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Is China the Answer? The Effect of Chinese Engagement on Economic and Human Development in Africa

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Abstract

Though the relationship between China and Africa dates back to the 1950s, China's ever-increasing demand for energy sources has garnered newfound attention from scholars, coinciding with the rapid expansion of the Chinese economy over the last fifteen years. In order to fuel its economic machine, China has turned to Africa, a resource-rich continent and holder of one-third of the world's oil deposits. Taking a unique approach that blurs the line between aid, trade, and investment, China's search for resource security has injected new life into Africa's developmental efforts. To Africa's benefit, the relationship has boosted African trade volumes, productivity, physical infrastructure, and foreign investment but leaves an important question as to how the "China effect" has actually contributed to the development of its citizens, and not just African political and business elites. This study complements prior scholarship by pursuing a qualitative approach in assessing the development of select countries who have embarked on Chinese engagement: Angola, Sudan/South Sudan, and South Africa. This research tests whether having strong ties with China improves both economic and human development in Africa, aiming to determine whether states that derive high trade volumes, infrastructure financing, or foreign direct investment from China experience a trickle-down effect into economic wealth, improved life expectancy of its citizens, education, and income. The research finds that high levels of economic engagement between select African countries and China have contributed positively to the country's economic *and* human development but have also revealed vulnerabilities in those countries' economies due to their reliance on China.

1 Introduction

Over the last ten years, the meteoric growth of the People's Republic of China has dominated the international economic agenda, and the superlatives that describe the country's economic might are hard to ignore: China is the world's second-largest economy by Gross Domestic Product (GDP), the largest exporter of goods, and the second largest oil consumer (The World Bank 2015). Along the way, China has taken an unlikely economic partner along for the ride: Africa. The casual Westerner may not have observed that China and Africa have one of the fastest-growing economic relationships in today's global economy. Although the relationship took root in the mid-twentieth century, its growth accelerated in the 2000s, evolving into a multi-faceted economic engagement characterized by trade, infrastructure development, and foreign direct investment (FDI). According to International Trade Statistics, two-way trade volume stood at $10 billion in 2001 and skyrocketed to $200 billion for 2013 (World Trade Organization 2014). What is the reason for the dramatic increase?

According to some scholars, double-digit economic growth, mounting industrial production, an automotive revolution, and a rising standard of living for China's middle class all combine to fuel China's demand for oil and minerals (Ofodile 2008). To illustrate this growth, China transformed itself from a leading Asian oil *exporter* in 1993 into the second-largest world *consumer* in 2003 (Alden 2012). Today, China stands as the largest net importer of oil in the world, having surpassed the United States in September 2013 (U.S. Energy Information Administration 2015). In its quest to secure sources of energy, China has turned to resource-rich Africa, which holds the third largest oil reserves in the world with an estimated 9.5 percent of total deposits (Alden 2012, 27).

The African continent possesses a generous endowment of natural resources such as hydrocarbons, precious metals, and timber, which remains mostly untapped due to decades of political instability, poor infrastructure, and lack of investments. Major oil-producing nations such as Angola, Nigeria, and Sudan are among the beneficiaries in having secured an energy consumer like China as a trading partner. South Africa has also become a leading exporter of natural resources such as a copper, iron, timber, diamonds, and other extractable minerals that help supply China's massive manufacturing industry (Alden and Alves 2009, 41).

Aside from increased trade volume in natural resources, economic engagement takes the form of Chinese government-backed development programs and FDI flows. In an attempt to solidify and stabilize this relationship, China invests heavily in African infrastructure, education, media, and healthcare. From a financial perspective, the Export-Import Bank of China extends assistance to the tune of billions of dollars in the form of low-interest or interest-free loans and debt forgiveness (Brautigam 2011, 204). China has constructed railroads and telecommunications lines in Angola, built hydroelectric dams and coal-fired power plants in Sudan, set-up state-owned television channels in Kenya, and is building a $10 billion port in Tanzania (AidData 2015). Furthermore, China provides humanitarian assistance, land-mine clearance, weapon removal, and the monitoring of war crimes in some regions in Africa (Li and Dottin 2011). Encouragingly, investment interest in Africa is not limited to the government: Chinese private enterprises have also increased their FDI flows into African agriculture, mining, manufacturing industries in Nigeria and South Africa over the last fifteen years.

According to China's Ministry of Commerce (MOFCOM), FDI stocks[1] in Africa was nearly non-existent in 2000 but has grown to $21 billion in 2012 (Ministry of Foreign Affairs of the People's Republic of China 2015), making China one of the key drivers of FDI flows into Sub-Saharan Africa.

The scope of economic engagement is broad, diverse, and evolving. Africa, with its plentiful resources, faces a historic opportunity to accelerate socioeconomic progress through tackling age-old problems such as poverty, disease, and infrastructure deficiency. In light of the growing economic engagement with China, scholars have remarked that "there is much that Africa could gain from the relationship" (Ofodile 2008). The question is: to what degree?

China's appetite for natural resources has clearly contributed to sharp increases in African exports to the benefit of the government and the mining and extractive industries, but the developmental effect on the average African citizen remains unclear and largely unaddressed by existing literature. Most scholars have focused on the impact of Chinese engagement on Africa as a generalized, singular actor; few have attempted to analyze the relationship at the individual state level—and even less on the human developmental impact on its citizens. In an effort to assess the socioeconomic effects of Sino-African engagement, and to fill such gaps in literature, this research will test the hypothesis that having strong economic ties with China increases economic and human development among select Sub-Saharan African countries. The dependent variable is African development, bifurcated into economic development and human development

[1] FDI stocks measure the total level of direct investment at a given point in time (Organisation for Economic Co-operation and Development).

components, measured as Gross Domestic Product (GDP) and Gross Domestic Product Per Capita for economic development and the United Nations Development Programme's (UNDP) Human Development Index (HDI). The independent variables are the various ways in which China economically engages in Africa, specifically via trade, infrastructure finance, and FDI. This study will incorporate certain geographical Sub-Saharan nations as its sample population. Using empirical data, this research determines the effect of Sino-African engagement on African development with the goal of revealing the relationship between the two sets of variables.

2 Research Design

As already noted, this paper will test the hypothesis that having strong economic ties with China increases development among Sub-Saharan African countries. The period in focus will be from 2000 to 2013, consistent with the start of rapid economic growth of China which, in turn, has driven China's need to procure natural resources from Africa. Ideally, this paper would have encompassed data through 2014, but relevant data is not yet readily available in early 2015. Because China pursues political and economic partnerships on a bilateral basis, the units of observation are individual Sub-Saharan African states, focusing specifically on Angola, Sudan and South Sudan, and South Africa due to their strong trade relationships with China. Sudan and South Sudan were considered one country until South Sudan's independence on July 9, 2011, but after this the data used will exclude South Sudan.. I will begin by examining the economic and human development profiles of each state prior to Chinese economic engagement and then qualitatively assess the same variables after 2000 in search of trends. After this, I will test the effect of economic ties on developing by correlating the variables of Total

Trade with China, the value of infrastructure financing from China, and FDI inflows from China against GDP, GDP Per Capita, HDI, and its individual components, which include Gross National Income (GNI) Per Capita, life expectancy at birth, and expected years of schooling. I will employ a time lag of 5 years in my quantitative analysis on the assumption that it take some time for trade and investment to have an effect on a country.

Operationalizing the dependent variable of "development" yields two components: economic growth and human development. Gross Domestic Product[2] (GDP) and Gross Domestic Product Per Capita[3] (GDP Per Capita) serve as observations for the economic growth component. The absolute value of GDP allows for observation of the economic strength of the country's economy, while GDP Growth—the year-on-year change in GDP—serves as evidence of economic expansion. Because most Sino-African engagement takes place on the ground in Africa, measuring GDP would most effectively capture China's effect on the local economy. GDP Per Capita is an equally important measure as it considers economic productivity in light of a country's population.

Development implies not just growth but also human advancement. Therefore economic data alone cannot truly measure China's contribution to an African country's overall

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[2] **GDP** at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. (UNDP)

[3] **GDP per capita** is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. (UNDP)

development. Consequently, this study considers the human development component, operationalized by the Human Development Index (HDI). Developed by UNDP, this index measures a country's achievement in three basic dimensions of human development: a long and healthy life (life expectancy at birth), knowledge (mean years and expected years of schooling) and a decent standard of living (Gross National Income per capita based on purchasing power parity). The UNDP's HDI figures are for select years: 2000, 2005, 2008, and 2010-2013. I will also use Government Per Capita Expenditure on health and education as a measure of a state's *will* to develop by investing in its own citizens. An increase in expenditure represents a stepping stone toward achieving tangible development results.

The independent variables represent three specific types of economic engagement between Africa and China, representing the bulk of monetary flows from China into Africa. The first variable is total trade between the individual African state and China, that is, exports and imports. Data will come from the International Monetary Fund (IMF) database on trade statistics. The second variable is the value of infrastructure financing received by the individual state. Infrastructure finance involves the issuance of large commercial-rate long-term lines of credit for the construction of public works, of which the repayment is secured by trade exports of African natural resources such as oil. These public works particularly focus on hydropower generation, railways, and highways. The World Bank maintains a database of infrastructure finance commitments, disbursements, and other statistics on a country-by-country basis within the specified timeframe, upon which this research will draw. The third variable is the value of FDI flows into Africa from China. FDI represents investments by private Chinese companies in African business enterprises, whether through acquisitions, controlling stakes, joint ventures, or projects. Available data on FDI may not fully reflect the true value of all FDI flows, due to the fact that inflows are not always publicly declared. China's Ministry of Commerce maintains a limited database of FDI flows to Africa, while The Heritage Foundation and the American Enterprise Institute maintain a comprehensive dataset of large Chinese investment transactions. Most FDI databases do not include smaller transactions (considered valued under $100 million). Data may not also include acquisitions in African companies whose domicile is outside its main place of business, such as a South African company incorporated in Switzerland.

I will employ three case studies, Sub-Saharan African countries whose economic relationship with China can be identified as a significant factor in their development: Angola, Sudan, and South Africa. These states share many similarities which make them natural choices as case studies: their histories have been plagued by tremendous internal conflict that left each state divided and devastated. As such, they have all been recipients of significant Western financial and humanitarian aid. Each country possesses bountiful stores of oil and minerals on which their economies are vastly dependent for growth. Their ability to export large quantities of natural resources has attracted the attention of China, leading to high levels of economic engagement. For example, in 2007 these three countries represented the top 65 percent of overall African exports to China, with Angola comprising 34 percent, South Africa 20 percent, and Sudan 11 percent, demonstrating the importance of these countries in overall Sino-African trade (Ayodele and Sotola 2014, 13). Because of their resource bounties, these states have also been significant recipients of Chinese infrastructure financing and FDI inflows, having received no less than $20 billion of FDI inflows combined over the last nine years (The Heritage Foundation and The American Enterprise Institute 2015). As large, sub-Saharan states, each suffers from some degree of infrastructure deficit, making infrastructure finance a particularly critical necessity. Each country has dealt with China for a minimum of 15 years, which means that ample data is available.

For all their similarities, there are also differences which allows for contrast. For example, while each state has a large amount of exports to China, the composition of those exports are different. Oil makes up nearly all of Angola's exports to China, which in turn, accounts for nearly a quarter of the Angola's overall GDP. Sudan's oil exports to China accounted for nearly 14 percent of its GDP before independence of South Sudan, after which that number dropped to a mere 3 percent of GDP, according to the IMF. Because the economies of Angola and Sudan are highly reliant on oil, for which China is their biggest customer, the development of Angola and Sudan should be highly correlated with their level of exports to China. On the other hand, South Africa boasts a relatively stable economy that is three times the size of Angola's and with a far more diversified export base mostly made up of metals and minerals. Though exports to China are a growing sector of its economy, they only comprise around 3.4 percent of its overall GDP compared to Angola and Sudan, but the absolute value of the exports are nearly as large. Thus, South Africa's stable economy and growing Chinese engagement enables me to test China's impact on a moderately-developed country, where developmental impacts may be more subtle and less volatile. Given the diversity of these states, I expect to find some unique perspectives on how engagement with China impacts the development of states.

Limitations to the Research

One may wonder if a researcher can reliably attribute a country's economic growth purely to Chinese engagement. Although this research will consider the sample country's level of engagement with China as a percentage of the country's overall GDP (for example, Angola's total trade with China versus Angola's GDP), it does not consider the potential unique arrangements between the sample countries and countries outside of China. Therefore, it is possible that an African country can experience higher development due to another economic partnership outside of China, but that remains outside the scope of this research. Nonetheless, I will attempt to qualitatively assess the impact of Sino-African engagement on the economic and human development of the selected African states.

3 Literature Review

In reviewing the progress of research on the Sino-African relationship, early literature focuses on assessing China's rise as a diplomatic and economic power through the latter half of the twentieth century, while drawing parallels to Western colonialism. Two questions prevailed: Why Africa? How is the relationship different from the West's relationship with Africa? Further, because the China-in-Africa phenomenon only emerged in the last twenty years, works from the 1990s and the early 2000s took a largely descriptive and qualitative approach, generally viewing the relationship through a political science lens. However, as the relationship between China and Africa strengthened and grew more prosperous through the turn of the twenty-first century, empirical data became more accessible and reliable, therefore contributing to more quantifiable research. Over the last ten years, scholars have increasingly focused on more specific issues such as development, aid, and socioeconomic issues. The following section gathers prevalent themes, debates, and observations from existing literature in an effort to better understand this research. The first section summarizes theoretical perspectives on development and traditional forms of aid in the context of Africa. The second part describes China's ascent as an economic and political power and gathers theoretical observations on the motivations of its foreign policy in Africa. Next, I briefly describe the framework of Sino-African engagement and offer a comparison of scholars' views on China's unique "win-win" approach to developmental assistance. The section following aggregates what scholars have identified as benefits and risks to Africa with regard to engaging with China. Then, I highlight the different lenses through which scholars view Africa, namely on whether they take an aggregated or disaggregated approach. Finally, I set forth how my research will serve to complement and expand the existing literature.

Broader Issues on Development and Foreign Aid

In order to effectively comprehend China's unique impact on African development, one must consider broader literature on the value of foreign aid and its effectiveness at promoting development. Edwards organizes existing scholarship into three distinct camps (2015): The first camp believes that official development assistance is ineffective and does more harm than good for poor countries. In its traditional form, ODA creates dependency, fosters corruption, encourages currency overvaluation, and perpetuates poverty, while the continuous stream of aid disbursements effectively prevents poor countries from attempting taking advantage of the opportunities provided by the global economy (Edwards 2015). Scholars such as Moyo argue that government-to-government foreign aid has harmed Africa and should be phased out in favor of free markets, self-help, development financing (Moyo 2010).

The second camp believes that aid levels have been insufficient and that large increases are needed to reduce property. Sachs, a foremost proponent of this scheme of foreign aid, argues that impoverished countries with impoverished governments are incapable of solving developmental issues on their own. Therefore, aid programs are necessary to spur economic growth and successfully prepare countries to tackle future priorities. Examples effective types of aid efforts include: support for peasant farmers to help them grow more food, childhood vaccines, malaria control with bed nets and medicines, adequate school meals, training and salaries for community health workers, all-weather roads, electricity supplies, safe drinking water, antiretroviral medicines for AIDS sufferers, and clean low-cost cook stoves to prevent respiratory disease of young children (Sachs and Ayittey 2012).

A third camp—which includes scholars such as Collier, Banerjee, and Duflo—steers between the previous two schools of thought, arguing that there is need for a radical rethinking of the way to fight poverty. Collier believes that such solutions include military intervention for poor nations, international charters to promote good governance, and preferential access to trade (Edwards 2015). Banerjee and Duflo’s main argument calls for an evidence-based approach, rooted in the need for randomized control trials to test the impact of policies aimed at beating poverty and promoting development. The approach ultimately uncovers that certain projects financed by official aid work are effective in reducing poverty and moving the domestic populations towards self-sufficiency and prosperity, while other programs fail miserably. The question is not how aggregate aid programs have fared in the past, but rather, how to evaluate whether specific programs are effective (Banerjee and Duflo 2012).

Further to these three schools of thought, current literature suggests that there are three principal disagreements that shape debates on foreign aid. Firstly, scholars argue the extent to which aid is simply an instrument of foreign policy, potentially undermining the intention for aid to improve the lives of the impoverished. The distribution of aid may be motivated more by domestic politics in the developed nations than by recognition of the need for improving conditions elsewhere; scholars believe that this reality may actually harm developing nations (Brautigam 2011). Secondly, scholars such as Moyo and Sachs argue on the types of foreign aid that are most beneficial in combating poverty, regardless of the motivation, as outlined in the previous paragraphs. Thirdly, debates also surround the importance of foreign aid compared with other forms of economic activity, such as international trade, in raising living standards—a concept that this research will incorporate in measuring China's impact on African development.

Background on China's Aid to Africa

When discussing development, scholars draw on China's own developmental history as a means to explain the Sino-African relationship and to describe Africa's own road to development. For example, Power (2011) notes that Chinese leaders believe their own experience and vision of development resonates powerfully with African counterparts, while the "longstanding history of friendly political linkages and development cooperation offers a durable foundation for future partnership." This vision of development centered on building a self-reliant political ally and a sustainable trading partner for China. Power (2011) also describes development as "modernization" in the form of industrial technology and infrastructure as in the case of China and Angola. Effectively, China uses its own experience as a developmental success story to build economic relations with African states who view China as a role model. Most scholarship views development through an economic lens, drawing on traditional indicators such as trade flow statistics and FDI, given the availability of data, which has allowed for clearer assessment on Africa's progress.

Some scholars also measure development in the context of environmental sustainability, which is generally defined as a state in which the demands placed on the environment can be met without reducing its capacity to allow a country's citizens to live well. Despite the fact that Africa has a "resource bounty," Chinese companies entered African countries and have left a damaging environmental impact due to exploration activities. African regulations are generally poorly-implemented and therefore provide low environmental protection standards (Alden and Alves 2009). Therefore, describing mining activities as a contributor to African development would heavily discount the negative environmental impacts of the relationship.

Lastly, with regard to the impacts of Sino-African engagement, the international relations community seems to have largely neglected the role of human development. Mohan acknowledges the absence of meaningful literature, stating that there has been little discussion on the "core issues to development: well-being, equity, and environmental sustainability" (Mohan 2013). This research seeks to address this concern and fill the gap in literature.

Traditionally, economic engagement with Africa consists of the distribution of aid in the form of grants and loans, primarily by Western powers. Such assistance adhered to the standard definition of official development assistance (ODA), agreed upon by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD). Multilateral institutions such as the IMF and the World Bank and bilateral sources such as United States, United Kingdom, France and Germany have historically been the largest donors to Africa. Aid classified as ODA must meet specific criteria: firstly, aid must promote economic development and welfare in a recipient country, usually by allocating funds toward reducing poverty and addressing basic needs. Secondly, aid must be given on a concessional basis (Brautigam 2009). The reasons behind offering aid may be political, commercial, or moral in nature, and oftentimes all three motives combine in a package. Brautigam (2009) and Samy (2010) note that political and strategic factors motivate bilateral donors as much as the needs of the recipient, inextricably linking foreign policy objectives and aid. However, scholars have noted several flaws with the traditional method of distributing aid. Because of the concessional nature of grants and loans, Western donors tends to attach too many strings. Also, a common gripe is the lengthy delay for the disbursement of funds as they have to clear the hurdles of good economic policies, good governance, environmental sustainability, labor standards, and human rights (Samy 2010).

China was no stranger to this type of aid, given that grants and loans served as its primary methods of distributing economic assistance. The modern-day economic relationship between China and Africa dates back to the 1950s, after the formation of the

People's Republic of China and toward the end of African colonialism. During this period, the newly-formed China began to actively support decolonization movements in Africa, adopting a sympathetic, victimized view of colonialism given China's historical occupation by Japan and Europe. One of the earliest gestures of aid came in the form of an interest-free loan of $25 million to Guinea in 1960 (Brautigam 2009). After Chinese leaders toured several African states in the early 1960s, they announced formal aid programs consisting of concession-fee loans with flexible terms, ultimately providing aid to thirty African countries (Ayodele and Sotola 2014). As China's growth expanded at the turn of the century, the Sino-African relationship evolved into more of a viable economic partnership instead of just pure diplomacy.

In today's world, scholars generally surmise that China extends very little cash aid. China, in not being a member of the DAC, need not publish official reports, figures, or evaluations. As a result, empirical data on aid from China to Africa proves limited and makes it difficult to compare performance relative to other donors (Samy 2010). China's unique approach has nonetheless replaced traditional cash aid: as China underwent rapid economic expansion, its approach to economic engagement with Africa shifted away from traditional aid and toward "mutually beneficial" business, in effect, creating instruments that link aid, trade, and investment together.

Rising China: Motivations for Foreign Policy

Besides China's desire to access and secure energy resources to fuel its economy, scholars have identified other motivations for China's "going out" policy, seemingly all woven from the same political fabric. Firstly, China has expressed a desire to become a leader of the Third World. Alden (2012) notes that China was once a victim of Japanese and European colonialist and imperialist campaigns, leading Beijing to express solidarity with post-colonial African nations; China has rooted its foreign policy in its own experience, helping cement its anti-colonialist and anti-imperialist credentials. Alden (2012) also states that Chinese foreign policy has placed China as the leader of developing countries, and its relationship with Africa will continue to raise its own international influence and probably that of developing countries as a whole. As part of its efforts to raise influence, China established the Forum on China-Africa Cooperation (FOCAC) in 2000 creating a ministerial-level venue that promoted political, economic, and cultural engagement. Ultimately, China finds itself repeating many of the practices and the types of deals it forged with Japan and the West, swapping its role from recipient to financier.

However, Brautigam (2009) and Alden (2012) believe that the reasons for engagement stretch beyond simple support for revolutionary movements. Rather, a diplomatic motive has driven China to forge relationships with African states in an effort to reinforce its "One China" policy. Beijing's leaders viewed African aid programs as a foreign policy tactic to convince new governments that Beijing was the true "China" in attempt to de-recognize its diplomatic arch-rival Taiwan.

One of the most visible motivations for China's engagement has been to boost own development through the nurturing of self-reliant countries. Brautigam notes that "foreign aid has become one tool in a range of economic instruments adeptly managed by China's state leaders to boost…its own development" (2009, 25). By proactively promoting the economic development of African nations, China seeks to establish new exports markets for its light manufacturing, services, agro-processing, apparel, and communications offerings (Adisu, Sharkey and Okoroafo 2010, 4). The effect of fostering trade results in the growth of competitive Chinese multi-national companies, which then encourage the upgrading of its own domestic firms.

Ultimately, scholars believe that China's motives for its engagement in Africa are political and economic in nature, which is no different than that of the major donor governments. The difference, however, is the manner in which they go about engagement, which is outlined in the next section.

"Mutually-Beneficial": China's New Take on Economic Cooperation

To describe China's economic engagement with Africa as centered on "aid" would severely limit the scope of their engagement, and scholars would highlight potential confusion with the traditional concept of ODA (Brautigam 2009, Samy 2010). China's reformed approach challenges the West's architecture by broadening its scope from just grants to a number of vehicles: concession-free loans, joint ventures, infrastructure finance, and public and private investments, all with an objective of developing an economically-sustainable trading partner in Africa. Scholars point out that China's aid policies are linked to its foreign policy objectives in the same manner as traditional Western donors (Samy 2010), but the difference lies in how it is carried out. The following section describes the different ways in which China has economically engaged in Africa and how African states benefit from the relationship.

Unlike Western powers who traditionally rely on multilateral institutions to facilitate the distribution of African aid, China takes a more direct approach by assigning responsibility to state-owned banks and state-owned enterprises, which in turn develop bilateral relations with individual African states. Key actors include the China Export Import Bank (Eximbank) which extends preferential loans known as “export credits” to Chinese companies abroad and the China Development Bank which provides non-concessional development finance. Additionally, state-owned enterprises also share in the responsibility to carry out Chinese government policy, given that they are recipients of preferential contracts and finance from the state-owned banks. The key African actors are governments and their leaders, as well as state-owned enterprises, such as Sonangol of Angola and the Sudan National Petroleum Corporation (Sudapet).

Trade

The most obvious and well-discussed method of engagement revolves around trade. In its simplest form, China—a massively industrial nation with a resource deficiency—has sought to diversify its procurement of natural resources by turning to Africa—a resource-rich but socioeconomically poor continent. States such as Nigeria, Angola, Sudan, South Sudan, and South Africa have led the region in mining and extractive industry exports, most notably in oil but also in ores, metals, minerals, and agricultural raw materials. China believes that such high levels of trade result in a “win-win” situation, a phrase that permeates Chinese state rhetoric when describing its relations with Africa (Ministry of Foreign Affairs of the People's Republic of China 2006). Scholars agree, having almost universally-accepted natural resource trade as the primary driver of African economic growth. However, scholars have noted that growing trade does not necessarily translate into poverty reduction or development, highlighting that "there is a real danger that further expansion of mineral and petroleum exports to Asia will only reinforce an exclusionary model which will do little to reduce poverty and may exacerbate conflict and give rise to negative environmental impacts" (Eisenman 2012, 808). Though the sheer export figures are hard to ignore, scholars point out that Africa benefits from importing cheap consumer goods from China that are affordable to a large number of people (Ayodele and Sotola 2014). Data from the IMF shows that countries like Angola, Nigeria, and South Africa are importing more from China in recent years than ever before. Though encouraged by increasing imports, more recent scholarship expresses concern over the sustainability of massive trade imbalances in favor of China. There is also a worrying trend emerging that top African exports singlehandedly consist of raw materials, while imported goods are overwhelmingly manufactured goods. Although Beijing may use a positive tone in describing its economic relationship with Africa, some scholars argue that "mutually beneficial" and "win-win" are terms that must be used with guarded optimism (Ofodile 2008, 510).

Infrastructure Finance

As one of the unique schemes of Sino-African economic engagement, infrastructure finance allows African countries to receive favorable infrastructure loans from China, which in turn receives African natural resources as repayment for the loan. Often referred to as "Angola mode" or "resources for infrastructure," the China Eximbank primarily makes use of this structure, providing interest-free or low-interest loans in exchange for the security of natural resources. Furthermore, infrastructure finance deals are partly tied to participation of China's own contractors who provide the technical expertise, equipment, and sometimes, manpower, to embark on projects such as construction of hydropower stations, the rehabilitation of existing and construction of new railroads, and the building of information and communication technology networks. Why develop Africa in this manner? According to scholars, Africa has a resource excess but an infrastructure deficit. Power generation is unreliable and distribution is poor, while road freight costs on average are two to four times higher than in the U.S. (Foster, et al. 2009, xv). The vast distances between towns, cities, and ports, combined with the lack of adequate transportation and distribution networks, dramatically raises the cost of cheap goods.

This financing scheme allows for countries with limited creditworthiness to participate, though it comes as no surprise that resource-rich states such as Nigeria, Angola, Ethiopia, and Sudan account for 70 percent of Chinese financing commitments (Foster, et al. 2009, 36). Haifang notes that some scholars praise the Angola mode as "an innovative model that embodies China's notion of win-win cooperation" and that Chinese investment is "highly valuable and significant" (Ayodele and Sotola 2014, 10), while others describe the structure as "unequal equals" or as an "asymmetrical bilateral relation" (Power and Alves 2012).

Despite the differing opinions on the fairness of the model, the increasing scale of infrastructure finance—and therefore the opportunity for Africa—is hard to ignore. In recent years, a number of emerging economies have played an increasingly important role in the finance of infrastructure in Sub-Saharan Africa, with combined resource flows comparable in scale to traditional ODA (Foster, et al. 2009). Foster (2009) also notes that Chinese finance is on a scale large enough to make a material contribution toward meeting Africa's vast infrastructure needs, offering an important development opportunity for the region.

Foreign Direct Investment

While government policy through state-owned banks and enterprises has been a key driver in the burgeoning Sino-African relationship, sustainable economic development in Africa also requires the involvement of the private sector (Ofodile 2008). In an effort to foster overseas investment by private Chinese companies, the Chinese state-owned banks have provided incentives in the form of diplomatic support, tax exemptions, easier emigration approvals, insurance, and preferential lines of credit (Brautigam 2009). For example, China Development Bank granted telecommunications giant Huawei a $10 billion line of credit, while China National Oil Company extended a $1.6 billion loan for investments in Nigeria (Brautigam 2009). Furthermore, Eximbank extended attractive lines of credit to large construction firms to build casinos and stadiums overseas. While these may seem outsized numbers, Ofodile notes that FDI from developing countries is indeed increasing, having accounted for 17 percent of world's flows, much of which comes from China (2008, 519). FDI flows amounted to $14.7 billion in 2012, having grown more than 60 percent from 2009; overall, China's investment in Africa has exceeded $40 billion through various types of investments (Ayodele and Sotola 2014, 7). However, although FDI has generally been on the uptrend, some scholars agree that flows from year to year are inconsistent: Chinese enterprises exhibited huge investment from 2005-2008 which tapered in 2009-2010 (Ayodele and Sotola 2014), indicating that the "growth is not particularly steady" (Brautigam 2009, 88). As China's private sector continues to expand globally, FDI outflows to Africa will continue to grow and will be key to Africa's sustainable development.

Pros and Cons of Engagement

Africa has reaped many benefits from its relationship with China in the realm of economic development. Firstly, African states receive preferential loans from Chinese development banks that have either low-interest rates or are interest-free. These loans are often concession-free or have very limited concessions, whereas loans from the West—such as World Bank and IMF—come with a laundry list of requirements: good governance, political liberalization and democratization, and fiscal discipline (Ayodele and Sotola 2014, 66) and are often directed to where the West wants it to go (Mohan 2013). On the other hand, Chinese-backed loans do not attach such conditions. The terms of the Chinese-backed loans are often flexible, and repayments can easily be rescheduled to a later date.

Secondly, Africa has encountered a demand-hungry market for its extractable resources in China resulting in increased export revenues. This relatively new trade relationship comes at a time when the U.S. has dramatically decreased its purchases of African petroleum compared to historical levels. In 2005 the U.S. imported 425 million barrels from Nigeria, and in 2006 the U.S. reached a peak import level of 195 million barrels from Angola. Those numbers have dropped to around 33 million and 55 million barrels respectively in 2014 (U.S. Energy Information Administration 2015).

Thirdly, the unique infrastructure finance scheme between Africa and China allows for the development of highways, railways, power generation, ports, and telecom infrastructure, directly reducing Africa's infrastructure deficit. The construction of the Tan-Zam railway in the 1970s serves as the classic example, whereby China financed and constructed a 2,000 kilometer railway from land-locked Zambia to the Tanzanian coast (Brautigam 2009). In 2011, the Chinese provided financing to build a new dock in Dar es Salaam that can accommodate car megaships which can haul more vehicles from China and 30 percent faster. Smaller-scale projects are also eligible for financing, as the Chinese have helped fund the construction of schools, media centers, hospitals, and stadiums.

Africa also benefits from cheap imports from China, not just from a pure price standpoint, but from the availability of certain types of goods that are generally much cheaper than those coming from Europe. For example, the relatively low prices of Chinese consumer goods such as mobile phones and computers give Internet access to millions of Africans (Ayodele and Sotola 2014). Items that were traditionally seen as exclusively for the rich have made their way into poorer communities. Furthermore, local African entrepreneurs are playing a more direct role in sourcing consumer goods and distributing them, suggesting increased African participation in the supply chain (Mohan and Lampert 2012, 101).

Aside from economic gains, scholars note that Africans stand ready to reap intangible benefits in the form of intellectual property, training, and technology transfer. For example, in the agricultural industry, Alden (2012) notes that the Chinese propose to introduce new techniques, seed varieties, and training programs derived from their own experience raising agricultural productivity; the Chinese government has even constructed ten new agricultural training centers across Africa to aid in the process. In the industrial and manufacturing space, the Chinese have provided technicians to oversee installation and train their local counterparts in operating, maintaining, and repairing machinery (Mohan and Lampert 2012, 101).

Although scholars broadly suggest that the aforementioned advantages are key drivers to future African growth, many works highlight the risks associated with engaging with China and take a cautionary tone in discussing how Africa should best proceed with the relationship. Firstly, there is a danger that China's engagement, to the extent that it is heavily predicated on natural resources, may reinforce Africa's own dependence on natural resources, pointing to an even greater need for ensuring that resource flows and policies target other sectors outside the extractable resource industry (Samy 2011, 76). Secondly, the threat of irresponsible borrowing may potentially worsen the financial status of African governments instead of helping reduce their debt burden. As previously mentioned, the bulk of Chinese aid to African countries comes in the form of concessional loans with very low interest rates, rather than outright grants. The international community and civil society have both raised the concern that these cheap loans may encourage recipient countries to borrow irresponsibly and accumulate debt beyond their ability to repay, despite China's efforts to promote sustainable growth (Brautigam 2011). Thirdly, scholars suggest that the Chinese presence may hurt local producers given the proliferation of Chinese retail shops in urban and rural communities and their introduction of low-cost consumer goods—a notion that spurs resentment among the local Africans.

With regard to risks of Sino-African economic engagement, one of the oldest debates has been whether China's presence in Africa represents a new wave of exploitative colonialism or imperialism that had historically plagued Africa. Ofodile (2008) suggests that African leaders and their constituents must guard against imperialism of any sort, given that there is no evidence that South-South cooperation is more progressive or less selfish than North-South. To illustrate the potential exploitative nature of the relationship, Mohan (2013) introduces the concept of enclaves, which are self-contained gated compounds that serve as the base for projects but results in limited linkage to the local economy and yields little or no benefit to the wider society. Critics also argue that the Chinese migrants do not integrate, which the conservative and liberal internationalist scholars interpret as evidence of their exploitative intentions (Mohan 2013). The counterargument is that traditional neocolonialism relies on absolute exploitation of African land and labor, whereas the Chinese practice "national self-exploitation" by importing their own labor (Mohan 2013, 1263). Neither argument suggests that the relationship is beneficial for African development. However, on a more positive note, some scholars remind that China is not a former colonial power—in fact, it found itself in the same position as Africa at one point—and so, many leaders see Beijing's model of development as one that could be replicated successfully in Africa (Ofodile 2008).

Beyond the issue of neo-colonialism, scholars have engaged in discourse over the issue of exploitative labor practices. Many scholars have cautioned against the risks to local Africans. For example, Chinese enterprises employ lax safety standards, have minimum workers' rights, or little consideration for health and safety—all factors that put the health of local African worker at risk. This sentiment reached a boiling point when in 2013, African workers protested against poor wages and working conditions by assaulting the Chinese foremen of a Zambian coal mine, resulting in the death of one Chinese man (Okeowo 2013, 1). In another example, in 2002, forty-five local workers died in a fire at a Chinese plastics factory in Lagos, Nigeria; the workers were apparently unable to escape because their Chinese bosses locked them inside (Mohan 2013, 1264). Scholars further argue that the use of imported Chinese labor in construction projects takes away opportunities for Africans, a practice that has been criticized in some African circles (Mohan 2013). Also, local producers get displaced by competition from cheap imports from China in industries which employ significant numbers of unskilled workers. As a result, Africans may lose their jobs and be pushed into poverty; riots in Zimbabwe and Zambia against Chinese merchants provide evidence of the locals' displeasure. Despite the pockets of negative sentiment from locals, Mohan states that governments like Nigeria "have done so little to prosecute, compensate, and regulate these issues" (Mohan 2013, 1264). As a counterpoint to the adverse labor impacts, Mohan notes that wages for locals are not necessarily lower and that health and safety standards are no worse than in other firms, whether Chinese or African, while unionization levels in Chinese firms are not so different from unions in other sectors. In fact, evidence points to promotion of welfare and progress; for example, in Kano, Nigeria, a Chinese factory group is the second biggest employer after the government (Mohan 2013). Furthermore, Mohan's research found that in many cases, local Africans have attained skilled and managerial positions in Chinese enterprises, which Chinese bosses emphasized makes good business sense due to low recruitment costs, local market knowledge, effective management of local workers, and negotiating demands of local officials (2013, 1267). This suggests that Chinese exploitation of African workers would be impractical, given that businesses require local workers in order to function effectively.

Yet another criticism of the engagement revolves around China's policy of non-interference in African internal affairs. Some scholars suggest that China turns a blind eye toward social injustice, pointing out that China's official African policy paper (Ministry of Foreign Affairs of the People's Republic of China 2006), despite all its promises of cooperation, is completely silent on the human rights obligations of Chinese businesses operating in Africa (Ofodile 2008, 531). Western bilateral and multilateral donors view the non-interference as undermining their own efforts to reduce corruption and improve governance in Africa, especially when China effectively ignores human rights and labor and environmental standards (Samy 2010, 85). For instance, until recently, the Chinese government had remained silent on the Sudanese government's policy in the Darfur region, indicating that it was not interested in issues beyond its own economic interests (Samy 2010). Corruption plays a major role in the disbursement of aid, and China's non-interference policy can be especially problematic in countries such as Angola, Sudan or Zimbabwe whose governments have a reputation for corruption and non-accountability, raising concerns that aid might not be wisely spent. Thus, there is a fear that China's cooperation with opaque regimes will fail to respect the rights of indigenous peoples, the environment, and labor standards. However, others such as Brautigam (2009) point out that China is rethinking that approach, given their willingness to apply bilateral pressure on a government like Sudan to allow for a U.N. intervention; this suggests a clear indication that the Beijing government is changing the contours of its non-interference policy in relation to U.N. action.

Scholars also warn that China's dealings with African dictators and political elites make for an exploitative relationship. A common argument is that Sino-African trade relies on close ties to autocratic political forces and is driven by Chinese demand for resources. Eisenman concurs, cautioning that “some African countries risk falling victim to a situation whereby the economy becomes dominated by a single export commodity, enriching a small group of elites who control natural resources at the expense of the larger workforce” (2012, 807). Mohan refers to the term “Dutch disease” to describe this phenomenon, defined as the negative impact on an economy of anything that gives rise to a sharp inflow of foreign currency, such as the discovery of large oil reserves (Financial Times 2015). The nature of dealing with elites results in a severe lack of public involvement in negotiating trade and concession agreements. Ofodile (2008) reminds us that multi-national corporations, both Western and Chinese, are not required to publicly disclose their basic payments for resources to their governments, resulting in massive revenue embezzlement.

Aggregation vs. Disaggregation

A recurring theme across Sino-African scholarship is the prevalent treatment of Africa as a homogenous state. Scholars exhibit the tendency to aggregate individual African states into a unitary actor when assessing African interaction with China (Li and Dottin 2011, Mohan 2013, Power 2011). The aggregation of states results in a deceptively balanced China–Africa trade relationship when China’s trade with all 54 African states is taken together (Eisenman 2012, 805). In another method to aggregate Africa, Western journalists often “select some horror show regarding ‘poor’ Africans and extrapolate to the whole continent” (Mohan 2013, 1257). Not surprisingly, an overwhelming portion is the work of Western scholars, whereas African scholars favor the disaggregation of African states (Ofodile 2008). Although this method may be useful when describing the Sino-African relationship as a whole, the approach fails to recognize the uniqueness of each African state, foregoing the disparate impacts that China has on such states (Ofodile 2008, 566). For example, China exhibits a strong preference toward bilateral policymaking, and in African politics, governmental elites are highly influential drivers of such policymaking. By aggregating the behaviors of states, one would neglect the individuality of the approaches by such actors, and therefore, the unique impacts of China on those states. Therefore, scholars suggest avoiding blanket discussions of “China” and “Africa".

Scholars who disaggregate Africa tend to uncover important observations. For example, on a country-by-country basis, the balance of trade between China and resource-rich African exporters tends to favor the African country whereas the balance shifts toward China when trading with non-resource exporting African partners (Eisenman 2012, 805). Other analyses take inductive approaches in focusing on a bilateral linkage between China and a particular country and analyzing what this means for local development (Mohan 2013, 1256). As a result of such findings, some scholars suggest moving away from singular terms like "African state" toward thinking in more particular ways about the specific relationships between a diverse constellation of African actors and foreign economic partners. This research seeks to meet this call for a disaggregated approach in an effort to unearth difference in Chinese impact on unique African states.

Place in Literature

This review reveals that prior scholarship has placed great emphasis on China's political and economic ambitious in its engagement with Africa as a whole. A majority of scholars adopt the Chinese government or development banks as actors, while discussions on Africa largely refer to elites instead of states (Mohan and Lampert 2012, 94). While the hegemonic power of China has drawn widespread intrigue, few scholars have examined the relationship from an African perspective. Also, research on the impact on human development is scarce due to limited data and perhaps because the perceived economic gains have been more easily quantifiable and thus, easier to interpret. Despite an ample stream of literature, some scholars admit that, while the China-in-Africa story has graced headlines for nearly a decade, there have been relatively few attempts to theorize what this means for sub-Saharan African development (Mohan 2013).

As a result, this study seeks to fill the gaps in current literature in three ways. Firstly, this research will view the Sino-African relationship through a distinctly African lens, focusing on the progress of African development, rather than on China's motives. Secondly, because prior studies tend to view Africa as an aggregate unit, this research instead uses a disaggregated approach to Africa, recognizing bilateral relationships and adopting individual Sub-Saharan states as the unit of observation. This research contributes three in-depth case studies to determine the economic and human development impact at the state level. This approach meets the call by Ofodile and others to avoid broad speculations and generalizations in an effort to identify the impact of economic engagement on different countries in Africa and on different groups within each country. Because prior scholarship suggests that Sino-African relationships are more locally-driven than is generally recognized, realigning focus toward the individual state must yield distinctive results for each country. Unique observations allows each country's policymakers to learn and adapt more effectively than using the generalizations and blanket statements of prior scholarship.

Finally, though the Sino-African relationship dates back decades, the effects of China's investment in Africa are relatively new to Africa and have only been measurable within the last fifteen years. This study combines a qualitative approach with the latest available data to arrive at empirically-substantiated conclusions. This diversity in approach offers a unique method of examining African development that will serve to complement existing literature.

4 Analysis and Discussion of Findings

This research proceeds by profiling the socioeconomic profiles of each sample country before the arrival of China. I will then qualitatively and quantitatively test the independent variables of trade flows, infrastructure finance, and FDI flows in an attempt to assess their impact on economic and human development, drawing conclusions for each dependent variable. Finally, I will discuss the implications for each country based the findings.

Angola: "The Richest Poor Country in the World"

Angola has faced a difficult history, having been a victim of imperialism, decolonization, and civil war. The decolonization process forced the vast majority of Portuguese settlers to leave the country. However, the colonial administration reserved all education opportunities for the settler population, so when they left to return to

Portugal, they took with them all the skills necessary for the functioning of a modern society (Power and Alves 2012). As a result, nearly all economic activity outside of oil came to a screeching halt. At the end of the civil war in 2002, post-conflict reconstruction became the government's priority. The country desperately needed to revive its economy and rebuild infrastructure that was destroyed during the conflict. The Angolan government instituted policies aimed at a centrally planned economy, but the resulting nationalization devastated the economy. In 2000, Angola's GDP was $9.1 billion and GDP Per Capita was a mere $655 (World Bank). Its HDI figure was 0.377 which placed Angola 160th out of 174 countries, a ranking that the UDNP classifies as "low human development."[4] Angola engaged in negotiations with the IMF on aid packages but talks ultimately collapsed over the conditionality of the loans. The failure of Angola's talks with Western donors left the door open for China to step in and provide Angola with financial and economic lifelines, beginning with the first Forum on China-Africa Cooperation in October of 2000; the timing of the forum should be no coincidence given the start of China's economic boom in the same year.

How does Angola engage with China?

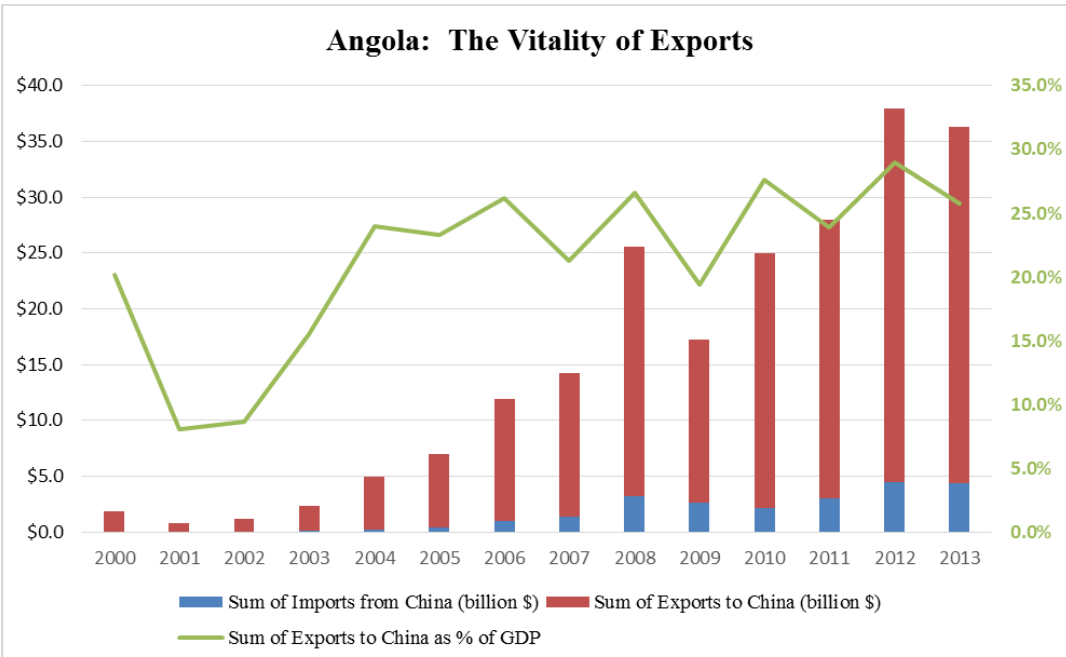
Before discussing the impact on development, this section briefly describes Angola's economic engagement with China between 2000 and 2013, highlighting the most impactful contributions of the independent variables of trade, infrastructure finance, and FDI. Trade with China proves to be the most obvious and impactful variable given the sheer volume of petroleum exports, which have historically contributed about a

[4] UNDP classifies countries under four categories: Low, medium, high, and very high human development.

quarter of Angola's overall GDP. From an Angolan perspective, China has been its largest trading partner. As Figure 1 demonstrates, Angola's Total Trade with China—that is, imports plus exports—has grown from only $1.8 billion in 2000 to $36.3 billion in 2013, an overwhelming 99 percent of which has been comprised petroleum (MIT 2015). Imports have also risen sharply from near-zero in 2000 to $4.3 billion in 2013, though the chart also highlights a wide trade imbalance. The line shows the growth of China's role in Angola's overall economy: though Angola's economy stumbled toward the end of its civil war in the early 2000s—during which a third of its population was internally-displaced—exports to China have risen from 10 percent of Angola's economy to a peak of 29 percent in 2012. Simply put, Angola has been trading more with China, and the relationship has grown to a point where trade with China contributes a quarter of Angola's GDP.

Angola has also been the foremost African recipient of infrastructure financing from China. Through 2007, the World Bank has estimated the value of infrastructure commitments from China to be a total of $9.8 billion (Foster, et al. 2009, 86-134) with Eximbank providing most of the funding. These commitments come in the form of loans or credit lines and have been allocated to projects such as the rehabilitation of power plants and the extension of transmissions systems in Luanda and Lubango, the rehabilitation of the Luanda railway, construction of water distribution and drainage systems, a new international airport in Luanda, expansion of the Angola Telecom networks, rehabilitation and construction of new roads and highways, and the exploration of offshore crude oil fields. China has also financed the construction of affordable housing in concert with President Jose Eduardo dos Santos's 2008 pledge to build one million homes in four years (Power and Alves 2012). The most symbolic of these housing projects was a $3.5 billion newly-constructed town of Kilamba that boasts capacity for 500,000 residents, which was Chinese-financed and repaid with Angolan oil revenues.

Figure 1. Angola: The Vitality of Exports.



Source: IMF Direction of Trade Statistics. [*http://www.imf.org/*](http://www.imf.org/)

FDI has also been a growing source of economic engagement between China and Angola. The China Global Investment Tracker—a joint project between The Heritage Foundation and The American Enterprise Institute (2015)—reported at least $9.73 billion of large-scale FDI inflows between 2005 and 2013[5]. Figure 2 shows how the real estate, energy, and transport sectors are the dominant recipients of foreign investment, suggesting that private companies believe these are the sectors with the potential for

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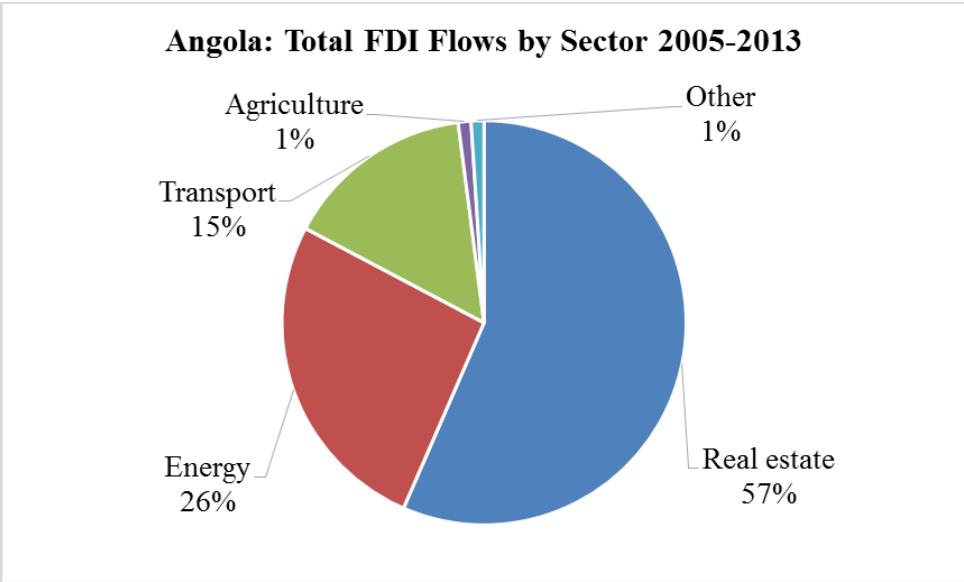
[5] Because the database only captures investments of over $100 million, this figure likely underestimates the true value of FDI into Angola.

growth—all of which are infrastructure-related.

Figure 2: Angola: Total FDI Flows by Sector 2005-2013.



Source: The China Global Investment Tracker, The Heritage Foundation and American Enterprise Institute (2015).

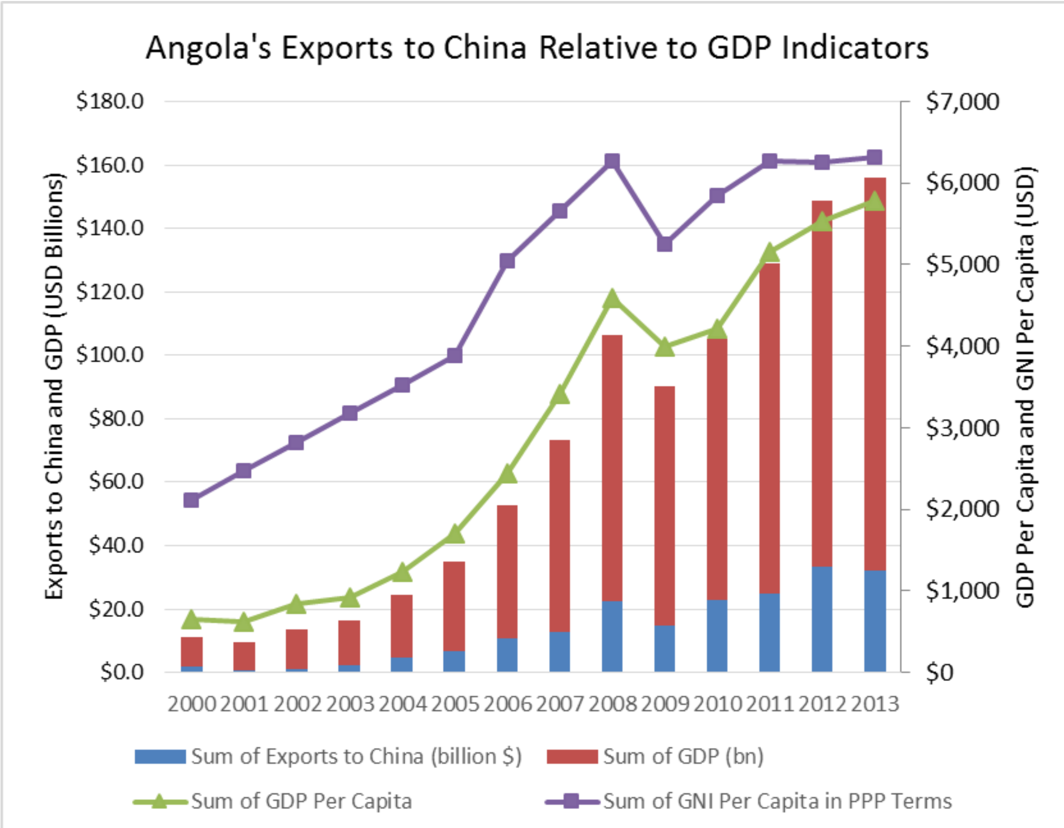
What are the effects on development?

#1. Angola is gaining wealth at a rapid pace because of its exports to China, which are highly correlated with increases in GDP and GDP Per Capita as economic indicators, as well as with increases in GNI Per Capita—a component of HDI. An analysis between the values of exports and those three economic indicators yields correlations of 0.99, 0.98, and 0.92 respectively, meaning that the value of exports to China has a strong relationship with the health of the overall economy.

Figure 3: Correlation Table

	Exports to China	*GDP*	*GDP Per Capita*	*GNI Per Capita in PPP Terms*
Exports to China	1.00			
GDP	0.99	1.00		
GDP Per Capita	0.98	1.00	1.00	
GNI Per Capita in PPP	0.92	0.94	0.96	1.00

Figure 4: Angola's Exports to China as a Percentage of Overall GDP.



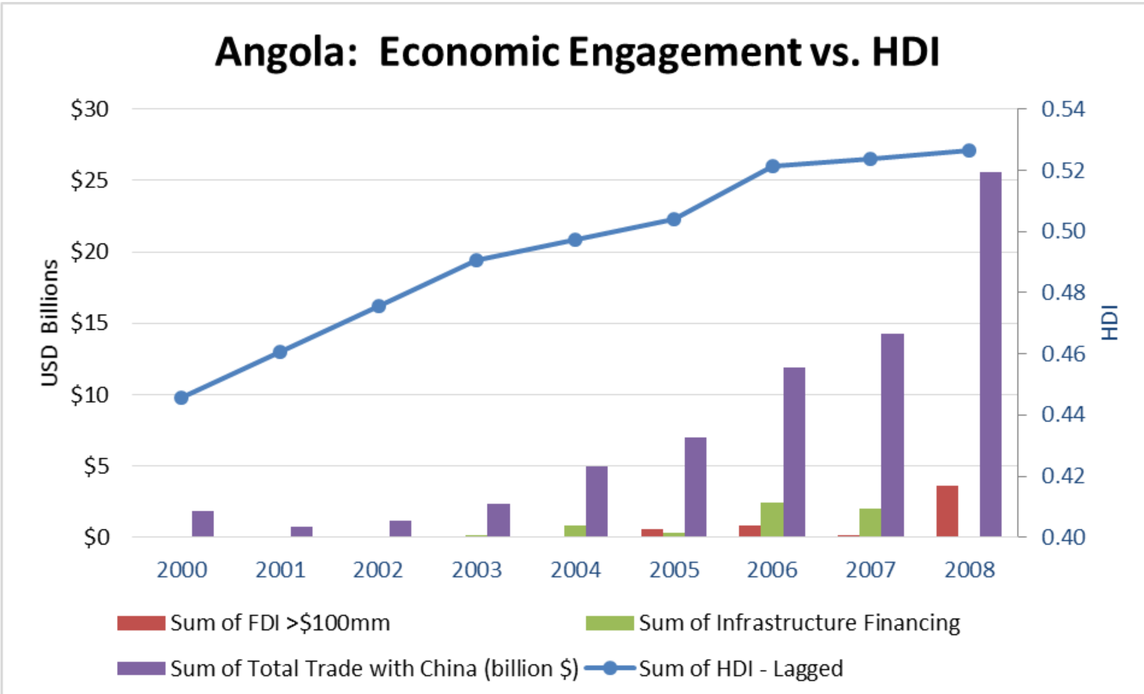
Source: IMF Direction of Trade Statistics, http://www.imf.org/ and The World Bank Open Data, http://data.worldbank.org

Also, a regression of exports to China against GDP yields an R Square of 0.97, indicating that based on the observations, exports to China are an accurate predictor of GDP. Figure 4 displays the relationship between the aforementioned variables, showing that all three economic indicators have risen in concert with exports in China. In addition, the increase in GNI Per Capita has a direct positive effect on HDI, and potentially on human development overall. This data would also suggest that Angola's economy is highly vulnerable to a slowdown in Chinese petroleum purchases.

Skeptics may argue that this analysis does not consider trade with other countries besides China that may affect the dependent variables. However, this research stresses the fact that 61 percent of all Angolan exports go to China—more than 46 percentage points higher than the next recipient country, which is India at 15 percent (MIT 2015). Furthermore, one must note that the sharp increase in crude oil prices have aided the value of exports, having increased from $26 in 2002 to a peak of $145 in 2008 (U.S. Energy Information Administration 2015). Therefore, Angola's economy is also vulnerable to a decrease in oil prices. While the number of barrels produced may not change, the contribution of exports to GDP would potentially decrease in concert with the price of oil.

#2. The increased level of economic engagement between Angola and China coincides with the increase in the Human Development Index, lagged 5 years. Data suggests that human development in Angola is improving in harmony with increased levels of economic engagement with China. Figure 5 illustrates the increase in the aggregate independent variables in relation to HDI. The HDI figures reflect a 5 year lag, which assumes that the implementation time of improved healthcare and education—two factors in HDI—takes time. The correlation coefficient between Total Trade (imports plus exports) with China and HDI is 0.81, which suggests a moderately strong relationship. Furthermore, a regression of those two variables yields an R Square of 0.73; while trade may not be a particularly strong predictor of human development, it is nonetheless a contributing factor. The values of infrastructure financing and FDI data are far smaller and more inconsistent than Total Trade which suggests that their impact is less apparent, but nonetheless, there is an upward trend starting in 2004. Based on this data alone, it is possible that the increased revenues and improved infrastructure have allowed the government to spend more on programs that have benefitted human development.

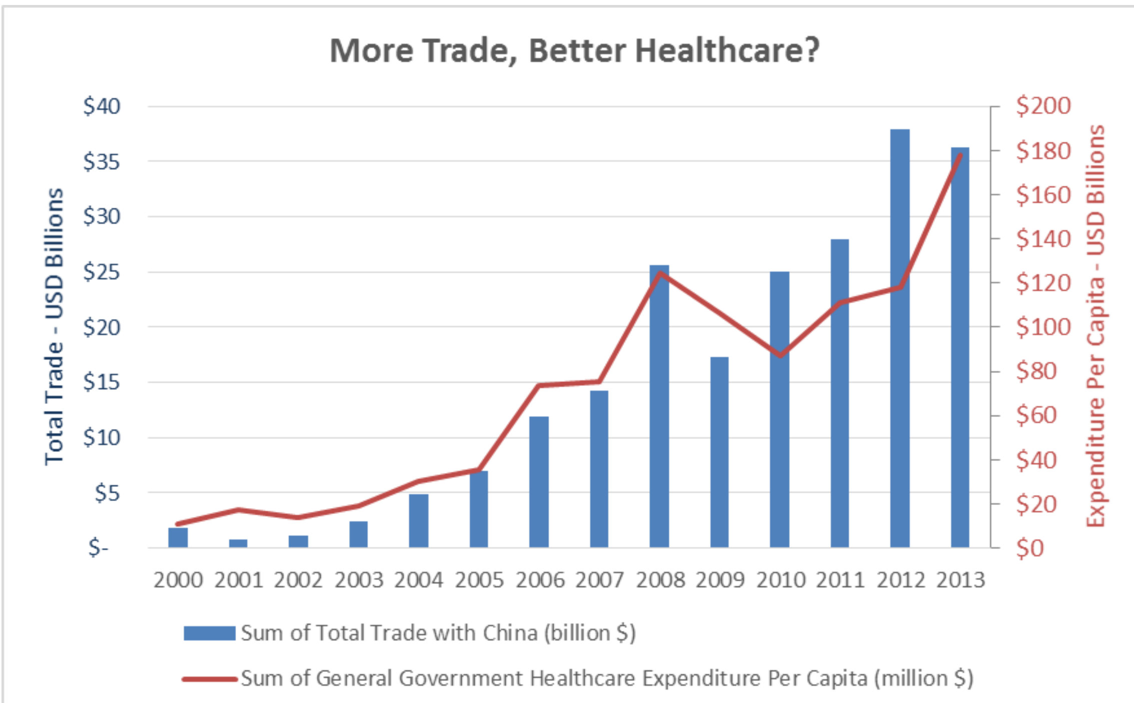
Figure 5: Angola-China Economic Engagement vs. Human Development Index.



Source: IMF Direction of Trade Statistics, http://www.imf.org/ and The World Bank Open Data, http://data.worldbank.org, UNDP Open Data, https://data.undp.org/, and The China Global Investment Tracker, The Heritage Foundation/American Enterprise Institute (2015)

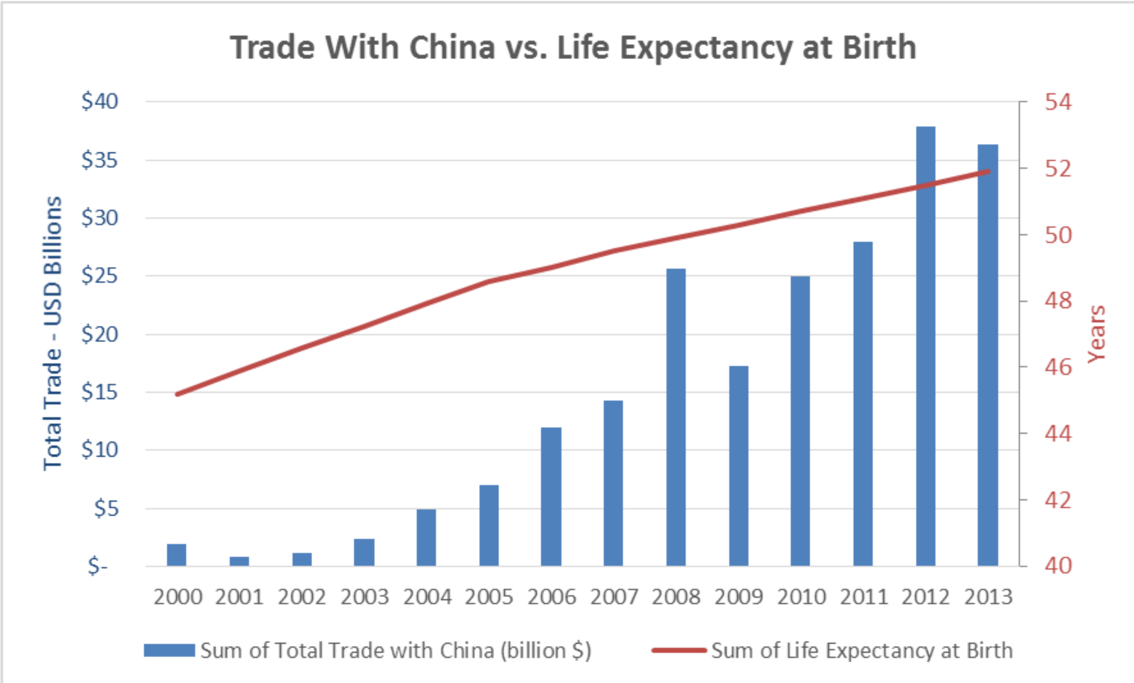
#3. As Angola trades more with China, the government is spending more on healthcare per capita, which may contribute to longer life expectancy at birth. Total trade and general government healthcare expenditure (GGHE) per capita have a correlation coefficient of 0.94, indicating a very strong relationship, as Figure 6 shows. The increase in spending alone may not necessarily indicate that Angolans are healthier, but rather that the Angolan government shows its will to improve healthcare overall. Life expectancy at birth—a contributing factor to HDI—has also increased dramatically from 45.2 years in 2000 to 51.9 years in 2013, suggesting that efforts to improve healthcare may actually have helped the lives of newborn Angolans. Besides the Angolan government, Beijing has also taken a direct approach in financing healthcare projects in Angola. AidData estimates that Beijing has committed at least $450 million to Angolan healthcare projects from 2001 to 2013 (AidData 2015). These efforts include the construction and rehabilitation of health centers, anti-malarial centers, and municipal hospitals, as well as the provision of doctors, medicine, and medical equipment.

Figure 6: Total Trade with China vs. General Government Healthcare Expenditure Per Capita.



Source: IMF Direction of Trade Statistics, http://www.imf.org/, UNDP Open Data, https://data.undp.org/

Figure 7: Total Trade China vs. Life Expectancy at Birth.



Source: IMF Direction of Trade Statistics, http://www.imf.org/, UNDP Open Data, https://data.undp.org/

Despite the encouraging trend lines, one may wonder how selling more oil to China directly impacts the health of Angolans. Indeed, there are several implementation steps that must occur in order for oil revenues to translate into longer lives, but the key point is that both the Angolan and Chinese governments are more committed to the cause; the increased spending per capita and the Chinese-funded projects display that resolve. Another counterargument is that according to Power and Alves, "Clinics are not used because of lack of doctors or nurses" (2012, 2), suggesting that while the government is spending more to construct facilities, the delivery of healthcare services is still lacking and that Angola's capabilities are not maximized. Nonetheless, the trend of increasing life expectancy at birth is a statement that the effective is positive; when life expectancy rises, it has a positive impact on human development given that is a contributor to HDI.

#4. In the same period that Angola's engagement with China has increased, children are staying in school dramatically longer.

Figure 8. Total Trade with China vs. Expected Years of Schooling for Children.

Source: IMF Direction of Trade Statistics, http://www.imf.org/, UNDP Open Data, https://data.undp.org/

Figure 8 charts Total Trade with China against the Expected Years of Schooling in Children, lagged 5 years later. The graph shows in increased in Expected Years of Schooling from 7.8 years to 11.4 years in a matter of six years, a similar timeframe during which Angola and China increased their trade volume. Removing the lag reveals an even more significant increase, with Expected Years of Schooling rising from 5.5 years in 2000 to 11.4 years in 2011. In other words, children are spending up to six more years in school on average, which is a positive contributor to HDI. The correlation coefficient between engagement with China and years of schooling is 0.85 lagged and 0.96 with no lag. Though such levels of correlation are unsustainably high and may seem spurious, qualitative data provides evidence to support a strong relationship, given that China has taken a direct approach in contributing to better education. AidData shows that China has committed no less than $642 million to education projects from 2005 to 2013. These projects include: the construction and rehabilitation of primary schools, secondary schools, technical institutes, agricultural schools, and a university campus (AidData 2015). Critics may argue that despite the construction of new facilities, its impact remains limited, citing that "many school buildings remain empty because there are not enough teachers" (Power and Alves 2012, 41). Like healthcare, observations on-the-ground in Angola suggest that increased spending on education may not always translate to enrollment. Nonetheless, the increase in expected years of enrollment has been a positive contributor to human development, even if the education system has yet to be efficient or maximized.

Implications for Angola

Based on the dramatic increase in Sino-Angolan engagement, as evidenced by both times series data and qualitative accounts of the independent variables, China has positively contributed to Angola's economic and human development. However, the sheer percentage of Angola's economy attributable to China[7], which has historically averaged around 20 percent since 2000, exposes a vulnerability in Angola's economy. This research suggests that because of the high correlation between engagement and development, Angola's development may slow down significantly should their economic relationship with China ever sour. Their heavy reliance on oil exports makes for a one-

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[7] Calculated using Angola-China Total Trade divided by Angola's GDP

dimensional economy. Thus, the Angolan government must learn to diversify Angola's trade counterparties as well as its sources of GDP.

Secondly, despite the dramatic increase in spending for development programs in healthcare and education, the Angolan government has displayed inefficiency in implementing those programs, as evidenced by qualitative accounts. In one example, the "One Million Homes" initiative was successful in the construction of homes, but in reality, the community of Kilamba—designed for 500,000 residents—is a ghost town. According to news reports, homes are offered for sale anywhere from $125,000 to $200,000, which are higher than the government's mandated $60,000 cap (Power and Alves 2012, 138). Without any effective government monitoring in place, their efforts to spur development will be far less impactful.

The case of Angola also shows how human and economic development are inextricably linked. For example, although education among children is improving, education among adults remains a developmental challenge. The lack of skilled workers has led to poor job creation. When Power and Alves state, "Only a negligible number of Angolans are able to find jobs on the many construction sites that abound throughout the country" (2012, 41), they highlight an issue whereby local workers are not participating in contracted jobs due to their lack of training. Angola labor law states 70 percent of the workforce on a construction site must be Angolan, but that mandate can be overcome if a contractor cannot find Angolan nationals with necessary skills to perform a certain job (Power and Alves 2012). In order to successfully create jobs and spur the economy, Angolans must seek better education for its workforce in order to take advantage of the opportunities presented by engagement with China.

Sudan and South Sudan: “Oil is Everything”

Like Angola, Sudan has faced a long history of internal conflict. The decades-long Second Sudanese Civil War between the northern and southern halves of the country ended in 2005 with a peace agreement, which resulted in the oil-rich South maintaining autonomy for six years until the 2011 referendum on secession. In spite of the violent conflicts, a booming oil industry has helped export revenues support Sudan’s economy. Though diplomatic relations between China and Sudan date back to 1959, the relationship gathered momentum in 2000, coinciding with the start of China’s economic boom. At the time, Sudan exported $732 million worth of commodities to China, comprising 6 percent of Sudan’s overall GDP, while imports were valued at $174 million. However, high levels of poverty, poor healthcare, and lack of education factored into an HDI index of only 0.385, classifying Sudan as a low human development country.

How do Sudan and South Sudan engage with China?

In terms of trade, Sudan’s relationship with China bears a striking resemblance to Angola’s. Similar to Angola, China has been one of Sudan’s largest trading partners, with oil accounting for 95 percent of all Sudanese exports to China. Sudan also imports low cost items and weapons from China, but imports comprise less than half of total trade, resulting in a wide trade imbalance. Figure 9 explains how the trade relationship with China had been strengthening throughout the 2000s, with the green line indicating how exports to China have become an increasingly large part of Sudan’s overall GDP. Note the severe drop-off in 2012 resulting from the secession of South Sudan in 2011, a crippling economic shock to Sudan that removed half of government revenues and much of its exports (The World Bank 2015).

Figure 9: Total Trade with China from 2000-2013, plus Exports to China as a Percentage of GDP. Source: IMF.

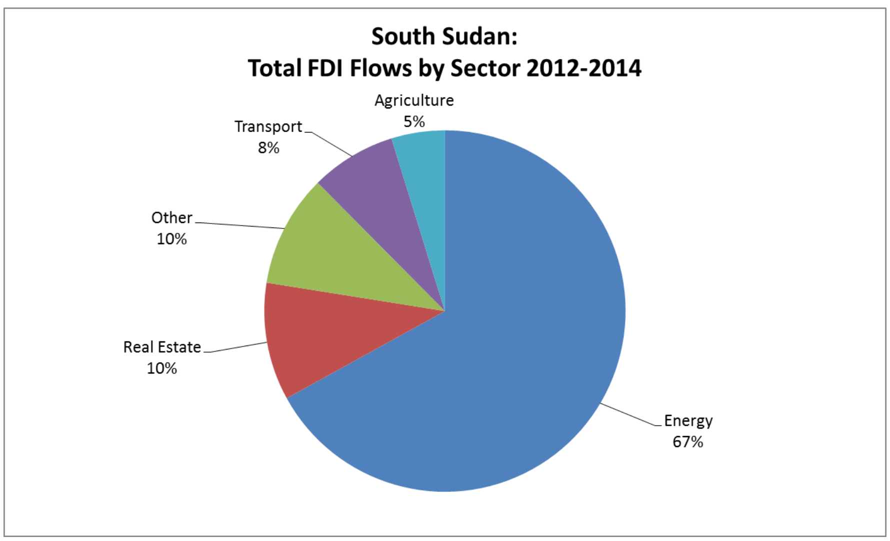
Source: IMF Direction of Trade Statistics. [*http://www.imf.org/*](http://www.imf.org/)

In terms of infrastructure finance, Sudan has been one of the top four recipients of financing from China. From 2001 to 2007, the World Bank has identified no less than $1.6 billion of commitments from China for projects such as the construction of hydroelectric, gas-fired, and coal-fired power plants, the construction of power transmission lines, railway development, bridges, water treatment plants, and oil and gold exploration. Since 2007, AidData has identified another $4.2 billion in new commitments for construction of a new airport, water distribution networks, railways and roads. AidData also suggests that China Eximbank and China National Petroleum

Corporation (CNPC) have provided the vast majority of financing for such projects (AidData 2015).

From 2000-2010, Sudan witnessed a remarkable inflow of FDI into its oil sector from China to the tune of $7.6 billion, while from 2000-2008, non-oil FDI totaled $3.8 billion (Suliman and Badawi 2010, 4). South Sudan's reflects a very similar percentage breakdown. Data suggests about $220 million in FDI flowed into South Sudan in the last two years, two-thirds of which was allocated toward the energy sector and one-third of which went to non-oil related sectors, a strikingly similar balance to Sudan (Suliman and Badawi 2010).

Figure 10: South Sudan: Total FDI Inflows by Sector 2012-2014.



Source: The Heritage Foundation/American Enterprise Institute.

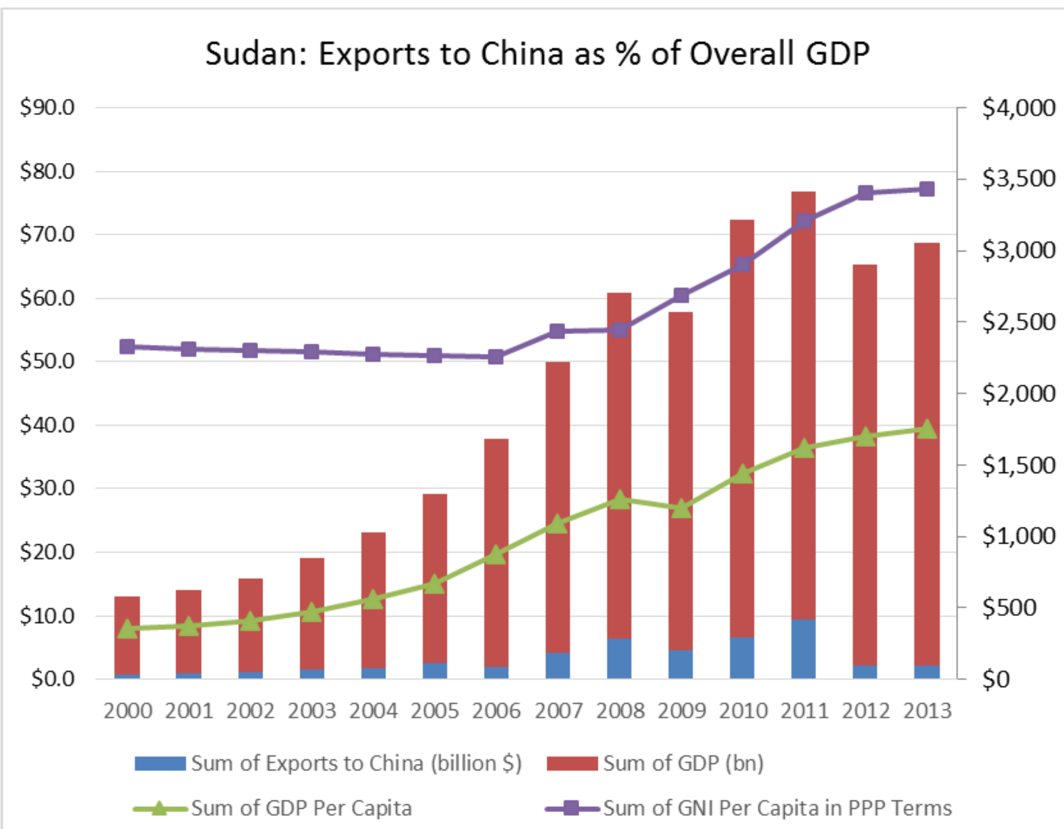
What are the effects on development?

#1. Sudan has gained wealth at a rapid pace because of its exports to China, which are correlated with increases in GDP and GDP Per Capita, but the secession of South Sudan exposes the economy's dangerous reliance on oil. Figure 12 graphs this relationship, showing that as exports to China increase (in blue), so does the size of the economy. The correlation coefficients are a bit weaker than Angola's, with Exports to GDP at 0.72 and Exports to GDP Per Capita at 0.63, but nonetheless, these factors exhibit a positively correlated relationship. This rings true in 2012 and 2013 after the secession of South Sudan: as exports decrease, so does overall GDP. GDP Per Capita remained the same however, likely due to the loss of population to South Sudan.

Figure 11: Correlation Table

	Exports to China	GDP	GDP Per Capita	GNI Per Capita in PPP Terms
Exports to China	1.00			
GDP	0.72	1.00		
GDP Per Capita	0.63	0.99	1.00	
GNI Per Capita in PPP Terms	0.41	0.83	0.89	1.00

Figure 12: Sudan's Exports to China as a Percentage of Overall GDP. Source: IMF, UNDP



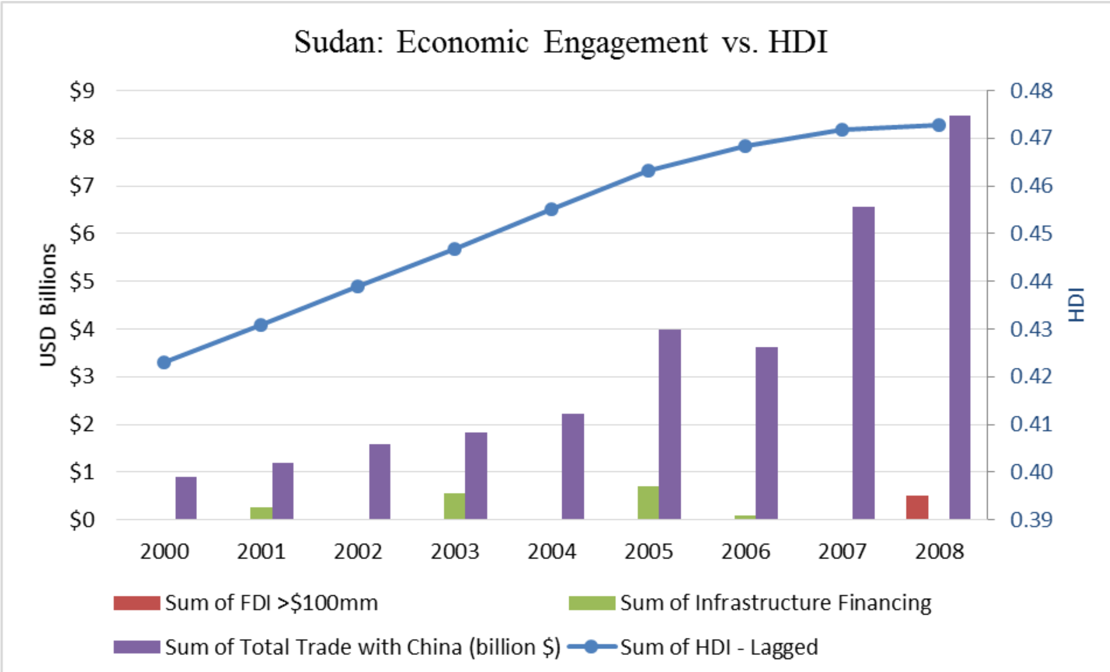
Source: IMF Direction of Trade Statistics, http://www.imf.org/ and The World Bank Open Data, http://data.worldbank.org

Figures 9 and 12 also expose what can happen to an oil-reliant nation like Sudan when it loses most of its best-selling product. Indeed, the secession of South Sudan induced multiple economic shocks, the most important and immediate of which was the loss of oil revenues. This left large-scale macroeconomic and fiscal challenges and stunned growth. According to the World Bank, Sudan had failed to develop other parts of its economy such as agriculture, livestock, and gold during its oil boom years, leaving the country anxious to rebuild its economy. This highlights the significant role that that China played in contributing to Sudan's economy.

Critics may argue that Sudan's other large trade relationships with Japan or the United Arab Emirates may have contributed to the expansion of the economy. While that may ring true, this research stresses the fact that China's contribution to Sudan's GDP from trade dropped from 14.1 percent of GDP in 2011 to a mere 3.3 percent after the secession of Sudan, a drop of 10.8 percentage points from one country alone. The Sudanese economy would likely not have expanded at such a rapid pace were it not for China, because we see the dramatic negative effect when Chinese trade is greatly reduced. Skeptics may also cite high oil prices as aiding in the increased GDP figures, but one should note that GDP continued to rise despite the decrease in oil from 2008 highs of $145 a barrel.

#2. Like Angola, the increased level of economic engagement between Sudan and China coincides with the increase in the Human Development Index, lagged 5 years. For economic activity between 2000 and 2008, Sino-Sudanese engagement coincided with a small increase in Sudanese HDI from 0.42 to 0.47, five years from the initial year of activity. The correlation coefficient between Total Trade (the main driver of economic growth) and lagged HDI is 0.85, suggesting a strong correlation.

Figure 13: Sudan-China Economic Engagement vs. Human Development Index. Source: UNDP, IMF, World Bank, The Heritage Foundation/American Enterprise Institute.



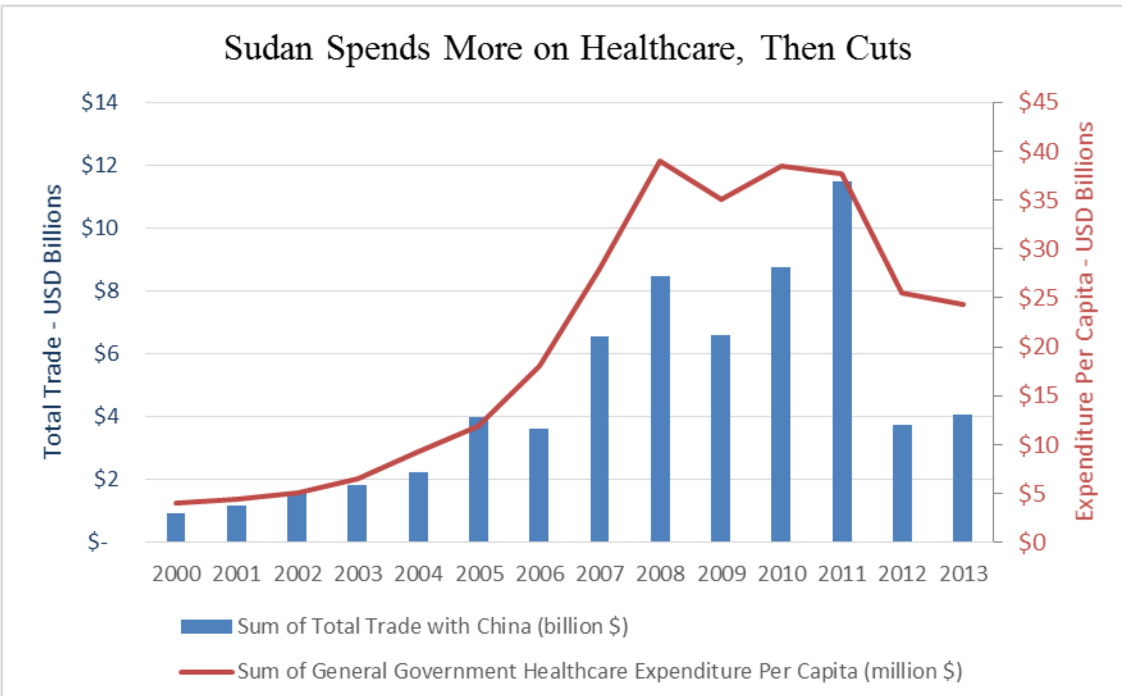
Source: IMF Direction of Trade Statistics, http://www.imf.org/ and The World Bank Open Data, http://data.worldbank.org, UNDP Open Data, https://data.undp.org/, and The China Global Investment Tracker, The Heritage Foundation/American Enterprise Institute (2015)

Furthermore, a multiple regression analysis results in an R Square of 0.82, suggesting that Total Trade with China is a reasonable predictor of HDI. Infrastructure Financing and FDI, due to their sporadic nature and therefore lack of consistent year-by-year data, did not meaningfully contribute. The primary driver of the increase in HDI is likely GNI Per Capita, which is linked to GDP; GDP in turn, is derived from Total Trade.

#3. From 2000-2011, as Sudan traded more with China, the government spent more on healthcare per capita, which may have contributed to longer life

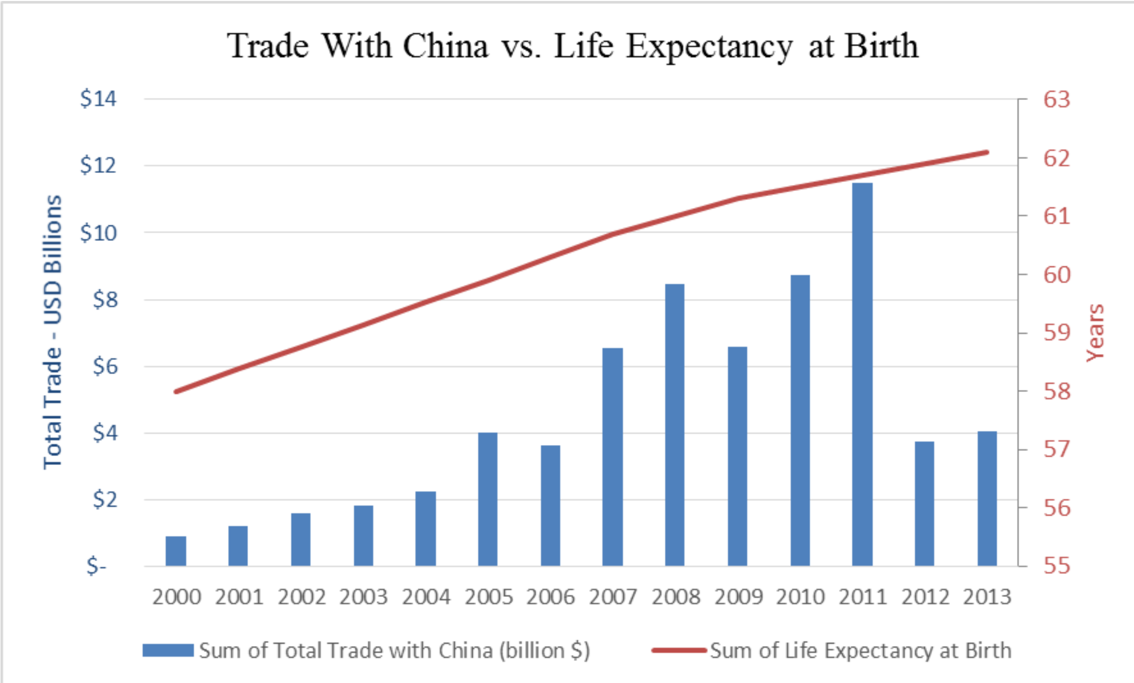
expectancy at birth. The correlation coefficient between Total Trade with China and General Government Healthcare Expenditure Per Capita is 0.93, which suggests a very strong relationship; this may seem abnormally high or spurious at first, but sharp decreases in years 2012 and 2013 of *both* Total Trade and Healthcare Expenditure may reinforce the relationship.

Figure 14: Total Trade with China vs. Healthcare Expenditure per Capita. Source: IMF, World Bank



Source: IMF Direction of Trade Statistics, http://www.imf.org/ and The World Bank Open Data, http://data.worldbank.org

Figure 15. Total Trade with China vs. Life Expectancy at Birth.



Source: IMF Direction of Trade Statistics, http://www.imf.org/, UNDP Open Data, https://data.undp.org/

Looking at Figure 15, life expectancy at birth has also significantly increased from 58 years in 2000 to 62.1 years in 2013. However, the secession of South Sudan introduced an economic shock, and as Figure 14 shows, the government cut back heavily on its healthcare expenditure per capita. The question then arises on whether one can expect life expectancy to decrease in the future, as a result of the decreased spending. Data suggests that Sudanese are living longer, but the sustainability of the uptrend will depend on the government's commitment to healthcare.

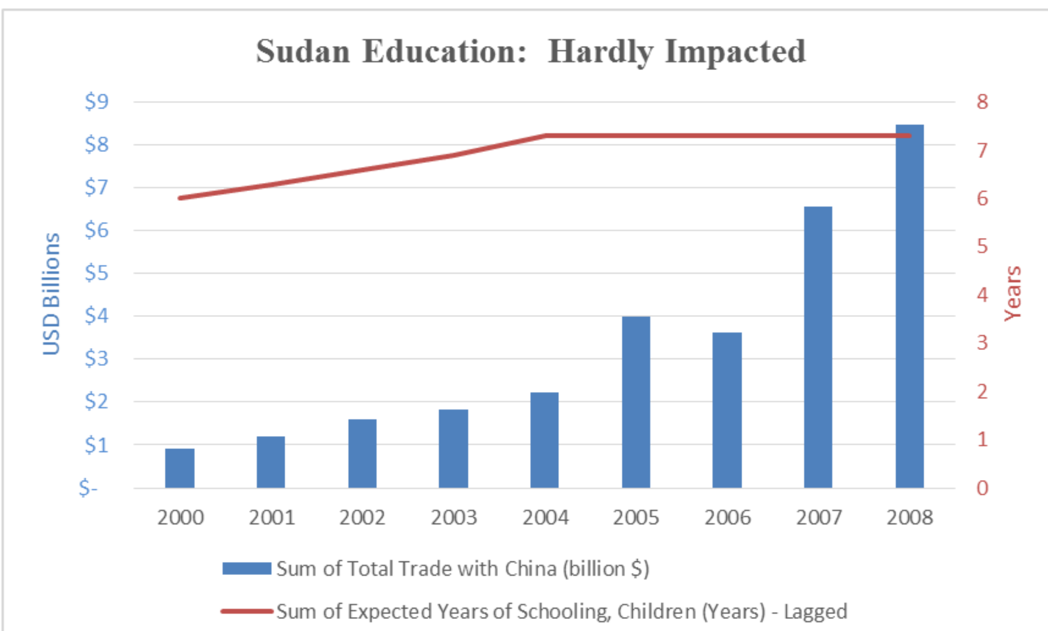
On the other hand, qualitative data paints a picture that is less rosy than what empirical data puts forward. For example, according to the World Bank, access to basic health services remains low, covering 40 to 50 percent of the population, and regional disparities are particularly acute as health facilities are unevenly distributed. Similarly, the World Health Organization (WHO) notes that healthcare remains underfunded by the government although the private sector is "growing at a rapid pace" though "concentrated in major cities and focuses on curative care" (World Health Organization 2014). Nevertheless, Sudan has embarked on developing a roadmap for providing universal health for its population. China's involvement with Sudanese healthcare has been sporadic at best, though Beijing has assisted by providing grants to rehabilitate health centers, building mobile clinics and a hospital, and by sending Chinese medical teams.

In summary, trade with China has enabled Sudan to experience increased revenues from oil, which in turn have allowed the Sudanese government has increase its government spending on healthcare However, in practicality, the distribution of healthcare remains inefficient and inconsistent, and the secession of South Sudan introduced a shock that has rattled the government's ability to promote healthcare development. Sudan's dependence on oil means that they cannot rely on China to boost their healthcare programs through revenues or aid. Sudan must maintain keen focus on the investment and distribution of healthcare in order to continue the encouraging trend of longer life expectancy.

#4. Education has only improved marginally and is not a strong contributor to the increase in HDI. Expected Years of Schooling in Children has only increased from 6.0 years to 7.3 years on a 5-year lagged basis as shown by Figure 16. However, Figure 17 shows that with no lag, education improves from 4.5 years to 7.3 years. Effectively, students are staying in school longer which coincides with the increase in Total Trade with China. This positive trend directly contributes to the improvement of HDI over the same time period. The correlation coefficient between Expected Years of

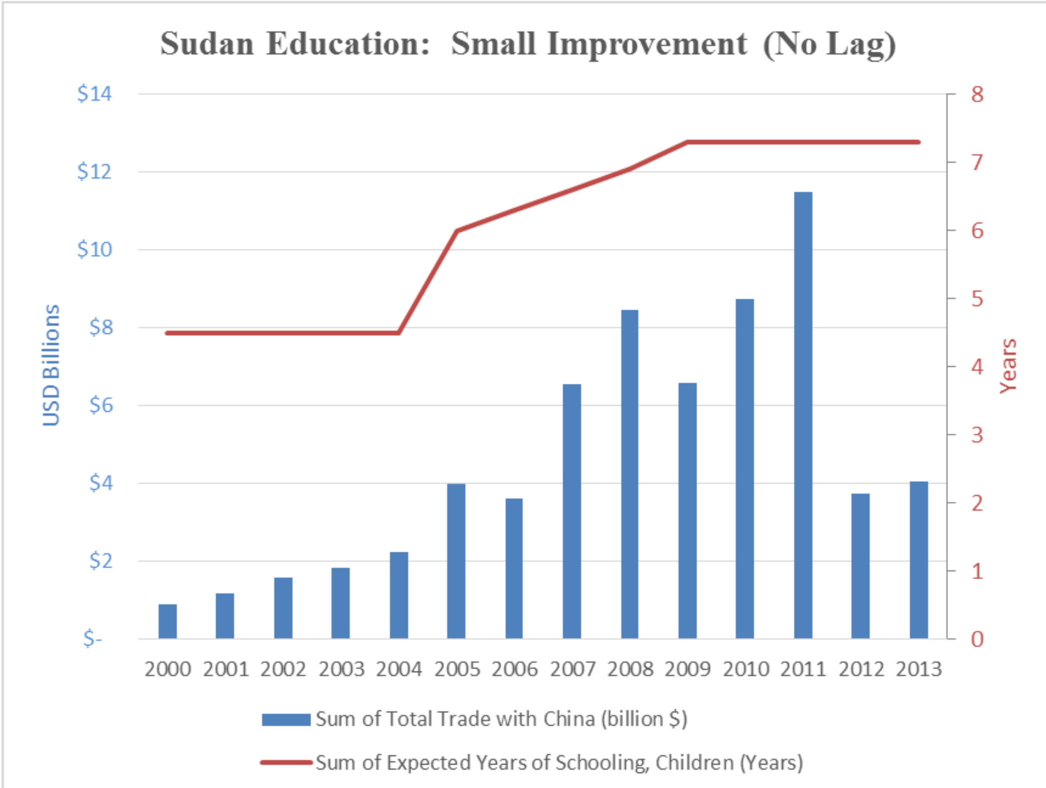
Schooling in Children and Total Trade with China is 0.79, which indicates a fairly strong relationship. However, like the previous discussion on life expectancy at birth, the secession of South Sudan seems to have caused a levelling-out in Expected Years of Schooling. The question then arises on whether one can predict a decrease in expected Years of Schooling in the future due to the reduction of the overall wealth of the economy. China has provided some assistance over the years in the realm of education by providing $10 million in financing for higher education, building an institute at a university, and constructing rural schools in various regions (AidData 2015). However, China's relatively limited allocation to education projects renders oil revenues as the key driver for education spending and improvement.

Figure 16: Total Trade with China vs. Expected Years of Schooling in Children (Lagged 5 Years).



Source: IMF Direction of Trade Statistics, http://www.imf.org/, UNDP Open Data, https://data.undp.org/

Figure 17: Total Trade with China vs. Expected Years of Schooling in Children (No Lag).



Source: IMF Direction of Trade Statistics, http://www.imf.org/, UNDP Open Data, https://data.undp.org/

Observations from the World Bank suggest that the state of education remains poor overall: the net primary school attendance rate is only 67 percent with significant disparities across states and gender. According to the 2012 Education Status Report, the World Bank notes that the negative impact of poverty, rural-urban disparities, and gender inequalities are key contributors to low levels of education (The World Bank 2015). The story of education in Sudan is not dissimilar from that of healthcare; China can only be relied on so much to help the cause. In order to accelerate human development, the Sudanese government must promote more programs in rural regions and make an effort to promote gender equality in education.

Implications for Sudan and South Sudan

Despite the wealth that Sudan gained from its economic engagement with China over the last fifteen years, human development indicators remain low, and Sudan ranks 166th out of 187 countries in the UNDP's latest HDI calculation. HDI increased but at a pace that far lagged the influx of new revenues. The major problem lies in Sudan's failure to translate oil revenues into investment for human development. It failed to diversify its economy outside of oil or promote the growth of the private sector. Even with China's contribution to infrastructure, Sudan remains in an infrastructure deficit outside of major cities. Internal conflict, displacement of its population, corruption by governmental elites, political instability, and general economic uncertainty all prevented the creation of a conducive environment for business development, growth, and employment. Furthermore, this research shows that the secession of South Sudan introduced a new shock into Sudan's economy, putting further development progress at great risk. Data showed the negative socioeconomic development effects of dependence on one product. Without China, Sudan's economy is left in an extremely vulnerable state.

Another implication which affects Sino-Sudanese engagement has been China's historical policy of non-interference in domestic affairs, most noticeably in its views toward the conflict in Darfur. The international community has accused China of turning a blind eye toward humanitarian crises, and the relationship between China and Sudan has been a central focus of human rights. This has been coupled with criticism of China for dealing with dictators, as the rogue government of Sudan under President Omar al-Bashir has been China's most controversial partner in Africa. The story is rather straightforward: As Sudan's civil war wound down, two rebel groups in the Darfur region attacked police and military to which the government brutally retaliated by bombing rebel-held villages. The Sudanese government provided arms and support to local militias, who committed violent crimes, rape, displacement, burning of villages. Essentially, China's purchases of Sudanese oil enabled Sudan to buy Chinese arms, which were then used against the rebels in Darfur; the Sudanese were effectively attacking their own citizens. China took a business-as-usual approach, claiming arms sales were legal and followed terms of a UN embargo on Sudan. After much international pressure, China later retraced its view, and Beijing sent a strong message to the Sudanese government while also sending a peacekeeping force to Darfur. The key takeaway is that China has shifted from being part of the problem to being part of the solution, as Brautigam notes that "[China's] level of coordination and cooperation has been improving" (2009, 282).

The incident in Darfur may serve as a catalyst for a change in China's policy toward non-interference. In terms of development, the benefits of a trade relationship are clear, but such a shift in foreign policy may now put China in a position to subdue conflict and promote human development in its African trading partners. Sudan, however, must also strive to find stability and eliminate violence on its own, in an effort to create a positive investment climate.

Developing nations have plenty to learn from Sudan and Angola. South Sudan is one of the youngest countries in the world, but also holds the dubious distinction as the most oil-dependent country, according to the World Bank. It must promote a peaceful and positive investment climate in order to attract trade and FDI. It must learn to diversify its economy outside of oil in the event that China pulls out as a partner, and it must invest in healthcare and education to promote a healthy and skilled workforce to serve as the basis for a stable economy.

South Africa

Like Angola and Sudan, South Africa's history has been plagued by its share of internal conflict, characterized by decades of apartheid. The apartheid regime had isolated South Africa from the international community, and economic sanctions had limited its opportunities for global trade. Fortunately, the end of apartheid in 1994 led to a lifting of sanctions, opening the door for the country to re-engage with the world by focusing on foreign policy and trade. China played a key role in their plan. Prior to 1998, South African relations with mainland China—the People's Republic of China—were practically non-existent due to South Africa's diplomatic relations with Taiwan, or the Republic of China. However, in 1998 South Africa shifted its diplomatic allegiance from Taiwan to Beijing, and with it came new opportunities for economic growth.

South Africa makes for an appropriate sample case study for a number of reasons. Because of the very low levels of economic engagement prior to China's economic boom, South Africa serves as a logical baseline from which to measure China's impact during the 2000s. Furthermore, South Africa, albeit just one state amongst 54 African countries, "arguably provides China's African engagement with legitimacy because of its role as continental leader" (Grimm, et al. 2013, 16). Therefore, because of South Africa's de facto position as an African leader, the impact of China on its economic and human development may serve as a model—or at least, a barometer—of the potential impact on other developing countries. In 2000, South Africa had an HDI value of 0.622 which would classify it as a medium human development country. The relatively high value of GNI per capita of $7,462, compared to other African nations is offset by low life expectancy at birth of 54.8 years (United Nations Development Programme 2013).

How does South African engage with China?

South Africa's engagement with China is shaped by a number of actors, including the South African government, China's development banks, Chinese state-owned enterprises, and both Chinese and South African private enterprises. Trade is again the focal point of the relationship, given China's position as South Africa's largest trading partner—in very similar fashion to Angola, Sudan, and South Sudan. On the other hand, South Africa accounts for nearly 20 percent of China's total trade with the African continent (Grimm, et al. 2013, 17), which underscores its importance to the economic health of the region. From a Chinese perspective, South Africa's natural resource bounty and industrial capacity serve as pull factors, given its rich stores of diamonds, gold, coal, iron ore, platinum, manganese, chromium, and copper (Grimm, et al. 2013, 16). As a result, the mining sector forms the core of the economy. Agriculture and manufacturing in food and textiles also make up a substantial portion of the economy. Petroleum, however, is largely absent and does not contribute to South Africa's exports.

Figure 18: Total Trade with China from 2000-2013, plus Exports to China as a Percentage of GDP.

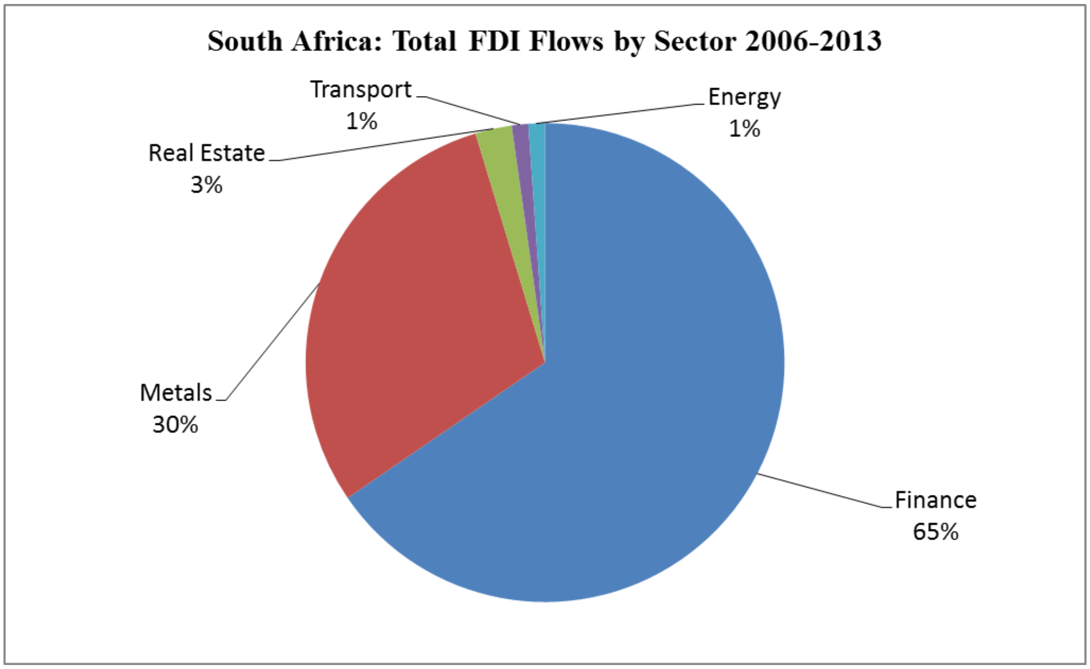
Source: IMF Direction of Trade Statistics. http://www.imf.org/

South African exports to China have grown at a tremendous pace, having risen from $335 million in 2000 to more than $12 billion in 2013 (The World Bank 2015). Imports from China have grown in a similar fashion, rising from $1 billion to $16 billion in the same timeframe. South African exports overwhelmingly consist of raw materials while the country imports mostly manufactured goods. The result of a trade relationship is a concerning imbalance whereby imports significantly outweigh exports. China has become a more important part of South Africa's economy, as evidenced by the growth of Exports to China from near-zero levels in 2000 to 3.4 percent of overall GDP in 2013. The economy of South Africa is far larger and more diversified than the previous case studies, but trade volumes on an absolute scale are comparable to that of Angola. Figure 18 illustrates the tremendous growth in trade. Note that unlike Angola and Sudan, the trade imbalance is reversed in favor of China, given that imports from China outweigh the exports, as illustrated by Figure 18; nonetheless, both have continued to grow rapidly. The green line indicates how China has become an increasingly large part of South Africa's economy.

In addition to trade, infrastructure financing deals between South Africa and China have increased in number and value within the last three years. Historically, the number of financing deals with South Africa have been far more limited than with Angola and Sudan, but more recent transactions have garnered much attention to their multi-billion dollar values. From 2006 to 2007, Chinese financed new projects in chromium mines and factories to the tune of $1 billion (Foster, et al. 2009, 37). It was not until years later that volumes picked up. In 2011 the Development Bank of South Africa and the China Development Bank signed an agreement for $2.5 billion with the goal of mutual investment in mining, infrastructure, transport, communication, energy, and agricultural projects (Grimm, et al. 2013, 16). Then, as recently as 2015, China Development Bank agreed to provide a $5 billion loan to the South African state-owned company Transnet to help rehabilitate railways and port infrastructure (The Heritage Foundation and The American Enterprise Institute 2015). Given the recent timing of such infrastructure deals, their impact will fall outside of the scope of the research as their contribution to development may take another few years to materialize.

For South Africa, FDI has been a particularly strong source of economic engagement with China. Its relatively stable and established economy makes for a more conducive environment for attracting foreign investment. Additionally, South Africa possesses better manufacturing capacity than other African countries, and thus enjoys a competitive advantage over its neighbors when dealing with China. From 2006 to 2013, South African enterprises have experienced FDI inflows of at least $9 billion (The Heritage Foundation and The American Enterprise Institute 2015). In a prime example of FDI, China's largest bank, the Industrial and Commercial Bank of China, purchased a 20 percent stake in South Africa's largest bank, Standard Bank, for $5.5 billion, representing the single largest FDI flow into the country (Bloomberg 2014). This transaction alone represents a dominant piece of the pie shown in Figure 19. As one might notice, the FDI landscape in South Africa is strikingly different from that of Angola's—where most inflows went toward the real estate sector—and also very different from Sudan's, where most inflows were directed toward energy. The fact that the financial sector is the primary source of inflows underscores the more advanced economy of South Africa and how well the country has diversified its opportunities outside of purely extractive industries.

Figure 19: Total FDI Flows by Sector 2006-2013.

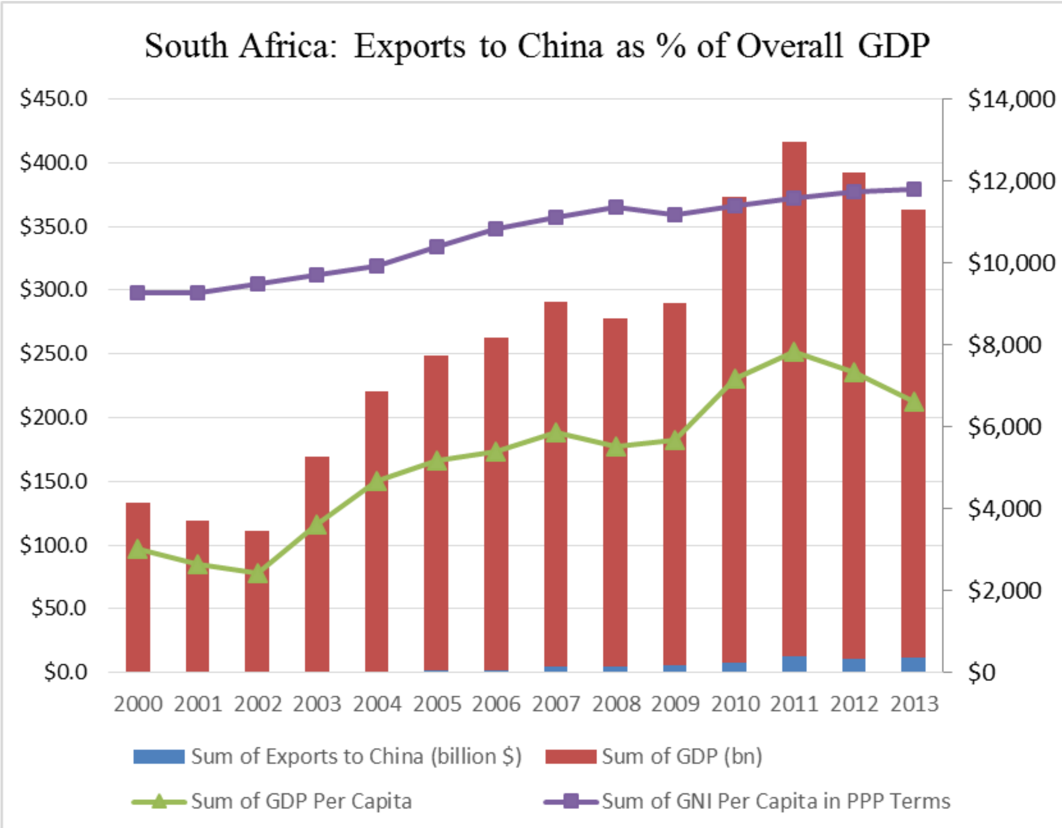


Source: The Heritage Foundation/American Enterprise Institute.

What are the effects on development?

#1. South Africa does not nearly rely on China for revenues as much as oil-reliant countries like Angola, Sudan, and South Sudan do.

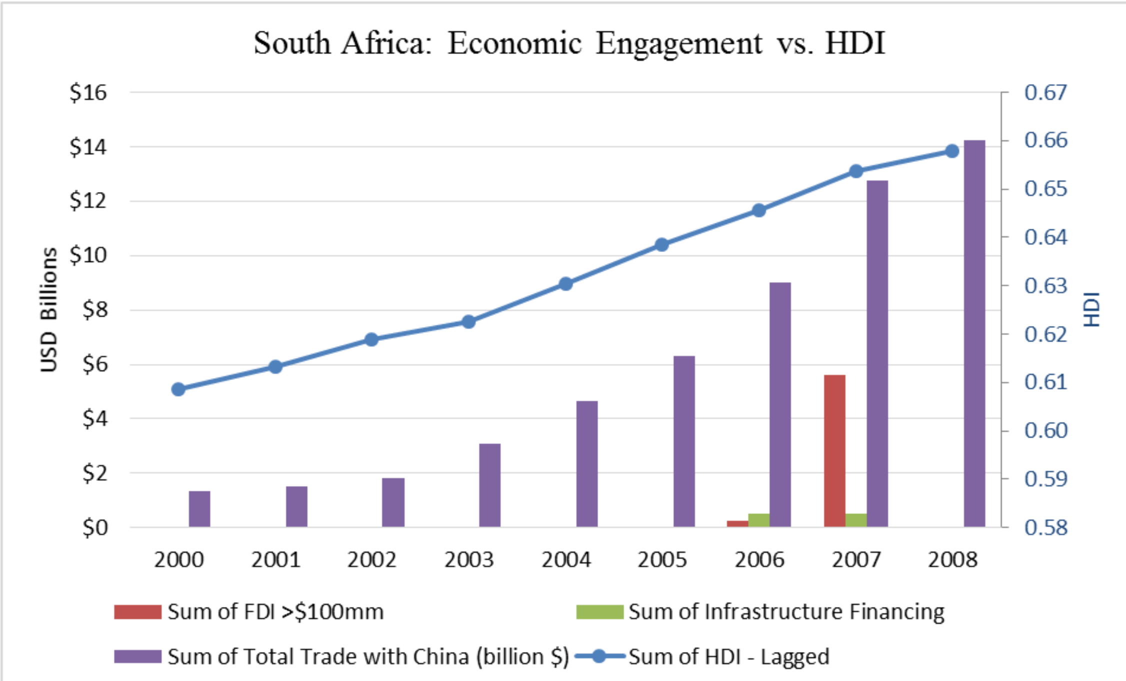
Figure 20: Sudan's Exports to China as a Percentage of Overall GDP. Source: IMF, UNDP



This is due to the fact that economic engagement between South Africa and China, though growing, represents only a small portion of South Africa's overall economic might. It has also proved difficult to qualitatively assess China's contribution to the economy because of the sheer size of South Africa's GDP, a sum measured in the hundreds of billion dollars. Indeed, trade with China garners increasing importance to the economy, but the growth in GDP can also be attributable to partnerships with other countries besides China. This means that South Africa has developed a broad base of trading partnerships over a diverse set of products in different sectors. Therefore, in the event that China was to reduce its purchases, South Africa remains better equipped to absorb economic shocks than the other sample countries.

#2. South Africa's human development index has been increasing in concert with economic engagement with China, most notably with Total Trade.

Figure 21: South Africa: Economic Engagement with China vs. HDI, lagged 5 years.

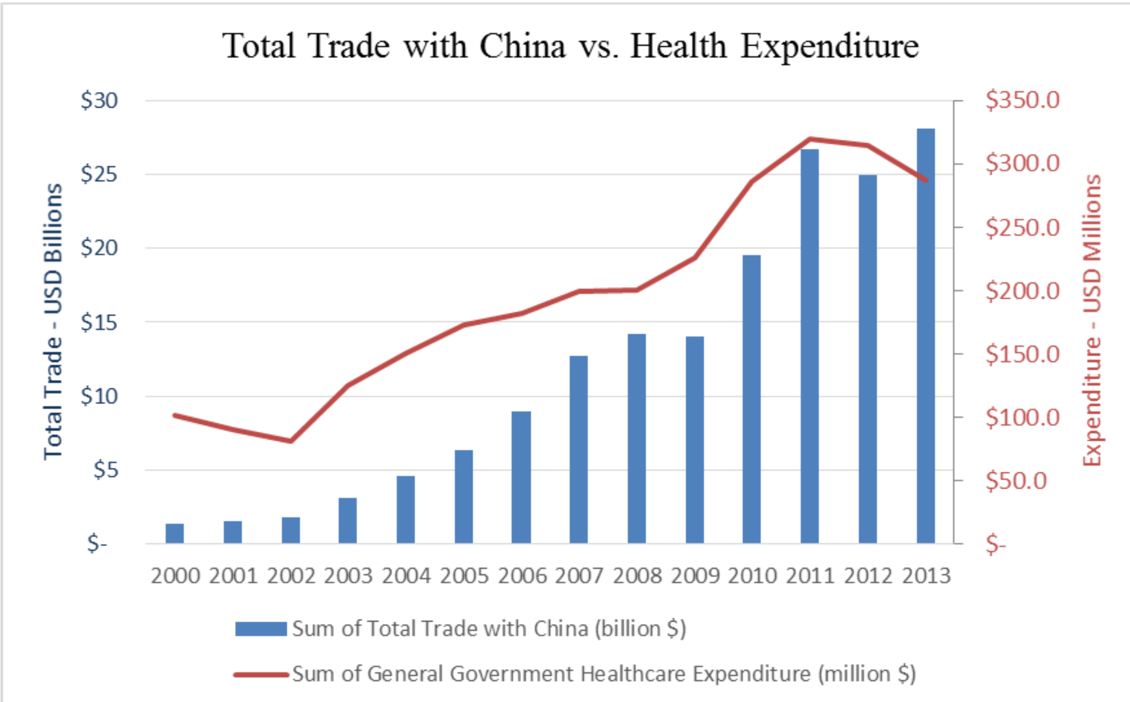


Source: IMF Direction of Trade Statistics, http://www.imf.org/ and The World Bank Open Data, http://data.worldbank.org, UNDP Open Data, https://data.undp.org/, and The China Global Investment Tracker, The Heritage Foundation/American Enterprise Institute (2015)

As Figure 21 illustrates, HDI has been increasing at a steady in pace in line with the growth of Total Trade with China. The correlation coefficient between the two variables is 0.97 which may seem unsustainably high but nonetheless indicates a strong relationship. The R Square of the two variables is also 0.97 which suggests that Total Trade is a strong predictor of HDI. Critics may deem such high R Square and correlation figures as spurious, but it should be noted that analyses for Angola and Sudan revealed similar relationships; the qualitative data in those cases seemed to support the growth in HDI. For South Africa, infrastructure financing and FDI opportunities were limited in scope during the earlier parts of Sino-South African engagement; only recently did those sectors gain momentum, so their contribution to human development may not be realized for another three to five years. Figures 20 and 21 also show that South Africa's GNI Per Capita has been steadily increasing, which positively impacts HDI.

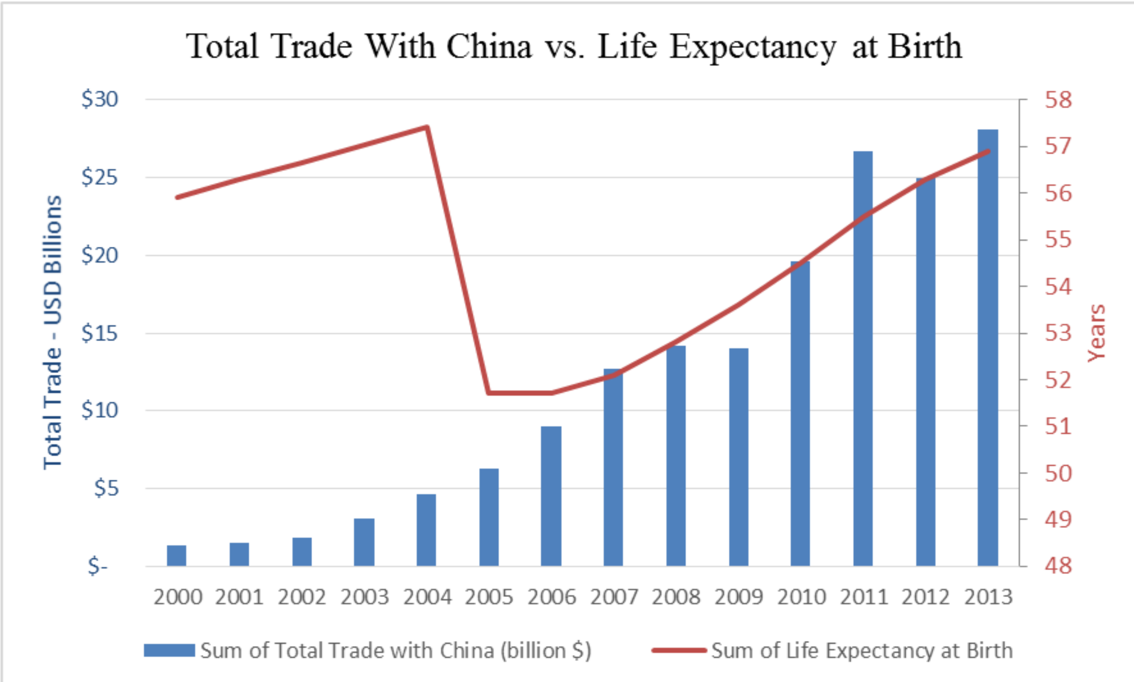
#3. Healthcare in South Africa is improving due to increased government spending, but in practicality, China may have very little to do with it. The size of South Africa's economy makes conclusions on China's impact on healthcare more muddled, whereas Angola and Sudan's dependence on Chinese trade revenues led to more conclusive evidence about healthcare spending. Figure 22 shows a dramatic increase in general government healthcare expenditure following the path of increased Chinese imports. Despite its strong correlation coefficient of 0.97, trade with China only makes up 3.4 percent of South Africa's GDP at its peak, so the source of funds devoted to healthcare is difficult to trace. The same may be said about life expectancy at birth. Starting in 2005, life expectancy at birth experienced a dramatic uptrend that seemingly traces the increase in Total Trade with China, rising from 51.7 years to 56.9 years in the span of eight years. This increase has a directly positive impact on HDI. However, qualitative observations suggest that the recent recovery is largely attributed to the rapid expansion of the antiretroviral treatment programs to fight HIV/AIDS, while also supported by declines in both adult and infant mortality (The World Bank 2015). Having run this analysis on South Africa, this research finds difficulty in attributing improvements in healthcare to China-related economic gains due a multitude of potential outside factors. On the other hand, for countries like Angola and Sudan, whose economies depend heavily on China, the relationship's impact on human development is much more evident.

Figure 22. Total Trade with China vs. Healthcare Expenditure per Capita.



Source: IMF Direction of Trade Statistics, http://www.imf.org/ and The World Bank Open Data, http://data.worldbank.org

Figure 23. Total Trade with China vs. Life Expectancy at Birth. Source: IMF, UDNP



4.1.1 Implications for South Africa

For all the benefits of its burgeoning economic relationship with China, South Africa has run into unintended consequences. As the data shows, imports have risen dramatically from around $1 billion in 2000 to $16 billion in 2013 due to the increased appetite for inexpensive Chinese manufactured goods. Access to affordable cell phones, computers, and other consumer goods certainly creates benefits for most Africans. However, these goods may be a cause for domestic concern. The imports of cheaper, mass-produced alternatives have negatively affected industries such as textile manufacturing, and these developments have led to adverse perceptions of Chinese engagement in South Africa. The introduction of cheaper alternatives has driven South African manufacturers out of the market, and some scholars have estimated that 75,000 jobs have been lost as a result (Grimm, et al. 2013, 17). Recent news reports state otherwise—that China's business presence has actually positively contributed to the local economy. However, as China becomes a more integral part of South Africa's economy, South Africa must protect itself against any further trade-related asymmetry in their relationship with China. If they cannot guard against it, the relationship may end up doing more harm than good to the South African economy.

Another implication for South Africa requires a look internally. South Africa remains a dual economy with one of the highest inequality rates in the world**.** The top 10 percent of the population accounts for 58 percent of the country's income; however, the bottom 10 percent accounts for a mere 0.5 percent of the country's income, and the bottom half is responsible for less than 8 percent (The World Bank 2015). The increased export revenues coming from China seem to benefit only public and private enterprises and the upper middle class involved in those businesses. The increase in imports from China likely benefits the bottom half of the population, providing them with a source of cheap consumer goods; however, local workers may be hurt by the loss of jobs to Chinese counterparts. The imbalance between these two spheres within the economy ultimately hinders human development. The inequality data suggest that South Africa may not be taking full advantage of its relationship with China. South Africa must use the opportunity of economic engagement to benefit its broad spectrum of citizens as only then will the country experience maximum developmental progress.

5 Alternative Implications of Engagement

The previous sections have offered implications of Chinese relations for each of the sample countries. The following sections will use the results of the case studies to draw broader conclusions for other African countries which are just beginning to embark on an economic relationship with China, while offering new questions for policymakers to consider as their level of engagement deepens.

Are resource-poor countries left in the dust?

As this research has found, resource-rich[9] countries have reaped significant benefits to economic and human development due to their relationship with China. On the other hand, what does China mean for smaller, *resource-poor* African countries? Inherently, countries such as Ethiopia, Rwanda, Benin, Ghana, and Mozambique have limited means by which to attract China's attention. Other than serving as an export market for Chinese-manufactured goods, they do not naturally possess the resources that China craves. However, this does not mean that resource-poor countries cannot enjoy some benefits. Ethiopia, for example, has received $1.6 billion in infrastructure financing from China through 2007 toward the construction of hydroelectric dams, roads, and telecom networks (The World Bank 2015). While access to favorable financing is encouraging, the truth of the matter is the economic relationships of resource-poor countries are largely one-sided in favor of China. As Eisenman (2012) notes, "On a country-by-country basis the balance of trade between China and resource exporters tends to favor the African country, [while] China's exports dominate its commerce with non-resource exporting African trade partners", meaning that an African country's lack of resources will cause a trade imbalance in favor of China. This imbalance potentially puts resource-poor

[9] According to the World Bank, a country is defined as resource-rich if over 1980-2010 on average more than 5 percent of its GDP has been derived from oil and non-oil minerals (excluding forests).

countries at a disadvantage. However, the lack of resources does not necessarily preclude China from engaging with resource-poor countries for political reasons; motives for engagement do not necessarily have to be economic in nature.

On the positive side, such countries will have access to cheap consumer goods that may promote well-being—mobile phones and personal computers, for example. However, the relationship does not create wealth for its population nor does it necessarily promote economic or human development. Clearly, a country can neither convert imports into GDP, nor into a higher HDI rating. As this research shows, the primary driver of economic and human development for the sample countries is Total Trade, and to a lesser degree, infrastructure financing and FDI inflows. Furthermore, according to Eisenman (2012), the risk of large sustained trade deficits may have destabilizing political effects over time. Therefore, resource-poor countries must tread cautiously in their engagement with China, taking care to avoid large deficits and foster a balanced relationship as much as possible.

5.1 If China sneezes, will Africa catch a cold?

This research shows that countries which derive most of their GDP from oil exports put themselves at greater risk of economic shock, especially when their largest trading partner is China. This risk materialized in Sudan, whose economy suffered significantly after South Sudan essentially ran away with oil revenues. In terms of potential shocks, African countries must take note of China's slowdown in economic growth over the last five years:

Year	2010	2011	2012	2013	2014
Annual % GDP Growth	10.4 %	9.3 %	7.7 %	7.7 %	7.4 %

Source: World Bank

The data shows that China's economy is growing at a slower pace, driven by a cooling property sector and local governments struggling with heavy debt burdens. China's extraordinary period of double-digit growth and rapid expansion is likely over, and as a consequence, its demand for natural resources to fuel its economy will likely slow down as well. What can this research predict for African nations who are dependent on trade with China? Given the strong correlation between high levels of engagement and development, countries such as Angola and Sudan must prepare for their own economic slowdowns. The resulting decreased GDP will hinder governments' ability to spend on education, healthcare, and infrastructure, lessening the prospects for sustained development. Also, the potential for infrastructure deals backed by China may also become more limited in scope and in size. On the other hand, South Africa's economy, through its diversity in trading partners and products, is better equipped to weather a storm should China's economy slow down or contract. Indeed, if China sneezes, oil-dependent nations which trade with China will catch a cold. The best preventative measures are to diversify its trading partners and develop economic sectors outside of oil—two actions that are easier said than done given the inefficiency of certain African governments.

5.2 Does China's approach challenge the concept of aid?

Earlier in this research, I reviewed traditional Western overseas development assistance, comparing China's unique approach to economic cooperation which bundles aid, trade, and investment into cohesive packages. Should Western actors adopt this possible evolution of aid? The case studies in this research have revealed an overall positive impact on a recipient country's economic and human development due to economic cooperation with China. Beijing's aid policy emphasizes "win-win" scenarios and "mutually beneficial" cooperation in the hope of creating of self-reliant economies in the future. China believes that by helping develop African countries for the future—via debt relief, infrastructure financing and investment—they will create sustainable trade partners to the benefit of its own economy. For example, they have helped construct new highways and roads to connect cities and lower the costs of both goods and transportation. They have built and rehabilitated power plants and transmission lines to distribute sustainable and reliable energy to rural and urban areas. They have expanded telecom networks that will help improve business, communication, and connectivity. They have constructed hospitals, clinics, and schools to help foster a healthy and skilled workforce that will form the basis of young, stable economies. China has demonstrated that, at least in the short term, they have helped more than hurt the developing countries. Western actors such as the G7 nations, the IMF, and the World Bank may need to revisit the way they approach ODA. The path to successful aid may not be in the form of burdensome loans filled with concessions, but rather, a sustainable trade partnership that fosters growth in both the donor and the recipient.

6 Conclusion

To reiterate, this research has found that high levels of economic engagement between select African countries and China have contributed to their overall economic and human development. Natural resource exports have been the primary driver in generating increased economic wealth, directly impacting GDP and GDP Per Capita. Chinese-backed infrastructure financing and FDI flows from Chinese private enterprises to African business have also helped promote economic and social development, though their effects are likely to materialize more clearly in the coming years. Revenue generated from trade with China has allowed governments to invest more in education and healthcare sectors, and data has shown a correlation between Total Trade with China and an increase in metrics that contribute to the Human Development Index, namely in GNI Per Capita, Life Expectancy at Birth, and Expected Years of Schooling in Children. This research has also revealed potential concerns for countries which are overly dependent on oil exports and on China—namely Angola, Sudan, and South Sudan. Their inefficiency at translating oil windfalls into developing other sectors of their economy may haunt them in the event of a slowdown in Chinese demand for natural resources. More developed economies like South Africa, though not without their flaws, serve as a model for African countries in their dealings with China through a more diversified approach to engagement.

Despite continued but declining growth, China's future course remains unclear, and so too are the economic paths of African nations which engage with China. Scenarios may play out in either one of two divergent paths. Firstly, with today's depressed prices in oil, China may seek to grow their demand in natural resources. At the time of this writing, crude oil prices have wavered around $59 per barrel,[10] a far cry from the peak of $145 a barrel in 2008, and just off historical lows over the last ten years. The same can be said for iron ore and gold prices. Should China take advantage of cheaper commodities pricing, resource-rich African countries can use the opportunity of higher levels of engagement with China to help progress both economic and human development across its broad spectrum of citizens. It will become even more important for African states to make the best strategic use of all external infrastructure financing to promote growth and advancement of its people. Of course, the downside scenario is that China's economy slows down or contracts, which exposes the vulnerability of oil-dependent countries such as Angola, Sudan, and South Sudan. They must take care to develop their economies now while the engagement with China is healthy because the opportunity may have a finite duration.

What do African states need to do in light of this research? The path to sustainable economic and human development is far easier said than done. Much of a country's success will depend on external factors such as product demand, diplomatic relations, or investment climate. However, there are common internal issues that African states must address in order to maximize the opportunities presented by China's presence. Firstly, governments must address openness and take accountability of concessions and trade agreements. In the cases of Angola and Sudan, negotiations with China rest solely in the domain of governmental elites which creates an environment conducive to corruption and leaves the public in the dark about opportunities for their own

[10] Source: NYMEX, Crude Oil WTI price on May 3, 2015.

development. Mandating public disclosure allows for discussions on future trade and investment, giving private businesses and entrepreneurs a chance to participate in growth.

Secondly, African states need a clear and transparent regulatory framework to curb corruption by both governments and companies. African states should consider ratifying and implementing the UN Convention Against Corruption to hold governments internationally accountable. Corruption prevents the distribution of wealth and widens the inequality gap between elites and the poor. Qualitative observations from this research suggest that economic and human development cannot be sustainable without the broad participation of a country's citizens. China, as a model for developing nations, serves as a prime example for African countries that reducing poverty can directly translate into a successful economy, and vice-versa.

Thirdly, violence is an obvious hindrance to a stable economy, and elimination thereof is an absolute prerequisite to promoting a positive economic climate. Only then will other governments and foreign enterprises consider investing in that country. Even China, whose controversial policy of non-interference governed their engagement for numerous years, has shifted its course with Sudan, growing less tolerant of conflict and human rights abuses.

Finally, African states must learn from each other's past interactions with China in order to pursue a course that best protects its interests**.** African neighbors must learn from Sudan and observe how the loss of oil revenues can severely impact an economy. South Sudan must learn from mature nations on ways to diversify the economy and avoid the dubious distinction as the most oil-dependent country in the world. Resource-poor nations must learn to prevent large trade deficits with China. China has been actively engaging nearly all countries in Africa, though these relationships are in differing stages of maturity. This list is by no means comprehensive, and there is likely a longer to-do list, but African governments must consider implementing these measures if they are to maximize the opportunity with China to promote economic and human development for their country.

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