

# MONEY AND INFLATION IN A DEVELOPING ECONOMY: THE CASE OF TRINIDAD AND TOBAGO 1965 - 1993

Keith Worrell and Averil Scantlebury-Maynard  
Caribbean Development Bank

---

## 1. Introduction

Since Vogel (1974) made use of an implicit demand for money function to formalise the monetarist hypothesis of the cause of inflation in developing countries, there have been a number of empirical attempts to validate that hypothesis.<sup>1</sup> These have led to conflicting claims about the link between money and prices in these economies. Some of this controversy appears to be rooted in the heterogeneity of developing countries. But some of it may reflect problems with both the specification and estimation of the various time series models that have been employed in many country studies.

The purpose of this article is to reformulate the monetarist model in a way that lends itself to understanding the dynamics of an open economy which has a central bank that is able to validate external influences on the domestic price level. In this realistic situation, it is possible for the money supply and the exchange rate to be jointly determined, at the same time that the domestic money market clears.

Our work is conducted on the Trinidad and Tobago economy which adds an interesting case to the study of inflation in developing economies.

## 2. A Model for Explaining Inflation in an Open Economy

By making use of the law of one price, inflation defined here as the rate of change in the general price level  $P$  in an economy, is related to that in the rest of the world, via purchasing power parity, through changes in the nominal exchange rate and in the foreign price level. The earliest versions of the of purchasing power parity doctrine postulated a one to one link between foreign prices and the exchange rate on one hand and domestic prices on the other. However, Keynes (1923) successfully challenged that view, and it is now generally thought that the link between these variables, though proportionate, need not be unitary elastic.

Nonetheless, from time to time the domestic price level will deviate from its long-run proportionally to world prices. These deviations will be proportionate to domestic monetary disequilibrium defined to be the difference between the stock of nominal balances and the current demand for real balances.

The foregoing can be summarised as follows:

---

1. For a fairly recent, helpful summary of the status of this debate, see Morrison (1987) and the references therein.

$$Pd = \left[ \left( E^{\lambda_1} Pf^{\lambda_2} \right)^{\theta_1} \left( M_t^s / m_t^d \right)^{\theta_2} \right] \quad [1]$$

Where  $E$  is the exchange rate,  $P_d$  and  $P_f$  are the domestic and foreign price levels respectively,  $M^s$  is the supply of nominal balances and  $m^d$  is the demand for real balances. The subscript  $t$  refers to time, and the Greek superscripts are various factors of proportionality.

All monetary models assume a stable demand for real balances. In the simplest closed economy version, though not here, this, given the stock of nominal balances, is sufficient to determine the price level. The one employed here is of the customary form -

$$m^d = y^{\beta_1} R^{-\beta_2} \quad [2]$$

Where the new variables  $y$  and  $R$  are respectively real income and the cost of holding real balances. We began with the presumption that narrow money would be the appropriate monetary variable for testing our model, but nonetheless, took the opportunity to discover how a broader money concept would affect our results. This has required compartmentalising our data, to test the model also for the sub-period that had a well-defined time deposit interest rate series. This turns out to be between 1969 and 1988. We shall see below that the model tracks the data equally well with either the broad or narrow concept of money.

After substituting equation [2] into [1] and transforming logarithmically, we arrive at -

$$LPd = \theta_1 \lambda_1 LE + \theta_1 \lambda_2 LPf + \theta_2 LM_t^s - \beta_1 \theta_2 Ly + \beta_2 \theta_2 Ly \quad [3]$$

$L$  is this equation is the log operator and we would expect the signs of the coefficient in the estimated equation to be precisely as postulated.

To summarise, we propose equation [3] as a long-run explanation for the general price level for Trinidad and Tobago, from which an inflation equation can be derived by first differencing. We simplify equation [3] to read -

$$LPd = a_1 LE + a_2 LPf + a_3 LM_t^s + a_4 Ly + a_5 LR \quad [4]$$

$(a_1 > 0) \quad (a_2 > 0) \quad (a_3 > 0) \quad (a_4 < 0) \quad (a_5 > 0)$

Where  $a_i = \theta_i \lambda_i$ , etc.

Recent developments in econometric methods enable the researcher to separate out stable long-run relationships postulated in economic theory such as the one in equation

---

[4] from short-run dynamic adjustments to those long-run relationships, which are often perceived in the data. The following section contains a brief discussion of these methods.

### 3. Cointegration Analysis

An important feature of modern estimation techniques is that they allow the researcher to separate the long-run equilibrium relationships generally postulated in economic theory from their short-run dynamics. It is well-known, though it has often been ignored, that many of the asymptotic results that economic researchers rely on to form judgements about the estimation of economic relations from time series data assume that those variables are stationary. However, it is equally well-known that time series data are frequently not stationary. This is usually established by unit root analysis.

Nonetheless, even if a set of variables is non-stationary, there may exist a linear combination of that set that is stationary. Such a set would then be cointegrated. Simply put, although they might vary with time, they would move together over time and would require the same order of differencing to achieve stationarity. For the two variables case, if there is cointegration, the OLS estimator will yield an estimate of the slope coefficient that will be a consistent estimation of the long-run relationship between levels in the two variables, with no need to resort to either lagging or differencing. The generalisation of this to the multivariate case requires that the residual from the regression in the levels of those variables should be stationary. That regression equation would then be called a cointegrating equation and valid inferences about the long-run could be drawn from its estimation. However, the short-run dynamics would have to be determined otherwise.

Engle and Granger (1987) have proposed a method for achieving this outcome. This begins by establishing the order of integration of each of the random variables in a relationship, i.e. the number of times each variable must be differenced for it to become stationary. If, for example, a discrete random variable is already stationary, having a constant mean and variance, presumed to be the rare case, the variable is said to be integrated of order zero. If the variable has to be first-differenced to become stationary, which is the well-known case of random walk variables, it is said to be integrated of order one, and so forth.

If not all the variables in the relationship are stationary, we proceed to test whether together they are cointegrated. Dickey and Fuller (1979) have provided a set of statistics that test the null hypothesis of non-stationarity in variables. This has been extended by Engle and Granger to test whether in the case of non-stationary variables the disturbance term in the relationship is stationary. In this augmented Dickey-Fuller (ADF) test estab-

---

lishes that the error of the relationship is stationary, which would be the case if the estimated test statistic is smaller than its critical value, the error is called an "equilibrium error", and the relationship is said to be cointegrated. The equation expressing it is called a cointegrating equation and it could be taken to represent a long-run economic relationship.

After testing for unit roots, we regressed the levels of the variables in equation [4] in order to perform the first stage of the Engle-Granger two step analysis, using annual data for the period 1965-93.

Having found that the variables in equation [4] were non-stationary, we used the ADF statistic to test for cointegration. We are unable to reject the hypothesis in favour of cointegration (see Table 3 in appendix) and Ramsey's RESET<sup>2</sup> test for functional form is satisfactory. We therefore propose equation [4] as a long-run price level model giving rise to an inflation explanation for Trinidad and Tobago.

The Engle and Granger method is called the two step method because, after estimating a cointegrating long-run relationship, it proceeds to estimate by an error-correction mechanism the dynamic relationship implied in the model. This is based on the Engle-Granger Representation Theorem. This establishes that if a set of variables are cointegrated, they will have an error correction mechanism that will ensure an adjustment process in which the errors in the long-run relationship do not grow over time. In other words, the short-run dynamic relationship will converge with the long-run relationship. The second step, the estimation of the dynamic regression, is usually by the method of Instrumental Variables. We deliberately do so here, to take account of the fact that some of the regressor variables in our model, can be regarded as endogenous variables in a monetarist perspective. We are now in a position to discuss the estimation of this second step. Before we do so, however, we must report on one modification in the specification of our error correction model.

The results obtained from estimating the cointegrating regression indicated that the residuals were non-normal as tested by the Jarque-Bera statistic. A plot of those residuals (see Figure 2) showed that only one observation, that for 1971, deviated extremely from

---

2. The usual battery of tests associated with modern econometric estimation, and printed in most computer outputs, allows the researcher to make judgements about the stability of co-efficient estimates, the behaviour of residuals and the stability of the model. They include: the Ramsey RESET test for detecting specification errors, the Jarque-Bera test for the normality assumption in the residuals as well as tests for serial correlation and heteroscedasticity, a Chow test to detect how well the model fits the data in and out of sample, are all reported and their appropriate levels of significance given for various regressions.

---

the norm. This led us to search for a non-economic factor that may have impacted on the workings of the model. This posed no serious difficulty since the political science literature (see Ryan (1972)), clearly indicated that 1971 was an unusual year in the socio-political history of Trinidad and Tobago.<sup>3</sup> In the estimation of the dynamic regression, a binary variable separating 1971 from the rest of the sample space was employed, and, as will be seen from the diagnostics of the dynamic regression, this resulted in a satisfactory Jarque-Bera statistic. We are now ready to resume our full discussion of the results of our work.

#### 4. Inflation Dynamics in Trinidad and Tobago

The full results from estimating the model are summarised in Tables 1-4. Figures (1) and (3) show respectively the plots of actual and fitted values of the long-run levels regression, and the short-run dynamic or difference regression. The remainder of this discussion is for the most part about the latter, since the former was run mainly to establish whether there was an equilibrium relationship between the variables specified in our monetary model and we are satisfied that there is such a relationship.

As can be seen from the diagrams, the model tracks the data well, and captures the salient turning points. This is so for both the full sample using narrow money, and for the shorter period using broad money. The Sargan test confirms that the selection of instruments for the instrumental variables stage in the estimating procedure was appropriate. The instruments selected are the contemporaneous and lagged values of the right hand side variables as well as the lagged dependent variable and the lagged residual from the first stage.

The signs of all the coefficients are as postulated, and most are significant at least at the five percent level. Inflation in Trinidad and Tobago appears to be a monetary phenomenon. A monetary model alone could explain 99 percent of the long-run variance in the price level. It might be noted that although Trinidad and Tobago, which is an oil exporter, appears to have experienced some element of Dutch disease (see Holder and Williams (1995)) we did not find it necessary to account in any special way for the impact of oil prices. The only effects of the oil shock would have been through import prices and the windfall earnings that stemmed from the rise in the value of exports, to the extent that the latter led to an increase in imports that would have reduced inflation. This effect is appropriately captured by the income variable. Otherwise, it would have become part of

---

3. In brief, the country survived a Black Power motivated coup that must have seriously affected the behaviour of wealth holders.



---

the money stock or would have been sterilised.

The influence of the foreign price level on the domestic level appears to be of much greater significance than that of the exchange rate. The former is greater than proportionate, signifying that more than "the law of one price" is involved in the relationship between foreign and domestic prices. The impact of the foreign price level is also through the cost of production of domestic consumables. This is perhaps to be expected in an economy which imports much of its producer goods. The coefficient on the change in the value of the exchange rate does not suggest that a marginal devaluation would be destabilising. This appears to be supported by the recent evidence afforded by a series of devaluations of the Trinidad and Tobago dollar which, as can be seen from Table 1, were followed by only moderate increases in the domestic price level.

The principal hypothesis of this paper is that monetary expansion at rates faster than required by the demand for real balances leads to inflation. The evidence from this analysis appears overwhelming, although it must be stressed that this is still only one of a minority of studies of inflation in developing countries which conclude that money matters.

The income and interest rate variables affect inflation in precisely the way predicted by monetary theory. A rise in income, by raising the demand for money, reduces the inflationary stimulus of monetary expansion, correspondingly an increase in the interest rate has the opposite effect.

As expected, the binary variable is significant, though its impact was relatively slight. The coefficient on the error-correcting term, the lagged error from the levels regression, is highly significant and correctly signed. Its negative magnitude indicated its error correcting attribute. It tells us that if the short run rate of inflation is above its long run norm, the dynamics of the system will force it to fall vice versa. The size of the coefficient is a measure of the speed of adjustment. In this case it appears to be almost instantaneous, which might suggest that there is little inertial impulse in the Trinidad and Tobago inflationary process.

All the other major diagnostics from the dynamic regression are satisfactory. The Chi-square tests for the absence of serial correlation and heteroscedasticity of the errors, along with that for the normality of their distribution, are comfortably passed at the 5 percent level of significance. The Ramsey RESET Test was already passed for the corresponding levels regression, suggesting that these results are from an appropriately specified model. This is what we set out to discover, i.e., whether a monetary model of inflation could explain the observed facts in a monetized developing economy. The Chow forecast test indicates both that the estimates of the coefficients are stable and that the

---

model predicts inflation in Trinidad and Tobago well. We have here a model that is both adequate and parsimonious. It does not contain a single other variable than that dictated by monetary theory and the historical record.

A subsidiary and largely empirical issue in monetary economics, is whether inflation is more a function of broad money than of narrow money. The major impression gained from experimenting with a broad money variable as a regressor in place of narrow money is that the monetary hypothesis survives being specified in either variant. Apart from the interest rate coefficient, the major regressors appear to be equally robust in either case. However, it is noteworthy that if the opportunity cost for broad money is taken to be the time deposit rate of return, and entered as a single variable, the interest rate coefficient turns out to be marginally significant. (See Haitovsky (1969)). This may suggest that the monetary authorities in Trinidad and Tobago do have to be concerned about the impact of liquidity in general on inflationary stimulus rather than only that of money narrowly defined.

The results of this exercise also shed further light on those obtained by a study recently conducted by Downes, Worrell, and Scantlebury-Maynard (1993). In both studies, a similar set of monetary variables was found to be cointegrated for similar though not exactly the same periods. However, from the point of view of a monetarist, the specification of the earlier model was less rigorous. This was necessary to conduct the comparative analysis attempted in that work. The results from that study were somewhat ambiguous about the impact of the money supply and the exchange rate on inflation dynamics in Trinidad and Tobago. In this study, they are precisely as would be predicted by a monetary model.

## 5. Conclusion

Our results appear to confirm that the underlying cause of inflation in Trinidad and Tobago is monetary, but that the will be dynamic displacements from the long-run equilibrium, which will, nonetheless, be quickly reversed. This study lends support to Friedman's claims that inflation is "always and everywhere a monetary phenomenon" and also to the view that money broadly speaking matters. This has well-known implications for macroeconomic adjustment policies. (In particular, monetary policy might be very effective in controlling inflation). We would therefore suggest that, as data for more developing countries become available, this hypothesis should receive further attention.

## Appendix

**Table 1:** Percentage Changes in the Trinidad and Tobago Consumer Price Index - 1965/1992

Year	
1965	1.5
1966	4.4
1967	2.1
1968	8.3
1969	2.6
1970	2.5
1971	3.0
1972	9.5
1973	15.1
1974	21.6
1975	17.0
1976	10.9
1977	11.6
1978	10.4
1979	14.7
1980	17.5
1981	14.3
1982	11.6
1983	15.2
1984	13.3
1985	7.6
1986	7.7
1987	10.8
1988	7.7
1989	11.4
1990	11.0
1991	3.8
1992	6.5

**Table 2:** Unit Root Tests 1965-1993

Variable	I(0)	I(1)	I(2)
LPd	-2.7666	-2.2233	-3.6908
LE	-1.1100	-3.3264	-4.1583
LPt	-1.1281	-2.2903	-3.8697
LM	-1.7148	-1.8146	-4.4852
LY	-1.5366	-2.6608	-4.0574
LR	0.2838	-2.6890	-4.3379
LR2	-1.1635	-2.2725	-3.2621
LTD	-2.2669	-3.9150	

(5% Critical Value = -3.60)



**Table 3:** Levels Regression 1965 - 1993

Narrow Money Equation Dependent Variable = LPd					
Constant	LE	LPF	LM	Ly	LR
4.64 (4.71)	0.09 (1.35)	1.39 (12.46)	0.25 (4.99)	-0.86 (-8.26)	0.02 (0.40)

$R^2 = 0.999$ ; RESET, Chi Sq. (1) = 0.70; ADF = -3.95 (5 percent critical value = -3.60)

**Table 4:** Difference Regression 1967 - 1993

Narrow Money Equation Dependent Variable = $\Delta$ LPd							
Constant	$\Delta$ LE	$\Delta$ LPf	$\Delta$ LM	$\Delta$ Ly	$\Delta$ LR	POL	EC(-1)
-0.00 (-0.17)	0.10 (1.83)	1.65 (5.25)	0.15 (3.88)	-0.69 (-5.44)	0.06 (1.91)	-0.07 (-3.46)	-0.82 (-4.03)

$R^2 = 0.83$ ; S.E.E. = 0.02; Sargan, Chi Sq (5) = 11.12; DW = 1.71; LM (auto correlation) Chi Sq. (1) = 1.49; HET, Chi Sq. (1) = 0.05; Normality, Chi Sq. (2) = 1.69; Chow F (8,12) = 0.3

**Table 5:** Levels Regression 1969 - 1988

Broad Money Equation (1) Dependent Variable = $\Delta$ LPd						
Constant	LE	LPf	LM	Ly	LR	LR2
3.21 (1.80)	0.13 (1.40)	1.45 (8.16)	0.21 (2.46)	-0.72 (-4.01)	0.73 (0.72)	0.01 (0.55)

$R^2 = 0.999$ ; RESET, Chi Sq. (1) = 4.33; ADF = -3.53 (5 percent critical value = -3.60)

Levels Regression 1965 - 1993

Broad Money Equation (2) Dependent Variable = $\Delta$ LPd					
Constant	LE	LPf	LM	Ly	LTD
5.39 (5.17)	0.12 (2.06)	1.34 (10.85)	0.27 (5.04)	-0.94 (-8.42)	0.05 (1.07)

$R^2 = 0.999$ ; RESET, Chi Sq. (1) = 1.02; ADF = -4.00 (5 percent critical value = -3.60)

**Table 6:** Difference Regression 1971 - 1988

Broad Money Equation (1) Dependent Variable = $\Delta LPd$								
	Constant	$\Delta LE$	$\Delta LPf$	$\Delta LM$	$\Delta Ly$	$\Delta LR$	$\Delta LR2$	POL
t=	0.03 (1.27)	0.03 (0.32)	1.24 (3.42)	0.09 (1.39)	-0.41 (-2.12)	0.06 (1.24)	0.00 (0.40)	-0.07 (-2.73)
								EC(-1) -0.43 (-1.33)

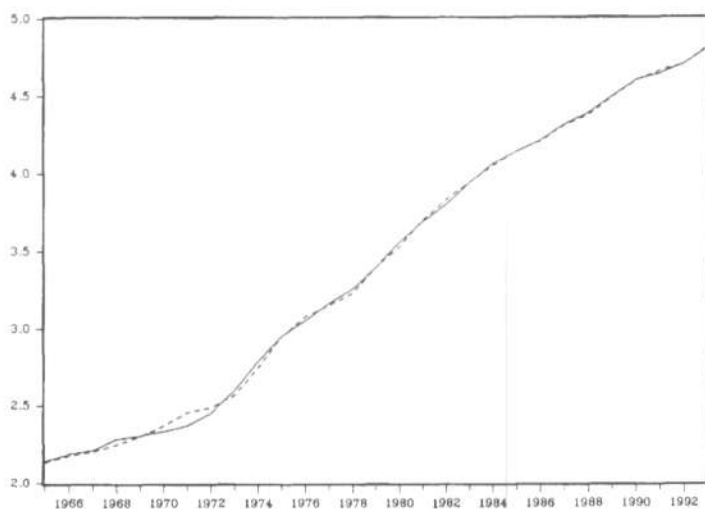
$R^2 = 0.68$  SEE = 0.02 Sargan, Chi Sq (6) = 5.91 DW = 1.21 LM (auto correlation) Chi Sq. (1) = 5.38 HET, Chi Sq (1) = 5.54 Normality, Chi Sq(2) = 0.80 Chow F(8,2) = 0.4

Difference Regression 1967 - 1993

Broad Money Equation (2) Dependent Variable = $\Delta LPd$							
	Constant	$\Delta LE$	$\Delta LPf$	$\Delta LM$	$\Delta Ly$	$\Delta LTD$	POL
t=	-0.01 (-0.46)	0.15 (2.41)	1.74 (5.28)	0.16 (3.75)	-0.77 (-5.35)	0.03 (1.02)	-0.07 (-3.36)
							EC(-1) -0.87 (-4.17)

$R^2 = 0.81$ ; S.E.E. = 0.02; Sargan, Chi Sq (5) = 9.41; DW = 1.71; LM (auto correlation) Chi Sq. (1) = 0.89; HET, Chi Sq. (1) = 0.01; Normality, Chi Sq. (2) = 1.05; Chow F (3,17) = 0.2

Figure 1: Plot of Actual and Fitted Values for Long-run Levels Equation - Narrow Money



Actual — Fitted

Figure 2: Plot of Residuals for Long-run Levels Equation - Narrow Money

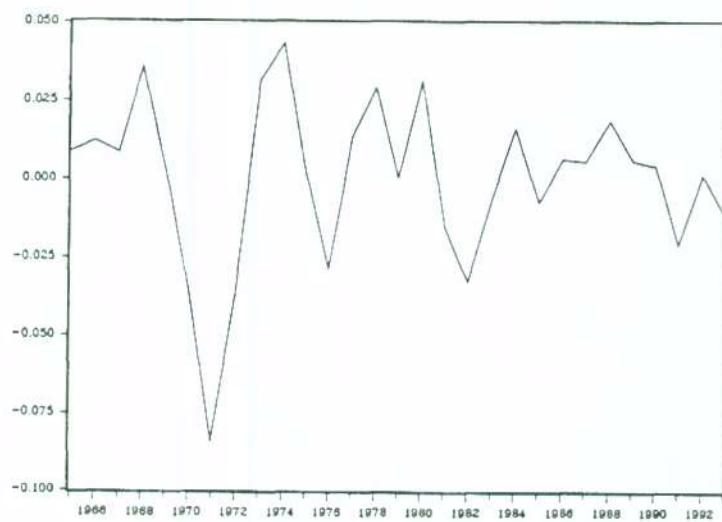
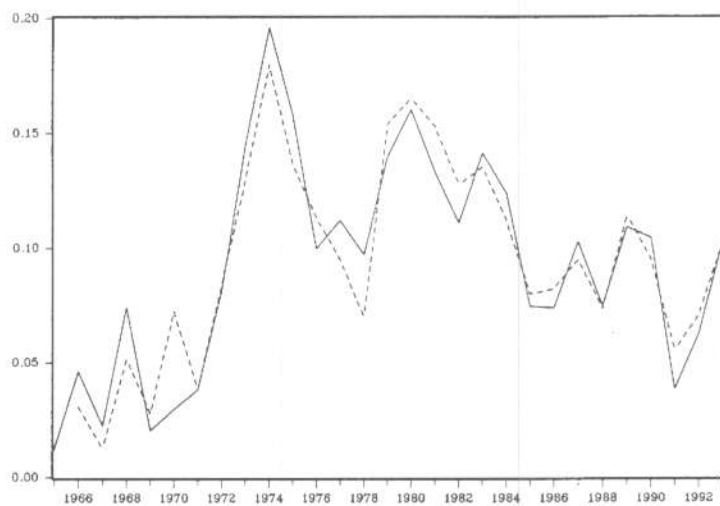


Figure 3: Plot of Actual and Fitted Values for Short-run Difference Equation



Actual — Fitted



---

## References

- Central Bank of Trinidad and Tobago, *Handbook of Key Economic Statistics, 1989, and Quarterly Economic Bulletin*, 1992.
- Dickey, D.A. and Fuller, W.A. "Distribution of the estimators for autoregressive time series with a Unit Root" *Journal of the American Statistical Association*, 74 (June 1979), 427-31.
- Downes, A., Worrell, K., and Scantlebury-Maynard, A. "Macroeconomic Adjustment and the Inflation Experience of Selected Caribbean Countries", *Money Affairs*, 6 (July 1993), pp. 45-61.
- Engle, R., and Granger, C., "Cointegration and Error Correction: Representation, Estimation and Testing", *Econometrica*, 55 (1987) pp. 251-76.
- Haitovsky, Y., "A Note on the Maximization of  $R^2$ " *American Statistician*, 23 (No. 1, 1969), pp. 20-1.
- Holder, C. and Williams, O., Trinidad and Tobago: An evaluation of macroeconomic management and import demand during oil shocks" *CDB Economics Staff Working Paper 1/95* (1995).
- International Monetary Fund, *International Financial Statistics Yearbook*, Vol. XLVII 1994.
- Keynes, J.M., *A Tract on Monetary Reform*, Macmillan, London. (1923).
- A Treatise on Money: The Pure Theory of Money*, London, Macmillan, (1927).
- Morrison, R.J., "Inflation in Portugal, 1953-80: an econometric analysis". *Kyklos*, 40 (Fasc. 2, 1987), 219-37.
- Ryan, S.D., *Race and Nationalism in Trinidad and Tobago: A study of decolonisation in a multi-racial society*, Toronto, University of Toronto Press, (1972).
- Vogel, R., "The Dynamics of Inflation in Latin America 1950-69". *American Economic Review*, 64 (March, 1974), 102-14.

---

**Key to tables 3-6**

For ease of checking and replication, all the data used in this article, except the Time Deposit Interest Rate which comes from the Handbook of Key Economic Statistics 1989, Central Bank of Trinidad and Tobago, are taken from the International Monetary Fund, International Financial Statistics Yearbook, Vol. XLVII 1994. The variables are as follows:

- Pd = Domestic price level = Index of Consumer Prices
- E = Exchange rate: TT dollars per US dollar (period average)
- Pf = Foreign price level: USA Index of Consumer Prices
- M = Money stock: Current stock of nominal M1 balances
- y = Real income: Gross Domestic Product 1990 Prices
- R = Cost of holding real balances: Treasury Bill Rate in Narrow Money Equation
- TD = : Time Deposit Rate in Broad Money Equation
- R2 = TD - R
- POL = Political dummy
- EC = Error correction vector
- L = Log Operator
- $\Delta$  = First difference Operator

---

**Abstract**

*In this article, we attempt to show that a monetary approach to an open economy could account for the inflationary experience of Trinidad and Tobago between 1965 and 1993. The model assumes a stable demand for real balances but also includes features from purchasing power parity analysis. An attempt is made to compare the results from using a narrow concept of money with those from a broader concept. Cointegration analysis is employed to distinguish between the long run determination of the price level and short run inflation dynamics. After a brief general introduction Section 2 presents the model. Section 3 is a discussion of the long run price level function through recourse to cointegration analysis. Section 4 discusses the dynamics of the model and Section 5 is a brief summary and conclusion.*

**L'ARGENT ET L'INFLATION DANS UNE ÉCONOMIE EN VOIE DE DÉVELOPPEMENT:  
LE CAS DE TRINITÉ ET TOBAGO 1965-1993****Résumé**

*Dans cette étude nous essayons de montrer qu'une approche monétaire vers une économie ouverte puisse justifier l'expérience inflationnaire de Trinité et Tobago entre 1965 et 1993. Le modèle suppose une demande fixe pour les balances vraies mais il inclut aussi les caractéristiques d'analyse de la puissance parité. On essaie de comparer les résultats d'utilisant une idée monétaire à celles d'un concept plus large. Pour distinguer entre la détermination longue du niveau de prix et les dynamiques inflationnaires l'analyse cointégration est employée. Après une introduction brève, la deuxième section présente le modèle. La troisième section discute la fonction du niveau-prix long à travers l'analyse cointégration. La quatrième section discute les dynamiques du modèle pendant que section cinq se concerne d'une résumé et la conclusion.*

# Books received

---

**Maxwell FRY**, *Emancipating the Banking System and Developing Markets for Government Debt*. Routledge, London 1997, pages XVIII + 280, Hb: £. 45.00, ISBN 0 415 15640 8; Pb: £. 14.99, ISBN 0 415 15641 6.

*Contents*: Part I: Introduction and Debt-Deficit Dynamics, 1. Why Develop Markets for Government Debt? Overview and Summary, 2. Debts, Deficits, Inflation and Growth, Part II: Captive and Foreign Markets, 3. The Central Bank and Inflationary Finance, 4. Financial Repression, 5. Foreign Debt Accumulation, Part III: Developing Voluntary Domestic Markets, 6. Prerequisites, Persuasion and Pitfalls, 7. The Players and the Markets, 8. Roles for the Central Bank.

**Meine Pieter van DIJK, Roberta RABELLOTTI**, *Enterprise Clusters and Networks in Developing Countries*. Frank Cass, London 1997, 304 pages, Pb: £. 22.50 ISBN 0 7146 4333 5. EADI-book series: 20.

*Contents*: 1. Clusters and Networks as Sources of Co-operation and Technology Diffusion for Small Enterprises in Developing Countries, Part I: Clusters, External Economies and Co-operation, 2. Clusters of Enterprises Within Systems of Production and Distribution: Collective Efficiency and Transaction Costs, 3. Footwear Industrial Districts in Italy and Mexico, 4. The Significance of Spatial Clustering: External Economies in the Peruvian Small-Scale Clothing Industry, Part II: Flexible Specialisation, Networks or Ghettos? 5. Opportunities for Women in Ouagadougou's Informal Sector: An Analysis Based on the Flexible Specialisation Concept, 6. Industrial District or Garment Ghetto? Nairobi's Mini-Manufacturers, 7. Small Enterprise Associations and Networks: Evidence from Accra, Part. III: Examples: Technology, Credit and Internationalisation, 8. Trust Building in Tanzania's Informal Credit Transactions, 9. Enterprise Networks and Technological Change: Aspects of Light Engineering and Metal Working in Accra, 10. From SMEs to Industrial Districts in the Process of Internationalisation: Theory and Practice.

## **CARIDATA** *company*

*CARIDATA is the Information Technology company  
of CARIPLO Group: born in 1989 as a point-stock from  
CARIPLO bank (60% share holder)  
and Olivetti Information Services (40%).*



Line of business:

- *Intervention analysis -*
- *Business organization analysis and organizing advice -*
- *Development, production and sale of software -*
- *Distribution of packages -*
- *Training and advisory services in information processing -*
- *Operation of data processing facilities -*



*Head and main office: Via Pirelli 16/B - 20124 Milan - ph. 0039-2-675081 - fax 0039-2-66985594*

---

**CARIDATA**  
CARIDATA SPA - TECNOLOGIE INFORMATICHE  
 **GRUPPO CARIPLO**





*Cariplo, per tutte le esigenze bancarie*

*una rete di oltre 600 sportelli  
in Italia e nel mondo*

*Sede Centrale - Milano Via Monte di Pietà, 8*



**CARIPLO**

CASSA DI RISPARMIO DELLE PROVINCE LOMBARDE S.p.A.



## CARIPLO IN THE WORLD

*Cariplo and Cariplo Group: a large and diversified organisation of companies, experiences and resources to operate in all banking and near banking sectors (merchant banking, leasing, factoring, insurance, etc.). With more than 600 branches in Italy and in the most important financial markets, Cariplo provides a full range of top banking services all over the world.*

### INTERNATIONAL NETWORK

#### BRANCHES:

##### LONDON

6 Lombard Street - London EC3V 9AA

##### MADRID

Calle Alcalá 44 - 28014 Madrid

##### NEW YORK

10 East 53rd Street New York, NY 10022

##### GRAND CAYMAN

c/o New York branch - 10 East 53rd Street New York, NY 10022

##### HONG KONG

52 floor, Central Plaza

18 Harbour Road, Wanchai - Hong Kong

#### SHAREHOLDINGS:

- **BANKHAUS LÖBBECKE & CO.**  
Fasanenstrasse 76/77 - Postfach 126226 - 10623 Berlino  
(2 city branches in Berlin, and branches in Frankfurt, Braunschweig, Magdeburg, Munich and Dresden)
  - **CARIPLO BANK INTERNATIONAL S.A.**  
12 Rue Goethe - 1637 Luxemburg
  - **CARIPLO BANQUE SA**  
42 Rue la Boétie - 75008 Paris (8<sup>ème</sup>) - (branch in Lyon)
  - **EURÓPAI KERESKEDELMŰ BANK Rt.**  
7/13 Hegyalja út - 1016 Budapest
  - **BANK AUSTRIA (CR) A.S.**  
Revolucni 15 - 11015 Praha 1
  - **BANCO DE INVESTIMENTO IMOBILIARIO S.A.**  
Av. da Liberdade 108-112 - 1000 Lisboa
- Controlling interest

#### REPRESENTATIVE OFFICES:

##### ATHENS

13, Panepistimiou Street - 105 64 Athens

##### BEIJING

706 Cvik Tower - 22 Jianguomenwai Da Jie  
100004 Beijing

##### BRUSSELS

Avenue Louise 250 - B.te 63 - 1050 Brussels

##### CHICAGO

190 South La Salle Street, Suite 2890  
Chicago, IL 60603

##### FRANKFURT/MAIN

Taunusanlage 11 - 60329 Frankfurt/Main 1

##### MOSCOW

Sajmonovskij Pr. 7 - 3rd floor - 119034 Moscow

##### SEOUL

Oriental Chemical Building - 3rd floor  
50 Sogong-Dong Chung-Ku - 100070 Seoul

##### TOKYO

Enokizaka Building - 3rd floor  
12-12 Akasaka 1 - Chome - Minato-Ku, Tokyo 107



# CARIPLO

CASSA DI RISPARMIO DELLE PROVINCE LOMBARDE S.p.A.

HEAD OFFICE: 8, VIA MONTE DI PIETÀ - 20121 MILAN - ITALY

## Summary

The crucial aspect to focus upon in evaluating Africa's experience in financial sector development is its savings effort, the level and quality of financial intermediation and the efficiency in resource use. On all these scores, the African financial sector has performed very badly. Upon acceding to political independence, African governments decided to remodel their financial infrastructure by the establishment of a diversified set of financial institutions - viz - commercial banks, development banks, savings banks, co-operative banks, housing finance and postal savings banks, etc. Unfortunately, the ensuing benefits have not been commensurate with the enormous costs incurred. A great deal of effort was geared towards the provision of credit rather than the mobilization of resources. The official attitude to resource mobilization has been extremely lax partly due to foreign resource inflows and partly due to the inexpensive rediscounting terms and facilities provided by the central bank.

Commercial bank branches have not yet been sufficiently diffused in the rural hinterland with the result that Africa's resource potential in the rural areas still remains untapped. Development and Co-operative banks have literally become mere retailers of foreign loans and government funds even though many were empowered to mobilize resources in their statutes of establishment. The operations of specialised financial institutions are generally insulated from competition by various legislations, and are even provided with generous subsidies. Instead of undertaking much wider and more demanding tasks, (eg. bringing in financial innovation, developing money and capital markets, broadening the monetized sector of the economy, improving the unorganized segment), central banks

in developing Africa are confined to the narrow contours of a regulator, and are circumventing financial deepening through the provision of generous accommodation to the commercial banks and the government.

Bank credit still remains a financial appendage of certain enclaves: large-scale mineral exporters, highly protected manufacturing, foreign owned undertakings, and the parastatal sector. In contrast, small farmers and indigenous small-scale enterprises remain financially repressed although they possess quite a large share of the deposit resources on which bank credit is based. These repressive influences of the formal banking system are perpetuating the enlargement of the informal sector.

## The author:

**Dr. Abebe Adera** is currently Chief of the African Least Developed Countries Programme at the United Nations Economic Commission for Africa. Before assuming his present post, he was Chief of the Fiscal, Monetary and Financial Policy and Institutions Section at the same Secretariat. Prior to joining the United Nations in 1978, he served as Director of the Research, Planning and Policy Coordination Division of the Commercial Bank of Ethiopia. He was also part time lecturer in Money and Banking at the Addis Ababa University from 1972 to 1978 and at the Ethiopian Institute of Banking and Insurance from 1969 to 1974.

**Abebe Adera** holds a B. Com. (Hons) degree from the University of Delhi; an M.A. and M.Sc. degrees from the University of Wisconsin at Madison and a Ph. D degree from Jadavpur University.

185 pp.

ISBN 88-85955-03-7

## THE FINANCIAL SECTOR AND ECONOMIC DEVELOPMENT: REFLECTIONS ON AFRICA

Please send me \_\_\_\_\_ copy (ies) of the above mentioned volume.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Country \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

"GIORDANO DELL'AMORE" FOUNDATION  
Via San Vigilio, 10  
20142 MILAN - Italy  
Tel. 8135341, telex 313223, Fax 8137481

## Management by Professionals

**Fondigest** is the asset management company of the Cariplo Group. Over the past ten year, **Fondigest** has achieved a leading position on the Italian investment management market, with over 8000 billion lire in assets under management and 17 mutual funds investing on the principal financial markets all over the world.

### *The reasons of such a success*

#### **Our qualified management team.**

Thanks to an extensive network of relationship with international analysts and locally based investment specialists, our portfolio managers get hold of the most up-to-date information to act quickly in response to rapid movements in the financial world.

To seize the opportunities offered by Italian bonds and equities and maximize the potential return from investments we have the experience and the knowledge you are looking for.

#### **Our commitment to customer's service.**

We provide our customers with a broad and complete family of mutual funds to suit their needs and offer them flexibility to switch investments as their needs change.

# FONDIGEST

Società per Azioni per la gestione  
di fondi comuni d'investimento mobiliare

**GRUPPO CARIPLO**

For further information contact **Fondigest SpA** - Foro Buonaparte, 35 - 20121 Milano - Italy - Tel. (2) 721481

# *The Best Partners All Over The World*



**nashuatec**  **Rex-Rotary**  
**Gestetner**

**Copiers - Fax - Multifunctional Products**  
**CopyPrinters - PC Printers**

*Nrg Group is leader in office automation with its  
wide range of innovative products and technologies.  
We can assure Productivity, Cost Saving and Assistance  
to solve every need: in 130 Countries, all over the World*

**NRG** ITALIA

Via Cavaglia 11 - 20139 Milano - Phone (02) 53561 - Fax (02) 5356.555 - ISDN (02) 5820.7042



---

While not implying acceptance, payment of fees, responsibility for loss or return, the Editor encourages the submission of manuscripts concerning money, financial intermediaries, financial techniques, and experiments in savings mobilization in developing countries. Manuscripts submitted for publication (two copies) should be in English or French, 4,000 - 10,000 words in length with a 200-400 word summary, typed on one side only of the sheet and double-spaced. Footnotes should be indicated by consecutive numbers throughout the paper. References in the text should be quoted by the author's last name and year of publication, e.g. Shaw (1973) or (Shaw, 1973). The title should be as compact as possible. Submission of the paper implies that it is an unpublished work, not yet submitted for publication elsewhere. Sections and subsections of the paper should be indicated in cardinal numbers (e.g. 1.; 1.1.; 1.2.; etc.). Mathematical formulas should be numbered consecutively as [1], [2] etc. Figures should be limited in number and submitted in a form ready for the printer. References at the end should be listed alphabetically and quoted as follows:

- for articles: Galbis Vicente, "Monetary and Related Policies in Ministates", *Savings and Development* Vol. VIII, No. 4, 1984, pp. 291-350;
- for books: McKinnon Ronald, *Money and Capital in Economic Development*, The Brookings Institution, Washington D.C., 1973. All communications should be sent to the Editor.

**"GIORDANO DELL'AMORE" FOUNDATION**

Via S. Vigilio, 10 - 20142 MILANO (Italy) - Tel. 8135341 - Telex 313223 - Fax 8137481

Signed articles do not necessarily reflect the opinion of Savings and Development or of its Editor and no responsibility is accepted for them.

---

Bien que cela ne signifie pas l'acceptation ou le paiement de frais, et que toute responsabilité soit déclinée pour la perte ou la restitution, la Rédaction souhaite l'envoi de manuscrits concernant la monnaie, l'intermédiation et les techniques financières, et les essais pour la mobilisation de l'épargne dans les pays en voie de développement. Les articles (deux copies) devraient être rédigés en Français ou en Anglais, d'une longueur de 4.000 à 10.000 mots avec un résumé de 200 - 400 mots. Toute communication devra être adressée à la Rédaction:

**FONDAZIONE "GIORDANO DELL'AMORE"**

Via S. Vigilio, 10 - 20142 MILANO (Italie) - Tel. 8135341 - Telex 313223 - Fax 8137481

Les articles portant signature ne reflètent pas nécessairement l'opinion de Savings and Development ou bien de la Rédaction et toute responsabilité est déclinée par ceux-ci.

---

**RASSEGNA TRIMESTRALE**

REGISTRATA PRESSO IL TRIBUNALE DI MILANO AL N. 102 DEL 27.3.1974

DIREZIONE, REDAZIONE, AMMINISTRAZIONE

FONDAZIONE "GIORDANO DELL'AMORE" - CARIPO - VIA S. VIGILIO, 10 - 20142 MILANO

TEL. 8135341 - TELEX 313223 - FAX 8137481

Direttore Responsabile

**FELICE TAMBUSSI**

Fotocomposizione

La Compone - San Giuliano Milanese (MI)

Stampa

Typolitho FIVE - Borghetto Lodigiano (LO)

Stampata su carta R 600 MATT SATIN delle Cartiere BURGO

---





ISSN 0393 - 4551