

Full Length Research Paper

The long run effects of monetization on the Nigerian economy

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This article uses a dynamic, dual-economy general equilibrium model that is adapted and modified to suit Nigeria's situation to analyze the long-run effect of monetization policy on the Nigerian economy. The model provides a complete analysis of how output equation using Generalized Moments Method (GMM) variations affect aggregate consumption expenditure, investment, capital stock, labor, job cuts and public sector wages plus monetization evolve during the adjustment process. The main policy message conveyed by the results is that the monetization policy is important in influencing certain targets macro-economic variables. The empirical evidence shows that public sector wages plus monetization has the highest speed of adjustment towards output in the long-run when compared with other explanatory variables. This is further complemented in the public sector wages plus monetization equation which has output variable as the strongest and most significant and correctly sign. There is a strong presumption that increases public sector wages plus monetization for public servants produce job-cuts, the empirical results attest to this fact, in that the current implementation of monetization policy affects employment negatively. Specifically, 10% reduction in job cut in the long-run will results in output reduction of 2%.

Key words: Monetization, fringe benefits, income policy, wages, public and private sector, salaries and allowances.

INTRODUCTION

A very pertinent question today in Nigeria undergoing economic reform, transformation and monetization programme is: would new salary package for public servants in the form of monetization strategy be compatible with increasing inflation rate, unstable exchange rate and dwindling economy?

Monetization can be described as a monetary policy designed, which means benefits being enjoyed by public servants would be paid enbloc (monetized). Interestingly, some of these benefits had become fully or partially monetized before 1999 (Ekaette, 2003). Some of these benefits include leave grant, meal subsidy, entertainment allowance, duty tour allowance and allowances for domestic servants (The Guardian, 2003). However, the items listed for monetization include residential accommodation, provision of vehicle (including fuelling/maintenance), provision of medical treatment, utilities (electricity, water and telephone and personal aides), housing and transportation allowances. Ekaette (2003) states, this led to the: "passing into a law certain political, public and judicial office holders (Mobolaji, 2003).

(salaries and allowances, etc), Bill in 2002. The law prescribes the salaries allowances and fringe benefits of certain political, public and judicial office holders (Mobolaji 2003). The monetization policy according to Ekaette (2003), gives 100% of annual basic salary for residential accommodation, 300% of the same as furniture allowance. However, the circular letter No. Ref. No. SGF. 19/s.47/C.1/II/371 of 27th June, 2003 title 'Monetization of fringe Benefits in the Federal Public service' and signed by Ekaette (2003), states that those already occupying government quarters or rented accommodation provided for them are not qualified. Instead they are expected to pay 10% of their basic salary as service charge for the maintenance of the quarters. Monetization as part of the monetary policy strategy has been used to solve a number of economic problems in different part of the world. Ramachandran (2003) says that one of the best policy options to attain fiscal prudence consistent with growth and stability is to monetize some portion of government policy.

Nigeria faced with severe socio-political and economic

problems, high cost of governance and the need for efficient use of public facilities (Iji, 2003; Francis, 2004), the government decided to fashion out the monetization policy in a manner that will address those problems confronting the nation. According to Ekaette (2003), it is observed that the cost of governance has continued to escalate beyond imagination in recent times. This increase emanated mostly from the burden of providing basic amenities to the public officers.

The Federal Government in an attempt to reduce the burden of providing basic amenities for the public officers and to curb the abuse and misuse of public facilities decided to convert all those benefits enjoyed by the public servants into monetary reward, and this is the focus of this paper.

Saka (2005) observes that the spirits behind monetization policy as far as Nigeria is concerned are:

- (i) To reduce the high cost of governance in view of the fact that past and present regimes are riddled with corruption which makes the cost of administration of government affairs to be expensive?
- (ii) To make the public servants adopt a better productive approach to public property;
- (iii) The prevalent mismanagement of public property by public servants would be over as such persons would be offered money to acquire such property elsewhere;
- (iv) The policy also offered the government the opportunity to renovate and add value to its property in order to generate income for the business of governance; it is an economic reform, though the vision for reform/s (monetization) is not shared by people who surrounded Mr. President. Most of them are typical Nigerian elite who got to the corridors of power to enrich themselves at the expense of the public treasury (Punch, 2003).

Controversy trailed the introduction of monetization policy, but Punch (2003) and Saturday Tribune (2003) concur that the seemingly policy will remove:

- (i) The burden of providing basic amenities for public officers which has contributed significantly to the continuous increase in government recurrent expenditure, leaving very little for capital development.
- (ii) It is further argued that it will encourage efficient allocation of resources and equity in the provision of amenities for public officers.
- (iii) It will reduce the high cost of accommodation fee since the policy would encourage civil servant to build their own houses. Government will also provide site and services schemes in satellite towns nation wide to assist public servants; and
- (iv) The programme would stop the culture of waste in the guise of maintaining the government housing estates. Civil servants who misuse the government vehicles would have to change their minds as the privileges have been withdrawn.

Therefore, the government sees the globalization of Nigeria by way of monetization to raise the morale of public servants (Onyendi, 2004) and encourage the private sector to follow suit, as a critical growth area for increase productivity and output (Okunroumu, 2003). What challenges is globalization forcing on public servants? Both the government and public servant are realizing the importance of civil service reforms, monetization and working productively with a nuclear transformation with on eye into the future.

Though, we hear some public servants say they are not seeing the full benefits of monetization, it may however, come in the long-run (Okonjo, 2004). But the government must smooth out the variations of monetary policy in private sectors (bankers, oil company workers, communication industry workers, etc) and increase that of the public servants to be at par with what obtains by workers in highly competitive private sector to facilitate public servant move to globalization. The risk is that government has not fully utilized the monetization – mitigation globalization that could lead to efficient and effective workers for domestic mobilization. Right now, public servants are down-hearted due to red tapism, bureaucratic procedures, overwhelming control of most chief executives, head of parastatals and other top government official and reducing unionized works to a toothless bull dog. However, monetization is morphing from a cost angle to a profit centre and more willing workers to increase productivity. Generally, workers, civil servants and public servants satisfaction boils down to two critical components: monetization and staff development. As monetization is being pushed down from workers in the ministries to public servants in the parastatals, they are now requiring more improved conditions of service and staff development. We believe monetization has a lot to do with sufficient and productive workforce. By leveraging monetization policy (Alifa, 2003), government can achieve many things they couldn't do with the public servants. The Federal Government is looking for how to eliminate inefficient and moribund workers in the form of rightsizing, down-sizing, restructuring and rationalization with a view to improving civil service system (Tukur, 2004).

To facilitate the implementation, Ekaette (2003) states that the budget office of the Federal Ministry of Finance will issue a call to all ministries extra ministerial departments and agencies to prepare supplementary budget for the remaining part of the 2005 to take account of monetization exercise.

Igbokwe (2003), implores the government to pay an amount that would be equal to the worker's benefits in terms of material item which should have been at their disposal in the course of performing government functions. Thus, if the workers' interest were not taken into due consideration in the execution of the policy, public servants might feel that the programme was designed to short change them (Soriwei, 2003). The

amount of monetization benefits should be commensurate with the property or other materials expected to be enjoyed by the public servant as his benefits. There has to be a balance in the execution of the monetization policy so that we do not send any counter productive or destructive psychological signal to the minds of the public servant who might feel he is cheated by this policy. More generally, the analysis above is consistent with the view that the monetized Nigerian workers and other basic requirement for improved productivity can exert effective and positive impact on the Nigerian economy in the long-run. The aim of this paper is to test statistically the long-run effect of monetization on the Nigerian economy.

LITERATURE REVIEW

The idea of monetization policy is intended to cut costs. This is because over the years capital projects have not been implemented due to high cost of running political, public and judicial office holders according to Ekaette (2003).

The Federal Government circular titled "monetization of fringe benefits in the Federal Public Service", cited in the Punch (2003), states that over the years, the cost of governance has continued to escalate. The burden of providing basic amenities for public officers has contributed significantly to the continuous increase in Government recurrent expenditure, leaving very little for capital development. For more efficient allocation of resources and equity in the provision of amenities for public officers (Nyong, 1998). Government has approved the monetization of fringe benefits of public and judicial office holders (salaries, Allowances, etc) (Act, 2002). The fringe benefits include: Residential accommodation, furniture, utility, domestic servants, motor vehicles, fuelling/maintenance of transport facilities, medical treatment, leave grant, meal subsidy and entertainment which were hitherto provided for entitled officers at huge cost to Government (Economic Update, 2004).

Residential accommodation

Provision of residential accommodation for political, public and judicial officers has been monetized at 100% of annual Basic salary to be paid enbloc, annually to enable the officers to rent houses of their choice. However, in order to avoid exerting severe strain on officers presently occupying government quarters, in the first year of the monetization exercise, their residential accommodation allowance (100% of annual basic salary) will be converted to rent for the quarters they occupy. Government residential houses across the country will be sold by public auction at the end of the first year of monetization after proper valuation. Public officer occupying such houses would be given the first option to

purchase the houses. But at the price of the highest bidder.

To ensure that Government quarters are properly maintained during the one year transition period all residents will pay 10% of their basic salary as service charge into a trust fund which will be managed by a board of trustees made up of representatives of residents, facility manager appointed to manage each estate/group of property and the Federal Government.

Furniture allowance

A furniture allowance of 300% of annual basic salary will be paid to political, public and judicial office holders once in every four years. This allowance will be paid annually at the rate of 75% of annual basic salary.

Utility allowance

The allowance had already been monetized and shall continue to apply as follows:

G.L.(Grade Level) 01 – 06	-	₦3,600 per annum
G.L 07 – 10	-	₦6,000 per annum
G.L. 12 – 14	-	₦7,800 per annum
G.L. 15 – 17	-	₦9,600 per annum
Permanent secretary	-	₦16,800 per annum
Head of the civil service of the federation	-	₦16,800 per annum
Political, public and judicial office holder	-	20% of annual basic salary

Domestic servant allowance

The domestic servant allowance has already been monetized for public servants and the rates still apply as follows:

G.L 15	-	₦119,586 per annum
G.L 16	-	₦239,172 per annum
G.L 17	-	₦358,544 per annum
Permanent secretary	has four domestic servants	- ₦478,344 per annum.
Head of Service	has four domestic servants	- ₦478,344 per annum.
Political public and judicial office holders	75% of annual basic salary.	

Motor vehicle loan and transport

The provision of motor vehicles to public officers is not monetized. Government will no longer provide chauffeur driven vehicles to hitherto entitled officers. Officers will be granted motor vehicle loan at the rate of 350% of their annual salary. The loan will be recovered within six years

at 4% rate of interest as contained in extent regulation on motor vehicle advance. As regards the use of Government vehicles, Government has directed as follows:

- (i) No new vehicles would be purchased by any ministry, Extra Ministerial Department, Federal Government Agency or Parastatals;
- (ii) Each Ministry/Agency will be allowed a specific number of utility vehicles, including buses, for essential services;
- (iii) Where there is the need to purchase (a) new vehicle(s) by any ministry, Extra Ministerial Department, Agency or Parastatals, a request shall be made to Mr. President for approval;
- (iv) A committee has been set up to work out details of the disposal of the vehicles;
- (v) Service wide staff buses will be pooled under the management of the, office of the head of the civil service of the federation to convey staff to and from office at an approved date.

Fueling/maintenance and transport allowance

An allowance of 10% of annual basic salary will be paid to public servants and 30% of annual basic salary will be paid to political, public and judicial office holders as contained in the Act.

Medical treatment

The provisions in chapter nine of public service rules shall continue to apply until further notice.

Meal subsidy

The allowance has already been monetized as contained in the circular Nos. SWC 04/Vol.IV/991 of 5th May 2000, issued by the National Salaries, Incomes and Wages Commission (NSIWC) and will continue to apply as follows:

G.L 01 – 06	-	₦6,000 per annum
G.L 07 – 10	-	₦8,400 per annum
G.L 12 – 14	-	₦9,600 per annum
G.L. 15 – 17	-	₦10,800 per annum
Permanent secretary	-	₦16,200 per annum
Head of the civil service of the federation	-	₦16,200 per annum

Entertainment allowance

Entertainment allowance for entitled civil servants has already been monetized and shall continue to apply as

contained in the circulars NOS. SWC. 04/Vol.IV/911 of 5th May, 2000 and SWC. 04/S.I/VOL. IV of 5th May, 2000, issued by the National Salaries, Incomes and Wages Commission as follows:

G.L 15	-	₦8,400 per annum
G.L 16 – 17	-	₦10, 800 per annum
Permanent secretary	-	₦27,000 per annum
Head of the civil service of the federation	-	₦27,000 per annum
Political, public and judicial office holders	-	10% of annual basic salary.

Leave grant

The provision of the public service rule number 13213 shall continue to apply, which means that “leave allowance shall be 10% of annual basic salary”.

Personal assistant allowance

An allowance of 25% of basic salary will be paid to entitled officers as listed in the circular political, public and judicial office holders (salaries and allowance, etc) Act, 2002.

To facilitate the implementation, Ekaette (2003) cited in the Punch (2003) states that the policy on the monetization of fringe benefits for public officers, the budget office of the ‘Federal Ministry of Finance’ will issue a call to all ministries, extra ministerial departments and agencies to prepare supplementary budget for the remaining part of the year 2003 to take account of monetization, exercise. Igbokwe (2003), appeals to the government to be fair to workers in the course of implementing its monetization policy.

METHODOLOGICAL FRAMEWORK AND ECONOMETRIC MODELS

First thing first, the model is adapted from Buffie (1992), but with some modifications to suit Nigeria situation. The models in this and subsequent sections highlight the supply-side effects of monetization in Nigeria. No doubt, the Nigerian economy is small when compared with more advance economy such as Germany, Britain, etc; but to a large extent very open (Anyanwu, 1998). These two features of the Nigerian economy enable us to abstract from demand-side complications. Two main sectors of the economy are: the public sector and the private sector. The price of each good produced in each sector is fixed at unity. Production in the public sector requires labour, capital, and an intermediate input (such as gas and electricity) which are also produced by the same sector. The private sector goods are produced by the same requirements as in the public sector.

Buffie (1992) concurs with numerous empirical studies and concludes that sectoral wage differentials in developing countries are far too large to be explained by the payment of compensating differentials. The labour market is highly dualistic with salary and wages in the modern organized private sectors sometimes being

more than double those paid in the public sectors, while that of the public sectors in turn being more than triple those paid in the unorganized sectors and elsewhere in the economy. In short, salary and wages in the modern formal sectors on the average are more than double those paid elsewhere in the economy. In keeping with the findings of these studies, the public sector in the model is equated with the low-wage formal sector; the organized private sector comprises the high-wage formal sector and the unorganized private sector comprises the low-wage informal sector. A genuine labour market distortion thus exists because there is too little employment in both the public and organized private sectors relative to unorganized private sector.

Although the sectoral wage gap generates underemployment particularly in the public sector, and there is no open unemployment. All those unable to obtain work in the public (government) or private sectors are employed in the agricultural sector (in other words, job is available in the agricultural sector for those willing to work), where the wage adjusts to clear the markets (the labour markets). The market is represented by Equation 1:

$$L^0 + L^u + L^s = L \quad (1)$$

Where L^0 , L^u , and L^s denote employment in organized private sector, unorganized private sector and the public sector, respectively; and L denotes total labour supply. Total labour demand consists of private sector labour demand plus public sector employment. The organized private sector plus unorganized private sector equal the private sector. The total supply of labour is constant.

Buffie (1992) argues that the most troublesome issue in modeling the labour market concerns the appropriate way to make the public sector wage endogenous. In theory it may be set in implicit contracts to provide insurance to workers by unions, by socio-political norms embodied in minimum wage laws, or by efficiency wage considerations. Unfortunately, empirical work on the wage-setting process in developing countries like Nigeria is scarce and does not single out one theory as clearly superior. Furthermore, although the aforementioned theories may explain wage rigidity in public sector, the only restriction they place on how the wage responds to various shocks is that, other things being equal, the public sector wage should be positively related to the organized private sector wage. As neither theory nor empirical studies offer much guidance, we choose a simple specification:

$$\hat{S}^s = b\hat{S}^0, \quad 0 < b \leq 1 \quad (2)$$

where s^p and S^0 denotes salary and wages in public and organized private sectors, respectively, a circumflex indicates a percentage change in a variable, and b is constant (and positive to ensure the existence of a steady state). This specification according to Buffie (1992) is consistent with the Solow condition (when $b=1$) in efficiency wage models and with certain variants of the optimizing union model. The parameter b plays a crucial role in the adjustment process because it determines the degree of real wage rigidity in public sector. If $b=1$, the labour market is distorted by a sectoral wage gap, but both organized private and public are flex-wage sectors. When b is small, the real wage in the formal sector is largely impervious to economy wide employment conditions (both the public and the organized private sectors refer to the informal sector). The formal sector is the unorganized sector. More of the

burden of adjustment to contractionary policies is then borne by wage cuts in the informal sector and increases in underemployment (that is, greater layoffs in the public sector as a result of monetization by a system of right-sizing, down-sizing, restructuring and retrenchment).

Firms are perfectly competitive and operate with technologies characterized by constant returns to scale. The zero profit condition is therefore satisfied in each sector:

$$1 = A^s (S^s, r, M) \quad (3)$$

$$1 = A^0 (S^0, r, P,) \quad (4)$$

where A^0 and A^s denote the unit cost function in the public and organized private sectors, respectively, r, M, are the capital and monetization; P is the price of the intermediate input purchased from the public sector.

Representing technology in each sector by a (non nested) constant elasticity of substitution (CES) production function. Private sector demands for public and unorganized labour and for the intermediate input (denoted by Z) are then (in percentage changes).

$$\hat{L}^s = -\sigma^s \frac{1-\theta_z}{\theta_k} \hat{S}^s - \sigma^s \frac{\theta_z}{\theta_k} \hat{M} + \hat{K} \quad (5)$$

$$\hat{L}^0 = \frac{-\sigma^0}{\theta_T} \hat{S}^0 \quad (6)$$

$$\hat{Z} = -\sigma^s \frac{\theta_L}{\theta_k} \hat{S}^s - \sigma^s \frac{1-\theta_L}{\theta_k} \hat{M} + \hat{k} \quad (7)$$

where σ^s and σ^0 are elasticity of substitution in the public and agricultural sectors, respectively; θ_L , θ_z , and θ are, respectively, the cost shares of labour, the intermediate input, and capital in the public sector; θ_T is the cost of share of labour, in the organized sector; and k denotes capital. The only characteristic of CES technology that is important for the results that follow is gross complementarity of factors. This is not a particularly strong restriction to place on technology. Rader (1968) cited in Buffie (1992) argue that keeping abreast with production theory, factors are normally gross complements. According to Buffie (1992) empirical studies also find, with rare exceptions, that complementarity holds.

Capital accumulation is governed by factor returns and the intertemporal preferences of a representative, infinitely lived family firm. The firm is endowed with perfect foresight and chooses investment to maximize an additively separable utility function.

$$\max_{\{E, I\}} \int_0^{\infty} U(E) e^{-\rho t} dt \quad (8)$$

subject to:

$$E + I = R(k, L^s, L^0, P) + (w^p L^p + M) - T \quad (9)$$

$$\dot{K} = I - \delta k, \quad (10)$$

where E is aggregate consumption expenditure, I is investment, T is a lump-sum tax, ν is the pure rate of time preference, W^p is the public sector wage, M is the public sector monetization, δ is the depreciation rate, and an over dot signifies a time derivative. Current utility is represented by an increasing, strictly concave indirect utility function $U(\cdot)$.

Equation 9, the budget constraint, states that the consumption and investment spending must equal disposable income. On the right side, private sector value added is measured by the value added function $R(\cdot)$, in which the price of intermediate input (p) is suppressed. The value added function has the usual properties that an increase in the capital stock raises real output by an amount equal to the real monetization value. Also, since employment increases in other sectors of the economy come at the expense of employment in organized private sector, higher public sector government lowers private value added by an amount equal to the organized private sector wage, while the marginal gain from expanding employment in public sector is measured by the existing sectoral wage gap $(S^g - S^o)$. The government must respect the budget constraint.

$$w^p L^p + D = PZ + T \quad (11)$$

Where D denotes debt service. Total public sector expenditure is the sum of the wage bill and debt service (net of new capital flows). The profile of debt service is determined by negotiations with foreign creditors and is treated as strictly exogenous. The public sector wage is constant, and of the L^p workers hired by the government, L_1 are employed in public sector and earned monetization $[Z=Z(L_1)]$. But although L_1 is endogenous, the extent to which public sector employment varies with private sector demand for the monetization is a policy variable. When the demand for monetization implementation is full, labour needed by the parastatals sector falls by $dL_1 = (Z/Z') \hat{Z}$, whereas the change in total public sector employment is:

$$dL^p = \beta (Z/Z') \hat{Z}, \quad 0 \leq \beta \leq 1 \quad (12)$$

β defines the government layoff policy. When $\beta < 1$, redundant labour is kept on the payroll or transferred to other activities where it produces "government service". In either case the short- long-run result and the qualitative nature of the dynamics are unchanged.

Government revenue derives from two source: a lump-sum tax (T) and sales of the intermediate input (PZ). The unrealistic assumption of a lump-sum tax is made at this point to simplify the analysis. The impact on the budget of variations in private sector demand for the intermediate input is offset by adjustments in the lump-sum tax so that higher debt service can be dealt with by a one-time adjustment in the price of the intermediate.

Equations 1 to 12 form the complete model. Since private sectors saving investment are equal, the trade balance

$PZ + T - (W^p L^p + M) = D$; thus the overall balance of payments equal zero. In what follows, debt service increases from an initial value of zero and a fiscal instrument is adjusted to extract the required trade surplus.

The short and long-run impact of public sector monetization

To keep the main ideas clearly within view, the exposition here mostly verbal and graphical.

The short-run impact

An increase in the price of the intermediate input lower labor demand in public and organized private sectors at existing wages plus monetization aggregation high-wage employment thus contracts, forcing the unorganized private sector wage to decrease. Labor demand in the public sector is subject to two conflicting effects. While the decrease in the unorganized private sector wage (UPSW) triggers a rise in the public sector wage (PSW), the impact or effect of monetization shifts the labor demand schedule to the left. Employment rises or falls depending on whether:

$$\sigma^g > \sigma^o \frac{L^o (1-h)\theta_L}{L^p \theta_T b \beta} \quad (13)$$

where $h \equiv (S^g - PZ') S^g$ denotes the percentage gap between the marginal product of labor in public and in the

organized private sector (OPS). If β is small either because the government maintains the level of the public sector employment ($\beta = 0$) or because the public sector wage (PSW) responds weakly to changes in the organized private sector wage (OPSW) (β is small), the adverse productivity effect dominates, and public sector employment declines (right sizing, etc). But generally, employment in both high wage sectors is likely to contract unless technology is far more flexible in OPSW than in PSW. Since the share of the labour force employed in OPS is small, the term multiplying the elasticity of substitution in the OPS (σ^o) in expression 13 will usually be quite large. Even on the federal government reform and

monetization policy take a tough line on layoffs ($\beta = 1$), real wages are equally flexible in the formal and informal sectors ($b=1$), and the productivity gap between labor in the public and private sectors is 50% ($h = 0.5$), the elasticity of substitution in the public sector has to be substantially larger than the elasticity substitution in the OPS in order for employment in the public sector (PS) to increase.

Dynamics and the long-run impact

The adjustment process stretches beyond the short-run because fiscal austerity affects the incentive to accumulate capital. As investment plus monetization ($I + m$) gradually alters the capital stock, the temporary equilibrium is displaced and further changes occur in real output, sectoral labour demands and real wages.

The important qualitative features of the adjustment process are depicted in the Figure 1. The steady state is a saddle point with a unique convergent path to equilibrium. In the first quadrant the positively sloped kk schedule shows the set of points for which ($I + m$) is zero. Above kk net investment is positive and the capital stock is increasing; below the schedule, the capital stock is falling. The saddle path SS may be positively or negatively sloped. Regardless of the slope of SS , the capital stock approaches its steady state level monotonically.

The WW and LL schedules in the third and fourth quadrants complete the description of the equilibrium path. These schedules

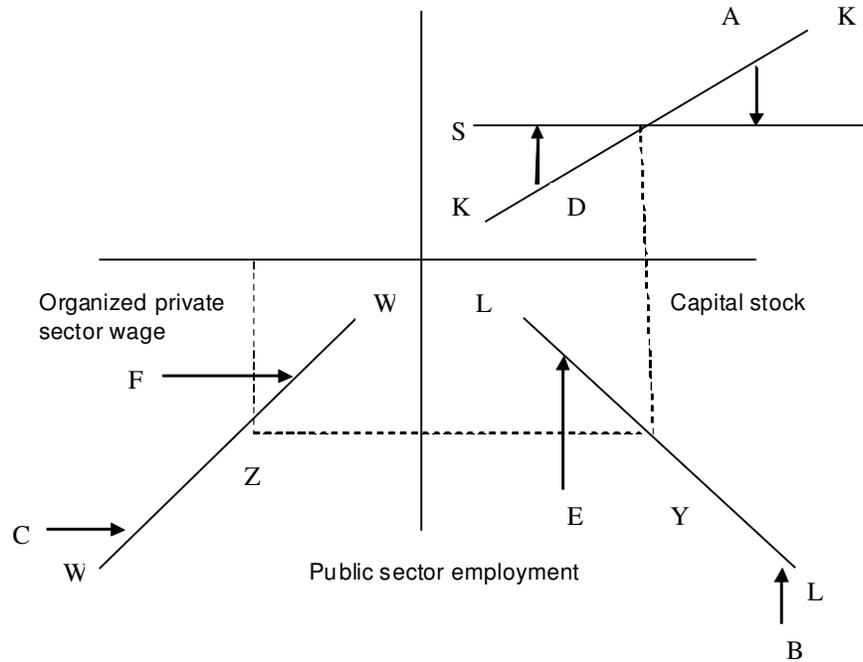


Figure 1. Major qualitative features of the adjustment process monetization plus net.

track the paths of the public sector wage (monetized fringe benefits) and high-wage (highly monetized fringe benefits) sector employment as the economy traverses the saddle path SS. Both schedules are positively sloped because an increase in the capital stock bids up the market clearing value of the public sector wage by raising labour demand in the high-wage sectors.

The dynamics of the adjustment process depend entirely on how the policy package affects the steady-state capital stock. Across steady states:

$$\hat{k} / \hat{p} = \left[\sigma^g (h + \beta - 1) - \sigma^0 \frac{L^0(1-h)}{L^p \theta_T b} \right] \theta_z | N \tag{14}$$

Where $N \equiv \theta_L (1 - h) + \beta \theta_z$

Equation (14) above yields several well-defined results. First, for small b the potentially positive term involving the elasticity of substitution in the public sector (σ^g) is dominated by the negative term on the right side of Equation (14). Thus k declines when there is a high degree of real wage rigidity in the public sector (PS) because the public sector wage (PSW) does not adjust enough to preserve profitability or make profit. Secondly, the capital stock always decreases when the parastatal sector “properly” belongs to the monetized-wage sector (MWS)($h=0$). Thirdly, capital decumulation occurs if the government resists making layoffs. More precisely, the smaller the productivity gap between public and the private labour, the tougher must be the government layoff policy. There is no hope whatsoever of stimulating capital accumulation unless $\beta > 1 - h$.

In the most general case there is a strong presumption that the capital stock will fall. Even when the productivity gap (h) is quite large, the government adopts a tough layoff policy, and the real

wage in OPS is highly flexible, capital accumulation is to be expected.

The high probability that the capital stock will decrease implies that public sector employment is more likely to fall in the long-run than in the short-run. The change in employment in public sector across steady states is:

$$\frac{\hat{L}^s}{\hat{P}} = \frac{\theta_z}{\theta_L N} \left[\sigma^g \beta (1 - \theta_k) - \sigma^0 \frac{L^0(1-h)\theta_L}{L^p \theta_T b} \right] \tag{15}$$

The critical value of σ^g required for L_p to increase is $(1 - \theta_k)^{-1}$ times larger than the critical value defined in expression 13. Hence the condition for public sector employment (PSE) to increase is roughly twice as demanding in the long-run as it is in the short-run.

What the productivity gap (h) is exceedingly large, it is possible that the capital will increase, as indicated by the dynamic resulting from initial equilibrium (D,E,F) in Figure 1. After the initial shock, capital accumulation bolsters labor demand in the high-wage sectors, thus driving up the public and private sector wage. Real output may eventually increase, but the labor market never fully recovers. In the new steady state (X,Y,Z), formal sector employment and real wages are lower.

Public sector layoffs due to monetization

Cut in public sector employment release resources to the private sector layoffs connected with higher prices for intermediate inputs and other public utilities are part of a policy package that subjects the private sector to a joint supply stock. By contrast layoffs in those branches of the government that produce final goods and “service” (broadly defined) combine the release of labor resources with a cut in consumption. Layoffs of this type can be analyzed by deleting the intermediate input from the model and letting $Q(L^p)$ represent the

Table 1. Dependent variable: Output (y).

Variable	Coefficient	Standard error	t-statistic
E	1.07	0.58	1.85**
L	1.62	0.90	1.81**
K	-0.25	0.27	-0.93
WM	3.90	0.50	7.84
L	-5.89	2.29	-2.58
JC	-0.02	0.43	-0.04

Summary statistics: $R^2 = 0.78$, Adjusted $R^2 = 0.67$, Mean dependent variable = 8.44, S.E. of regression = 4.75, S.D. dependent variable 8.23, DW. Stat = 2.16, ** significant at 5% level, * significant at 1%, Source: Author's calculation.

value of government services measured in units of tradeable goods. Assuming the government cannot charge for its services a reduction in public sector employment of $-dD/W^g$ maintains fiscal balance when debt service increases.

Initially, the cut in public sector employment increases the supply of labor to the unorganized private sector (UPS) – informal sector, thereby depressing the OPSW, but the federal government deliberately raises the wage through monetization in the public sector. Real output may rise or fall in the short-run depending on the productivity of public sector labor and the division of new hires between the OPS and UPS.

If there is an initial contractionary phase, it ultimately proves to be temporary. Lower real wage spur greater investment spending, and, as the capital stock grows, employment in public increases further and the private sector wage starts rising. Over the long-run the capital stock increases enough that all of the laid-off workers are absorbed in the high monetized-wage public sector without lowering real wages. (In terms of Figure 1, point E is horizontally to the left of point y, and F is vertically below Z). To establish this result, observe that in long-run equilibrium the monetization (M) is tied down by the rate of time preference ($M = v + \delta$). It then follows from the zero profit conditions that real wages and the monetization policy are also constant across ministries and parastatals. Thus employment in UPS is unchanged at the new long-run equilibrium, and clearing of the labor market implies that the increase in employment in the informal sector is equal to the

decrease in the public sector ($dL^g = dL^p$). What is appealing in these results is that eventually higher debt service is financed partially or wholly by an expansion in economic capacity. It is, however a long step from this to the conclusion that public sector layoffs (in the final goods and service sectors) constitute an easy remedy to the debt problem. A potentially difficult intertemporal tradeoff exists when output decreases in the short run. Furthermore, even if layoffs generate a favorable output path, the distributional repercussions may not be judged acceptable. Real wages and formal sector employment are lower everywhere on the transition path until the new steady state is reached. A prolonged bout of greater inequality is the price paid for higher output in the long-run.

Model specification

So far, we identified the following important variables for our estimation. These variables are labor in the public sector (L^g) wage in the public sector (W); monetization (residential accommodation – 100%, of annual basic salary ABS, furniture

allowance – 300% of ABS, utility allowance – GL01 to GL17 - ₦3,600 - ₦8,400 p.a, leave grant – 10% ABS, meal subsidy – GL 01 to GL17- ₦6,000 p.a - ₦110,800 p.a); capital, prices of intermediate input- that is gas/petroleum or electricity; aggregate consumption expenditure, investment, capital stock, job cut and increase productivity and output.

We now build our model for estimation, data covers the period from 1990 to 2005, period for which adequate data are available. The time series data are collected from the central Bank of Nigeria statistical bulletin and other statistical and financial reports.

$$Output = E + I + \dot{K} + (W + M) + L^g \quad (16)$$

$$Y = E + I + \dot{K} + W^M + L^g \quad (17)$$

Where $Y, E, I, \dot{K}, W^M, L^g$ denotes real output, (real GDP), aggregate consumption expenditure, investment, capital stock, public sector wages plus monetization and labor in public sector. Since monetization was implemented with job cuts, the reflection of this is show below:

$$Y = f(E + I + \dot{K} + W^M + L^g - JC) \quad (18a)$$

$$Y = A + aE + bI + c\dot{K} + dW^M + eL^g - fJC + U_1 \quad (18b)$$

Where a, b, c, d, e, and f are parameters; A and U_1 are constant and disturbance term respectively. And Jc is job cut due to monetization which called for rationalization.

$$W^M = f(Y + E + \dot{K} + I + S + \pi) \quad (19)$$

Where S is real saving and π is inflation. Equations variables of monetization and real wages on the macroeconomic variable of the country. From Equation (19) we estimate Equation (20) below:

$$W^M = \alpha_0 + \alpha_1 Y + \alpha_2 E + \alpha_3 K + \alpha_4 I + \alpha_5 S + \alpha_6 \pi + U_2 \quad (20)$$

ECONOMIC RESULTS

The estimated Equations (18b) and (20) reported in Tables 1 and 2, together with some conventional statistics, suggest that our models are statistically well determined, and therefore an adequate representation of the Nigeria data. Though, some explanatory variable like capital stock (K) and job cut (JC) are not significant for

Table 2. Dependent variable: Public sector wages monetization.

Variable	Coefficient	Standard error	t-statistic
C	-0.96	2.07	-0.46
Y	0.16	0.04	4.00
E	0.68	0.30	2.31**
K	0.04	0.13	0.32
I	-0.12	0.25	-0.45
S	0.02	1.60	0.01
Π	0.02	0.01	2.00**

Summary statistics: R²=0.86, Meaning dependent variable=8.96, Adjusted=0.76, S.D. dependent variable =1.91, S.E of regression=0.93, DW-stat =2.13, *significant at 1%, **significant at 5%, Source: Author's calculation.

Equation (18b) reported in Table 1.

In Table 2, capital stock (K), investment (I) and real savings (S) are also insignificant.

However, statistically well-determined models would not be the best, (Upender, 2003), unless it conforms to the theoretical expectations (Maddala, 2002).

Consequently, there is the need to examine the individual behavior of Equations 18b and 20 estimated to see how well they performs on economic criteria.

Equation 18b shows Wm, E, I, and L in that order, as the significant determinants of output (real GDP), whereas capital stock (K) and JC are not. Aggregate consumption expenditure (E), Investment (I) and JC all come out with the right signs, others are not. It is worth nothing that contrary to the conventional wisdom, labor variable is insensitive to real out put. What one could say safely, is that the behavior of labor variable here in Nigeria is exogenously determined.

Consequently, while labor and capital stock does not perform the type of role it performs in first world countries (developed economies) – an endogenous variable that equilibrates all: labor, capital stock and real output. Both labor and capital stock are policy variables that could be directly adjusted by government to perform the role of equilibrating real output and employment. It is worth nothing that while JC come out with the right signs, it is not statistically significant, meaning that job cuts have little or no effect on real output. Also, the negative coefficients for capital stock suggests that an increased \dot{k} lowers real GDP; this effect being statistically insignificant. Therefore, a change in any of the variable produces a proportional change in real GDP. Specifically, a 10% increase in aggregate consumption expenditure will increase real output by 0.7%, Investment by 6.2%, public sector wages plus monetization may boost morale gearing up productivity and output by 9%.

The DW of 2.16 shows that there is absence of positive autocorrelation (Greene, 2004). The R² and the adjusted R² shows that E, I, K, Wm, L and JC jointly explain about 78 and 67% of variation in the real output.

In sum, public sector wages and monetization, going by the empirical evidence is more effective in influencing real output in Nigeria. However, the Equation (18b) is a long-run effect because it is estimated without a constant. This is so, because in the long-run intercept or constant is equal to zero.

The estimation result of public sector wages plus monetization (WM) equation shows that the movement in WM is determined by real GDP, aggregate consumption expenditure (E) and inflation (IT). Real GDP is not significant while inflation and aggregate consumption expenditure are significant at 5%. With respect to the direction of impact (Yekini, 2002), positive signs were anticipated for all the explanation variables but we obtained a negative sign for only investment (I). Inflation is positive as expected. The implication of all these is that increase in the level of inflation (Chete, 1998), aggregate consumption expenditure, capital stock, real savings as well as real output consequently lead to increase in public sector wages and monetization. Importantly, a 10% increase in inflation requires public sector wages to be raise by about 2% and monetization to compliment loss in the value Naira.

The (Charenmza and Deadman, 1993) DW = 2.13 shows there is no detection of positive autocorrelation in the estimates. In the estimated public sector wages and monetization equation, the R² and adjusted R² are 86 and 76% respectively. This show a very good fit. The unanticipated negative sign given by the investment may be due to lower real savings of about 1% over the years.

Conclusion

The total evidence from this study, shows that there is significant positive impact between public sector wages and monetization both in the short-run (as evidence by Equation 20) and in the long-run (as shown by Equation 18b). The evidence further demonstration that if public sector wages and monetization are at any time more required, that situation truly holds today for Nigeria.

This study shows that the monetization policy of the federal government is sensitive to changes in real GDP and suggests that there exists substitution between lowering the morales of workers not paid monetization and real GDP in Nigeria.

While the above conclusion does not rule out the possibility of lifting the morales of workers and hence higher productivity and real output through improve and better conditions of service to workers in particular, there is the need to better the lots of Nigerian workers due to continuous depreciation in the value of national currency, for total domestic mobilization of the workforce through transparent and adequate implementation of monetization policy as contained in the federal government white paper. This concerted effort is pressing and urgent for the collective increase in real GDP, so that the stubborn wall of our underdevelopment can be collectively shifted. However, this being the case, it would probably be safe to interpret the presence of a significant and strong inflation variable in both structural Equation (18b) and (20) as implying that economic agents (public sector workers) suffer some form of money illusion.

These finding have some relevance for the policy makers. The existence of money illusion (Uniamikogbo, 2001) and the existence of aggregate consumption expenditure, (Yekini, 2002) real savings and real GDP could be made more effective if the exchange rate is tamed through income policy (fixing the exchange rate and stopping both price and wage inflation). According to Dornbusch (1992), income policy should be designed to bring about a rapid, coordinated end to inflation.

RECOMMENDATION

The government is implored to pay an amount that would be equal to the worker's benefits in terms of material items which should have been at their disposal in the course of performing government functions (Saka, 2004).

The government should note that if the workers' interests were not taken into due consideration in the execution of the policy, public servants might feel that the programme was designed to short change them. The amount of monetized benefits should be commensurate with the property or other materials expected to be enjoyed by the public servant as his benefits. Thus, there has to be a balance in the execution of the monetization policy so that we do not send any counter productive or destructive psychological signal to the minds of the public servant who might feel he is being cheated by this policy.

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