“Does Africa add up?”

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4 It’s all in the numbers: why good statistics are key to infrastructure investment in Africa

SUMMARY: The success of Africa’s economic development depends on infrastructure investment. Such investments can bring financial reward for investors, but require patient capital and a willingness to take a long-term view in a sometimes challenging environment. Morten Jerven, Professor of Development Studies, explains why an accurate assessment of African infrastructure investment should use good statistical data and freely available information. These are key factors required by investors to commit more financing to infrastructure investment and accurately measure the developmental impact on the continent.

Infrastructure and economic development

In one of the pioneering texts of development economics, *The Strategy of Economic Development*, by Albert O. Hirschman, published in 1958, infrastructure was considered part of what he called 'social overhead capital'. Investment in infrastructure was advocated not only because of its direct effect on final output, but because it had linkages to all sectors of the economy. It also permits, and even invites, other productive investments to enter the market.

The reasonable expectation was that infrastructure investment would be provided by the public sector or by regulated private agencies. The investments were lumpy and most of their returns were indivisible. In contemporary economics, we would use the term 'positive externalities' to explain a situation when an investment has high positive returns, but these returns cannot be captured privately. As the saying goes, the tide lifts all boats. Analogously, that also means that it is complicated, and therefore costly, to charge all boat owners for the tide. Further, opportunistic boat owners would seek to not pay for the tide, and rather catch a free ride.

Underinvestment in African infrastructure: coordination problems

There is good reason to think that we have a current underinvestment in infrastructure in African economies. Inflows of investments in the past decade have occurred despite the fact that Africa remains a high-cost location. The costs of doing business caused by red tape, bureaucracy and state control (e.g. import regulation, capital movement restrictions) have reduced since the 1980s. However, physical barriers have remained high, so that it is only when demand and prices in world markets have also been very high that these elevated costs have been overcome, and growth has occurred. Liberalisation, if taken to mean 'good policies' and 'good governance' can only take African economies so far. Strategies for how private and foreign capital can increase 'social overhead capital' are also required for growth diversification, and to reduce the volatility and price-dependence of the economic growth that African economies have experienced in the past century.

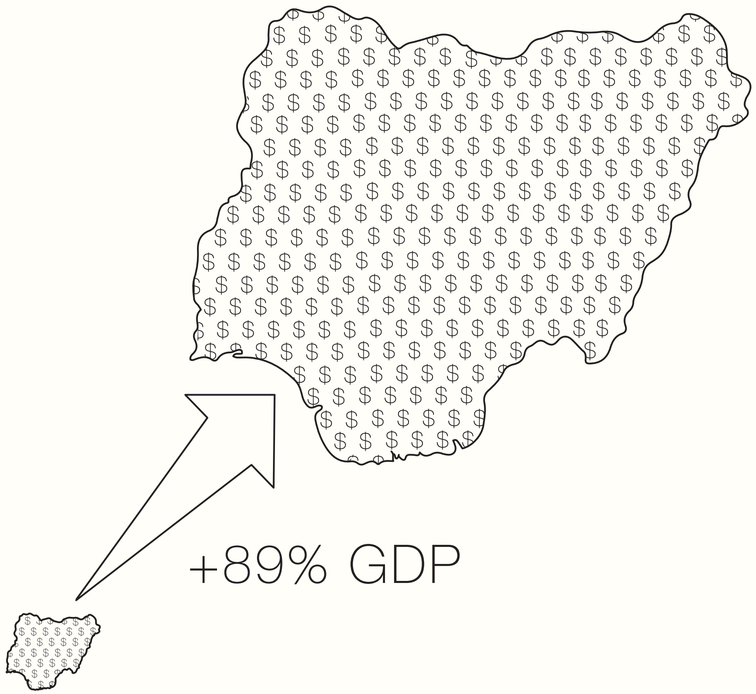
When growth is constrained by high cost infrastructure it results in untapped positive externalities from such investments, and economists like to think of these as 'coordination problems'. Drawing from the important work of Nobel Prize-winning economist, Ronald Coase, on transactions costs and institutions, these coordination problems could be solved if the transaction costs are lower and information becomes more freely available. A classic example would be when two or three farmers agree to share the cost of irrigation, because it would benefit all three farmers in the area.

The challenge of inaccurate GDP statistics: information problems

Coordination problems are often solved by states. In particular, when many parties are involved the cost of negotiating solutions will be very high. But states may become reluctant to enter such infrastructure projects, due to fiscal constraints or because information about the returns to growth are unavailable.

In Africa this can be particularly problematic. Especially because an important metric, such as gross domestic product (GDP), has been poorly measured in African economies. Consequently, rates and sources of growth in Africa have also been poorly measured. For example, in November 2010, Ghana Statistical Services announced new and revised GDP estimates. As a result, the estimated size of the economy was adjusted upward by more than 60%, suggesting that in previous GDP estimates, economic activities worth about US$13 billion had been omitted. While this change in GDP was exceptionally large, it did not turn out to be an isolated case in Africa. In April 2014, the Nigerian Bureau of Statistics declared new GDP estimates. GDP was revised upward to US$510 billion, an 89% increase from the old estimate.

The big jumps in GDP in these two countries took place because the benchmarks for measuring the economy were updated from 1990 to 2010 in the case of Ghana, and from 1993 to 2006 in the case of Nigeria. Not only are the countries richer than previously thought, but the updating of benchmarks is a tangible indicator that statistical systems are being improved. Of course, it also points to the underlying economic information about which sectors of the economy are important, and the rates of return to capital investment in the economy that are missing or misleading.



Nigeria becomes Africa's biggest economy after the revision of its GDP

It is important to remember that this is not only a matter of accuracy. Missing information, or blind spots, certainly play a role.

I was at the Uganda Bureau of Statistics in 2011, conducting interviews about how the economy was measured. They told me then that if they were to believe official statistics, based on collected trade statistics in Mombasa, the economy was in decline. For colonial rulers, who established this system this made sense, since anything of importance went through the east African port, but for an independent Uganda it made less sense to compile its trade statistics based on Kenyan information. The statisticians in Kampala knew that the real sector data could not make sense, since they knew that contracts on cement and construction material indicated a boom. Someone had the bright idea to start measuring how much cement and construction material crossed the borders to South Sudan, Democratic Republic of Congo and Rwanda, and found that in focusing in on Mombasa, they had been looking the wrong way.

Further, investments in mobile money systems like Mpesa in Kenya took place not because of availability of high quality information about the need for savings and transfers in Kenyan households, but rather in spite of such information being available. We know of the investments that have been made in spite of the lack of information, but know less about all those investments that were not made due to lack of information.

Empirical support for infrastructure investments

Based on theory we could make the case for infrastructure investments, but, as we know, investors prefer empirical support to theoretical support. Symptomatic of both coordination problems and information problems, there are few empirical studies of the returns on investments in post-colonial Africa. However, recent studies of the effects of colonial railway investments on export growth shows how transformative these investments were. The Gold Coast (a former British colony and now part of Ghana) went from not producing cocoa at all in the 1880s to being the largest producer of cocoa in the 1920s. The growth in the Gold Coast economy until the 1920s, and the continued expansion, was supported by the railway investment, and recent research shows that patterns of production and location of cities were determined by these infrastructure investments.

As mentioned, it is understandable that investors prefer empirical evidence to a theoretical case for returns. Ironically, theory also predicts that information will be one of the constraints for coordinating investment. It will be the coordinating powers and their demand for perfect information that will determine whether infrastructure will be a constraining or enabling factor in Africa's development.