

2014). The gap in the availability of infrastructure in most West African countries has greatly negatively impacted on the production processes in the manufacturing sector and in the cost of doing business generally which constitute part of economy backwardness of this region.

Given the benefits and importance of availability of quality infrastructural facilities to economic performance on one hand and low budget allocation or cut in expenditure on infrastructures by most government of this region, which create adverse business environment hence reduction investment both foreign and local on the other hand, the study therefore examines the impacts of deficiency or inadequate spending on infrastructural facilities on economic performance in west African sub-Region.

2. Literature Review

Infrastructural development in developing countries has not been generally given adequate attention by successive government in Africa, most especially West African countries. While there are varying opinion and contrasting empirical findings among researchers about the link between infrastructure and growth, the preponderance of evidence seems to show that inadequate supply of infrastructure or the unreliability of infrastructure services may constrain investments of productive capital and lead to a restriction or reduction of output, which at long run reduce economic growth and development.

Many scholars have carried out studies regarding the impact of quality infrastructural facility (especially public infrastructure) on either any of macroeconomics variable indicators or economic growth at large. Their findings indicates that, there is a link between provision of quality infrastructural facilities and economic performance, among them are Richard et al. (1999), Wei (2000), Asiedu (2000), Sekkat et al. (2004). These scholars argued that infrastructural development is a necessary condition for foreign investors to operate successfully as poor infrastructural development increase costs for firms. Infrastructure should therefore improve the investment climate for Foreign Direct Investment (FDI) by subsidizing the costs of investment by foreign investors and increase their (ROI) return on investment. As the availability of good infrastructures like roads, railways, highways, ports, communication networks and electricity with a stable polity would increase productivity and thereby attract higher levels of FDI. Wei (2000) opined that, “location with good infrastructure is more attractive than the others”. Asiedu (2002) analyzed some countries (34) infrastructure development and concluded that with good infrastructural development the countries were rewarded with more investments.

Studies also show that deficiencies in infrastructure could be a critical development constraint. The ADB (2007) finds that poor infrastructure and lack of investment in infrastructure have constrained growth. Poor infrastructure, a major factor for increasing the cost of doing business, has significant adverse impact on the perceived competitiveness and attractiveness of the Philippines as an investment destination. The facts that there is a critical link between infrastructure and regional growth has been indicated in the causality tests showing that the direction of causation runs from infrastructure to economic growth, and that regional imbalance in infrastructure availability has a negative impact on a region’s economic growth prospects (Llanto, 2007a; Llanto, 2007b). Differences in availability of infrastructure have led to differences in regional growth in the Philippines (Basilio and Gundaya, 1997; Llanto, 2007b; Manasan and Chatterjee, 2003). There is evidence that infrastructure could be a key variable in regional convergence (Llanto 2007a; Cuenca 2004).

In a related study by Edun et al (2013) on the effects of infrastructural development on economic growth in Nigeria, using simple model of an economy with foreign investment and public infrastructure with a diversified equilibrium. Their study find out that provision of infrastructural facilities in an economy enhance labour productivity, hence increase in output and it also create avenue for foreign direct investment (FDI). Similarly, Olatudun (2011) also observed that, lack of investment on infrastructures or infrastructure deficiencies significantly curtails productivities of firms. As a result of poor public infrastructures, many firms have invested in complimentary capital rather than productive capital. This is contained in their study “Infrastructure deficiencies and investment in manufacturing firms”. The study concluded and recommended that government should channel more resources towards the efficient provision of infrastructure.

Some scholars have also attempted to measure the productivity of public infrastructure on economic performance and these includes, Odongo and Kalu (2016), Cohen and Paul (2004), Delorme et al, (1999) and Egert,et al (2009). All these scholars have found a positive relationship between public infrastructure and economic growth. Cohen and Paul (2004) have attempted to measure the contribution of public infrastructure in Swedish economy, Kim (1998) examined the effect of infrastructure investment on Korean economy and concluded that infrastructure investment has resulted in economic growth and inflation, Delorme et al (1999) have attempted to measure the impact of infrastructure on Mexican GDP and concluded that availability of quality infrastructure increase enhance economic growth.

Odongo and Kalu (2016), examines the impact of public infrastructure on economic growth in Sub-Saharan African region using system of GMM to estimates a model of economic growth augmented by an infrastructural variables for 45 countries, over a period of 2000-2011. Their study find out that, it is the spending on infrastructure and increments in the access to infrastructure that influence economic growth and development in Sub-Saharan Africa. Interestingly, these significant associations, especially those of infrastructure spending, are more important for lesser developed economies of the region than for the relatively more developed economies, which uncommonly have better than near-zero access to infrastructure. In addition to these robust direct links between the target variables, their study found importantly that infrastructure access, and quality, also relate to economic growth indirectly via export diversification (trade competitiveness), and cross-border capital flows and trade competitiveness, respectively. The study recommends among other important policy derivatives that, efforts aimed at reversing Africa's pervasive infrastructure deficit, in ways that enable economic growth and development.

Egert,et al (2009) has shown that public infrastructure investment can lead to sizeable increase in GDP. Boisso et al, (2000) attempt to measure the impact of changes in public infrastructure provision on slowing down of the U.S productivity. Lin (2001) examines the impact of public infrastructure provision on economic development in some regions in China. Moreno et al,(2002) have attempted to distinguish between short and long run effects of public infrastructure, Salinas-Jimenez (2004) has considered the impact of infrastructure investment on productivity efficiency in Spanish regions, by estimating a translog cost function. Teruel and Kuronda, (2005) have attempted to measure the contribution of public infrastructure in Philippines agricultural sector; they concluded that by reducing cost of production, public infrastructure has enhanced the productivity in Philippines agricultural sector.

Thorat, and Fan. 2007 gave an excellent summary of the existing literature, which suggests that reduction in congestion and adequate maintenance contribute to greater benefits from public infrastructure, by making use of the Greek data, they have shown that public infrastructure and private capital are complementary. Similarly, Reinikka and Svensson (2002) have shown that poor public capital significantly reduces the complementary private investment, argues that due to negative spillover effects, public infrastructure investment can lead to growth in one sector at the expense of the other. Manasan, and Chatterjee. (2003). have examined the impact of public infrastructure on production and input demand in 12 OECD countries, and they discovered that increased spending on infrastructure is associated with higher levels of production, and a positive relationship between the demand for inputs and the supply of infrastructure was discovered.

Fan, and Zhang. (2004), argued that public infrastructure makes significant contribution to the private sector, and also examined the impact of public infrastructure on Canadian manufacturing industries. Canning, and Pedroni, (2004)., in his work, considered the welfare effect of competition for foreign investment and, empirically examines the link between the supply of public infrastructure and capital inflows, by making use of fairly disaggregated cross sectional data and concluded that there is a positive relationship between supply of public infrastructure and capital inflow.

On rural infrastructure and the impact on agricultural productivity, Andersen and Shimokawa (2007) observed that deficiencies in transportation, energy, telecommunications, and related infrastructure translate into poorly functioning domestic markets with little spatial and temporal integration, low price transmission, and weak international competitiveness. The failure to invest in rural infrastructure would be a critical bottleneck for future growth in agricultural and economic output and poverty alleviation in developing countries. Indeed, severe rural infrastructure deficiencies undermine the huge potential of the agriculture sector in developing countries to contribute to growth and poverty reduction. Improved rural infrastructure will reduce poverty through improved agricultural productivity and through improved wages and non-farm employment.

In relation to methodological issues, the massive ensuing literature on the output impact of infrastructure has employed a variety of data, empirical methods and infrastructure measures. The most popular approaches include the estimation of an aggregate production function (or its dual, the cost function) and empirical growth regressions. Infrastructure is variously measured in terms of physical stocks, spending flows, or capital stocks constructed accumulating the latter. A majority of this literature finds a positive long-run effect of infrastructure on output, productivity, or their growth rate. More specifically, this is the case with almost all of the studies using physical indicators of infrastructure stocks, but results are more mixed among the growth studies using measures of public capital stocks or infrastructure spending flows (Fedderke, Garlick, 2008).

Another strand of recent literature has examined the effects of infrastructure on income inequality. The rationale is that infrastructure provision may have a disproportionate effect on the income and welfare of the poor by raising the value of the assets they hold (such as land or human capital), or by lowering the transaction costs (e.g., transport and logistic costs) they incur to access the markets for their inputs and outputs. These effects may occur through a variety of mechanisms documented in the empirical literature; see for example Estache (2003), and Calderón and Servén (2008). Of course, for infrastructure development to reduce income inequality, the key ingredient is that it must help expand access by the poor, as argued for example by Estache (2003)

Few empirical studies have tackled directly the inequality impact of infrastructure at the macroeconomic level. Among them are those of López (2004) and Calderón and Servén (2008), both of which use cross-country panel data. López uses telephone density to proxy for infrastructure, while Calderón and Servén employ synthetic indices of infrastructure quantity and quality. In both cases, the finding is that, other things equal, infrastructure development is associated with reduced income inequality. Combined with the finding that infrastructure also appears to raise growth, the implication is that, in the right conditions, infrastructure development can be a powerful tool for poverty reduction.

A strand of recent papers has focused on the development impact of infrastructure in Africa. Ndulu (2006) offers an overview of the big issues, and Ayogu (2007) surveys the empirical literature. Most of the latter deals with the growth and productivity effects of infrastructure development. For example, Estache, Speciale and Veredas (2005) present pooled OLS growth regressions based on an augmented Solow model including a variety of infrastructure indicators, one at a time. Their main conclusion is that roads, power and telecommunications infrastructure – but not water and sanitation -- contribute significantly to long-run growth in Africa. Other studies follow a production function approach. Ayogu (1999) applies it to regional panel data from Nigeria, finding a strong association between infrastructure and output. Ndulu (2006) uses data from African countries to calculate various dynamic panel estimates of the effects of infrastructure in an aggregate production function augmented with indicators of the quality of macroeconomic policy.

Boopen (2006) likewise presents panel estimates of the output contribution of transport infrastructure using similar data. South Africa (along with Nigeria) has attracted special attention in this literature, partly reflecting the significantly better quality of its data relative to that of other countries in the region. Perkins, Fedderke and Luiz (2005) use a detailed database on infrastructure investment and capital stocks, spanning as long as a hundred years, to test for the existence of a long-run relation between different infrastructure measures and GDP. Their results suggest a bi-directional relation in most cases. Kularatne (2005) explores the effects of infrastructure investment (as well as social spending on health and education) on GDP. He also finds bi-directional effects, although the impact of infrastructure investment appears to occur indirectly through private investment. Dinkelman (2008) finds a significant impact of household electrification on employment in South Africa's rural labor markets.

On the basis of forgoing, it is clear that several empirical studies regarding infrastructure has been carried in developing countries both at individual country level, or at Sub-Saharan African or at African region at large, but there is no such study at West African sub-region. Also, most available empirical studies uses either GMM model or OLS econometric method or probit model for cross section data generated over the survey carried and consider infrastructural variable as a stock variable. The study intend to fill this gaps by looking at the effects of infrastructure deficiency on economic performance in West African sub-region using panel OLS econometric model and considered infrastructure as a flow variable that is expenditure on infrastructural variables.

3. Methodology

3.1 Data and Data Sources

Basically there are two category of infrastructure; physical infrastructure and social infrastructure and they affect economic growth directly and indirectly respectively. The study make of both physical and social infrastructure because it create employment opportunity, it reduce poverty and it affect economic growth directly. Annual data on infrastructural facilities variables basically consisting of aggregate expenditure on infrastructure proxied by fixed capital formation, human capital development proxied by average total expenditure on education (flow variables) and sets of control variables that includes exchange rate and financial system from World Bank data indicator and central bank of selected country’s statistical bulletin were collected from 1981 to 2017 for the study analysis.. The study control for inflation which is a measure of price stability as used by Barro (1990) and financial system. The study makes use of real gross domestic product (RGDP) per capita growth annually gotten from central bank (CB) (2015, 2016 and 2017) of each country as a proxy for economic performance.

3.2 Model Specification framework

Theoretically, the literature has proposed several plausible theoretical explanations of infrastructure’s impacts on economic growth. One school of thought regards infrastructure as part of a country’s physical stock of capital and therefore a factor of production (e.g., Aschauer, 1993; Gramlich, 1994). Proponents of this school argue that infrastructure stock changes impact national output and directly induce economic growth. The second viewpoint is that infrastructure complements other factors of production: the argument here is that infrastructure may improve total factor productivity by lowering input costs or by expanding the production frontier or the set of profitable investment opportunities (e.g., Barro, 1990). In the third school of thought, infrastructure is believed to stimulate the accumulation of factors of production. Advocates of this view argue that accumulation and productivity of a factor (e.g., labor) is incentivized by infrastructure (e.g., educational and health facilities and roads to access those facilities) (Fedderke and Garlick, 2008). In this sense, infrastructure indirectly affects economic growth. Furthermore, it has also been argued that infrastructure investment can affect economic growth by stimulating aggregate demand or by directing industrial policy toward a desired path. Our postulation in this paper aligns with the first views on the nature of relations between infrastructure and economic growth. This view is particularly more germane for less developed regions, such as West African countries, where traditional antecedents of economic growth are either significantly inadequate or lacking.

As a result of deficiency of diminishing marginal return to capital in neoclassical growth model which necessitate most recent study to adopt endogenous growth theory in economic growth studies, therefore, the study is anchoring on endogenous growth theory. Barro (1990), argues that the government’s contribution to current production is driven by its flow of productive (infrastructure) expenditure, which can prevent diminishing private-sector capital returns, raise the marginal product of private-sector capital, and these in turn raise the rate of output growth. In other to appreciate the effect of infrastructure development/investment on economic growth, an endogenous economic growth model of the form are formulated as follow;

$$Y_t = \alpha + \beta X_t + \varepsilon_t \text{-----}(1)$$

Where Y_t is real GDP per capita of all the selected country

X_t is the vector of infrastructural development variables proxied by gross fixed capital formation and human capital development index proxied by total average expenditure on education of each selected countries and inflation rate and financial system which serve as control variable

ε_t is the error term

When infrastructure variables broken down into components, i.e vector $X_t =$ Gross Fixed Capital formation (GFC), Human Capital Development (HCD), and control

variables Inflation Rate (INF) and financial system FIN.SYSTM). Y_t which represent output in production function measured economic performance proxied by real gross Domestic Product (RGDP). Then, equation (1) becomes;

$$RGDP_t = \alpha + \beta_1 GFC_t + \beta_2 HCF_t + \beta_3 INF_t + \beta_4 FINST_t + \varepsilon \text{-----}(2)$$

From the above equation, the study estimated the effect of infrastructural spending on economic performance of the selected countries using pool ordinary least square regression model after providing the descriptive statistics and correlation matrix of the variable used. Random and fixed effect were also estimated because of variation and peculiarity of each country in terms of macroeconomic environment and policies. Two years data are missing in Gambia financial system, specifically in 2015 and 2016 and they were improvised using 4 years moving average.

4. Results and Discussion

Table 4.1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Rgdp	185	10.79982	3.501428	-0.42579	13.74163
Gfc	185	25.71409	16.02031	3.568734	89.38613
Eduexp	185	19.27622	1.755727	15.49174	22.26464
Finsystem	185	14.90268	8.84986	1.542268	42.2638
Infrate	185	13.02216	17.11674	-5.96912	134.0359

Table 4.2 Correlation Matrix

	rgdp	Gfc	eduexp	Finsystem	infrate
Rgdp	1.0000				
Gfc	0.3610	1.0000			
Eduexp	0.2450	0.2956	1.0000		
Finsystem	0.5144	0.3039	0.2435	1.0000	
Infrate	-0.4602	-0.0102	-0.0858	-0.3973	1.0000

The table 4.1 shows the descriptive statistics of the variable used. It indicated that all the variables are normally distributed except inflation rate which is relatively skewed to the right. This indicates that the behaviours of most of the variable in all the country are similar. Specifically, the average RGDP of all the selected countries is 10.799 and the maximum GDP is 13.74 which indicate that all the study countries have a relatively the same growth rate of GDP. The same thing applicable to gross fixed capital formation and human capital development variable with average of

25.714 and 19.276 respectively. The skewness of the inflation rate to the right shows that almost all the countries selected for analysis are experiencing increase in inflation rate.

The correlation matrix of the variables in table 4.2 shows that all the variables are positively related to real gross domestic product except inflation rate. This implies that all the variable are rightly signed and are very appropriate for the study analysis. The table 4.3 below presents the summary of the estimation results.

Table 4.3 summary of the results estimates

Dependent variable: rgdp

Variable	OLS	FIXED EFFECT	RANDOM EFFECT	HAUSMAN
Gfc	.0543938*	.0164345*	.0543938*	$\chi^2=157.38$ (0.0000)
eduexp	.1447549	.9057467*	.1447549	
finsystem	.1135731*	.0308009*	.1135731*	
Inf rate	-.069009*	.0012847	-.069009*	
cons	5.816909**	-7.557897*	5.816909**	
Adj. R ²	0.40	0.50	0.20	
F	31.34*	42.45*	125.35*	

Note: *, ** indicate significance at 1% and 5% respectively

The estimation result on table 4.3 using pooled OLS and Random effect shows that all the infrastructural variables including the control variables are rightly signed and they are statistically significant at 1%. Except expenditure on education. Specifically, gross fixed capital formation (GFC) which is one the proxy for infrastructure is positively related to economic growth which implies that one percentage change in GFC will produce about 5% increase in economic growth and this effect is statistically significant at 1% (P-value 0.000). the same result is obtained for human capital development which is the second proxy for infrastructure, except that the effect is not statistically significant. the result indicate that a one percent rise in education expenditure will lead to about 14% increase in economic growth proxied by real gross domestic product. For the control variables, financial system proxied by credit giving to private investors, a one percent point change in this variable will increase economic growth by about 11% and the inflation rate which is expected to relate to economic growth negatively is also rightly sigied, a one percentage rise in inflation will reduce economic growth by about 6%. All the variables used conformed with a priori expectation.

For the robustness of the result, the study carried out multicollinearity test and found out that thde variables used does not suffer from multicollinearity. The hausman test for both random and fixed effect were also carried out to determine which among the two estimate matches the pooled OLS. The hausman result shows that random effect estimate corresponds to the result of regression that is, all the infrastructural variables are positively related economic performance and they are statistically significanta at 1%, except total average expenditure on education.

The result generally shows that the effect of government spending on infrastructure is positive and statistically significant at 1%, which implies that increase in government expenditure on education will enhance economic performance in all the selected countries. This result differs from other study such as Edun et al (2013), on the ground that rather than using access to infrastructure as a determinant of economic growth, the study used spending on infrastructure which is more important to less developed economy. These finding is similar to result obtained by Kondogo and Kalu (2016), Kuma (2012) and Calderon and Serven (2010). The policy implication of this findings is that, since it has been established that increase in government spending on infrastructure enhance and stimulate economic growth and development and most West African countries specifically the selected countries for the study analysis, are characterized with low spending on infrastructure which causes deficiency in infrastructure availability

and development hence poor economic performance. This according to Kondogo and Kalu (2016), explain the reasons why some developing countries still remain underdeveloped.

5 Conclusion and Recommendations

The study examine the effect of infrastructural deficiency on economic performance of the some selected countries in West African covering period from 1981 to 2017. West African countries are characterized with underdeveloped economy and one of the major causes of being underdeveloped economy is as a result of lack of conducive business environment inform of deficiency in infrastructural facility such as road network, water, electricity supply, ICT communication etc. Deficiency in infrastructure in this part of the region according to the literature was as result huge or larger percentage of budgetary allocation to recurrent expenditure at expense or low budgetary allocation to sectors related to the infrastructure such as capital expenditure on physical and social projects, which have negative effect on economic growth.

Based on the findings of this study that, an increase in the expenditure on infrastructure stimulate economic performance, the study therefore recommends that, government of this region should intensify effort to increase their budgetary allocation to capital expenditure and cut down or reduce expenditure on recurrent which account for about (50-60%) of the total budget of the most countries under this region. government should also adopts policy measure such as Private partnership policy (PPP) measure that will motivate and encourage private participation in the investment on infrastructures to ease the cost of doing business. This can be inform of reduction in interest rate and cut in taxes to encourage private investors.

References

- Adenikinju, A., 2005, *Analysis of the cost of infrastructure failures in a developing economy: The case of the Electricity Sector in Nigeria*, AERC Research Paper 148, African Economic Research Consortium, Nairobi.
- AFDB, 2013a. An Integrated Approach to Infrastructure Provision in Africa. African Development Bank.
- African Union, 2014. Programme for Infrastructure Development in Africa (PIDA): addressing the infrastructure gap in Africa, to speed up regional integration. In: Seventh Conference of African Ministers in Charge of Integration, 14–18 July 2014. Swaziland.
- African Union, 2014. Programme for Infrastructure Development in Africa (PIDA): addressing the infrastructure gap in Africa, to speed up regional integration. In: Seventh Conference of African Ministers in Charge of Integration, 14–18 July 2014. Swaziland.
- Andersen, P. and S. Shimokowa. 2007. Rural infrastructure and agricultural development. Paper presented at the Annual Bank Conference on Development Economics, Tokyo, Japan, May 29-30.
- Aschauer, D.A., 1993. Genuine economic returns to infrastructure investment. *Policy Stud. J.* 21, 380–390.
- Asian Development Bank (ADB). 2007. *Philippines: critical development constraints*. ERD Country Diagnostic Studies, ADB, Manila, Philippines.
- Ayogu, M., 2007. Infrastructure and economic development in Africa: a review. *J. Afr. Econ.* 16 (Suppl. 1), 75–126, AERC.
- Barro, R.J., 1990. Government spending in a simple model of endogenous growth. *J. Political Econ.* 98, S102–S125.
- Basilio, L. and D. Gundaya. 1997. The impact of collective public infrastructure on regional income disparities. Unpublished thesis, University of the Philippines, School of Economics, Diliman, Quezon City, Philippines.

- Boopen, S., 2006. Transport infrastructure and economic growth: evidence from Africa using dynamic panel estimates. *Empir. Econ. Lett.* 5, 37–52.
- Calderón, C., Servén, L., 2010. Infrastructure and economic development in Sub-Saharan Africa. *J. Afr. Econ.* 19 (Suppl. 1), i13–i87, AERC.
- Cuenca, J. 2004. An empirical analysis of factors affecting regional economic growth and convergence in the Philippines.” Master’s thesis, De La Salle University, Manila, Philippines.
- Demillo, L. R. Jr. (1999). Foreign direct investment-LED growth, evidence from time series and panel data. *Oxford economic papers*, 51(1), 133-151.
- Dinkelman, T., 2011. Effects of rural electrification on employment: new evidence from South Africa. *Am. Econ. Rev.* 101, 3078–3108.
- Edun A. O, Akinde J. O, Olaleye S.O and Idowu G. A (2013), Infrastructural development and its effect on economic growth: the Nigerian perspective *European Scientific Journal* November 2013 edition vol.9, No.31 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431
- Egert, B., Kozluk, T., Sutherland, D., 2009. Infrastructure and Growth: Empirical Evidence. University of Michigan, William Davidson Institute Working Paper Number 957.
- Estache, A., Spiciale, B., Veredas, D., 2006. How Much Does Infrastructure Matter to Growth in Sub-Saharan Africa? The World Bank, Washington DC.
- Fan, S. and X. Zhang. 2004. Infrastructure and regional economic development in rural China. *China Economic Review* 15: 203-214.
- Fedderke, J., Garlick, R., 2008. Infrastructure Development and Economic Growth in South Africa: A Review of the Accumulated Evidence. Policy Paper Number 12, School of Economics, University of Cape Town.
- Gramlich, E., 1994. Infrastructure investment: a review essay. *J. Econ. Lit.* 32, 1176–1196.
- Kodongo O and Ojah K (2016) infrastructure really explain economic growth in Sub-Saharan Africa? *Wits Business School, 2 St. David’s Place, Parktown, Johannesburg 2193, South Africa* Available online 27 December 2016 *Review of Development Finance* 6 (2016) 105–125,
- Kularatne, C., 2006. Social and economic infrastructure impacts on economic growth in South Africa. In: DPRU Conference, 18–20 October, Johannesburg.
- Llanto, G.M. 2007a. Identifying critical infrastructure-related constraints to economic growth and equitable development in the Philippines. Background report to Philippines: critical development constraints. <http://www.adb.org/Projects/Country-Diagnostic-Studies/default.asp>
- Llanto, G.M. 2007b. Infrastructure and regional growth. In: A. Balisacan and H. Hill (eds.). *The dynamics of regional development*. Edward Elgar, Cheltenham.
- Llanto, G.M. 2008. A review of build-operate-transfer for infrastructure development: some lessons for policy reform. PIDS Discussion Paper Philippine Institute for Development Studies, Makati City, Philippines.
- López, H. (2004), *Macroeconomics and Inequality*. The World Bank Research Workshop.
- Manasan, R. and S. Chatterjee. 2003. Regional development. In: A. Balisacan and H. Hill (eds.). *The Philippine economy: development, policies and challenges*. Ateneo de Manila University Press, Quezon City, Philippines.

- Ndulu, B.J., 2006. Infrastructure, regional integration and growth in sub-Saharan Africa: dealing with the disadvantages of geography and sovereign fragmentation. *J. Afr. Econ.* 15 (Suppl. 2), 212–244, AERC.
- Ogidan, A., 2015, ‘Government moves to bridge \$2.4 trillion infrastructure funding gap’, *The Guardian-Business News*, 25 February, 2015, Vol. 31, p. 19.
- Oseni, M.O. & Pollitt, M.G., 2013, *The economic costs of unsupplied electricity: Evidence from backup generation among African firms*, Energy Policy Research Group Working Paper 1326, Cambridge Working Papers in Economics 1351, Cambridge University Press, Cambridge
- Olatundun J.A (2011)Infrastructure deficiencies and investment in manufacturing firms in Nigeria, *Journal of Economics and International Finance* Vol. 3(9), pp. 542-552, 7 September, 2011Available online at <http://www.academicjournals.org/JEIF> ISSN 2006-9812 ©2011 Academic Journals.
- Reinikka, R., Svensson, J., (2002). How Inadequate Provision of Public Infrastructure and Services Affects Private Investment. The World Bank, Policy Research Working Paper Series 2262.
- Richaud, C. K. & Varoudakis (1999). Infrastructure and growth spillovers: A case for a regional infrastructure policy in Africa, *mimeo, University of Brussels*.
- Sekkat, K. & V. Varoudakis M. (2004). Trade and foreign exchange liberalization, investment climate and FDI in the MENA countries, *Working papers*, Dulbea, Universite libre de Bruxelles, department of applied economics
- Teruel, R. and Y. Kuroda. 2005. Public infrastructure and productivity growth in Philippine agriculture, 1974-2000. *Journal of Asian Economics* 16: 555-576.
- Thorat, S. and S. Fan. 2007. Public investment and poverty reduction: lessons from China and India. *Economic and Political, Public_investment_Feb2007.pdf*. (date accessed, Jan 12, 2009).
- Wei, S. (2000). How taxing is corruption on international investors? *Review of economics and statistics*, 82 (1), 1-11.
- World Bank, 2013, ‘Nigeria economic report’, viewed 17 February 2014, from <http://documents.worldbank.org/curated/en/2013/05/17708026/nigeria-economic-report>.
- World Bank, 2014, *Building integrated markets within the East African Community: EAC opportunities in public-private partnership approaches to the region’s infrastructure needs*, International Bank for Reconstruction and Development/ World Bank, Washington, DC.

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