

# INFRASTRUCTURE DEVELOPMENT AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

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# INTRODUCTION

The success or otherwise of economic development process depends largely on the available resources and an enabling environment. Resources such as capital, manpower and technology are necessary inputs in the growth process. However, the efficiency of these inputs and the sources of economic growth endeavours largely depend on the available enabling environment as defined in part by the available infrastructure

Infrastructure are public goods and services that goes into the production process as Complementary inputs for traditional factors of production such as capital, labour and Entrepreneurship. They help to increase returns on investment by reducing production cost and improving transition efficiency

The availability of infrastructure facilities and services as well as the efficiency of such services to a large extent determine the success or otherwise of all other production endeavours. Investments in infrastructures such as energy, water, transportation and communication technologies promote economic growth and help to alleviate poverty and improve living conditions in developing countries (OECD, 2006)

# Infrastructure and Economic Growth

The relationship between infrastructure and economic growth is quite complex. Although infrastructure development is important and necessary for industrial take-off and economic growth, the desire for growth does not necessarily mean higher or increased need for infrastructure and more infrastructure does not necessarily guarantee more economic growth (Romp and de Haan, 2005)

Infrastructure services exhibits high network effects. As the number of users increase, the marginal productivity of investments on infrastructure rise with scale and spread of the network and exceeds the average productivity of investment until the market is saturated

Sub-Sahara Africa (SSA) remains the poorest region of the World despite the recent obvious increase in per capital income growth rates of many countries in the region. Thanks to decades of economic stagnation, poor standard of living, ethnic cleansing and tribal wars, political instability and environmental disasters which had left infrastructure development uncared for

# Motivation for the Study

Empirical studies on the impact of Infrastructure development on economic growth increased tremendously ever since Aschauer (1989) published his seminal work. Scholars and policy makers have extended the discussion to different areas of human endeavor aimed at improving standards of living and general welfare. However, very few of such studies have been done on SSA. Estache, A. (2005), Estache, A., B. Speciale and D. Veredas (2005), Estache, A. and M. Vagliasindi (2007)

The few studies of the effect of infrastructure development on economic growth carried out on SSA primarily concentrate on mathematical exposition of the relationship between infrastructure and economic growth or the evaluation of infrastructure facilities in the region. Such earlier studies inherently assumed that investments opportunities and profit objectives will ultimately attract finance that will set off infrastructure development of the region but this has not been the case.

To the best of our knowledge very few of these studies has endeavored to investigate how to finance infrastructure in the region. The objective of this paper is to investigate the financial options available for executing infrastructure development in SSA and the implication of such options for economic development of the region

# The State of Infrastructure in Sub-Saharan Africa

Despite laudable efforts of governments in SSA the region remains consistently behind all other developing regions of the world.

- Investment as a proportion of GDP is about 10% compared to 16% in other developing regions
- Less than 50% of roads in the region are paved, about one-third of the population of the region are within two kilometers of seasoned roads compared to two third of population in developing regions of Europe, Asia and the Americas
- About 40% of the population of the region lack access to safe portable water. About 60% of the population lack basic sanitation. Only about 30% have access to electricity supply
- Telephone penetration in the region is only about 14% compared to an average of 52% in America, Europe and Asia
- Power sector in the region exhibits the highest amount of deficiency. The 48 countries of the region with combined population of about 800 Million only generate about 124 Kilowatt hours per capital per year

# High cost of Infrastructure Services

Infrastructure services in SSA are not only inefficient but also expensive compared to other prices in other region of the world

- A kilowatt of electricity in SSA cost between \$0.02 and \$0.45 compare to between \$0.05 and \$0.1 in other regions
- A cubic meter of water in the region cost between \$0.86 and \$6.56 but the same quantity cost only between \$0.03 and \$0.6 in other developing regions
- Road freight tariff in the region is between \$0.04 and \$0.14 per kilometer, but the same freight only cost between \$0.01 and \$0.04 in other developing regions of the world
- The prices and charges of some infrastructure services are genuinely high due to high cost; however, some service charges such as freight tariffs are high only as a result of high profit margin. The only viable way to reduce cost is to increase network coverage and thus reduce cost per unit.

# Factors responsible for the state of infrastructure

- The precarious state of infrastructure services in Sub-Saharan Africa as reflected above, is mainly due to:
- lack of resources to undertake infrastructure development
- lack of reliable data to determine finance and manpower requirements of project
- lack of infrastructure development framework that adequately delineate stage-by-stage project requirements in many countries of the region
- Inadequate planning, mismatch of projects with society needs, and requirements,
- inadequate supporting institutions, and unstable political environments.

# What Need's to be done

- The economy of the countries of Sub-Sahara Africa is currently growing at about 5.5 percent per annum and this is expected to increase significantly if the current momentum is maintained (World Bank 2012).
- The current population of the region is about 900 (UNPF 2011); if the projected growth rate of about 2.2% is maintained in to the year 2020, the region might have as high as 1.3 billion people by the year 2020.
- Accompanying this huge population growth will be an increase in demand for infrastructure services. Failure to meet up to the expected increase in demand might hamper growth and poverty alleviation programs in the region



# What need's to be done

- A recent estimate shows that the region currently has infrastructural deficit of about \$31 billion (AICD, 2010).
- In order to close this infrastructure gap and maintain economic growth rate of about 7% by the year 2015, it has been estimated that the region would require approximately \$93 billion each year (AU, NEPA, 2011).
- Current spending on infrastructure from within and outside the region is about \$45 billion per annum (AICD 2008). This leaves a deficit of about \$48 billion
- It is estimated that about \$8 billion can be saved annually by eliminating all inefficiencies, while another \$5 billion can possibly be saved by increasing capital budget execution to 100% (AICD, 2008).
- Despite all the savings and financial gain that are likely to accrue from proper implementation and waste elimination, the region is still left with a deficit of about \$35 billion per annum

# Review of Literature

- The role of infrastructure in economic development is well documented in development literature. However, the numerical magnitude of this importance or significance at best remains a controversial issue at this moment
- While pioneer efforts in the field suggest a positive relationship between infrastructure development and economic growth and report robust positive coefficients (Ratner, 1983; Aschauer, 1989; Mitsui and Inoue, 1995), a sizable number of subsequent studies have reported less than attractive results, thus suggesting a weak link between infrastructure development and economic growth (Munnell, 1992; Gramlich, 1994; Romp and de Haan, 2007)
- Aschauer (1989), investigated whether all government expenditures are productive using production function in which output depended on public capital, private capital and employment. His result showed that the elasticity of output with respect to public capital was between 0.34 and 0.39. This result was interpreted to mean that the marginal productivity of public capital is 70 cents to a dollar.

- Other studies such as Eisner, (1991), Ford and Poret, (1991), Holtz-Eakin (1988); using macro time series approach all found evidence in support of Aschauer (1989). However, their results showed public capita elasticity of output significantly lower than Aschauer earlier claim. They all found marginal product of government capital higher than the marginal products of private capital. These findings somehow defy logical reasoning given the available data.
- The above studies have been criticized based on a number of issues which includes: their definition of government capital; their failure to recognize the time series properties of the data used in the studies and the potency of the econometric method used in their analysis.
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- Generally the stock of public capital used in the above studies is the addition of state and local capital stock which corresponds to the official figure in government publications. However, the official figure in government publication comprises some public capital components which have no direct bearings or connections to productivity or output levels (see Gramlich, 1994 for details).

- The role of the public sector is often limited to basic utilities in the developed economics; however, in most developing countries the public sectors are often involved in conventional industrial and commercial activities to stimulate industrial growth of the country

The involvements of the public sector in industrial and commercial activities thus raise the question of whether public infrastructure is a compliment or substitute for private investment. If infrastructures are compliment, what is the appropriate combination of public private investments that yields the highest possible output?

If public investments in infrastructures substitute for private investment is there a crowd-out or crowd-in effect of infrastructure on private investments

# The Need for User Fee in SSA

- **Equity Consideration**
- **Allocation Efficiency**
- **Cost Efficiency**

# **THE CHALLENGES OF INFRASTRUCTURE FINANCING IN SSA**

- **Inadequate Projects Preparation**
- **Underdeveloped Capital Markets**
- **Project Risks**

# **INFRASTRUCTURE FUNDING OPTIONS**

- **Public Sector Subordinated Notes**
- **Public Sector Minimum Guarantees**
- **Public Sector Debit Capital**
- **Tax Increment Finance (TIF)**
- **Infrastructure Development Corporation (IDC)**

# **SOURCES OF INFRASTRUCTURE FINANCE.**

- **Syndicated bank lending for infrastructure development**
- **Institutional Investors and Infrastructure Finance**
- **Capital Market**
  - **Bond**
  - **Securities**



# **MITIGATING THE RISKS IN INFRASTRUCTURE FINANCING**

- **Devaluation Risk**
- **Regulation Risks**
- **Sovereign Ceiling Risk**

# Conclusion

- The economic reality of modern times clearly shows that the task of developing infrastructural facilities can no longer be left to the government alone
- In view of the above, it is incumbent on policy maker in the region to come up with strategies and mechanisms to encourage private sector participation in all aspect of infrastructure developments. Such mechanisms should not only provide paper strategies, but also practical ways of turning into tangible projects through the provision of adequate finance
- Financial globalization and increasing market integration suggest that regional competition for investable funds can only increase with time and capital will surely gravitate to regions that offer highest return on investments
- It is time to adopt a business approach to infrastructure services provision. Such approach will require that services attract access fees adequate for infrastructure services to be self maintained. Without these commercial viability potentials, the private capital might not be adequately attracted to the sector