Evidence on the Demand for Money Function in Uganda*

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Abstract
The paper provides an empirical analysis of the demand for money function in Uganda. It argues that monetary policy: based on monetarist views of the dynamics of a less developed economy is, to say the least, ineffective in regulating the economy. An error correction model is used to examine the character of the demand for money – in particular if it is stable in order for traditional monetary policy to be effective. The evidence on Uganda suggests that the demand for money function is unstable and hence, monetary policy needs to be used in conjunction with other policies to achieve the goal of economic stabilisation and adjustment.

JEL Classification: E41, O23

Key Words:
Monetary policy, new monetarism, error correction models, cointegration, financial disintermediation, endogenous money, money demand, money supply, Granger causality, fiscal policy, inflationary process, Structural Adjustment Programme.

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Introduction

This paper attempts to provide an empirical analysis of the character of the demand for money function in Uganda and so examines whether there has been any substitution between various financial assets as the conduct of monetary policy changed especially in view of the fact that the monetary sector in Uganda has undergone considerable financial deregulation as part of the IMF imposed structural adjustment programme (SAP). It is hoped that financial deepening would occur and a favourable environment for monetary policy. Financial liberalisation affects the demand for money function in the following respects: a) interest rate becomes a significant variable in the demand for money function. Financial liberalisation may result in a too high real rate of interest. This rise in interest rate results from the behaviour of oligopolistic banks as deregulation relaxes banking practices and the banks take undue lending risks (see Veneroso, 1986),

b) reform measures are likely to enhance financial market development thus creating a range of attractive financial assets or near-monies and under a flexible exchange rate system expose the economy to international fluctuations - reform would cause a shift in the constant term of the demand for money function,

c) the relationship between money, income, interest rates, exchange rates, etc. may all alter after liberalisation of bank credits, interest rates and exchange rates causing a shift from direct to indirect monetary instruments (see Jonson and Rankin, 1986; Tseng and Corker, 1991),

d) increased competition amongst financial institutions may lower (but may also increase) financial transaction costs and moral hazards (Conteh, 1996); thereby causing the demand for money to respond differently than previously to its explanatory variables.

From a monetarist/IMF perspective the effectiveness of monetary policy is subject to the condition that the supply of money grew in line with the demand for money - at least, the demand for money function should be stable. The presence of a well-defined and stable demand for money function is thus a primacy for a reliable transmission of the impact of changes in the money supply to aggregate spending (Hossain and Chowdhury, 1996:161). Otherwise, the condition for traditional monetary policy would not be conducive and the consequences of monetary expansion for economic stability unpredictable (Ahmed, 1990). In which case setting monetary targets, as has been done recently by Uganda monetary authorities, becomes meaningless. Effectively,

stabilisation can not be achieved under such circumstances through monetary policy. The kinds of reforms being imposed on Africa (see World Bank, 1994) have parallel to those in the European Union as it prepared for the single currency (European Commission, 1998). These reforms have been characterised by: a) divorcing monetary policy from the other policy formulation processes and more so from democratic/political control by giving the Central Bank greater independence, b) emphasis on long-term stability through the control of inflation as opposed to short-term stability (i.e. the control of unemployment), c) taking a tough fiscal stance[1] with a view that fiscal policy is impotent - such a tight fiscal stance could restrict the automatic stabiliser resulting to weaker fiscal stabilisation and greater volatility of output, d) control of money supply as it is perceived as the main cause of inflation, and e) money is treated as exogenous to the economic system and thus monetary aggregates can be manipulated effectively to influence the level of economic activity. Arestis and Sawyer (1999) labelled these five points the premise of what they termed 'New Monetarism'. The other major question is that related to the direction of causation between the supply of money and the demand for money. The IMF/WB view seems to be that a rise in the supply of money causes output and prices to rise and then the demand for money. The view taken here is that output and prices rise (for whatever reason), the demand for money rises, to which the supply of money adjusts (see also Minsky, 1986; Chick, 1976; Davidson, 1992; Arestis and Sawyer, 1999). The main purpose of this paper is to question the 'economic' basis for the IMF/WB view that emphasises the role of monetary policy in adjusting less developed countries like Uganda. To this end, a conventional method for estimating the demand for money function is used.

The monetary policy environment in Uganda

The financial sector in Uganda is an underdeveloped one with a large informal sector. There has been a considerable attempt to expand the formal financial sector, for example, the expansion of rural banks and micro-credit lending as part of government policy in recent times. Before 1988 the formal financial sector was heavily regulated with direct government control over interest rates, exchange rates and credit policy. In the 1970s and 1980s there were selective and preferential allocation of foreign exchange and credit to sectors in terms of their 'priority'. Real interest rates were negative resulting into over-valued exchange rates - the consequence of institutionally fixed nominal interest and exchange rates in a high inflation environment (see Kasakende and Semogerere, 1994).

[1] The IMF/World Bank require Sub-Saharan African countries not to have their deficit to exceed 1.5% of GDP to qualify as 'good adjusters' (see World Bank, 1994:45-48).

Post-independent Uganda has also been characterised by political and social crisis from around 1966 up to the 1990s. The general result of this has been the disruption of production and destabilisation of the wider economy. Inflation became a prominent feature of the Ugandan economy; and the reinforced negative real rate of interest created an atmosphere of limited currency substitution - or more accurately, some movements from domestic to foreign denominated assets.

The 1980s became a period of major economic reforms in Uganda under the auspices of the IMF/World Bank. With respect to the financial sector, the government set specified limits on: net bank credit to government, monetary growth, public spending (PSBR) and overall fiscal stance. But the government could not keep the tight fiscal and monetary stances as Uganda was yet to recover from the 1979 war effects. Much of its infrastructure was in disrepair and that was worsened by the insurgency the erupted in the Buganda region in 1981 and subsequently disrupting coffee export production (Henstridge, 1996). The government ended up expanding fiscal policy to sustain the war and aggregate demand.

The relationship between the IMF and the Ugandan government broke down and the IMF stand-by arrangement was suspended in 1984. The subsequent financial constraint resulted in a meteoric rise in inflation from 45% in 1984 to over 200% by 1986. Indeed the political as well as the economic situation had worsened further by two coups in two years (1985 and 1986). The unstable political situation worsened the balance of payments and foreign exchange constraints; and the general budgetary discipline. Equally, the operation of the formal financial sector became inefficient and the informal sector grew considerably (see Atingi-Ego, 1998).

In 1987 the IMF resumed SAP with the Museveni government - emphasising reduction of inflation and restoring a sustainable balance of payments. The old currency was replaced with a new one whereby one hundred shillings were exchanged for one shilling; and a conversion tax of 30% imposed on shilling holdings. The exchange rate was also devalued by 76.6%. As export and production did not adjust immediately to these changes, their overall effects were deflationary. Inflation fell to around 37% by September 1987. The government could not maintain its budgetary stance and decided to monetise its deficits. Broadly, inflation rose to their 1985/86 levels.

Table 1: Monetary aggregates for Uganda (1981-1998).

Year	Inflation rate (average for period)	Change in domestic credit (5)	Broad money to GDP ratio	Change in base money (%)	Velocity of circulation	Treasury bill rate	Lending rate	Deposit rate	Change in real exchange rate (%)
1981	-	103.8	0.12	-	7.7	6.1	12.5	7.2	-29.2
1982	24.5	53.3	0.09	-2.5	10.3	9.5	14.5	9	-65.3
1983	34	38	0.09	40.6	11	11.2	16.2	10.7	-21.4
1984	35.5	43.5	0.11	117.4	9.2	18	21.9	16	-32.5
1985	150.8	149.7	0.1	140.9	10.5	22	24	20	30.5
1986	149.4	84.2	0.11	168.7	9.2	30.7	33.3	23.3	5.3
1987	221.3	-	-	159.4	-	30.5	34.7	20	28.2
1988	198.1	-	-	113	-	33	35	21.5	-9.8
1989	101.9	-	-	92.1	-	42.2	40	32.2	-15.2
1990	32.1	-	-	58.4	-	41	38.7	31.3	-38.9
1991	27.6	-	-	41.1	-	34.2	34.4	31.2	-23.3
1992	55.5	-	0.56	67.9	1.8	39	-	35.8	-8.8
1993	5.1	-8	0.67	20.5	1.5	21.3	-	16.3	6
1994	10	-13.8	0.71	45.8	1.4	12.5	-	10.0	21.2
1995	6.6	-47.3	0.67	25	1.5	8.8	20.2	7.6	-2.2
1996	7	34.5	0.67	9.9	1.5	11.7	20.3	10.6	9.7
1997	9.5	47.2	-	11.8	-	10.6	21.4	11.8	7.4
1998	-	32.5	-	-	-	7.8	20.9	11.4	-11.6

Source: World Bank : International financial Statistics - (1995, 1999 issues).

From Table 1 it is apparent that the monetary policy environment was generally unstable in Uganda between 1981-1998. The velocity of circulation was considerably unstable - rising from 7.7 in 1981 to 12.8 in 1997. The level of financial deppening is taken as the inverse of the velocity of circulation. Clearly, even with liberalisation, finanacial disintermediation, rather than deepening, occured. Domestic credit fell overall between 1993 (by 8%) and 1995 (by 47.3%) even though claims on the private sector rose and that on central government fell. This contrasts with the early 1980s when a large share of domestic credit went to central government (World Bank, 1995, 1999). Also the terms of trade for Uganda's exports were unstable as the real exchange and inflation rates were unstable over this period. The various nominal rates of interests were institutionally fixed until 1992 (after which they fell considerably).

In effect the 1990s became the true period of reform in Uganda - designed as it were to remove market rigidities in the economy in general and the financial sector in particular. The Financial Sector Adjustment Programme (FSAP) was introduced in 1992 whereby the sector became deregulated and the growth of financial institutions facilitated. The foreign exchange market was also liberalised and guidelines for indirect monetary policy laid down. In 1991/92 the Bank of Uganda was authorised to sell treasury bill and broadly conduct monetary policy. It was also granted greater supervisory powers over commercial financial institutions. The weakness of the financial sector in Uganda has however been evident by the numerous bank failures in the last year or so. Galbis (1986) argued that such bank failures should not be unexpected because the financial sector in LDCs are characterised by 'bank holding companies' with interests in both financial and non-financial markets. Financial liberalisation would place excess supply of financial savings in the reach of these companies which finance questionable ventures in their attempts to maintain market share. Clearly liberalisation and other changes to the banking system may well lead to an instability in of the demand for money: financial innovation is usually seen as leading to a change in the velocity of circulation (Kaldor, 1983; Arestis and Demetriades, 1993).

The Model

Various approaches have been used by authors to examine both the demand for money function and currency substitution (see Giovannini and Turtelboom, 1993; Mizen and Pentecost, 1994; Cuthbertson and Galindo, 1999; Artis et al, 1993). One tendency is to follow McKinnon (1982) in arguing that liberalisation reduces currency substitution and introduces stability in the demand for money function. Currency substitution would generate instability in the demand for money function as the domestic government looses huge amounts of seigniorage to the governments of countries with the substitute currencies (see McKinnon, 1981, 1982, 1992:108-111). Inflation would also rise to a higher level as substitution would raise the velocity of circulation particularly if the foreign countries increase their money supplies and thus paralysing exchange rates as tools for macroeconomic stabilisation (see Edwards, 1993) Others have used a portfolio balance approach to 'show' individuals judge how much of their wealth be placed in domestic or foreign currencies or both; and whether such a judgement is dependant on the relative opportunity costs between the 'given two' currencies (see Giovannini and Turtelboom, 1994; Miles, 1978). There is also a Friedmanite approach to estimating the demand for money. Here the demand for money function is derived in the same way as the demand for any other durable goods. Friedman's restatement of the quantity theory of money provides the intellectual inspiration to this approach (Friedman, 1956; 1959). Another approach is to follow Kalecki (1976) by arguing that LDCs are

characterised by an under-developed (oligopolistic) financial system and a flex-price commodity production. In the Kaleckian framework money is endogenous to the economic system as the money supply adjusts to the demand for credit to finance current and planned spending. The desire to hold money derives from at least four sources: - a) class-conflict over income (resource) distribution which may generate inflation (see Rowthorn, 1980), b) changes in the price levels which are dependent on mark-up over costs of materials and finance, c) different propensities to save out of 'worker' and 'capitalist' incomes, and d) the overall terms of trade between primary and processed commodities - e.g. a rise in interest rates may generate shortage of essential imported items resulting into a rise in their prices and in turn leading to stagflation (see Fitzgerald, 1987). As mentioned earlier, the view taken here is that money is endogenous. Of-course the way money is defined is crucial in setting the boundary of monetary policy. As Cagan (1991:454) put it: "the definition of money for policy purposes depends on two consideration: the ability of the monetary authorities to control the quantity, and the empirical stability of a function describing the demand for it". If money adjusts to the levels of economic activity, then it is likely that the authorities' ability to control money supply is reduced and the money demand function closely reflects the business cycle. In which case monetary policy has to be pursued in conjunction with other anti-cyclical measures - e.g. policies to boost levels of employment.

A simple demand for money function can be of the following Keynesian type:

$$m = f(GDP,\ REER,\ \Delta P,\ r) \qquad (1)$$

where *m* is real money demand, GDP is real output, REER is real exchange rate[2], ΔP is the rate of inflation and *r* real interest rates. In functional form it would be:

$$m = a_0 + a_1 GDP + a_2 REER + a_3 \Delta P + a_4 r \qquad (2)$$

whereby theory *a priori*[3] $a_1 \geq 0,\quad a_2,\ a_3\ a_4 \leq 0$.

It has to be mentioned at this point that examining economic relationships in Uganda has some practical problems of measurement and data. For example, measuring currency substitution[4] is difficult as there is no published data on foreign currency circulation in Uganda and foreign currency balances held by Ugandans in foreign banks. In this context, measurement of currency

[2] REER = NER*pf/pd whereby NER is nominal exchange rate, pf is index of foreign prices and pd index of domestic prices.

[3] The sign on interest rate would depend on the definition of money: narrow money (non-interest bearing money) would be expected to yield a negative sign on interest rate; broad money may depend on the differential between interest rate on money and interest rate on alternative financial assets. Money is defined as base money (see discussion of data used).

[4] Currency substitution describes a situation whereby domestic economic agents use foreign currencies as a medium of exchange, unit of account and store of value in preference to the local currency.

substitution can only be done in shilling denominated accounts of money balances. The data on real interest rates on money and alternative financial assets are equally poor. Real money supply used here is deflated base nominal money, and real GDP is deflated nominal GDP - in both cases by the 1998(Q3) rate of inflation (proxied by the percentage change in the CPI). The data used to estimate the above equation (2) is quarterly data for the period 1981-1998[5]. Because of a limited sample, an error correction model is used to examine the demand for money function in Uganda.

The data was also tested for order of integration. There are many techniques now being used to deal with such problems. Two broad approaches have been developed: the Engle-Granger Method - that uses single equation estimates to assess for stationarity in the general equilibrium errors (Engle and Granger, 1987); and the Johansen-Stock-Watson Method based on vector autoregression (VAR) (Johansen, 1988; Stock and Watson, 1988).

Inherent in the two approaches is the idea that economic relationships have data generating capacities (DGCs). It is assumed that there exist a stochastic DGC in an economic mechanism and the associated measurement generating all the relevant variables. The prime objective of the estimation exercise is to produce an adequate empirical model which characterises the data of the DGC. Essentially, the structural properties of the model is derived from the process that generated the data.

The model is derived through a reduction process by which data is transformed, and 'irrelevant' variables dropped contemporaneously. Take a linear approximation of an auto-regressive distributed lag form:

$$\alpha(L)\mathrm{Y}_t = \beta(L)\mathrm{X}_t + \varepsilon_t \qquad (3)$$

Where Y and X are dependant and independent variables respectively, and ε an error term. L is a lag operator and α and β are vectors parameters of interest. In this framework, X is required to be weakly exogenous to the investigated variable to sustain valid and efficient inferences.

The main feature of these models is the presence of an error correction mechanism (ECM) and is derived by reparameterising the functional form of the above equation in terms of levels and differences. The ECM can be interpreted as a restricted form of equation (3) which imposes long-run proportionality amongst some of the regressors. The basic assumption here is that in the real world, equilibrium amongst variables may not be achieved in every period. Hence the ECM reflects the deviation from long-run equilibrium as economic agents respond to the disequilibrium each period (Villagomez, 1994). The ECM can be expressed as $(Y - \beta X)_{t-1}$ whereby β is the

[5] This data was provided to me by a friend from Bank of Uganda archives.

long-run response of Y to X. The case where β=1 is equal to claiming homogeneity and for stationary data, the relevant ratios are constant in the long-run[6]. Indeed all data in the ECM regression are taken to be stationary, the estimators asymptotically normal and the standard errors also asymptotically valid.

The estimated equation is an error corrected version of equation (2):

$$\Delta m = a_0 + a_1 \Delta GDP + a_2 \Delta REER + a_3 \Delta P + a_4 \Delta r \quad + \quad a_5 (m - P) \qquad (4)^7$$

The Result

A long-run demand for money was estimated using the Cochrane-Orcutt method[8] thus:

$$m = 0.70 + 0.24\text{GDP} + 0.05\Delta\text{P} - 0.71\text{REER} - 0.03\text{r} - 0.15\,\Delta P_{t-1}$$

(2.9) (47.5) (1.7) (-0.7) (1.5) (-5.3)

$R^2 = 0.99$ S.E. = 0.9 F (17, 35) = 467.5 D.W. = 1.9

The t-ratios are in parenthesis. The rate of interest is proxied by the rates on treasury bills - the rate used by most commercial institutions. Treasury bill rate has been directly included to capture the opportunity costs on money holdings. These government securities present commercial banks with less hazard and stable returns if compared to investing in private sector portfolios (see Stiglitz, 1989; Stiglitz, and Weiss, 1981). Effectively, the commercial financial institutions exhibit signs of being risk averse in credit extension to the private sector. Of course there existed a curb market for funds but it can be argued its usage was limited to those in the informal sector due to the threat of official 'punishment'. From the result above, the 'interest rate' sign is as expected but the coefficient is low although statistically significant. Income was highly significant. This was likely to be an outcome of two tendencies: a) a rise in income would generate a desire for money

[6] It can also be argued that there is no theoretical economics reason to have the price elasticity of demand for nominal money be unity unless one assumes a one-to-one relation between money supply and price. You have that if you have the quantity equation. Even if you assume that, there are reasons whereby the coefficient may be affected and different from unity. Let me give you two such examples: 1. the baskets of goods purchased by those adjusting their money balances may not be reflected in the consumer price index; 2. institutional factors such as technology and conflict over income distribution may change the relationship between nominal money and prices. Technically, you can impose a restriction on the nominal money demand equation so that the coefficient on price equals 1 before you estimate the real money demand equation.
However, there is an econometric reason to have price homogeneity if there is to be an error correction mechanism between money demand and price. In other words, both price and money should have unit roots of order one so that the error term in the equation has a constant variance - i.e. the error term should unit roots of order zero. But this econometric reason is applicable to any variable used as the error correction variable. In which case any explosion on the left hand side is corrected for by the right hand side.

[7] The movement from equation (2) to (4) is based on reparameterising an ADL version of equation (2). This exercise is not repeated as this is now fairly well known in standard econometric texts.

[8] To introduce stationarity in the data used in the short-run model, first-difference was used to transform the data. Then the ECM equation was run. Unit roots tests were also done on the data and they were all found to be of first order

holdings as agents felt richer; and b), in a highly inflationary environment, real income increases might be mistaken for inflationary adjustments of the monetary aggregates.

There seems to be a perverse result with respect to the inflation variable as inflation grew in line with the desire to hold money. The demand for money with respect to inflationary pressures can be "positively related, to some degree, to the levels of inflation" (Khan, 1980:271). When inflation rates are high "money holders may respond more to a given change in expected rate of inflation because of a greater awareness of the costs of holding money" (Hossain and Chowdhury, 1996:166). However expected inflation is correctly signed. Both inflation variables are statistically significant.

The regression of an ECM for variable real money demand estimated by OLS based on cointegrating VAR(4) was also done.

Table 2: ECM for m estimated by OLS based on cointegrating VAR(4).

Regressor	Coefficient	Standard error	T-ratio
Δm(-1)	5.9	3.4	1.7
ΔGDP(-1)	-0.4	0.2	-2.9
ΔP(-1)	-5.4	3.2	-1.6
Δ*r*(-1)	0.1	0.1	2.2
ΔGDP(-2)	-0.6	0.1	-4.4
Δ*r*(-2)	0.1	0.4	1.7
ΔGDP(-3)	-0.3	0.9	-3.2
ECM1	-2.5	0.9	-2.7

R^2 = 0.78 S.E. = .92 F (20, 42) = 12.1 D.W. = 1.6

LM CHSQ (12)= 40.9 ARCH CHSQ (12)= 20.9 Chow test F(5, 57) = 8.1

From the statistical evidence there is an unstable demand for money function in Uganda. First, currency substitution has not taken place. This is probably the case because the Ugandan shilling was/is not easily convertible. Indeed others have argued that currency substitution in largely a Latin America phenomenon (Hossain and Chowdhury, 1996). Second, the income elasticity of demand for money in Uganda is estimated at about 1.3. Income elasticity of demand for money is expected to be (at least) equal to unity in order for the velocity of circulation to be constant. In developing countries, "income elasticity of demand for money is expected to be greater than unity

because of the upward bias induced by monetisation" (Ahmed, 1990:180) and the "limited opportunities to economise on cash balances, and the paucity of other financial assets in which to hold savings" (Hossian and Chowdhury, 1996:166). The income elasticity of demand for money being greater than unity in LDCs is broadly acknowledged among economists of different persuasions (see Arestis and Demetriades, 1993:276-7; Fry, 1978; and Friedman and Schwartz, 1963). Third, the demand for money reacted to inflation with a lesser coefficient than to GDP. This may be the case because of the high inflation environment that makes real income growth be misinterpreted as inflationary pressures by economic agents. From the ECM, the speed at which the economy returns to equilibrium after some shock is given by -2.5(0.9) - a generally average speed. But the demand for money impulse response trace in fig. 1 seems to suggest that the impulse on money holdings slackens after a rather long period of time. Also a system-wide shock or that from changes in money holdings on the cointegrating vectors persisted for over four years (see fig. 2) . Broadly, the monetary policy environment is very unstable. This is confirmed by the variation in the coefficients of the dependent variables - especially in the ECM as their lags changed (and also confirmed by the Chow test).

There is also the issue raised earlier of causation between money supply and the demand for money and the other determinant variables. Granger-type tests for causality between the demand for money and the explanatory variables were performed and the results summarised below. The direction of the arrow shows that a particular variable *y* Granger-causes *x* and non-causality is symbolised by #. The Granger causality tests reject the assumption of exogeneity of money inherent in the monetarist proposition. Real GDP Granger-causes demand for money. Also there is no such causality between money and inflation. This vindicates the view here that inflation in LDCs like Uganda arises from the real-side of the economy - particularly because of the lack of adequate productive capacity. Building adequate productive capacity would be an essential part of an anti-inflation policy. These are not surprising results in the endogenous-money approach taken here.

Table 3: Granger causality between demand for money and dependent variables

→ - causality # - no causality	m	gdp	ΔP	tb	reer
m	↓ →	#	↓	#	↓

gdp	→	↓ →			
ΔP	#		↓ →		
tb	#			↓ →	
reer	#				↓ →

The diagnostics for the estimated equations are satisfactory. There is no evidence of multicolleniarity, serial correlation (LM), and the residuals are normal (ARCH). Equally, the functional form seems to be correctly specified and is stable (see attached CUSUM plot - fig. 3). There is also no stability in the regression coefficients (Chow test at 1% level).

Broadly there are some general lessons that the Ugandan authorities should learn for the conduct of meaningful and broader economic reforms. First, that the emphasis on long-term stability, and more importantly it being achieved through monetary policy, is inherently deflationary. SAP generally seems to put stability before growth. The emphasis on monetary policy seems to ignore the role of fiscal policy as a handmaiden for achieving high levels of aggregate demand - which is crucial for sustaining high levels of economic activity. If money is viewed as endogenous as in our model, using interest rates to control monetary aggregates may be very difficult. On the contrary, "governments can influence the levels of aggregate demand through their choice of the composition of taxes and of public expenditure and through influence over investment expenditure" (Arestis et al., 1999). Second, the restrictions put on the level of seignoriage and budget deficits are arbitrary. These restrictions undermine the economy's capacity to absorb shock. Indeed such rules fail to recognise the need to synchronise monetary and fiscal policies as well as other policies and sooner than later leading to policy conflicts. Finally, monetary policy may further undermine Uganda's programme for national cohesion. Monetary policy as opposed to fiscal policy, can not have a targeted effect on regions and individuals and sectors. Monetary policy "sets one interest rate for the economy as a whole, and can only take account of the official rate changes on the aggregate of individuals in the economy" (Bank of England, 1999:7). The forces of cumulative causations tend to make such inequalities worse (see Myrdal, 1957).

Concluding remarks

There is no evidence of stability in the demand for money function in Uganda. For the monetary authorities this set of evidence is useful if they intend to set some reaction rules associated with specified monetary aggregates. In our estimated equation, as mentioned earlier, the treasury bill

rate was included as a cointegrating variable primarily because, for a large part of the 1980s and up to 1992, it was institutionally fixed. Indeed, there are other factors that equally influence the monetary policy environment such as the character of credit and budgetary policies of the government and these may equally undermine Bank of Uganda's ability to pursue an effective monetary policy.

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