

Inflation, Growth and Seignorage Revenue – The Ghanaian Experience

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Ghana has had a long-drawn-out history of very high rates of inflation in the late 1970s through the early 1980s. Measured as the rate of change from the year-ago monthly Consumer Price Index (CPI) published by the Ghana Statistical Service, inflation was running at about 100 percent at the beginning of 1979. In mid-1979, however, the rate fell dramatically by about 25 percent in a three-month period, following the Rawlings coup in June of that year. High rates of between 40 and 88 percent were registered for most months in 1980, and throughout 1981 and 1983 inflation rates of over 100 percent were recorded for every single month, with the rate reaching a peak of 174 percent at the end of June 1983 before declining to 142 percent in December.

Within a year of the introduction of the Economic Recovery Programme (ERP) in Ghana, the average rate of inflation was brought down to about 40 percent and subsequently lowered to single-digit levels by the close of 1985. Sustaining inflation at these low rates proved problematic in subsequent years, however, as between 1986 and 1990, the year-on-year rate of inflation was reportedly in the range of 19-46 percent; over the same period, average inflation was between 25 and 40 percent per annum, far exceeding official targets set within the ERP.

In both 1991 and 1992, the recorded rates of inflation turned out to be significantly lower than the rather higher rates recorded in the mid- to late 1980s. In 1992, average inflation was reduced to single-digit levels, largely on account of the good harvests of the previous year and conscious efforts at monetary control. These efforts could not be sustained for long, however, as average inflation more than doubled to 25 percent per annum in 1993 and 1994 (see Appendix Table 1). In the two years thereafter, the underlying inflationary pressures persisted as the economy witnessed the highest recorded rates of inflation since the ERP began. The year-on-year rate of inflation more than doubled from the already high rate of 34.2 percent in December 1994 to 70.8 percent in December 1995, pulling the average rate from 24.9 percent to 59.5 percent.

From the perspective of the most recent history, inflation has been anything but moderate. Neither has it been "*relatively stable*". The official statistics indicates that inflation at end-December 2000 almost tripled to 40.5 percent, compared with 13.8 percent for the corresponding month of 1999. Except for the occasional low rates of

below 12 percent reported for some months of 1998 and 1999, the recent rates are no different from the other equally high double-digit inflation rates reported over the 1986-90 period.

Table 1: Mean, Median and Modal Classes of Inflation in Ghana, 1986-2000

Cohort Type	Frequency	Mean	Median
Under 10	7	8.4	8.4
10 – 19	41	14.9	14.6
20 – 29	63	24.8	24.2
30 – 39	43	34.5	34.2
40 – 49	13	43.9	43.6
50 – 59	2	55.5	55.2
60 – 69	9	66.7	68
70 Plus	2	70.5	70.5
Overall Sample	180	28.5	26.2

Notes: Data are based on official figures reported by the Ghana Statistical Service, Accra

See also Appendix Table 1

A cohort analysis of the distribution of year-on-year inflation rates over the 15-year period of 1986 through 2000 identifies the 20-29 percent bracket as the most frequently reported. This had 63 reported cases, with the modal rate of inflation being 26.6 percent and the mean and median rates being 24.8 percent and 24.2 percent respectively (see Table 1 and also Figure 1).

The second most significant inflation cohort identified in the analysis was one with rates ranging between 30 and 40 percent. This cohort had 43 reported cases of inflation within the period with the evidence that the 30.5 percent rate of inflation was the most frequently reported in this cohort. Details of the mean, median and modal values of each of the cohorts are as presented in Table 1.

The findings have very interesting policy implications. First, they suggest that since embarking on economic stabilization some two decades ago, the most frequently reported rates of inflation fall within the 25-30 percent per annum range. This is high by international standards and way off the single-digit eligibility criterion required for joining the proposed second monetary zone in the West African sub-region. Not least, is also the fact that these high rates of inflation could undermine accruals of any potential seignorage revenue by government and also stultify genuine efforts at expanding output at the cost of seriously addressing the poverty issues confronting the nation.

Seignorage Revenue and Inflation

From the perspective of both economic theory and empiricism, it is often suggested that governments raise seignorage revenue by issuing unbacked financial liabilities at near-zero cost of production. This revenue consists of two parts, the first flowing from the willingness of the private sector to hold government financial liabilities (the real balance effect), and the second part from the taxation through inflation of the outstanding stock of real balances (the inflation tax effect) – Adam, Ndulu and Sowa (1996).

Seignorage is particularly attractive in economies where the traditional tax base is narrow and where the costs of other forms of revenue collection are high. Moreover in economies where the policy regime limits the portfolio of domestic financial assets

available to the private sector, for example, where there are limited possibilities of currency substitution, the potential for raising seignorage revenue may be expected to be high. In addition, by exploiting the high adjustment costs faced by the private sector in such economies, revenue can be increased in the short-run as holders of money are temporarily forced off their equilibrium money demand functions and obliged to hold higher than desired money balances. The higher the costs of adjustment, the greater the short-run value of the 'surprise' revenue (see Adam, Ndulu and Sowa, 1996).

Figure 2: Seignorage and Inflation

Seignorage (s)

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B

$ds/d\pi > 0$

increasing π increases s

$ds/d\pi < 0$

—

—

A increasing π reduces s

S

$\pi^{\max}(15,20)$ Inflation (π)

Christopher Adam, Benno Ndulu, and Nii Kwaku Sowa (1996) – "Liberalization and Seignorage Revenue in Kenya, Tanzania and Ghana", *The Journal of Development Studies*, Vol. 32, No.4 (April) pp. 531-553 – have estimated the revenue-maximizing inflation rate (π^{\max}) for the economy at between the 15 and 20 percent range. This means that with the current levels of inflation, the economy would be far above its revenue-maximizing level; seignorage revenue is continuously lost because the economy lapses towards hyperinflation. It will therefore be best if inflation is reduced (through fiscal contraction and control over the growth of nominal money supply, say) in order to bring

the economy back to equilibrium (i.e., for the economy to lie on the rising portion, AB, of the Laffer curve, AS, in Figure 2).

Inflation and Growth

It is in this same vein that many other analysts point to the trade-off between lowering inflation and achieving high growth. According to Atish R. Ghosh (2000) – in a research summary published in the *IMF Research Bulletin* of June – the question of trade-offs between lowering inflation and achieving high growth is "*central to the IMF's program and surveillance activities*" and "*has long been an area of active research within the Fund, with more than two dozen research papers written on the subject in the past five years alone*".

The focus of this literature has been "*more the long-run growth and inflation performance of countries than the short-run Phillips curve considerations*". Fischer has shown that high inflation - presumably reflecting the distortive effects of relative price uncertainty - has been associated with lower real GDP growth, while Bruno and Easterly (1995) have argued that "*the case for a negative association of inflation and growth is firmly established when we look at the temporal association of growth with discrete high inflation crises*". In the context of New Zealand, recent research suggests that output variability is minimized at relatively low rates of inflation.

Figure 3: GDP Growth and Rate of Inflation

GDP Growth

$\pi = 10\%$ inflation and expected inflation (π)

Research results in a large number of panel, cross-section and individual country studies undertaken at the Fund and elsewhere suggest that:

- the inflation-growth relationship is less like falling off a precipice than like going down a playground slide - the old-fashioned kind with a ladder at the back, and a metal slide in front. (Let the vertical height represent GDP growth, and the horizontal distance the inflation rate). The ladder is slightly sloped forward - in the first few inches (at initial low inflation) height rises (GDP growth increases). The top of the ladder and the beginning of the slope represents a kink (estimated in a panel study at 8% for developed countries) while the relationship switches signs (see Figure 3). Beyond that point, GDP growth falls quickly with increasing inflation; by the end of the slide, the marginal loss in GDP growth is small, but so is the growth rate itself.

Ghosh concludes that the slide analogy is sadly apt: many countries find it easy to slip into high inflation and low growth; climbing back up is rather more difficult.

No claims of causality are made but quite interestingly, "*the statistical relationship between inflation and growth remains even after controlling for the usual suspects - fiscal performance, wars, droughts, population growth, openness and even human and physical capital - and allowing for simultaneity bias.*" This is reminiscent of Robert Solow's observation on the Phillips curve paraphrased as follows:

- The finding of Phillips - the simple bivariate relation relating only one real variable and one nominal variable - was really pretty astonishing. It held up very well over a very long time during which the nature of British industry and labour changed drastically. It did not appear to be a short-run transient affair, as the mainstream macroeconomics of the 19th and 20th centuries would have suggested. It seemed not to be a simple dichotomy between less-than-full employment and full employment, as the casual picture of the 1950s would have suggested. It seemed to say quite clearly that the rate of wage inflation - and possibly, therefore, the rate of price inflation - was a smooth function of the tightness of the aggregate economy.

Ghosh further reports that much of the more recent and current research on this topic tries to pin down more precisely the location of the low inflation kink, and whether the estimated effects on growth depend, inter alia, on the stage of development, the degree of

capital mobility, the structure of the economy, or the exchange rate regime.

The precise low-kink inflation threshold for Ghana, as for other developing countries, is suggested to be no more than 10 percent per annum; anything beyond this is bad news since it could seriously erode savings, discourage investment and stimulate capital flight, and thereby stultify output growth and employment creation. The policy recommendations for economies that experience high inflationary pressures, such as Ghana's, are therefore to adopt policies that will eventually move them within this low-kink inflation threshold.

The intuitive appeal of these policy recommendations is not far fetched. In an economy such as Ghana's where prices exhibit downward rigidity it is rational to expect that very low prices may ossify the structure of relative prices, impeding adjustment to real shocks. A little inflation, therefore, might help to "grease" the economy. On the other hand, high inflation rates, by confounding relative price signals and making efficient resource allocation more difficult, could result in more sluggish economic growth.