Volume ISBN: 0-87014-233-X

Volume URL: http://www.nber.org/books/frie71-1

Publication Date: 1971

Chapter Title: Conclusion, References

Chapter Author: Milton Friedman

Chapter URL: http://www.nber.org/chapters/c0924

Chapter pages in book: (p. 61 - 65)

area below. In principle, of course, still other paths are possible. For example, it is conceptually possible for the adjustment to be explosive rather than damped. Restricting ourselves to damped paths is an empirical judgment.

14. Conclusion

In concluding this discussion of a theoretical framework, it may be worth stating that it is not a framework special to me or to those economists who view the operation of the economy in terms of the quantity theory either in its simple form or in the form of the monetary theory of nominal income. No doubt other economists would expand the framework differently, stress different parts of it, elaborate points I have skimmed over, and skim over points I have elaborated. But almost all economists would accept the framework, and this is true even, I believe, of the least thorough part, the sketch of the adjustment process in the preceding two sections.

One purpose of setting forth this framework is to document my belief that the basic differences among economists are empirical, not theoretical: How important are changes in the supply of money compared with changes in the demand for money? Are transactions variables or asset variables most important in determining the demand for money? How elastic is the demand for money with respect to interest rates? With respect to the rate of change in prices? When changes in demand or supply occur that produce discrepancies between the quantity of money that the public holds and the quantity it desires to hold, how rapidly do these discrepancies tend to be eliminated? Does the adjustment impinge mostly on prices or mostly on quantities? Is the adjustment process cyclical or asymptotic? Is the adjustment to sharp changes over short periods different in kind or only in degree from the adjustment to slower changes over longer periods? How long does it take for people to alter their anticipations in light of experience?

Much of the controversy that has swirled about the role of money in economic affairs reflects, in my opinion, different implicit or explicit answers to these empirical questions. The reason such differences have been able to persist is, I believe, that full adjustment to monetary disturbances takes a very long time and affects many economic magnitudes. If adjustment were swift, immediate, and mechanical, as some earlier quantity theorists may have believed, or, more likely, as was attributed to them by their critics, the role of money would be clearly and sharply etched even in the imperfect figures that have been available. But, if the adjustment is slow, delayed, and sophisticated, then crude evidence may be misleading, and a more subtle examination of the record may be needed to disentangle what is systematic from what is random and erratic. That, not the elaboration of the theory, is the primary aim of the monograph from which this paper is adapted, as well as of the other monetary studies of the National Bureau.

References

Allais, M. "A Restatement of the Quantity Theory of Money." *A.E.R.* (December 1966), pp. 1123–57.

Andersen, Leonall C., and Jordan, Jerry L. "Monetary and Fiscal Actions: A Test of their Relative Importance in Economic Stabilization." *Review,* Federal Reserve Bank of St. Louis (November 1968), pp. 11–23.

Bailey, Martin J. *National Income and the Price Level.* New York: McGraw-Hill, 1962.

Baumol, W. J. "The Transactions Demand for Cash: An Inventory Theoretic Approach." *Q.J.E.* (November 1952), pp. 545–56.

Brainard, William. "Financial Institutions and a Theory of Monetary Control." In *Financial Markets and Economic Activity.* Cowles Foundation Monograph 21. New York: Wiley, 1967.

Brunner, Karl. "The 'Monetarist Revolution' in Monetary Theory." *Weltwirtschaftliches Archiv* 105, No. 1 (1970), pp. 1–30.

Brunner, Karl, and Meltzer, Allan H. "Predicting Velocity." *J. Finance* (May 1963), pp. 319–34.

Cagan, Phillip. "The Monetary Dynamics of Hyperinflation." In *Studies in the Quantity Theory of Money,* edited by Milton Friedman. Chicago: Univ. Chicago Press, 1956.

———. *Determinants and Effects of Changes in the Stock of Money, 1875–1960.* New York: Columbia Univ. Press (for Nat. Bur. Econ. Res.), 1965.

Chow, Gregory C. "On the Long-Run and Short-Run Demand for Money." *J.P.E.* 74 (April 1966):111–31.

Culbertson, J. M. "United States Monetary History: Its Implications for Monetary Theory." *Nat. Banking Rev.* (March 1964), pp. 372–75.

Fisher, Irving. *The Purchasing Power of Money.* New York: Macmillan, 1911.

———. "Money, Prices, Credit, and Banking." *A.E.R.* (June 1919), pp. 407–9.

Friedman, Milton. "The Quantity Theory of Money—a Restatement." In *Studies in the Quantity Theory of Money,* edited by M. Friedman. Chicago: Univ. Chicago Press, 1956. Reprinted in Friedman (1969).

———. *A Theory of the Consumption Function.* Princeton, N.J.: Princeton Univ. Press (for Nat. Bur. Econ. Res.), 1957.

———. "The Supply of Money and Changes in Prices and Output." In *The Relationship of Prices to Economic Stability and Growth,* pp. 241–56. U.S. Congress, Joint Economic Committee, Compendium, 1958. Reprinted in Friedman (1969).

———. "The Demand for Money: Some Theoretical and Empirical Results." *J.P.E.* 67 (August 1959):327–51. Reprinted as Occasional Paper 68 (New York: Nat. Bur. Econ. Res., 1959) and in Friedman (1969).

———. "The Lag in Effect of Monetary Policy." *J.P.E.* 69 (October 1961), pp. 447–66. Reprinted in Friedman (1969).

———. *Price Theory*. Chicago: Aldine, 1962.

———. "Interest Rates and the Demand for Money." *J. Law and Econ.* (October 1966), pp 71–85. Reprinted in Friedman (1969).

———. "The Monetary Theory and Policy of Henry Simons." *J. Law and Econ.* (October 1967), pp. 1–13. Reprinted in Friedman (1969).

———. "Money, Quantity Theory." In *International Encyclopedia of the Social Sciences*, pp. 432–47. New York: Macmillan and Free Press, 1968. (*a*)

———. "The Role of Monetary Policy." *A.E.R.* (March 1968), pp. 1–17. (*b*) Reprinted in Friedman (1969).

———. *The Optimum Quantity of Money and Other Essays*. Chicago: Aldine, 1969.

———. "A Theoretical Framework for Monetary Analysis," *J.P.E.* 78 (March-April 1970):193–238. (a)

———. "The Counter-Revolution in Monetary Theory." *Occasional Paper 33* (The Institute of Economic Affairs for Wincott Foundation). London: Tonbridge, 1970 (b).

———. "A Monetary Theory of Nominal Income." *J.P.E.* 79 (March-April 1971).

Friedman, Milton, and Meiselman, David. "The Relative Stability of the Investment Multipler and Monetary Velocity in the United Sttates, 1897–1958." *Stabilization Policies*. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Friedman, Milton, and Schwartz, Anna. "Money and Business Cycles." *Rev. Econ. and Statis.*, supp. (February 1963), pp. 32–64. Reprinted in Friedman (1969). (*a*).

———. *A Monetary History of the United States, 1867–1960*. Princeton, N.J.: Princeton Univ. Press, (for Nat. Bur. Econ. Res.), 1963. (*b*)

———. *Monetary Statistics of the United States*. New York: Columbia Univ. Press (for Nat. Bur. Econ. Res.), 1970.

Goldfeld, Stephen M. *Commercial Bank Behavior and Economic Activity*. Amsterdam: North-Holland, 1966.

Gramley, Lyle, and Chase, S. B., Jr. "Time Deposits in Monetary Analysis," *Federal Reserve Bull.* 51 (October 1965):1380–1406.

Gupta, Suraj. "Expected Rate of Change of Prices and Rates of Interest." Ph.D. dissertation, University of Chicago, 1964.

Haberler, Gottfried. *Prosperity and Depression*. 3d ed. Geneva: League of Nations, 1941.

Heller, H. R. "The Demand for Money: The Evidence from the Short-Run Data." *Q.J.E.* (May 1965), pp. 291–303.

Hendershott, Patric H. *The Neutralized Money Stock*. Homewood, Ill.: Irwin, 1968.

Hester, Donald, and Tobin, James, eds. *Financial Markets and Economic Activity*. Cowles Foundation Monograph 21. New York: Wiley, 1967.

Hicks, J. R. "Mr. Keynes and the Classics: A Suggested Interpretation." *Econometrica* 5 (April 1937):147–59. Reprinted in *Readings in the Theory of Income Distribution,* edited by W. Fellner and B. F. Haley. Homewood, Ill.: Irwin, 1951.

Holzman, Franklyn D., and Bronfenbrenner, Martin. "Survey of Inflation Theory." *A.E.R.* (September 1963), pp. 593–661.

Johnson, Harry G. "The *General Theory* after Twenty-Five Years." *A.E.R.* (May 1961), pp. 1–17.

———. "The Neo-classical One-Sector Growth Model: A Geometrical Exposition and Extension to a Monetary Economy." In *Essays in Monetary Economics.* London: Allen & Unwin, 1967. (*a*)

———. "Neutrality of Money in Growth Models: A Reply." *Economica* (February 1967), pp. 73–74. (*b*)

Keynes, John M. *The General Theory of Employment, Interest and Money.* London: Macmillan, 1936.

Konig, H. "Demand Function, Short-Run and Long-Run Function, and the Distributed Lag." *Zeitschrift Gesamte Staatswissenschaft* (February 1968), pp. 124 ff.

Koyck, L. M. *Distributed Lags and Investment Analysis.* Amsterdam: North-Holland, 1954.

Laurent, Robert. "Currency Transfers by Denominations." Ph.D. dissertation, Univ. Chicago, 1969.

Leijonhufvud, Axel. *On Keynesian Economics and the Economics of Keynes.* London: Oxford Univ. Press, 1968.

Levhari, D., and Patinkin, D. "The Role of Money in a Simple Growth Model." *A.E.R.* (September 1968), pp. 713–53.

Martin, P. W. *The Flaw in the Price System.* London: King, 1924.

Marty, Alvin. "The Optimal Rate of Growth of Money." *J.P.E.* 76, pt. 2 (July-August 1968):860–73.

Meltzer, Allan H. "The Demand for Money: The Evidence from the Time Series." *J.P.E.* 71 (June 1963):219–46.

———. "Monetary Theory and Monetary History." *Schweizerische Zeitschrift Volkswirtschaft und Statistik,* no. 4 (1965), pp. 409–22.

Mitchell, W. C. *Business Cycles.* New York: Nat. Bur. Econ. Res., 1927.

Mundell, Robert A. "A Fallacy in the Interpretation of Macro-economic Equilibrium." *J.P.E.* 73 (February 1965):61–66.

Muth, J. F. "Optimal Properties of Exponentally Weighted Forecasts." *J. American Statis. Assoc.* (June 1960), pp. 299–306.

Nerlove, Marc. *Distributed Lags and Demand Analysis.* Agriculture Handbook no. 141. Washington: Dept. Agriculture, 1958.

Okun, Arthur M. "Comment." *Rev. Econ. and Statis.,* suppl. (February 1963), pp. 72–77.

Patinkin, Don. "Price Flexibilty and Full Employment." In *Readings in Monetary Theory,* edited by F. A. Lutz and L. W. Mints. Homewood, Ill.: Irwin, 1951. Revised version of an article originally published in *A.E.R.* (September 1948), pp. 543–64.

Phillips, A. W. "The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861–1957." *Economica* (November 1958), pp. 283–99.

Pigou, A. C. "The Value of Money." *Q.J.E.* (November 1917), pp. 38–65. Reprinted in *Readings in Monetary Theory*, edited by F. A. Lutz and L. W. Mintz. Homewood, Ill.: Irwin, 1951.

———. "Economic Progress in a Stable Environment." *Economica*, n.s. (August 1947), pp. 180–88.

Sidrauski, M. "Rational Choice and Patterns of Growth in a Monetary Economy." *A.E.R.* (May 1967), pp. 534–44. (*a*)

———. "Inflation and Economic Growth." *J.P.E.* 75 (December 1967): 796–810. (*b*)

Snyder, Carl. "On the Statistical Relation of Trade, Credit and Prices." *Rev. Inst. Internat. Statis.* (October 1934), pp. 278–91.

Solow, R. M. "A Contribution to the Theory of Economic Growth." *Q.J.E.* (February 1956), pp. 65–94.

———. "On a Family of Lag Distributions." *Econometrica* (April 1960), pp. 393–406.

Stein, J. L. "Money and Capacity Growth." *J.P.E.* 74 (October 1966):451–65.

Tobin, James. "Money Wage Rates and Employment." In *The New Economics*, edited by Seymour Harris. New York: Knopf, 1947.

———. "The Interest Elasticity of Transactions Demand for Cash." *Rev. Econ. and Statis.* (August 1956), pp. 241–47.

———. "Liquidity Preference as Behavior toward Risk." *Rev. Econ. Studies* 25 (February 1958):65–86.

———. "The Monetary Interpretation of History." *A.E.R.* (June 1965). pp. 464–85. (*a*)

———. "Money and Economic Growth." *Econometrica* (October 1965), pp. 671–84. (*b*)

Tobin, James, and Brainard, William C. "Financial Intermediaries and the Effectiveness of Monetary Controls." In *Financial Markets and Economic Activity*. Cowles Foundation Monograph 21. New York: Wiley, 1967. Reprinted from *A.E.R.* (May 1963), pp. 383–400.

———. "Pitfalls in Financial Model Building." *A.E.R.* (May 1968), pp. 99–122.

Uzawa, H. "On a Neo-classical Model of Economic Growth." *Econ Studies Q.* (September 1966), pp. 1–14.

Von Neumann, John. "A Model of Economic Equilibrium." *Review of Economic Studies* 33, No. 1 (1945–46), pp. 1–9.

Walters, A. A. "A Survey of Empirical Evidence." In *Money in Britain, 1959–1969*, edited by David R. Croome and Harry G. Johnson. London: Oxford University Press, 1970, pp. 39–68.