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Is Sino-African trade exacerbating resource dependence in Africa?

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ABSTRACT

Over the past decade, trade between China and Africa has rapidly expanded and has led to strong growth rates in Africa mainly buoyed by natural resource export. The boom in trade has partly been made possible by the use of resource-for-infrastructure swap agreements (the so-called "Angola-mode deals"), in which Chinese companies finance and build infrastructure in Africa in exchange for access to natural resources. The concomitant increase in resource export to China has however raised serious concerns that these trade arrangements may reinforce Africa's resource dependence rather than reduce it. In this article we use a dynamic panel data model to examine whether the Angola-mode deals have reinforced resource dependence and impeded export diversification in African countries. Our results indicate that by helping African countries reduce existing infrastructure bottlenecks, resources-for-infrastructure swap deals enabled them to increase their diversification capacity.

1. Introduction

Over the last 10 years, Sub-Saharan Africa has recorded unusually strong growth rates, mainly as a result of a spectacular increase in natural resource exports to China. Sino-African trade volumes grew rapidly to reach more than US$ 200 billion in 2013,[2] driven particularly by a trade structure known as the "Angola mode", in which African natural resources are exchanged for the financing and construction of infrastructure projects by Chinese companies. The Chartered Standard Bank projected this volume to reach US$ 280 billion in 2015, so the economic potential of this trade promises to form a powerful engine for growth for resource-rich African countries if properly managed. But until 2002, when African countries started to record strong growth rates as a result of a buoyant demand from China, the abundance of natural resources seemed to have brought a curse rather than a blessing to African populations, and appeared to validate the "resource curse" thesis (Auty, 1993; Sachs and Warner, 1997).[3] By introducing this alternative source of financing infrastructure to otherwise credit-constrained African economies, Sino-African trade

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[2] According to UNCTAD trade statistics, export values have increased from less than US$ 4 billion in 2001 to more than US$116 billion in 2012 with total trade volume in excess of US$ 200 billion in 2013.

[3] The symptoms of the resource curse can appear in various forms, but the most important ones are rampant corruption practices that cripple the economy, the risks of violent conflicts and civil wars for the control of resources, as shown by Collier and Hoeffler (2002), the Dutch disease that crowds out investment and human capital, and environment degradation, as exemplified by the Niger Delta.

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Table 1
Real GDP growth rates of some fast growing African countries, 2004–13.

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 (estimates)
Angola	10.2	20.9	19.0	23.2	13.8	2.4	3.4	3.9	7.9	8.2
Chad	34.3	7.9	2.7	8.4	3.4	4.1	14.0	1.6	7.2	7.4
D.R. Congo	6.6	7.8	5.6	6.3	6.2	2.8	7.2	6.9	7.2	8.2
Ethiopia[a]	13.6	11.8	10.8	11.5	10.8	8.7	12.7	11.2	6.9	6.6
Ghana	5.6	5.9	6.4	6.5	8.4	4.0	8.0	14.4	7.1	8.0
Liberia	4.1	5.9	9.1	13.0	6.2	5.4	6.1	8.2	8.9	7.7
Mozambique	7.9	8.4	8.7	7.3	6.8	6.3	6.8	7.3	7.4	8.5
Nigeria	10.5	6.5	6.0	6.4	6.0	7.0	8.0	7.4	6.6	6.7
Tanzania	7.8	7.4	6.7	7.1	7.4	6.0	7.0	6.4	6.4	6.9
Zambia	5.4	5.3	6.2	6.2	5.7	6.4	7.6	6.8	7.3	7.5

Sources: AfDB Statistics Department, Various domestic authorities and AfDB estimates.
[a] Fiscal year July $(n-1)$/June (n).

brought new dynamics to the growth of African economies and has put them among the fastest growing in the world, many of them having real growth rates in excess of 6.5% as illustrated by growth data from the African Development Bank (see Table 1).

Nonetheless, the multiplication of these kinds of trade agreements has also raised serious concerns that Africa's chronic dependence on natural resources. There have indeed been worries that some of the projects financed this way may have been undertaken simply to facilitate more resource extraction without any other developmental impact on other sectors. Therefore, some analysts fear that resource dependence may be worsened by the resulting trade boom, which would jeopardise long-term growth prospects by further delaying industrialisation. The emphasis put on infrastructure development in the Chinese funded projects is indeed partly motivated by the need to remove the bottlenecks that prevents African countries from maximising their resource export (Foster et al., 2008). This may include power for processing, and rail and port facilities for outward transportation. This would mean that rather than facilitating diversification, the investment in infrastructure acts in the sense of reinforcing dependence on natural resource export.

At the same time, however, the development of infrastructure in resource-rich African countries is essential for their development because it plays a key role in enabling export diversification. Infrastructure is indeed a critical factor for the successful adoption and diffusion of innovations (Lall, 1992). Various surveys in African countries have also identified deficient and costly public infrastructure as one of the most important obstacles to their economic diversification (Reinikka and Svensson, 1999). Indeed, infrastructure deficits have hindered an optimal utilisation of natural resources and delayed the emergence of modern manufacturing sectors. For example, Estache (2005) estimated that infrastructure deficiency may have been costing Africa as much as one percentage point of per capita GDP growth per year. Esfahani and Ramirez (2003) also attributed Sub-Saharan Africa's (SSA) past poor growth performance partly to the deficient provision of electricity and telecommunication infrastructure.

Given the crucial importance of export diversification for economic growth, and the key role played by infrastructure in enabling this diversification, the aim of this article will be to examine whether the new way of financing infrastructure projects under "Angola-mode" hinders export diversification by worsening resource dependence, or on the contrary, contributes to overall diversification improvement. The positive contribution of infrastructure swap deals is expected to come from their effects on easing the infrastructure bottlenecks that constrain the development of the industrial sector. It also runs through the relaxations of foreign exchange constraint because the swaps allow countries to build the needed infrastructure without money changing hands. This paper first estimates the overall effects of infrastructure on export diversification for a panel of African economies over the period 1995–2009 using panel data on infrastructure density and export concentration. It then assesses the role of infrastructure and the resource-for-infrastructure swaps in enabling diversification in African countries.

The remainder of this paper is organised as follows: the next section looks closely at the role of infrastructure in the process of growth and diversification and examines the growing role of Chinese infrastructure financing and construction in exchange for access to African natural resources. Section 3 uses a panel data analysis to empirically estimate the effects of infrastructure development on export diversification. By comparing the infrastructure–diversification nexus between the 24 African countries where Chinese firms have undertaken infrastructure projects under the "Angola-mode" trade arrangements and African countries where they have not, we assess whether the use of this infrastructure financing method has intensified resource dependence and hindered export diversification.[4] The implications for African diversification and development prospects are summarised in the concluding section.

2. Infrastructure and diversification

2.1. Link between infrastructure and diversification

In many African countries, the lack of export diversification has been a structural constraint on growth and

[4] It should be noted that while more than 26 African countries have benefited from Chinese financing of infrastructure against some form of natural resource barter, more than 70% of the infrastructure project financing of this kind is concentrated in just four countries: Nigeria, Angola, Sudan and Ethiopia.