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Large Infrastructure

Africa's infrastructure spending

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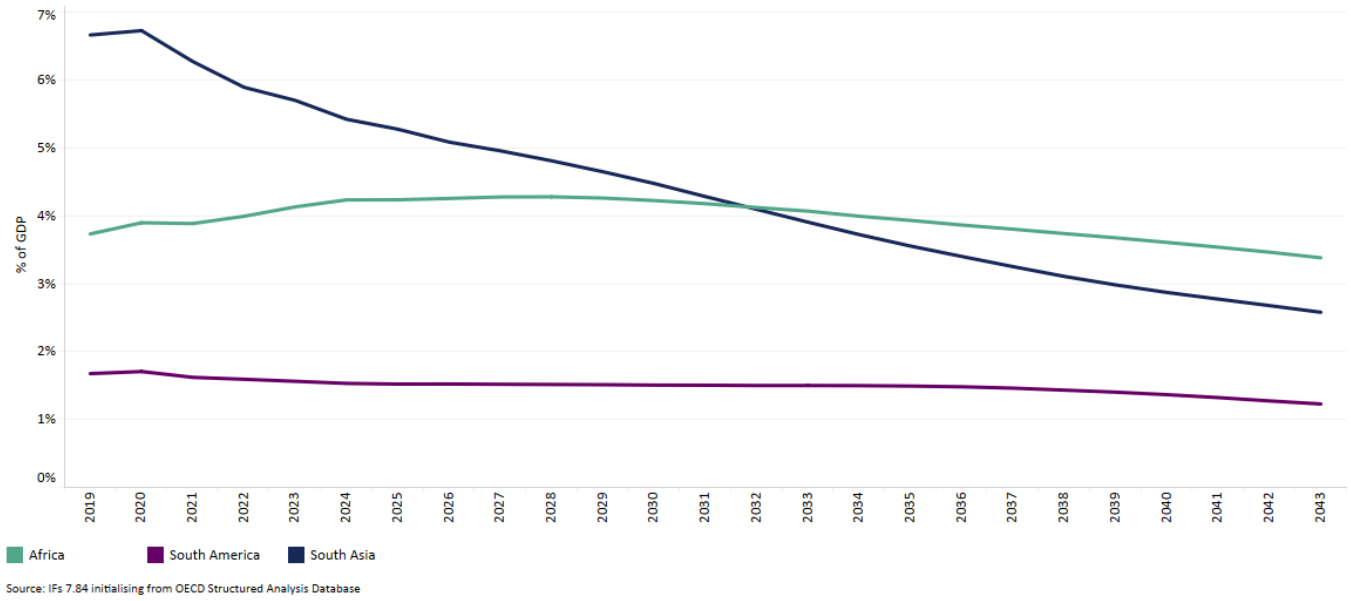
Wagner's Law asserts that as countries develop, governments require more revenue (as a share of GDP) to invest in the provision of services such as health, education and infrastructure. As a result, state spending steadily increases as a portion of GDP (along with higher GDP per capita) and outpaces improvements in average income. This indicates a significant connection between the capacity of governance and income levels. The relationship is also evident in Africa, where government expenditure in Africa's low-income countries was, on average, 18.3% of GDP, compared to 24.2% in lower-middle-income countries and 33.6% in upper-middle-income countries.

Major transformations in improving infrastructure often consist of layering new or additional systems over existing ones. In wealthy countries, this layering has occurred over successive centuries and reduces the costs of improvements, whereas in much of Africa, the infrastructure challenge is to build from scratch in mere decades although modern technology does allow for leapfrogging.

Chart 10 compares spending on infrastructure (all types and including maintenance) in Africa with that in South America and South Asia. Africa spends significantly more on infrastructure than South America (using the portion of GDP as yardstick), but much less than South Asia. This gap will largely close by 2032 as South Asia's spending diminishes at a higher rate than Africa's. Spending on infrastructure is also set to remain quite robust across the forecast horizon, despite a slight reduction over time. However, because of rapid population growth, Africa needs to spend significantly more on infrastructure than other regions, now and in the future. In 2019, Africa spent 3.7% of GDP on all aspects of infrastructure (core and maintenance, public and private), compared to 4.4% in South America and 9.1% in South Asia.

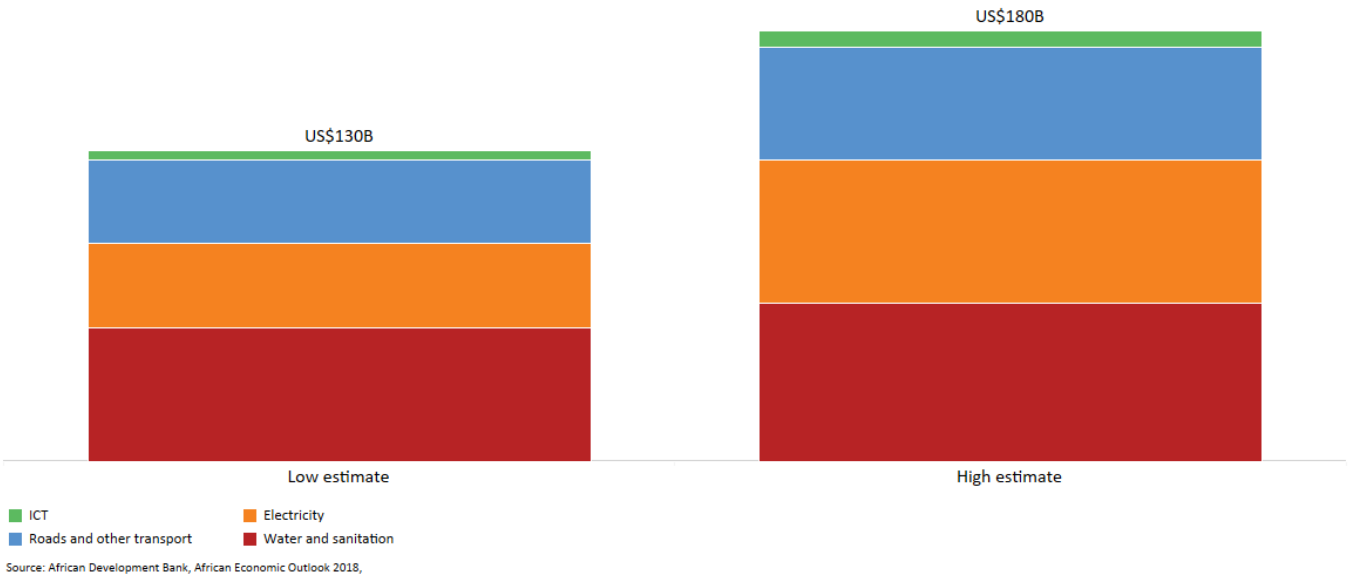
Chart 10: Total infrastructure spending in Africa compared with South Asia and South America, 2019–2043



Source: IFs 7.84 initialising from OECD Structured Analysis Database

According to the AfDB, it will cost US$130 billion to US$180 billion a year to eventually eliminate Africa's infrastructure gap (see Chart 11). Although considerable funding is flowing into Africa to address this need, the AfDB estimates that a shortfall of between US$68 billion and US$108 billion remains annually. The gap is due mostly to a backlog in water and sanitation infrastructure (approximately 41% of the gap), followed by electricity supply and transport access (about 28% each). ICT infrastructure makes up the remainder.

Chart 11: Africa's infrastructure financing shortfall



Source: African Development Bank, African Economic Outlook 2018,

Closing the infrastructure gap in Africa is not a simple task and requires governments to overcome major obstacles, such as financing, government capacity and corruption. Given limited domestic sources of revenue, Africa generally looks to financial institutions such as the World Bank and the AfDB or state-backed lending from a country with deep pockets, such as China, to fund its infrastructure deficit.

China's building of large infrastructure projects in Africa is advantageous because it largely operates on a government-to-government basis (instead of private sector entities dealing with each other). China also has significant finances to invest due to its consistent trade surplus from the 1990s until recently. In addition, China has an excess of resources and extensive expertise in constructing infrastructure within its own country. None of these advantages are readily available from the US or Europe, and the result is that China dominates building African infrastructure, although some smaller countries, such as Turkey, are gaining a foothold.

The more developed a country is, the higher its infrastructure stock is. Consequently, there is lower return from additional infrastructure investment unless the infrastructure investment aims at addressing a major challenge or introducing new technology. For example, a village without a road connecting it to the capital city may benefit greatly from the first single-lane paved road making such a connection, whereas a major city such as Cairo or Johannesburg could add many kilometres of additional road with a barely measurable impact on the fortunes of the city. This is true not only for cities but for entire economies, and infrastructure spending is far more potent, dollar for dollar, in less developed economies. Increasing infrastructure when stocks are low (such as in low-income Africa) will likely have a greater impact on economic development than the same proportional increase in an upper-middle-income country that has a much larger stock of infrastructure.

ICT and energy infrastructure tend to show the greatest impacts on development indicators, but ultimately, the prioritisation of infrastructure depends greatly on country-specific bottlenecks and opportunities.

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About the authors

Dr Jakkie Cilliers is the ISS's founder and former executive director. He currently serves as chair of the ISS Board of Trustees, head of the African Futures and Innovation (AFI) programme at the Pretoria oce of the Institute, and is an extraodinary professor at the University of Pretoria. His 2017 best-seller Fate of the Nation addresses South Africa's futures from political, economic and social perspectives. His three most recent books, Africa First! Igniting a Growth Revolution (March 2020), The Future of Africa: Challenges and Opportunities (April 2021), and Africa Tomorrow: Pathways to Prosperity (June 2022) take a rigorous look at the continent as a whole.

Dr Blessing Chipanda joined the African Futures and Innovation (AFI) programme in January 2023. Before joining the ISS he worked as an assistant lecturer/ research assistant at the University of Pretoria, Department of Economics. He is particularly interested in tasks within the wider realm of international trade, development economics, public policy, monetary policy, and econometric modelling. Equally interested in economic and socio-economic activities that impact social welfare. Blessing has a PhD in economics from the University of Pretoria, South Africa.

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