from home by harsh poverty and uncertainty and wandering in a wilderness of thorny discrimination, Sino-African cooperate remains a farce.

Conclusion

To conclude we want to open up a series of broader issues around the longer term implications of Whether China’s involvement will enhance development prospects and political accountability in Africa or undermine them. All agree that China is in Africa to stay and so monitoring the unfolding of these relationships is an obvious conclusion from this paper. Given huge and growing urban-rural inequality, debate is emerging around whether China can continue to fund aid and investment at current levels, when pressures are coming for domestic redistribution rather than international aid (Naidu, 2007). We suggested that China’s involvement will not fundamentally alter Africa’s place in the global division of labor. It simply adds a new and significant market without challenging the continent’s extraversion. In some states this will entrench renter states, concentrate ownership in a few hands, and deliver limited multipliers to marginalized Africans. The more upbeat take amongst policymakers (Wild and Mephan, 2006) is that if Africans can ‘control’ the benefits of Chinese involvement then Africa will benefit. This requires strengthening civil society

(Obiorah, 2007) and opening up development to democratic debate to see how redistribution might work Chinese demand for oil has outpaced the increase in domestic production, forcing Beijing to look abroad for energy supplies. Africa's contributions to China's imports have grown considerably and for several reasons. Chinese refineries can process African oil more cheaply than supplies from the Middle East. Experts predict that a substantial portion of future oil discoveries will occur in Africa. Most importantly, it is easier for Chinese NCOs to compete with western oil firms in African nations. China's no strings attached approach to business gives its oil firms an advantage.

The tussle between the two rival blocs in Africa reached climax when the World Bank which has exercised unrivalled, albeit counter-productive control over Africa before the coming of China, started calling for the latter to be more transparent about its African plan. Former South African President Nelson Mandela reminded African leaders of the need to pick their friends with utmost care as this might prove to be a decisive moment for Africa. "Africa is beyond bemoaning the past," Mandela said. "The task of undoing that past is on the shoulders of African leaders themselves, with the support of those willing to join in a continental renewal. We have a new generation of leaders who know that Africa must take responsibility for its own destiny, that Africa will uplift itself only by its own efforts partnership with those who wish it well." China did not only penetrate African market by conquering its actors and consolidating long-term diplomatic relations, but it also benefited from Africa's poverty for it could give people with a limited purchasing power low-cost products that no Western economy may have profitably commercialized. For this reason, most African communities consider China's intervention, paradoxically, as the best recipe for their development a part from a few exceptions such as, for instance, the Congo Liberation Movement, that rebelled against the agreements its government was stipulating with Beijing just because of the dependence they were about to generate. China's action in Africa can hardly be limited today, since there is no other great power that could balance or slow-down its rise. Besides, as the International Monetary Fund stated, China is doing in Africa what no other organization could do in terms of infrastructure and services. The price Africa has to pay, however, is extremely high and it will further increase if Chinese imperialistic expansion is not accompanied by local development, respect for human rights and the environment, a better consideration of African communities' real needs. Regarding the Chinese FDI in Africa, the study found that Chinese FDI in Africa has a substantial impact on Chinese imports from Africa than Chinese export to Africa. An increase of 1% FDI lead to an increase of 0.32% of Chinese import from Africa and 0.07% of Chinese export to Africa. The study indicates that the Chinese government FDI policies have been very successful in sustaining Chinese economic growth. While the main question is how can Africa-countries benefit from Chinese FDI inflow? Government of the host country should adopt the following appropriate policy that we offer; policy which might contribute to human capital training and facilitate international exchange integration; create a conducive investment climate that will promote competition between domestic and foreign (Chinese) companies which will enhance economic growth and development; the government of the host countries can lower the tax so as to encourage Chinese potential investors to establish their companies in those host countries.

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Conflict of Interests

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