Growth and Vulnerability in Africa as a Consequence of Chinese Investment

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Introduction

In the last century, Africa has had major economic growth issues. Trillions of dollars have been invested throughout the continent, but many countries, mostly sub-Saharan Africa, still have declining Gross Domestic Product (GDP). Recently, this trend has been changing, possibly due to increased foreign direct investment (FDI) in sub-Saharan Africa. In recent years, China has become one of the largest trading partners with sub-Saharan African countries, investing more than $200 million into Africa last year. Increases in Chinese FDI coincide with economic growth, but not all forms of economic growth are helpful. Chinese investment practices have been criticized for having the potential to cause more harm than good. In this paper we investigate the impact of Chinese investment in Africa on subsequent economic, social, and environmental conditions. Using world systems theory and capabilities and knowledge transfer, we argue that the unique characteristics of Chinese investments result in economic improvements that benefit the elite and decrease environmental and social welfare.

Much of sub-Saharan Africa is considered to be part of the bottom of the base of the socioeconomic pyramid. Approximately 1 billion people, living in these countries, are at the bottom of the bottom trapped in a cycle of poor governance, civil war and declining opportunity. Businesses who operate in these markets have to employ very different strategies than those that operate even in the top of the base of the pyramid, but a limited amount of research has focused on the bottom of the base of the pyramid.

China invests disproportionately in countries at the bottom of the base of the pyramid and uses very different investment strategies than western companies. In an effort to acquire natural resources, Chinese companies build infrastructure and provide access to remote areas to a much greater extent than western companies. In these projects, they partner with the African elite as well as "unsavory" governments and groups, and require that most laborers be Chinese. These procedures contrast with western companies who usually partner with NGOs and add social development stipulations, allowing western investment to have more potential to improve equality and social development through these stipulations and the transfer of knowledge and skills to local laborers. In addition, China has a terrible environmental record in its own country and is more likely to pass on this environmental damage to countries in which it invests than western nations who have a much better environmental reputation. In spite of these differences, the effects of Chinese investment in Africa have been more often hypothesized than studied. In this paper, we use data from World Bank, Doing Business Index, ND-GAIN, and China aid data to empirically test the following hypotheses.

(1) Due to China's willingness to invest in infrastructure in countries in which the lack of quality infrastructure is preventing firms from entering the market,
   - Country level economic growth will increase as Chinese investment increases.

(2) Because of Chinese polices of partnering with Africa's elite, as opposed to NGOs, which are more likely to spread wealth,
   - Inequality will rise as Chinese investment increases.

(3) Chinese company's investment into infrastructure will lower the barriers to other investment, such that
   - Later foreign direct investment will be positively correlated with Chinese investment.

(4) Due to China's poor environmental record in its own countries and its tendency to spread environmental damage to the nations in which it invests
   - Climate change vulnerability will increase with greater Chinese investment.

(5) Because Chinese companies block knowledge and capabilities transfer to locals by requiring Chinese labor dominate their projects and refuse to add social development stipulations to their investments,
   - Social development outcomes will decrease with greater Chinese investment.

We performed preliminary analyses of hypotheses 1, 2, 4 & 5 (3 is currently being analyzed, results TBD) using panel regression grouped by year with a 1-year lag on the dependent variables and controlling for cumulative import/exports, Total FDI, and GDP. We analyzed each hypothesis using cumulative Chinese FDI and Chinese FDI in each year as independent variables. We used growth in GDP to represent economic growth, access to improved sanitation to represent equality, GAIN's vulnerability index to represent environmental vulnerability, and percentage of females in parliament to represent social development outcomes. All analyses, except one, yielded significant results in the predicted direction. Social development outcomes may not have decreased with Chinese FDI in each year because there may not have been sufficient time for the investment to take effect, where as the cumulative independent variable was able to capture the relationship better. In the near future, we plan to complete the analyses for our other hypotheses and improve our current models by adding controls.

Table 1

Hypothesis	Independent Variable	Dependent Variable	Sample Size	Overall R^2	Coefficient	Std Error	Z	P
1	Cumulative Chinese FDI	GDP growth	374	.9954	.0817714	.0348712	2.34	***0.019***
	Chinese FDI in each year	GDP growth	374	.1459	1.56e-10	7.10e-11	2.19	***0.028***
2	Cumulative Chinese FDI	Improved Sanitation	352	.2483	-7.34e-10	9.30e-11	-7.89	***0.000***
	Chinese FDI in each year	Improved Sanitation	352	.2472	-1.82e-09	2.95e-10	-6.18	***0.000***
4	Cumulative Chinese FDI	Environmental vulnerability	371	.3439	2.88e-12	4.83e-13	5.97	***0.000***
	Chinese FDI in each year	Environmental vulnerability	371	.3337	6.08e-12	1.44e-12	4.22	***0.000***
5	Cumulative Chinese FDI	Females in Parliament	374	.0292	-2.55e-10	2.93e-11	-8.68	***0.000***
	Chinese FDI in each year	Females in Parliament	374	.0259	-2.35e-10	3.24e-10	-0.72	.489

*In each analysis there were 9 groups, using year as the grouping variable, the dependent variables were lagged by 1 year, and cumulative import/export, total FDI, and GDP were control variables. In most analyses the control variables were positively correlated with the independent variable.