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# THE RELATIVE STRENGTH OF FISCAL AND MONETARY POLICY IN SAUDI ARABIA

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## INTRODUCTION

In the early 1960s Milton Friedman and David Meiselman<sup>(1)</sup> undertook a series of statistical comparisons of several simple forms of Keynesian and Quantity Theory models. While their results came under sharp criticism<sup>(2)</sup>, their results clearly demonstrated that in the United States at least, money rather than autonomous expenditures provides a better explanation of changes in monetary income. Given its assumption of relatively flexible prices and the development of a fairly sophisticated financial system, the quantity theory would with the exception to some of the Newly Industrializing countries such as Singapore, and Taiwan, seem to be more applicable to the advanced industrialized nations. On the other hand the Keynesian model with its underlying assumptions of price rigidity, factor immobility, and underdeveloped capital markets, would seem to be more appropriate for depicting the relative strength of fiscal variables in the developing countries<sup>(3)</sup>.

Intuitively, given the importance of oil revenues and government expenditures as a driving force in the Saudi Arabian economy, one might expect that monetary expansion would at most play secondary role in inducing expenditures<sup>(4)</sup>. For example Kernan and Malik argue that in the Saudi Arabian context<sup>(5)</sup>:

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(1) M. Friedman and David Meiselman, "The Relative Stability of Monetary Velocity and the Investment Multiplier in the United States, 1897-1958", in E.C. Brown et.al., eds., *Stabilization Policies* (Englewood Cliffs, N.J.: Prentice-Hall, 1963), pp. 729-752.

(2) See in particular Michael dePrano and Tom Mayer, "Tests of the Relative Importance of Autonomous Expenditures and Money", *American Economic Review* (September 1965), pp. 729-752; and A. Ando and F. Modigliani, "The Relative Stability of Monetary Velocity and Investment Multiplier", *American Economic Review* (September 1965), pp. 693-728.

(3) Cf. Jurgen Westphalen, "Friedman versus Keynes in Latin America", *Intereconomics* (July/August 1982), pp. 184-189.

(4) Cf. Michael W. Kernan and Ahmed Al-Malik in their "Monetary Sources of Inflation in Saudi Arabia", *Federal Reserve Bank of San Francisco, Economic Review* (Winter 1979), pp. 3-27.

(5) *us. Ibid.*, p. 5.

1. Real income is dependent (as of the late 1970s) upon the ability to import goods and services rather than the ability to produce goods and services (other than oil);
2. Government spending, even with a budget surplus, can still imply stimulative fiscal policy because most government revenues comes from abroad; and
3. Stimulative fiscal policy leads directly to an increase in the money supply because of the underlying structure of the country's financial markets i.e., their general underdevelopment.

In fact, several observers have even gone so far as to refer to the Saudi Arabian economy as one of the purest present day examples of a classic Keynesian type economy<sup>(6)</sup>. Still it is possible that by itself monetary expansion perhaps induced by the Saudi Arabian Monetary Authority (SAMA)<sup>(7)</sup>. Lowering of the reserve requirement, could and has made an independent contribution toward inducing monetary growth thus inducing increased expenditures in the non-oil sector of the economy.

The purpose of this paper is to determine, to the extent statistically possible, the relative merits of the Keynesian and Quantity Theory models for Saudi Arabia. The results obtained provide some empirical insight into the short run growth dynamics of the economy. The findings are of importance not only for their contribution to the Keynesian monetarist debate in developing countries, but perhaps more importantly for their implications concerning the options open to the Saudi public sector for stimulating the economy in the wake of the post 1982 decline in oil production/revenues.

## OPERATIONAL CONCEPTS

To avoid spurious correlation due to the strong upward trend in the data, the Keynesian and Quantity Theory alternatives are stated in difference form:

$$(I) \Delta E = a\Delta M + b\Delta A + c$$

$$(II) \Delta E = e\Delta ML + f\Delta AL + g$$

(6) Cf. M.A. Fekrat, "Growth of OPEC-Type Economics: A Preliminary Theoretical Inquiry", *Economica Internazionale* (February 1979), pp. 77-87. See also David Morgan, "Fiscal Policy in Oil Exporting Countries, 1972-78", *International Monetary Fund Staff Papers* (1979), pp. 55-86; M. Shahid Alam, "The Basic Macro

(7) For an excellent description of the Saudi Arabian Monetary Agency and its role in the economy see W.A. Al-Timimi, "the Evolution of the Saudi Arabian Monetary System", *Banca Nazionale del Lavoro Quarterly Review* (March 1985), pp. 77-83.

where  $\Delta E$  is the change in induced expenditures in period  $t$ ,  $\Delta M$  is the change in the money supply in period  $t$ <sup>(8)</sup>.

Since there is also some controversy over the appropriate definition of induced and autonomous expenditures, two alternative definitions were tested:

$$(a) A1 = TIN + GCN + EXPTN - ZN + NFPN$$

$$(b) A2 = ION + GIN = GCN + EXPTN - ZN + NFPN$$

where:

TIN = total gross capital formation;

GCN = government consumption;

ZN = imports;

NFPN = net factor payments;

ION = investment in the oil industry;

GIN = government investment;

A1, A2 = autonomous expenditures.

The difference between the two types of autonomous expenditure defined above is the inclusion of private investment in the first measure (A1), but not in the second (A2).

Given these definitions of autonomous expenditure two measures of induced expenditures were derived:

$$(c) E1 = GNP - A1;$$

$$(d) E2 = GNP - A2;$$

Where GNP is the gross national product. In sum, E1 contains private consumption and the change in inventories, while E2 contains private consumption, private investment and the change in inventories.

No presumption is made at this time whether one definition is superior in terms of best combining those macro variables that are purely autonomous, and those that are purely endogenous.

## EMPIRICAL RESULTS

The results obtained by regressing the change in autonomous expenditures and money on induced expenditure are quite striking<sup>(9)</sup>:

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(8) All data are taken from the Saudi Arabian Monetary Agency, Annual Report., various issues and are for the 1965-85 period.

(9) Estimations were made using the program, Time Series Processor: Version 3.5 by Bronwyn H. Hall and Robert E. Hall, (Stanford University: April 6, 1980). Estimates were made using the Cochrane Orcutt iterative estimation procedure to correct for first order serial correlation. The variable RHO is the serial correlation parameter.

- (1)  $E1 = 0.03$   $A1 + 0.98$   $M1 - 0.31$  RHO  
 (0.64) (2.93) (-1.62)  
 $r2 + 0.281; F = 3.13; DW = 2.16$
- (2)  $E1 = 0.02$   $A1 + 0.91$   $M2 - 0.45$  RHO  
 (0.50) (3.48) (-2.23)  
 $r2 = 0.445; F = 6.42; DW = 2.45$
- (3)  $E1 = 0.03$   $A1 + 0.81$   $M3 - 0.50$  RHO  
 (0.90) (3.92) (-2.64)  
 $r2 = 0.503; F = 8.10; DW = 2.56$
- (4)  $E2 = 0.04$   $A2 + 1.30$   $M1 - 0.24$  RHO  
 (0.83) (2.87) (1.13)  
 $r2 = 0.357; F = 4.44; DW = 2.13$
- (5)  $E2 = 0.02$   $A2 + 1.18$   $M2 - 0.39$  RHO  
 (0.72) (4.33) (-1.91)  
 $r2 = 0.551; F = 9.93; DW = 2.46$
- (6)  $E2 = 0.04$   $A2 + 1.04$   $M3 - 0.47$  RHO  
 (1.22) (5.03) (-2.37)  
 $r2 = 0.621; F = 13.08; DW = 2.56$

Contrary to the received literature, changes in the money supply rather than changes in autonomous expenditures appear to have the greatest stimulative effect on induced expenditures. This conclusion holds irrespective of the definition of money (currency by itself was not significant in the regression equations) or the definition of autonomous-induced expenditure.

However, contrary to the quantity theory of money, which would predict the impact of a narrow definition of money (such as M1) to yield the strongest impact on expenditures, the broad definition (M3) appears most significant in affecting induced expenditures (as measured by the correlation coefficient and t value).

Finally, the results indicate that there is some improvement in the specification by including private investment as part of induced expenditures. Obviously, this finding confirms official concern over possible declines in private investment brought about by capital outflows to Bahrain and other international financial centers.

The regressions were also estimated using lagged changes in money and autonomous expenditure. In general the overall findings are fairly similar to those obtained in equations 1-6 above:



## CONCLUSIONS

Contrary to the results predicted by Keynesian theory, induced expenditures in Saudi Arabia appear to be more sensitive to changes in the money supply than changes in autonomous expenditure. Previously, most writers have stressed the relative passive nature of money in the Saudi context. The policy implications stemming from the Keynesian approach are that the economy is best stimulated through changes in government expenditures and or oil revenues. Perhaps because of this view the government has felt compelled to maintain its level of expenditures as much as possible during the current period of falling oil revenues. In addition the authorities have neglected developing many of the standard tools used for controlling the money supply in the kingdom; a government bond market is virtually non-existent. Of particular importance is the implementation of some sort of means of controlling the rate of return on financial assets in a manner acceptable to the religious leaders of the country. Innovations of this type are increasingly necessary in order to prevent depositors from seeking higher rates of return in Bahrain and other-off shore international financial centers<sup>(10)</sup>.

The results here indicate not only the relative importance of money in stimulating private sector demand, but point out the possibility of keeping the economy, even during a period of falling oil revenues, somewhat buoyant through monetary expansion. The implications for government policy are somewhat optimistic in the sense that with increased financial reform and the development of traditional tools of monetary control for SAMA, control of the money supply should take considerable pressure off of fiscal policy as a means of preventing deflation during the current oil price slump.

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(10) Cf. Rodney Wilson, "Capital Movements & Interest Rate Structures in the Arab Gulf", *The Arab Gulf Journal* (April 1982), pp. 40-55.