

Public Private Partnership and Concessions as Panacea to Funding and Maintenance Challenges of Nigerian Roads

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ABSTRACT - This research paper presents a public-private partnering-economics approach as a better basis for addressing the road maintenance challenges of Nigerian roads. It emphasizes that mere funding of the road management will not address the technicality required for efficient or effective road maintenance. The fundamental objective solution to untimely road maintenance of Nigerian roads is effective technical partnership that moves the maintenance timing needs to skilled labour and not to 'mere funds'. Road maintenance is a timely deal else a little situation can turn to a gross disaster. The partnering-economics approach is an approach that suggests the Keynesian idea on government spending should be to a time limit. It is necessary that the partnership is such that some situations allow the private partner to lead on spending to balance the economic system thereof. Such as, it is necessary to allow the private partner take the lead in routine and special maintenance; and the government take the lead in urgent and periodic maintenance cases on funding. The agreement is then structured using various options on the offering. Various options for partnership and concessions are included. Their effective use with the partnering economics allows the public-private partnership to monitor the trend of economy and investment in the process of managing and delivering maintenance on Nigerian roads. Public road is a type of good that can only be excluded. If that property is not well managed as a private good, it becomes difficult to successfully deploy the technical skills needed for maintenance management. This is what the Nigerian situation is currently trying to do with funds only. There needs to be a private content in partnership with the government as public to ensure that the challenges of maintenance are managed timely.

KEY WORDS: Public, Private, Partnership, Spending, Good, Maintenance

1.0 INTRODUCTION

Public Private Partnership is a partnership of a public investor (e.g. central government) and a private investor (a business firm) on the government's civil engineering utility or facility works. The world-wide movement towards privatization and deregulation was part of a growing belief among policy-makers that private firms operating in free markets are more efficient producers and innovators than governments (Lipsey et al., 2007). Public Private Partnership (P3) can be the solution to financing problems, completion of jobs and investing in large projects without sacrificing the government finances (Rodriguez¹, 2014). Further, P3 can be the long-awaited solution for the construction industry, developing new strategic alliances, improving public services and reducing government costs. It can be negotiated using different contracting methods, producing the projected results and allowing a faster benefit to all citizens. Depending on the job being executed P3 results in greater benefits and will allow the business to develop into an exciting emerging market (Rodriguez², 2014).

The problem of inadequate funding and untimely maintenance of highway infrastructure in Nigeria has been of great concern to the government and the entire citizenry (CBN Research Department, 2003): though much effort had been made in road construction, maintenance had lagged behind. Findings from a survey on state of the roads revealed that faulty designs, inadequate drainage systems and poor maintenance culture are a number of problems plaguing the roads. The reasons include poor quality roads, inefficient bureaucracy, poor funding and excessive use of the roads given the underdeveloped state of the waterways and poor state of railways.

Nigeria currently relies mostly on road transportation and until other means are expanded and strengthened, ensuring smooth road traffic is a key interim action (Udoh, 2011). Rather than provide the platform to accelerate our development, the underdevelopment of Nigeria's transportation system has become a hindrance in our effort to build a developed Nigeria. The private sector needs to be encouraged to set up innovative firms to tap the opportunities in the transport sector.

Infrastructure is the basic facilities on which the commerce of a community depends, especially transportation and communications systems (Lipsey, et al., 2007). The political interest effect on infrastructure business survival is largely a subjective argument on the

trouble with government spending (Muhlenkamp, 2009): government doesn't have any money but raises every-spent from taxes or borrowing; and borrowing to cover federal deficit is commonly held over taxes. It moves resources from the private sector, slowing the economy and decreasing employment, into the government sector where work incentive is poor and spending is inefficient.

Economic theory does not automatically generate strong conclusions about the impact of government outlays on economic performance. Indeed, almost every economist would agree that there are circumstances in which lower levels of government spending would enhance economic growth and other circumstances in which higher levels of government spending would be desirable (Mitchell, 2005). If government spending is zero, presumably there will be very little economic growth because enforcing contracts, protecting property, and developing an infrastructure would be very difficult if there were no government at all. In other words, some government spending is necessary for the successful operation of the rule of law. Nevertheless, economists will generally agree that government spending becomes a burden at some point, either because government becomes too large or because outlays are misallocated. In such cases, the cost of government exceeds the benefit.

How do we best generate more money to spend? It is a question that falls into the Keynesian controversy which is part of the economics of government spending as Keynesian debate, besides benefit-cost analysis. By (Mitchell, 2005), John Maynard Keynes argued, in the 1930s, that government spending (particularly increases in government spending), boosted growth by injecting purchasing power into the economy. According to Keynes, government could reverse economic downturns by borrowing money from the private sector and then returning the money to the private sector through various spending programs. Keynesian economics dominated public policy from 1930s – 1970s. However, the theory still influences public decisions, particularly on whether or not changes in government spending have transitory economic effects. In the 1980s spending-increases were associated with economic stagnation and it became apparent that lower tax rates and spending restraint gave economic boom.

Governments have multiple objectives and the following are considered as main (Lipsey et al., 2007):

- i) To protect life and property by exercising a monopoly of force and establishing property rights
- ii) To improve economic efficiency by addressing the various causes of market failure
- iii) To protect the environment
- iv) To achieve some accepted standard of equity
- v) To protect individuals from others and from themselves
- vi) To influence the rate of economic growth
- vii) To stabilize the economy against income and price-level fluctuations.

The main sets of tools available to government to achieve their goals are taxes, spending, rules, and public ownership. Taxes and spending are by far the most important items on this list. As well as providing the revenues needed to finance all of the government's activities, taxes are also used as tool in their own right for a wide range of purposes. They can be used to alter the incentives to which private maximizing agents react, and to alter the distribution of income. Taxes are divided into two: indirect tax – levied on a transaction and direct tax – levied on people and it varies with the status of the taxpayer.

Government spending is of two types: exhaustive expenditure which involves the hiring of people and/or the purchase of land or capital to produce public services. When such are hired by the public sector, they become unavailable for the private sector output. The other government expenditure consists of transfer payments, which are payments not made in return for any contribution to current output such as old-age pensions.

Rules and regulations are potent tools for redressing market failure (Lipsey et al., 2007). Governments use rules both to set the framework within which market forces operate and to alter the workings of unhindered markets. Rules pervade economic activities.

Public ownership was largely used by governments as a tool for achieving policy goals. Many such owned industries are being privatized.

Public roads are usually non-rivalrous and can be excludable. If the excludable property is lost it becomes regarded as a common property resource; hence, it becomes difficult to maintain or manage. If that is so, the technical input required to maintain or manage the road properly becomes difficult to mobilize or organize, leaving funds in the hands of inefficient fund manager: that is, government.

2.0 METHODOLOGY

Mutual responsibility for road maintenance will require partnership dynamics that allows the public (government) and the private investor to take mutual supportive roles in fund management in such a way that unique solutions to the maintenance-need are addressed. In that case, the supply of solution as capital asset over a period n will be counter balanced by government's role of managing the interest rate i . For the public partner, the trend is the present worth of a compound investment, that is, for $P =$ present value, $A =$ annual yield, $n =$ investment years and $i =$ rate of return interest:

$$P = A \left[\frac{(1+i)^n - 1}{i(1+i)^n} \right] \quad 3.1$$

The other part of the balance is a private system based on a shorter yield. In this case, the private organisation balances the partnership deal at total sum of short duration yield, say, yearly. Let the supply price of a maintenance asset be S_p , then,

$S_p =$ Sum of the Present Value P of the prospective yields

$$S_p = \int_0^n P dn \quad 3.2$$

For $A_p =$ equivalent annual yields

$$P = A_p \left[\frac{(1+i)^n - 1}{i(1+i)^n} \right] \quad 3.3$$

Then,

$$S_p = \int_0^n A_p \left[\frac{(1+i)^n - 1}{i(1+i)^n} \right] dn \quad 3.4$$

$$S_p = A_p \int_0^n \left[\frac{1}{i} - \frac{1}{i(1+i)^n} \right] dn \quad 3.5$$

$$S_p = A_p \left[\frac{n}{i} - \frac{1}{i(1+i)^n \ln(1+i)} \right]_0^n \quad 3.6$$

$$S_p = A_p \left[\frac{n}{i} - \frac{1}{i(1+i)^n \ln(1+i)} + \frac{1}{i \ln(1+i)} \right] \quad 3.7$$

$$S_p = A_p \left[\frac{n}{i} - \frac{1 - (1+i)^{-n}}{i \ln(1+i)} \right] \quad 3.8$$

Equation 3.1 and 3.8 become the partnership trends.

3.0 RESULTS

Taking $A = 1$ for the public partner and $A = 0.022$ for the private, figure 4.1 shows the trend with n (the years) at a constant rate of return $i =$ constant 10%. It can be seen that for a chosen investment duration and rate of return the public may need to spend less at some project options. Also, the private partner may need to spend more to balance the partnership. Hence, it is correct that public spending keeps the system, as Keynesian had postulated, giving the private players room to operate but that is to a limit for co-existence of the public and private players. For a plan-investment years, the private needs to overtake the public for system equilibrium.



Figure 4.1: Correlation of Partnership

This figure 4.1 guides the participation of the public and private partnerships. It provides a guide as a platform for objective negotiation of funding allowing clear definition of technical challenges for successful investment of funds in the maintenance practices. Table 4.1 gives a typical example of the nature of correlation for the maintenance activities balancing time and expenditure risk:

TABLE 4.1 OPTIONS OF MAINTENANCE ACTIVITIES

	Expenditure Risk		Management Duration, n		Options
	Low	High	Shorter	Longer	
Routine	X		X		Cost control requirement is higher and the private organization is likely to be more flexible.
Urgent		X	X		The response time is shorter and the public taking a lead on interest will secure the investment risk much better.
Periodic	X			X	The public is likely to manage the interest in periodic maintenance having a regular but longer time to do so.
Special		X		X	The private is likely to be more innovative if they have a fore licence to act on special maintenance cases.

The distribution of the options in table 4.1 is illustrated in figure 4.2.

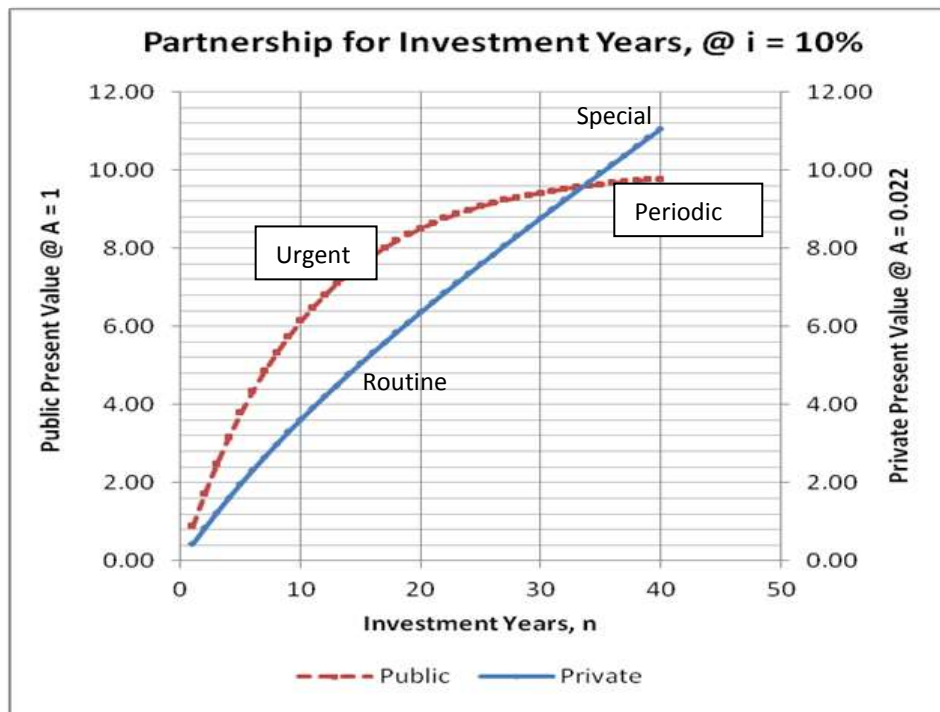


Figure 4.2: Distribution of Public-Private Partnership Options for Road Maintenance Activities

4.0 DISCUSSION

It is necessary that the partnership is such that some situations allow the private partner to lead on spending to balance the economic system thereof. Such as, it is necessary to allow the private partner take the lead in routine and special maintenance; and the government take the lead in urgent and periodic maintenance cases on funding. The agreement is then structured using various options on the offering. There are various options on public-private partnership and concessions. The opportunities are as stated in (Nichols, 2008), (Rodriguez¹, 2014). The following are possible options for a Private Public Partnership of Government as Public.

CONTRACT FORM AGREEMENTS

Funded Contracts: Public acts as a contracting officer, funds and maintains overall control over the project and its assets, this is traditionally for government agencies.

Reimbursed Contracts: Firm finances design, build, and operations of a public facility and the public government refunds firm as a customer.

Joint Venture: Firm and Public parties share ownership and control of some facility, service or enterprise.

Private at Build-Inception and Operate (PBO) Contract: Firm is a complete public representative in all that is required as business without state risk; acting essentially as a regulatory company. Useful for minimising monitoring problems of overstretched administrative (as typical Build Own Operate (BOO) partnership project).

Design Build Contract: Public purchase of short-term engineering service from a firm.

TRANSFER FORM AGREEMENTS

Build Operate and Transfer (BOT): Firm designs, builds and operates facility to a specified investment time and hence, transfers the project facility to the public.

Design-Build-Operator (DBO): Public provides funds as ownership coverage for a design, build, and operating firm. The public acts as the investor that provides requisite project finance. Just like outsourcing projects.

Divestiture: Public's complete, or part, sell off of dated public facilities as a trade off for investment, modernization and the dated service mentioned.

CONCESSION FORM AGREEMENTS

Concession on Sponsorship: Firm funding and maintaining the case public facility.

Concession on Service: Firms perform particular operating or maintenance function for fixed period and specified compensation from public.

Concession on Full Management: Firm takes responsibility of full range of operations and maintenance, and authority of every day management decisions. Compensation is based on a public's parameter such as rendered services and/or performance.

Concession on Admin Lease: Firm contracts public for specified time to operate an existing facility and financing new investments upon so, during the agreed period.

Concession on Tenancy: Firm contracts public to build or for operating an existing facility while vacant, till such is required by the owning public agency (Similar to Build Own Operate Transfer (**BOOT**) partnership projects).

Concession Gov-Gov: A typical full service-type concession allowing the firm to own expansions resulting from the public's full service concession.

Concession on Build for Lease: A public Design Build for a different public long-term lease arrangement.

5.0 CONCLUSION AND RECOMMENDATIONS

Public private partnership is definitely the solution to funding and maintenance challenges of Nigerian roads. The partnership must work on technical requirement basically. Then it is necessary for the funding to be as systematic as most possible on the technical success. In a stretch of time, the public partner needs to maintain the roles of government on the economy and priority of expenditure risk; shifting such risk to private partner to insure innovative and adequate solution to the maintenance needs. Bureaucracy in government systems do not support prompt maintenance requirements that will serve the road function, hence, proper partnership will be a far better option than government sole financing.

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