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**Article**

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## Some Observations on Monetarist Analysis

By Ronald L. Teigen, Ann Arbor

During the last few years, a set of viewpoints commonly known as “monetarism”, concerned with the structure of advanced economies and their responses to impulses originating in the monetary sector, has gained adherents with a rapidity which has led to the use of the term “revolution” to describe it<sup>1</sup>. As the name “monetarism” implies, this approach puts heavy emphasis on changes in the quantity of money, or in its growth rate, as the most important factor in determining the level of economic activity, at least in the short run. At the same time, the “Keynesian” analytical emphasis on the need for knowledge of the whole structure of relationships in the economy, and policy stress on tax and expenditure decisions, is rejected.

It is not obvious why monetarism has suddenly become so popular a point of view. Until the late 1960's, the neo-Keynesian orthodoxy seemed to be in the ascendancy. As the decade ended, however, it seemed fairly apparent that the tax surcharge of June 1968 was not having the effects on the level of aggregate demand that experience with the 1964 tax cut had led us to expect. Keynesians have quite correctly pointed out that there is a substantial difference between the results to be anticipated from a *permanent* change in the tax structure (as in 1964) and one which is enacted to be temporary (1968), based on the sophisticated theories of consumption behavior which have recently been developed<sup>2</sup>. However, sophisticated theoretical subtleties are often disregar-

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<sup>1</sup> For example, see *Harry G. Johnson*, “The Keynesian Revolution and the Monetarist Counter-Revolution”, the *Richard T. Ely* Lecture, delivered at the Eighty-Third Meeting of the American Economic Association, Detroit, Michigan, December 28th, 1970; and *Karl Brunner*, “The ‘Monetarist Revolution’ in Monetary Theory”, *Weltwirtschaftliches Archiv*, 105 (No. 1, 1970), pp. 1 - 30.

<sup>2</sup> I refer to two closely-related viewpoints on household behavior: the “life-cycle hypothesis” and the “permanent income hypothesis”. A huge literature has grown up around them; however, standard references still are *Albert Ando* and *Franco Modigliani*, “The ‘Life-Cycle’ Hypothesis of Saving: Ag-

ded by critics when an analytic structure seem on its face to be incapable of handling observed events. More surprising than this lack of tolerance and understanding is the speed of reaction, and the volume of work which has been produced in support of the alternative monetarist viewpoint. That such an efflorescence could occur so rapidly has no doubt been made possible in large part by the groundwork laid through the teaching and research over the years of Milton *Friedman*, Karl *Brunner*, and a few others. But the apparent failure of (a version of) an orthodoxy and the existence of an alternative viewpoint are not sufficient conditions for a revolution in thought. Professor Harry G. *Johnson*, in a provocative essay, recently has tried to provide the missing links<sup>3</sup>. He suggests that the new theory's proponents were able successfully to attack a "vulgar" version of Keynesian orthodoxy which was quite vulnerable, although already practically completely discredited by Keynesians themselves — the version in which monetary forces play no effective role. Having demolished this model, the monetarists seized on "an apparently new theory that nevertheless absorbed all that was valid in the existing theory while so far as possible giving these valid concepts confusing new names<sup>4</sup>". *Johnson's* reference basically is to *Friedman's* reformulation of the quantity theory of money, which has been shown to be a more sophisticated version of *Keynes's* liquidity preference theory rather than an up-to-date statement of an alleged Chicago oral tradition as has been claimed<sup>5</sup>. The modern quantity theory has provided not only the focal point of monetarist thinking and an alternative to the old Keynesian idea that a stable consumption function was the *sine qua non* of modern macrotheory, but also a convenient new vehicle for empirical testing. Professor *Johnson* completes his story by suggesting that this provided a challenge to the young, ambitious economist and an intellectual stumbling-block to the older, established, and more complacent one; and also offered good possibilities for empirical work without requiring resources on the scale necessary for building large econometric models.

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gregate Implications and Tests", *American Economic Review*, LIII (March 1963), pp. 55 - 84; and Milton Friedman, *A Theory of the Consumption Function* (Princeton, New Jersey: Princeton University Press, 1957).

<sup>3</sup> *Op. cit.*

<sup>4</sup> *Ibid.*

<sup>5</sup> *Don Patinkin*, "The Chicago Tradition, the Quantity Theory, and Friedman", *Journal of Money, Credit and Banking*, I (February 1969), pp. 46 to 70.

Professor *Johnson* has raised some interesting issues which deserve further investigation. What, precisely, are the monetarists saying? Are their criticisms of the Keynesian viewpoint valid, or are they attacking a version of Keynesianism no longer of any relevance to modern Keynesians themselves? Does their own point of view represent a really meaningful departure from modern post-Keynesian analysis? Given that the monetary sector deserves emphasis in its own right, what are the implications of removing it from its contextual setting in the complete macroeconomic model and treating it as an independent entity? These are the questions which I should like to consider in this essay. I shall begin with a discussion of the monetarist position on the structure of the relevant static model of the macroeconomic system and the prevailing monetarist understanding of the essence of Keynesian analyses. Next, the monetarist view of the transmission mechanism through which monetary policy works will be compared with the Keynesian one. In this context, the relationship between monetary changes, interest rates, and prices will be taken up briefly. Finally, the implications of monetarist thought for stabilization policy will be examined.

### I. Structure of Monetarist Analysis

Within the last two years, several valuable papers which attempt to provide the necessary theoretical basis for monetarism have been published<sup>6</sup>. From these, it is possible to piece together a fairly comprehensive picture of monetarist thought. The most explicit exposition is perhaps the article by Professor *Friedman* entitled "A Theoretical Framework for Monetary Analysis"; it contains a useful discussion of the essential differences, from a monetarist viewpoint, between the structure of the static macromodel as seen by monetarists and as seen by Keynesians. He views both the quantity-theory (monetarist) model and the Keynesian model as variants of the following standard framework:

$$(1) \quad \frac{Y}{p} = C\left(\frac{Y}{p}, r\right) + I(r)$$

$$(2) \quad M_o = p \cdot L\left(\frac{Y}{p}, r\right)$$

$$(3) \quad Y = py$$

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<sup>6</sup> *David I. Fand*, "Monetarism and Fiscalism", *Banca Nazionale del Lavoro Quarterly Review* (September 1970), pp. 276 - 307; "A Monetarist Model of the Monetary Process", *Journal of Finance*, XXV (May 1970), pp. 275 - 89;

where  $Y$  is money income,  $M_0$  is the policy-controlled nominal money stock,  $p$  is the general price level,  $r$  is the rate of interest,  $y$  is real income or output,  $C$ ,  $I$ , and  $L$  stand for the consumption function, investment function, and liquidity preference function respectively, and the usual slope assumptions are made. Anyone with a familiarity with undergraduate-level macroeconomic analysis will recognize this as the equations underlying the so-called “ $IS$ ” and “ $LM$ ” curves of Keynesian analysis. Equation (1), the  $IS$  curve, represents equilibrium in the goods market; that is, it shows all of the combinations of real income  $\left(\frac{Y}{p}\right)$  and interest rate ( $r$ ) for which the flow of planned spending is equal to the amount of output available. Equation (2), the  $LM$  curve, represents equilibrium in the money market; that is, it summarizes all of the combinations of real income and the interest rate for which the demand for real money balances equals the supply of real balances, given the nominal amount,  $M_0$ , in the system. These two summary equations imply the existence of a third market, which must be in equilibrium if the goods and money markets are; it is usually taken to be the bond market. Equation (2) is a definition relating nominal income and real income or output through the price level.

The discerning student of macroeconomics will notice something else about this little model: it represents only the *demand* side of the economy and as it stands it is indeterminate; it has more variables to be determined ( $y$ ,  $r$ ,  $p$ ,  $Y$ ) than it has equations to determine them (three). Therefore some further information is needed to make the system determinate. It is this further information which, according to *Friedman*, differentiates Keynesian from monetarist analysis. Monetarists are said to make use of a separate Walrasian system of equations, i. e., demand equations, supply equations, summaries of production technology, and equilibrium conditions for all markets. This set of equations determines output,  $y$ , reducing the number of variables to be determined by the above equations to three. It should be noted that this is full employment output under the usual Walrasian assumptions. Given  $y$ , equation (1) determines the interest rate, and equation (2), which summarizes the monetary sector, determines the price level<sup>7</sup>.

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*Milton Friedman*, “A Theoretical Framework for Monetary Analysis”, *Journal of Political Economy*, 78 (March/April 1970), pp. 193 - 238; *Karl Brunner*, *op. cit.*

<sup>7</sup> In a more recent article, *Friedman* has proposed another means of closing this system of equations, which he labels a “third way” to distinguish it from

In contrast, *Friedman* (as well as other monetarists) imputes to Keynesian theory the stance that the price level is taken as given in the short run, so that “. . . for [short run] fluctuations, the distinction between real and nominal magnitudes that is at the heart of the quantity theory is of no importance<sup>8</sup>”. This again reduces the number of variables to equality with the number of equations; however, the equation system is not “dichotomized” as it was in the monetarist case. Rather than being able to solve for the interest rate through the *IS* equation (real sector equations) and the price level through the *LM* relationship (monetary sector equations), all of the variables are determined jointly.

It would be a mistake to conclude from this model that monetarists see themselves as differing from Keynesians only in terms of the assumption needed to provide a unique equilibrium solution to the *IS-LM* model. Their analyses are based on further assumptions concerning the sizes of some of the elasticities and the relative stabilities of the various functional relationships. As has already been mentioned, the demand-for-money function is central in their model and is viewed as being extremely stable in the sense that it is a function of only a few variables (in particular, the interest elasticity of demand for money is viewed typically as being very small, and permanent income or wealth is seen as the

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the two procedures outlined in the body of the present paper. He views this approach as intermediate in respect to its theoretical position vis-à-vis the others. However, since it reduces to a relationship between income and the past history of the money stock, as *Friedman* demonstrates, it seems clearly to fit in with the monetarist point of view. In this approach, it is assumed that the current market rate of interest and the expected market rate are kept equal by the actions of asset holders. The expected market rate, in turn, is set by the expected real rate plus the expected rate of price change (which by definition is the difference between the expected rate of change of nominal income and of real output). By assuming the expected real rate of interest, the expected rate of growth of real output, and the expected rate of growth of nominal income all to be determined outside of the system, the market rate of interest is made into a variable determined outside of the system also. Assuming further that the income elasticity of demand for money is unity, *Friedman* establishes a direct link between nominal income and the money stock (because, under his assumptions, velocity becomes a predetermined variable); this, in turn, enables the “real” sector to be solved. One of the features of this procedure is that it provides an alternative to the assumption of full employment. However, it entails some disadvantages of its own, which are discussed in Section III below. See *Milton Friedman*, “A Monetary Theory of Nominal Income”, *Journal of Political Economy*, 79 (March/April 1971), pp. 323 - 337.

<sup>8</sup> *Friedman*, “A Theoretical Framework . . .”, p. 206.

crucial explanatory variable). A point often emphasized by monetarists is that, in their analysis, the stable *demand* for money is concerned with real, not nominal, balances, while the authorities control the nominal *supply*, which tends to be quite variable relative to demand<sup>9</sup>. This points quite naturally to two monetarist conclusions: that changes in the money stock tend to have their greatest effect on prices, and that changes in nominal money balances are a major source of fluctuation in nominal income, as well as real income in the short run.

Monetarists do not subscribe to the idea that velocity (the factor of proportionality between nominal income and the money stock) is constant, as is implied by the naive quantity theory. In their analysis, velocity may vary in the short run in response to endogenous interest rate changes. But this tends not to be true in the longer run, as is demonstrated by *Friedman's* recent paper<sup>10</sup>. Even in the short run, most of the variance in real and money income can be explained by movements in the money stock, not by variations in velocity. This suggests indirectly that fiscal policy is generally viewed as being impotent in the short run (see the discussion in section III below). Finally, it is believed that the effects of changes in the money stock will often be *reinforced* in the short run, rather than offset to some degree, by velocity changes, reflecting the powerful short-run effects of money on income (see the discussion of the transmission mechanism below.) This short-run velocity effect is generally regarded as being inconsistent with Keynesian analysis.

Since the preceding discussion fits into the formal framework presented by *Friedman* and reproduced in equations (1) - (3) above, it would appear that there is some validity to *Friedman's* contention<sup>11</sup> that the

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<sup>9</sup> For example, see *Fand*, "Monetarism and Fiscalism", esp. pp. 280 - 281, where he states "The sharp distinction drawn between the supply determined nominal money stock and the demand determined real money stock — a key feature of monetarism — endows the authorities with effective control over the nominal money stock, while severely limiting the extent, and the circumstances, in which they may hope to influence the real value of this stock. If the former assumption extends their control over nominal variables, the latter assumption severely limits their influence and control on endogenous variables such as the real money stock."

<sup>10</sup> *Friedman*, "A Monetary Theory of Nominal Income", *op. cit.* See the discussion in fn. 7.

<sup>11</sup> This position is expressed in several of *Friedman's* writing; for example, see *Milton Friedman and David Meiselman*, "The Relative Stability of Monetary Velocity and the Investment Multiplier in the United States, 1897 to 1958", in Commission on Money and Credit, *Stabilization Policies* (Engle-

differences between Keynesianism and monetarism are essentially empirical rather than theoretical, having to do with the relative stabilities of different functional relationships, the sizes of various elasticities, the nature and speed of the adjustment process, etc. However, this position evades another issue: whether monetarist summaries of the nature of modern post-Keynesian analysis depict that analysis accurately. If not, of course, there may well be other important points of difference than those noted by *Friedman* and other monetarists. It is to this question that I now turn.

*The monetarist view of static Keynesian theory.* As has been noted above monetarists see the essential difference between the monetarist and Keynesian viewpoints to be rooted in the question of price flexibility. Keynesians are said to believe that monetary shifts will be reflected essentially in output changes, quantity theorists in price changes, and monetarists believe that the difference between the viewpoints can adequately be captured in the assumptions made in each case about the behavior of the price level.

There is no doubt that practitioners of the Keynesian viewpoint have assumed that prices could conveniently be taken as given for some problems — especially those associated with substantial unemployment — and that it has often been convenient for simplicity of exposition in undergraduate classrooms or for other purposes to make the assumption of rigid prices, etc. But it is quite dubious that this assumption, or the liquidity trap assumption which also has been an important element in the monetarist view of the Keynesian position, reflect the thinking of most Keynesian economists today<sup>12</sup>. Rather, the standard static “complete Keynesian system” is now widely recognized to be one in which the general price level is flexible but in which there are imperfections in the

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wood Cliffs, New Jersey: Prentice-Hall, Inc., 1963), p. 168, and *Milton Friedman*, “Post-War Trends in Monetary Theory and Policy”, *National Banking Review*, II (September 1964), reprinted in *M. Friedman, The Optimum Quantity of Money and Other Essays* (London: Macmillan and Co., Ltd., 1969), p. 73.

<sup>12</sup> The liquidity trap is rejected by most economists today because little support for it has been found in the many empirical studies of the demand for money which have recently been made. For a summary of some of this evidence, see *Ronald L. Teigen*, “The Demand for and Supply of Money”, in *W. L. Smith and R. L. Teigen*, eds., *Readings in Money, National Income and Stabilization Policy* (Homewood, Illinois: *Richard D. Irwin, Inc.*, 1970), Table 2, p. 98; or “The Importance of Money”, *Bank of England Quarterly Bulletin* (June 1970), pp. 159 - 198.



labor market — most typically, a money wage rate which is inflexible downwards. Thus, rather than assuming that prices are fixed as a means of making the model determinate, modern Keynesians introduce a labor market and an aggregate production function into the analysis. This can be viewed as a crude approximation to the “Walrasian system of equations” asserted by *Friedman* to be the hallmark of the adherents of the quantity theory<sup>13</sup>. The essential difference, then, would appear to be that monetarists generally view *all* prices as flexible, while modern Keynesians consider all prices except money wage rates to be flexible. Money wages are usually considered to be inflexible, at least in a downward direction.

This distinction makes a considerable difference. In the first place, the rigid-price assumption is viewed by the monetarists as fundamentally less satisfactory from a theoretical point of view than the assumption of an implicit set of Walrasian equations. *Friedman* has referred the former assumption as a *deus ex machina* with no underpinning in economic theory<sup>14</sup>. Second, when the rigid price assumption was combined with the idea of a very high interest elasticity of demand for money, or liquidity trap, the two points of view implied opposing conclusions about stabilization policy. In a monetarist world, monetary policy would be very potent with respect to its effects on income, while fiscal policy would have little effect. The opposite would be true for the Keynesian rigid-price liquidity-trap case. Third, and probably most important, the assumption of inflexible wages rather than rigid prices over-

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<sup>13</sup> As evidence for the assertion that modern post-Keynesian analysis typically assumes the price level to be variable, and that the system of equations is usually made determinate by introducing a supply side consisting of a labor market and aggregate production function, the following standard works are cited: *Gardner Ackley, Macroeconomic Theory* (New York: The Macmillan Co., 1961), Chap. IX; *R. G. D. Allen, Macro-Economic Theory* (London: The Macmillan Co., 1967) Chap. 7, esp. sections 7.5 - 7.8; *Martin J. Bailey, National Income and the Price Level*, 2nd ed. (New York: MacGraw-Hill Book Co., 1962), Chap. 3, esp. section 2; *Warren L. Smith, “A Graphical Exposition of the Complete Keynesian System”, Southern Economic Journal*, XXIII (October 1956), reprinted in *W. Smith and R. Teigen, eds., Readings in Money, National Income, and Stabilization Policy, op. cit.*, as well as in several other standard collections of readings in macroeconomics; *Franco Modigliani: “The Monetary Mechanism and its Interaction with Real Phenomena”, Review of Economics and Statistics Supplement*, XLV (February 1963) and *Robert S. Holbrook, “The Interest Rate, the Price Level, and Aggregate Output”, in W. Smith and R. Teigen, eds., ibid.*

<sup>14</sup> *Friedman, “A Theoretical Framework . . .”, p. 222.*

turns an important monetarist assertion: that one of the essential differences between monetarist and Keynesian analysis lies in the fact that monetarists view demand-for-money behavior as being concerned with *real* money balances, while Keynesians see this behavior as being concerned with *nominal* balances<sup>15</sup>. This distinction is very important to the monetarists because it seems to them to highlight the difference between monetarists and Keynesian approaches to the transmission mechanism through which monetary policy works, the subject to which we now turn. However, in modern Keynesian models with a supply sector, flexible prices, but inflexible wages, the demand for money typically is treated as a demand for real balances. Therefore the distinction falls to the ground, suggesting that perhaps the two viewpoints about the transmission mechanism have at least some similarity.

## II. The Transmission Mechanism

Probably the most characteristic aspect of monetarist thought is the heavy emphasis it places on differences between the quantities of money demanded and supplied as the prime factor motivating spending and hence changes in income and prices. *Friedman* and others have explained again and again how the authorities can change the nominal money stock, but how it is money holders who determine the velocity with which that stock is used, and ultimately who determine the stock of real balances through the effects of spending decisions on the price level. As *Friedman* puts it, "The key insight of the quantity-theory approach is that such a discrepancy [between the demand for and supply of money] will be manifested primarily in attempted spending, thence in the rate of change in nominal income<sup>16</sup>". Thus, for example, by attempting to convert excess cash balances into other goods — assets yielding services to their holders, for instance — prices are driven up and the level of real balances falls until it reaches the amount people wish to hold. This clearly is a very general kind of portfolio-adjustment view of the transmission mechanism, where the portfolio includes financial and physical assets of all kinds. A description of the classes of assets involved, their yields, etc., is contained in *Friedman's* classic early article, "The Quantity Theory of Money — A Restatement"<sup>17</sup>.

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<sup>15</sup> Cf. *Fand's* statement quoted in fn. 9.

<sup>16</sup> *Friedman*, "A Theoretical Framework . . .", p. 225.

<sup>17</sup> In *M. Friedman, ed., Studies in the Quantity Theory of Money* (Chicago: University of Chicago Press, 1956).

At the same time, monetarists have quite properly been taking Keynesian analyses to task for focusing practically entirely on interest rates interpreted as the “cost of capital” as the channel through which monetary pulses were felt. Recently, critics such as *Leijonhufvud* and *Brunner* have charged that this version of Keynesianism is a gross misrepresentation of *Keynes*’ own thought<sup>18</sup>. *Keynes* is interpreted by these authors as having used the term “bonds” to mean “real capital” so that an interest rate change really implies a change in the value of the existing stock of real capital relative to new output, rather than simply a change in the cost of finance.

This undoubtedly is a criticism with a great deal of validity, and, as *Brunner* points out, it is a characteristic not only of the Keynesian model as presented in undergraduate textbooks, but also of Keynesian econometric models. It needs to be emphasized, however, that there certainly is nothing inherent in the Keynesian model which is inconsistent with the introduction of a more sophisticated transmission mechanism along portfolio-adjustment lines. The Federal Reserve System-MIT econometric model of the United States economy attempted to make a start in this direction, although the results were not entirely satisfactory, and such attempts will certainly continue. As they become more successful, presently divergent views will merge, and Professor *Brunner*’s list of defining characteristics of the monetarist position<sup>19</sup> will have to be shortened. Furthermore, there remain certain problems with monetarists thought on two subjects related to the transmission mechanism. One is a misunderstanding, in my opinion, of the relationship between money and interest rates implied by Keynesian theory. The other has to do with the monetarist position on the money stock as a force driving income through the portfolio-adjustment process mentioned above.

### *Liquidity preference theory, money, and the rate of interest*

Monetarists tend to take the stance that Keynesian hold a “monetary theory of the interest rate” so that an increase in the money stock lowers the interest rate and perhaps raises output. Monetarists view themselves as holding a “monetary theory of the price level” under which mon-

<sup>18</sup> *Axel Leijonhufvud, On Keynesian Economics and the Economics of Keynes* (London: Oxford University Press, 1968); Chap. III; *Brunner, op. cit.*, p. 3.

<sup>19</sup> *Brunner, op. cit.*, p. 2.

etary changes are reflected, through increased spending, primarily in parallel price level changes. The increased spending, together with the tendency for observed price level changes to be reflected in expectations of continuing price change, also cause interest rates to change in the same direction. In a recent study of this phenomenon, for example, the following statement is made:

“The alternative concepts of Keynes and Fisher concerning the adjustment of the economy to monetary changes are mirrored in their different notions concerning interest rate determination and the response of interest rates to monetary changes. The *IS-LM* framework suggests that, so long as the *IS* and *LM* schedules represent independent relations, a monetary expansion causes interest rates to fall because of the outward shift of the *LM* schedule. In the Fisherian model, a monetary increase raises the level of expenditures; the upward response of loan demand due to the increased expenditures causes interest rates to rise<sup>20</sup>.”

In the context of this discussion, the monetarists undeniably have made a useful contribution by stressing the distinction between the market rate and real rate of interest, and the link between them provided by the expected rate of price change. But it should be stressed that there is nothing whatever that is inconsistent between an inverse money-interest rate relationship in the demand-for-money function, on the one hand, and the observation that interest rates and money move together in the real world, on the other. *Zwick* and others<sup>21</sup> carefully point out that a monetary change has “income” and “price-expectations” effects on interest rates as well as the “liquidity effect” through which a change in the supply of money results in a movement of interest rates in the opposite direction, as money holders respond by moving along their liquidity preference schedules. The implication is that Keynesian thinking recognizes only the “liquidity effects” and fails to acknowledge that an easing of monetary policy could stimulate spending and income enough to result, eventually, in *higher* interest rates than before. It is true that Keynesian models typically have not incorporated priceexpectation effects on interest rates; this is a useful monetarist contribution, as men-

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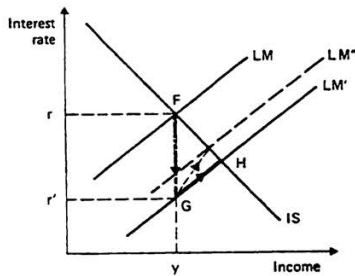
<sup>20</sup> *Burton Zwick*, “The Adjustment of the Economy to Monetary Changes”, *Journal of Political Economy*, 79 (January/February 1971), p. 78.

<sup>21</sup> For example, see *Milton Friedman*, “Factors Affecting the Level of Interest Rates: Part I”, in U. S. Savings and Loan League, *Savings and Residential Financing: 1968 Conference Proceedings* (Chicago: U. S. Savings and Loan League, 1968), pp. 10 - 27; *William E. Gibson*, “Interest Rates and Monetary Policy”, *Journal of Political Economy*, 78 (May/June 1970), pp. 431 to 55.

tioned above. It might also be pointed out that price expectations are essentially a dynamic phenomenon, and do not fit into the static *IS-LM* analysis around which most of the present discussion is focused. However, income effects on interest rates are reflected directly in Keynesian *IS-LM* analysis. When the entire structure is taken into account, rather than just the liquidity preference function, the level of interest rates in the new equilibrium relative to the initial position is determined by a number of elasticities and propensities, most importantly those which are the determinants of the slope of the *IS* curve. If its slope is positive — which is the case if all of the propensities to spend with respect to total income sum to more than unity — then both income and interest rates will be higher in the new equilibrium than in the old<sup>22</sup>. Therefore static equilibrium Keynesian analysis is quite consistent with parallel movements in money and in the rate of interest, quite apart from the effects of such movements on price expectations and other aspects of the adjustment from one equilibrium position to another.

Of course, such equilibrium positions are never observed in the real world. Rather, the economy is always in transition, moving toward resting points which themselves are constantly being disturbed. In this dynamic context, money and interest rates tend to move together much of the time for several reasons. First is the price-expectations effect mentioned previously. Second, the monetary sector usually is regarded as adjusting much faster than the real sector, so that the observed values of income and interest rates may be viewed, at least approximately, as always satisfying the *LM* equation but not the *IS* equation during the process of adjustment from one equilibrium position to another. The implications of these differing speeds of adjustment are illustrated on the accompanying figure. Assume the system to be initially in equilibrium at point *F*, with a level of income of *y* and an interest rate of *r*. An easing of monetary policy (for example) shifts the *LM* curve outward to a new position, *LM'*. According to the assumption about relative speeds of adjustment made above, this shift will result in an immediate drop of the interest rate from *r* to *r'* (reflecting the “liquidity effect”) but in no immediate income change. Then income will begin to respond, and income and interest rates both will rise along the segment *FG* of *LM'* out to point *H*, the final equilibrium position (the “income effect”). If rising income is accompanied by rising prices, there will be a further (but reverse) shift of the *LM* curve, from *LM'* to *LM''*; however, there still will

<sup>22</sup> *Gibson* recognizes this possibility. See *Gibson, ibid.*, p. 437.



occur more or less concurrent increases in income and interest rates (although in this case, the rise in interest rates will be slightly greater, and the rise in income slightly less, than if prices did not change). Thus again we find that there is no reason to be surprised by the fact that during much of the time following an increase in the money supply, interest rates are seen to rise. In other words, a standard assumption about relative speed of adjustment, much used by Keynesians, directly reflects the “liquidity effect-income effect” distinction often made by monetarists. Finally, the well-known multiplier-accelerator mechanism may accentuate the pure multiplier effects of monetary policy shifts on interest rates.

*The monetarist view of money as a force driving income.* It is self-evident that monetarists assign great importance to changes in the money stock as the prime moving force behind income changes. For instance, one of Brunner’s “defining characteristics of monetarism” is that “. . . the monetarist analysis assigns the monetary forces a dominant position among all the impulses working on the economic process”<sup>23</sup>. And of course Friedman’s investigations into the lead-lag relationship between changes in the rate of change of the money stock and changes in income are too well known to require further comment<sup>24</sup>. At the same time, monetarist writings often seem to suggest that Keynesian view monetary policy as ineffective.

Keynesians view *monetary policy* as effective and useful, and to suggest the opposite is to raise false issues. But this does not mean that they

<sup>23</sup> Brunner, *op. cit.*, p. 7.

<sup>24</sup> Milton Friedman, “The Supply of Money and Changes in Prices and Output”, in *The Relationship of Prices to Economic Stability and Growth*, Compendium of Papers Submitted by Panelists Appearing Before the Joint Economic Committee, 85th Congress, 2nd sess., 1958, pp. 241 - 56.

consider changes in the *money stock* to have particular causal significance. Monetary policy is carried out through the traditional instruments — open market operations, discount rate changes, and variations in reserve requirements. It is true that in simplified versions of the Keynesian model, monetary policy is represented by the money stock, which is assumed to be controlled by the authorities and which replaces the instruments named above. It is also no doubt true that the authorities could control the money stock to almost any desired degree of precision. But in the real world, or in the more sophisticated models of it, the money stock is not exogenous, nor has it been controlled as an objective of policy by the central bank in the United States: it, or its components, are determined jointly by the central bank, the commercial banks, and the public; and it is basically a passive outcome of the interaction of the economic system, not a driving force. The doubt that Keynesians feel concerning monetarists' assertions about the potency of money-stock changes reflects the fact that monetarist descriptions of the adjustment process themselves seem to give no particular reason for regarding money-stock changes as causal. These descriptions<sup>25</sup> typically run as follows, using an open market purchase of Treasury bills as an example: At the outset, there is an exchange of assets between the central bank and a government securities dealer, with the central bank giving the dealer its check drawn on itself in exchange for bills. This exchange results in (1) a reduction in the yield on bills, with consequent disequilibrium among holders of securities; (2) an increase of bank reserves of an equivalent amount (disregarding drains into currency holdings etc.); (3) an initial increase in the money supply of the same amount as the transaction; and (4) a decrease in bill holdings by the private sector, with a concomitant increase in the central bank's portfolio. In a process described in some detail by *Friedman* and *Schwartz*, the next step will involve action to readjust portfolios in response to yield and wealth changes; meanwhile, banks will be interested in expanding loans on the basis of their newly-acquired reserves (and incidentally in creating new deposits). Eventually the adjustment affects the yield on equities and therefore the market value of the existing stock of physical capital. The existing capital stock will rise in value, stimulating the production of new capital and thus causing income to rise. There may also be other effects, such as direct effects on spending of changes in wealth.

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<sup>25</sup> See, for instance, *Friedman* and *Meiselman*, op. cit., Sec. VII; *M. Friedman* and *A. Schwartz*, "Money and Business Cycles", *Review of Economics and Statistics*, XLV (Supplement: February 1963), pp. 60 - 61.

The question would seem to be whether it is the initial increase in the money stock, the full increase (including the new deposits generated as a consequence of loan decisions), the increase in bank reserves, the reduction in private bill holdings, the fall in yields, the increase in the central bank's portfolio, or some other factor which is responsible for the income change. Rather than arbitrarily selecting some one factor from this list, it would seem preferable to take the more general view that the initiating force was the disturbance of a portfolio equilibrium, effected in this case through open market operations. (Such a disturbance, with similar effects, could arise for other reasons: e. g., if there were a change in wealthholders' preferences for holding a particular security category at existing yields.) The change in the money stock is properly viewed as one of the several results (along with changes in income, interest rates, prices, etc.) of this disturbance. Such a position of course implies that *monetary policy* is effective, but does not assign the starring role in the drama to changes in the money-stock.

### III. Stabilization Policy

Modern Keynesian static analysis, based on the complete Keynesian system with flexible prices and inflexible money wages, yields the result that both monetary and fiscal policy are able to effect changes in income, interest rates, prices, employment, and other variables. Monetarist analysis, however, takes the position that only monetary policy has significant effects, at least in the short run. This suggests that the two schools of thought disagree not in their views about monetary policy, but rather on the effectiveness of *fiscal policy*.

Until recently, monetarists were interpreted as basing their belief that fiscal policy is ineffective directly on the presumed existence of a stable demand-for-money function with zero interest elasticity, together with the assumption of an exogenously-set money stock. Such a demand-for-money function links money and income directly together, so that income cannot change unless the money stock changes. Shifts in government spending financed by bond issue, for instance, were said to result in interest rate changes of sufficient magnitude to reduce private spending in the degree required to keep total demand at a constant level.

However, given the many research studies which show otherwise, it has become impossible to maintain that the interest elasticity of the demand for money is zero. This development has had a considerable effect on the



tone of monetarist discussions. Thus Fand, in discussing stabilization policy, refers to “. . . the *exceptional* case of a completely (interest) inelastic demand for money”<sup>26</sup>. (Italics inserted.) Furthermore, a relevant recent finding is that the *supply* of money is interest-elastic, and that this is sufficient to loosen the tight link between the money stock and income if the interest elasticity of demand is zero.

Therefore monetarists have had to rationalize their dismissal of fiscal policy by finding other means of solidifying the money-income link and of segregating the monetary sector from the remainder of the system by neutralizing the interest rate connection between the two. One way of accomplishing both objectives simultaneously is to consider the interest rate to be exogenous. This, in effect, is the procedure followed by *Friedman* in his paper entitled “A Monetary Theory of National Income”<sup>27</sup>. If interest rates do not respond to changes in real and financial variables, the rigid money-income connection is preserved. This may be considered the most extreme approach, because under it fiscal policy does not even affect the rate of interest and the division of output among the various sectors (it should be noted, however, that *Friedman* considers the relationship between the interest rate, saving, and investment to be “unfinished business”).

Another way is to make the standard quantity-theory assumption of flexible prices and wages and hence full employment, while accepting the fact that the demand for and supply of money balances are interest-elastic. In such a world, fiscal policy cannot affect the levels of real variables like output or employment, which are entirely determined by the labor market and the production technology of the system — but then, neither can monetary policy.

In these cases, the real issue is the question of which of the alternative assumptions is the most realistic: (1) flexible wages and prices, so that full employment presumably is maintained constantly, and neither monetary policy nor fiscal policy can have any “real” effects; (2) exogenous interest rates, so that fiscal policy cannot even affect the division of output between private and public sectors, let alone the level of activity; (3) sticky wages but a flexible price level (the modern post-Keynesian view) in which case monetary and fiscal policy both affect the level of real activity. Of course, the answer to the question of which of these

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<sup>26</sup> *Fand*, “Monetarism and Fiscalism”, p. 289.

<sup>27</sup> *Op. cit.* See the discussion of this point in fn. 7.

assumptions is most realistic depends on the time period involved. Price and wage flexibility is most relevant as a description of the long run, while the Keynesian assumptions best typify the short-run situation.

Finally, some monetarists assert that fiscal policy is ineffective because the effects on asset values of the cumulation or decumulation of claims against the government held by the public, due to the fiscal policy deficit or surplus, outweigh the direct effects on the flow of output and income of new spending or taxing. This position is the fiscal policy equivalent of the proposition that the effects of monetary policy are transmitted through a general portfolio-adjustment process and not simply by changes in the cost of credit. It implies the view that the disturbance of portfolio equilibrium from *any* source (not just changes in the money stock) has powerful repercussions, and thus paradoxically tends to downgrade the importance of money-stock changes. Essentially, it amounts to a generalized quantity-theory view that the elasticities of demand for assets with respect to their own yields and the yields on other assets are very low. As far as is known, this position is not supported directly by empirical evidence.

#### IV. Summary

In this paper, I have tried to sketch the main outlines of monetarist thought. It has developed that the version of Keynesianism against which the monetarists pit their model is indeed an out-of-date, inadequate, and — to use Professor *Johnson's* term — a “vulgar” version of current post-Keynesian thinking. When incorrect monetarists assertions about the nature of modern Keynesianism are corrected, it is seen that the two models are indeed very similar. Instead of differing in that one version (the Keynesian) employs a theoretically unsatisfactory *deus ex machina* assumption while the other has implicit in it a large amount of unspecified economic behavior, it turns out that the two models differ chiefly in the realism and relevance of their assumptions, with the typical Keynesian assumption of money wage inflexibility appearing much more appropriate for short-run (i. e., stabilization policy) use, and the typical monetarist assumption of wage and price flexibility, or of the rate of interest being determined by considerations other than current aggregate demand and supply, being more useful in the analysis of secular change. It further appears that monetarist fascination with the money stock is unwarranted by monetarist logic, which seems to me to place great em-

phasis on portfolio disequilibrium as a potent driving force in the economy. It does not follow from this view, as a matter of logic, that observed changes in the money stock have any particular significance as a causative force. Further assumptions about elasticities, price flexibility, etc., are required to give monetary changes pride of place, as I have tried to show in this essay.

On the positive side, monetarists have contributed to the development of macroeconomic thought by demonstrating that the links relied on by most Keynesians to connect the real and monetary sectors probably are not those which Keynes had in mind, and overlook completely the important substitution and wealth effects which are the concomitants of portfolio adjustment. The monetarists have also called our attention to the distinction, apparently first made by Irving Fisher many years ago, between market and real interest rates, and therefore to the potentially important role of price expectations in dynamic macroeconomics. These phenomena are extraordinarily difficult to capture in empirical models, but work is proceeding along these lines. It is to be hoped that during the next few years, they will be made standard features of Keynesian theoretical and empirical models, and that dependable evidence will be provided so that the remaining questions which divide us can be settled; mainly, whether, as *Brunner* phrases it, we can reject the possibility that "... detailed allocative patterns significantly influence the aggregative behavior of the economic process ..." and proceed on the basis that "... aggregative forces and allocative forces are approximately separated"<sup>28</sup>. This point of view, which dismisses most of the detail presently being built in to large econometric models such as the Federal Reserve Board-MIT model as being irrelevant and even misleading, appears to underlie most of the econometric work of the monetarists. It seems to the present writer to be a restatement, in general terms, of the old quantity-theory propositions that the demand-for-money function is extremely *stable* in the sense of having very few arguments (and, in particular, being responsive to few if any yields on other assets). If the demand for money is determined only by income (or wealth), for instance, then, for aggregative purposes, we need not know anything about the determinants of prices (yields) and quantities demanded and supplied in various financial markets. But, as *Brunner* points out, this is really an empirical question, and is outside of the scope of the present essay.

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<sup>28</sup> *Op. cit.*, p. 14.

## Zusammenfassung

### Einige Bemerkungen zur monetaristischen Analyse

Dieser Beitrag versucht, die Hauptlinien des monetären Ansatzes zu skizzieren. Es wurde dargelegt, daß das Keynesianische Modell, gegen das sich das monetaristische Modell richtet, eine veraltete, unzulängliche und — um mit *Harry G. Johnson* zu sprechen — „vulgäre“ Version des gegenwärtigen post-keynesianischen Denkens ist. Korrigiert man die falschen Behauptungen der Monetaristen über den modernen Keynesianismus, stellen sich die beiden Modelle als sehr ähnlich heraus. Der Unterschied liegt nicht darin, daß eine Version (die Keynesianische) auf einer theoretisch unbefriedigenden *Deus ex machina*-Annahme beruht, während die andere Version eine große Anzahl unspezifischer ökonomischer Verhaltensweisen impliziert, sondern er beruht hauptsächlich auf dem Realitätsgehalt und der Relevanz der jeweiligen Prämissen. Dabei erscheint die typisch keynesianische Annahme inflexibler Geldlöhne für die kurzfristige (d. h. stabilitätspolitische) Analyse geeigneter, während die typisch monetaristische Annahme flexibler Preise und Löhne resp. die Vorstellung, daß der Zinssatz durch andere Faktoren als Gesamtangebot und -nachfrage bestimmt wird, für die Analyse säkularer Veränderungen angemessener zu sein scheinen. Es hat weiter den Anschein, daß die monetaristische Betörtheit von der Geldmenge der monetaristischen Logik nicht entspricht, nach der Portfolioungleichgewichten großes Gewicht als treibendem Faktor der wirtschaftlichen Aktivität beigemessen wird. Rein logisch läßt sich aus dieser Sicht nicht ableiten, daß beobachtete Veränderungen der Geldmenge irgendeine besondere Bedeutung als verursachender Faktor haben. Wie in diesem Beitrag gezeigt wurde, bedarf es weiterer Annahmen über Elastizitäten, Preisflexibilität usw., um monetären Veränderungen einen Ehrenplatz einzuräumen.

Als positiver Beitrag zur Entwicklung makroökonomischen Denkens ist der monetaristische Einwand zu bewerten, daß die Verknüpfungen zwischen den monetären und realen Sektoren, auf die sich die meisten Keynesianer stützen, nicht denen entsprechen, die *Keynes* im Sinn hatte, und daß die wichtigen Substitutions- und Vermögenseffekte, die Begleiterscheinungen von Portfolioanpassungen sind, völlig übersehen werden. Außerdem haben die Monetaristen die offenbar zuerst von *Irving Fisher* vorgenommene Unterscheidung zwischen Markt- und Realzinssätzen in den Blickpunkt gerückt und damit auf die unter Umständen wichtige Rolle der Preiserwartungen in dynamischen Makromodellen aufmerksam gemacht. Diese Phänomene lassen sich in empirischen Modellen nur sehr schwer fassen, doch wird daran gearbeitet. Es ist zu hoffen, daß sie in den nächsten Jahren zu Grundzügen keynesianischer theoretischer und empirischer Modelle werden und daß verlässliche empirische Untersuchungen vorliegen, so daß die verbleibenden Fragen, die uns trennen, geschlichtet werden können. Insbesondere geht es um die Frage, ob wir, wie *Brunner* es ausdrückt, die Möglichkeit verwerfen können, daß „... umfänglich

erfaßte Allokationsstrukturen einen wesentlichen Einfluß auf das Gesamtniveau der wirtschaftlichen Aktivität haben ...“, und auf der Basis weiterarbeiten können, daß ... „Niveaufaktoren und Strukturaktoren annähernd unabhängig voneinander sind“ (vgl. *K. Brunner*, „The Monetarist Revolution“ in *Monetary Theory*, WWA/Bd. 105, S. 14). Dieser Standpunkt, der den größten Teil der Detailbetrachtungen, die gegenwärtig in die großen ökonomischen Modelle wie das Federal Reserve Board-MIT-Modell eingebettet sind, als irrelevant und sogar irreführend entwertet, scheint den meisten ökonomischen Untersuchungen der Monetaristen zugrunde zu liegen. Es erscheint dem Autor als eine verallgemeinernde Neuformulierung der alten quantitätstheoretischen Position, daß die Geldnachfragefunktion äußerst stabil ist in dem Sinne, daß sie wenige Determinanten hat (und insbesondere auf wenige wenn überhaupt auf irgendwelche Erträge anderer Aktiva reagiert). Wird die Geldnachfrage beispielsweise als nur vom Einkommen (oder Vermögen) abhängig gesehen, brauchen wir für die Niveauprobeme nichts über die Bestimmungsgründe der Preise (Erträge) und Mengen wissen, die auf den verschiedenen Finanzmärkten angeboten und nachgefragt werden. Aber das ist, wie *Brunner* herausstellt, eine empirische Frage, die außerhalb der Problemstellung dieses Beitrags liegt.

## Résumé

### Quelques Observations sur l'Analyse Monétaire

Le présent exposé tente d'esquisser les grandes lignes de l'action monétaire. Il explique que le modèle keynesien, auquel s'oppose le modèle monétariste, constitue une version dépassée, insuffisante et, pour parler comme *Harry G. Johnson*, « vulgaire » de l'actuelle pensée postkeynesienne. Si l'on corrige les fausses affirmations des monétaristes relatives au keynesianisme moderne, les deux modèles apparaissent très proches l'un de l'autre. La différence ne s'appuie pas sur le fait qu'une version (la keynesienne) se base sur l'admission, théoriquement insatisfaisante, d'un *Deus ex machina*, alors que l'autre implique un nombre important d'attitudes économiques non spécifiées; la distinction réside principalement dans le contenu réel et la valeur des prémisses de chaque version. Typiquement keynesienne, l'hypothèse de salaires invariables semble plus appropriée à l'analyse à court terme (c. à. d. pour la politique de stabilité), tandis que l'hypothèse monétariste caractérisée de prix et salaires flexibles ou l'idée selon laquelle le taux d'intérêt est défini par d'autres facteurs que la demande et l'offre globales, apparaît mieux adaptée à l'analyse des variations à long terme. Selon toute apparence, la conception monétariste erronée sur le volume monétaire ne correspond pas à la logique monétariste, lorsqu'elle prétend accentuer le poids de déséquilibres dans l'acquisition de valeurs mobilières en qualité d'élément moteur de l'activité économique.

En toute logique, l'on ne peut déduire de ce point de vue que des variations constatées dans le volume monétaire ont une quelconque signification particulière comme facteur causal. L'article démontre que d'autres hypothèses sur des variables, sur la flexibilité des prix, etc. . . . sont indispensables pour donner une place d'honneur aux variations monétaires.

Il faut considérer comme une contribution positive au développement de la pensée macro-économique le reproche exprimé par les monétaristes selon lequel les liaisons entre les secteurs monétaire et réel, auxquelles s'appuient la plupart des keynesiens, ne sont pas celles qu'imaginait *Keynes*, et qu'en outre les effets importants de substitution et de patrimoine, manifestations corollaires des adaptations des portefeuilles-titres, avaient intégralement été négligés. Par ailleurs, les monétaristes ont mis en pleine lumière la distinction vraisemblablement établie pour la première fois par *Irving Fisher* entre les taux du marché et les taux réels, attirant ainsi l'attention sur l'importance du rôle en certaines circonstances des projections de prix dans les modèles macro-économiques dynamiques.

Il est malaisé de saisir ce phénomène dans des modèles empiriques, mais la question est néanmoins à l'étude. Il convient d'espérer qu'elle fera partie au cours des prochaines années des éléments des modèles keynésiens théoriques et empiriques et que de sérieuses recherches empiriques seront produites afin de supprimer les problèmes qui séparent encore les deux écoles. La principale question est de savoir si, selon l'expression de *Brunner*, l'on peut récuser la possibilité que « . . . des structures d'allocation saisies d'une manière très large ont une influence essentielle sur le niveau global de l'activité économique . . . », et poursuivre les recherches sur la base « . . . d'une quasi-dépendance des facteurs de niveau et des facteurs de structures » (Voir *K. Brunner*: « The Monetarist Revolution » in *Monetary Theory*, WWA/Vol. 105, p. 14). Ce point de vue, qui parce qu'inapproprié et même trompeur dévalorise la plupart des considérations de détail inscrites de nos jours dans les grands modèles économétriques, comme celui du Federal Reserve Board — MIT —, semble fonder la plupart des études économétriques des monétaristes. Ceci apparaît à l'auteur être une nouvelle formulation généralisée de l'ancienne position de la théorie quantitative, c. à. d. que la fonction de la demande monétaire est extrêmement stable en ce sens qu'elle a peu de déterminantes (et qu'en particulier elle ne réagit que peu ou prou aux revenus quelconques d'autres actifs). Si la demande monétaire est par exemple jugée exclusivement dépendante du revenu (ou du patrimoine), il est sans intérêt pour les problèmes de niveau de connaître quoi que ce soit sur les motifs de définition des prix (des revenus) et des volumes qui sont offerts et demandés sur les divers marchés financiers. Mais c'est là, constate *Brunner*, une question empirique qui excède le cadre du présent exposé.