

MONETARY THEORY AND THE STRUGGLE WITH DISCRETION VERSUS RULE-BASED POLICY

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Summary

Elimination of business cycle and everlasting economic growth might be considered the dream of any economist, if not every man. However, business cycles are the reality of economics. Economists have been striving to understand business cycles and have been trying to reduce their severity, if not completely eliminate it. The influences of fiscal and monetary policy on economic activities are well known. One would expect that knowledge can be used to make sure that recessions do not occur or if they do they are short-lived. Although the functions of the primary tools in fiscal and monetary policies are well-known, proper application of the instrument seems to be ambiguous. The theory indicates that different instruments, such as printing money or reducing banks' required reserve, would result in the same outcome, at least in the long run. What is unknown is, when to apply the instrument, to what extent, and for how long. A contributing factor is the inability of the current technology to determine the appropriate answer for these questions in a timely fashion and in advance of actual outcome. Another contributing factor is the stochastic nature of economic phenomena and the

reactions of economic agents to particular instruments under different economic situations. These had led to different policy recommendations with regard to the use of fiscal and monetary instruments and their effectiveness, which is the subject of the present chapter.

1. Introduction

Business leaders and economic experts seem to be expected to provide guidance and leadership to improve the welfare of the nation, especially during poor economic times. The application of economic laws to improve economic conditions or to avoid economic downturn is called discretionary policy.

There are two major policy instruments available for influencing the economy: fiscal policy and monetary policy. Fiscal policy pertains to government's ability to control expenditures and assess taxes. Taxes can be assessed on businesses or consumers. The former lowers business revenue and, hence, its ability to reinvest as well as to pay dividends to the owners of the capital. The latter reduces consumers' income and, hence, expenditure. Taxation contracts the economy. However, the government spends the tax revenue, which is expansionary. In the 1940's it was argued that the government does not hoard any of the tax dollars while consumers and businesses maintain idle dollars out of the economy, therefore, the net result of taxation and government spending is expansionary. In the 1980's and the dominance of free market spirit resulted in substantial criticism of fiscal policy.

Specifically, the argument is that taxation reduces the possibility of investment and stifles the growth of the economy by smothering innovation. Some even ignore that the government spends the tax revenue and only focuses on its negative impact, which is a reduction in revenue and income. As a result an alternative hypothesis was developed claiming that the net effect of taxation is a contraction of the economy. At this point the issue is a testable hypothesis, which makes it depend on many factors such as the state of the economy or the attitude of people towards taxation.

The outcome also depends on the level of taxation before a change in the tax and expenditure is initiated. Another important contributing factor is the expectation of the public as explained by the rational expectation hypothesis, which is used in the discussion later. Although the fiscal policy is used extensively, it is not as popular as it used to be, which is true of all discretionary policies. At one time it was believed that with appropriate fine-tuning of the economic tools one could eliminate or at least substantially reduce the magnitude of business cycles and their frequencies. A list of fiscal policy tools is provided in Appendix 1.

The government can also intervene in the economy through monetary policy. The monetary policy is the collection of actions that affect the supply of money in an economy. The supply of money can be affected by increasing the money supply, selling and purchasing of bonds, and changing the interest rate. Although the central bank has a great deal of authority in these matters, it virtually has no power on the velocity of money, which also affects the supply of money. The velocity of money is fairly stable

and changes very little over time. A list of monetary policy tools is provided in Appendix 1.

In the earlier days, among the advocates of fiscal policy, there was little doubt that both fiscal and monetary policies were important in shaping and forming the economy. The monetary theorist, however, using a long-standing argument that an increase in the supply of money would result in inflation, argued that the government must have a minimal role in the economy, especially as it pertains to manipulating the supply of money. In 1936 the quantity theory of money was questioned by John Maynard Keynes.

The argument is that the Federal Reserve or the Central Bank, which is responsible for implementing monetary policies in different countries, is incapable of pinpointing the economic condition. This was true even if they could not identify the exact dose of the remedy or the correct mix of different instruments to solve the economic ill at hand. The critique is not limited to the monetary policy. It equally applies to the fiscal policy. Consequently, the argument continues that either the effort is not sufficient or it is too much. In either case, the intervention is either ineffective or damaging in a different way. Note that as long as the economy is not at the equilibrium point the solution has been ineffective. If the measures are not adequate, the government would be considered inept. If the correction is too much, the economy will end up in the opposite side of the problem. In this case the Central Bank has to reverse its policies and try to undo the damage or leave it alone and is considered inept. For example, to recover from a recession using too many stimulates can cause inflation, which then must be corrected with applying measures to contract the economy, and the cycle can continue indefinitely. The monetarists argued that because of the inability to know the exact remedy to land at the equilibrium, the government must refrain from intervention in the economy or face the consequences, which could include worsening the business cycles, both in magnitude and frequency. The state of the economy can be compared to the position of a pendulum which is not at its resting point. The inertia stored in a pendulum that is not in the resting position, results in pushing the pendulum in the other direction once it reaches the resting point. Therefore, it makes little sense, and in fact it would augment the swing of the pendulum, if it is pushed towards the equilibrium. In order to reduce the swing of the pendulum, counter forces must be applied as soon as the pendulum crosses the resting point, not when the pendulum has made it to the end of its swing, which is usually when interventionists manage to get involved.

The argument is that since monetary policy is not capable of bringing the pendulum to rest in equilibrium the only consequence of the intervention is greater swings in the pendulum than they would have been without intervention. Therefore, in order to reduce the destabilizing effect of the monetary policy the best course of action is no action at all (Friedman 1956). Friedman (1958) argues that the best strategy for the legislative part of the government is to try to avoid influencing business cycles with taxation and expenditure. He gives similar advice to the Federal Reserve; namely, not to attempt to correct business cycles by open market policy or changes in the supply of money.

In other words, Friedman (1968a) refutes the existence of the Phillips Curve (Phillips 1958), and disagrees with Samuelsson and Solow (1960), who prescribed the use of the Phillips Curve as a policy instrument. The Phillips curve (Phillips 1958) asserts there is

a trade-off between inflation and unemployment. The theory uses a notion from business cycle theory that explains business cycles, in part, based on people's estimate of economic conditions. Phillips (1958) demonstrates, at least for the period from 1861 to 1957, there is a tradeoff between inflation and unemployment. The relationship is inverse, indicating an increase in prices results in a decrease in unemployment and *vice versa*. This relationship was used in the 1960s and 1970s as a policy instrument. In order to reduce unemployment, prices are allowed to increase by utilizing expansionary fiscal and monetary policies. Conversely, when inflation becomes too high by reversing the courses of actions the government can reduce inflation at the expense of creating some unemployment. The reason the mechanism seemed to work was that people "were fooled" to believe that the changes in prices, for example, are indicative of economic growth and not inflation. These changes entice the firms to hire and the workers take jobs at the now appealing nominal wages, which in fact contained inflation while the real wages had not increased. Earlier studies were providing further evidence supporting the existence of trade-off between inflation and unemployment. The results seemed to be robust too, since numerous methods were employed, with similar results (Lipsey 1960). However, Lipsey (1960) combines data from 1923-1939 and 1946-1948 and finds a different shape for the Phillips Curve, which casts doubt on the stability of the trade-off between unemployment and inflation.

Friedman (1958) argues that rational workers and employers would consider real wages and not the nominal wages in their decision to work and to hire respectively. The real wages determine the "natural rate of unemployment," which cannot be affected by the government's intervention. The only outcome of such interventions is to increase uncertainty in the market and create higher inflation and more unemployment. The simple argument and its drastic policy implication of no intervention by the government is based on the notion that under perfect competition the market would be at equilibrium, which, according to Friedman, means the level of unemployment would be at the natural rate. The natural rate of unemployment is due to friction in the economy, i.e. changing jobs requires obtaining information and possibly relocation and is time consuming. During the transition the workers would be unemployed.

By the 1960s the Phillips Curve was established as valid only in the short run, low inflation, gradual price changes, and infrequent use as a policy instrument. The so-called Non-Accelerating Inflation Rate of Unemployment (NAIRU) refers to this situation. The most celebrated evidence in support of Friedman's theory is the inflation of the 1970's, during which a high and increasing inflation coexisted with high and rising unemployment. This did not stop further research on the Phillips Curve. For example, Naughton (1975), Sleeman (1983) use regression analysis, Gilber (1976) utilizes nonlinear models, Oliver (1986) employs maximum likelihood, and finally Shadman-Mehta (2000) benefits from time series analysis.

In order to fully comprehend the discussion of rule versus discretion debate in the monetary policy context it is essential to understand the background. Therefore, a brief review of essential topics is provided below. Section 2 addresses the demand for money. Section 2.1, which consists of two subsections, discusses the classical quantity theory (2.1) and asset-based demand for money (2.1.B). Section 3 is about liquidity preference. Section 4 returns to the quantity theory, but focuses on the post Keynesian revolution of

the subject. Section 5 prepares the ground for putting all the previous discussion together by addressing macroeconomics policy. Section 5.1 discusses the shifts in I-S and L-M schedules to provide a reference for the available policy instruments. Section 6 directs the attention to the issue of economic cycles and fluctuations, which are in the heart of the discussion. Modern macroeconomics policy is the subject of section 7, followed by section 7.1 which covers inflation targeting and monetary theory. In section 8 links between the rational expectation hypothesis and discretionary policy is addressed. Section 8.1 is devoted to the role of rational expectation hypothesis in the monetary policy. Section 9 is about the Taylor Rule for inflation targeting. In section 10 the problems that is faced by the monetary theorists in struggling between discretionary policy and a rule-based guidelines. Finally, Section 11 provides some concluding remarks.

2. Demand for Money

The discussion on the subject is often addressed in the context of whether money matters or not. The proponents argue that changes in the amount of money affect the economy, and thus money matters (Hume 1748). In order to determine the effectiveness of monetary theory in this context one needs to understand the factors that influence the tools of monetary theory and, hence, the monetary policy. One variable that is essential in monetary policy is the interest rate. The interest rate, the price of money, is determined by the supply of and demand for money. Thus, it is beneficial to understand different theories of demand for money and what determines the supply of the money and who controls it. In the classical quantity theory, money is demanded not for its own sake but because it can be used to obtain other goods and services.

In many studies of money the supply is assumed to be exogenous and, in the short run, to be inelastic (Keynes 1937). However, in a discussion of rule versus discretion, the main focus of the debate is the control of the supply of money. In the next few sections a brief summary of demand for money is provided. This is not an exhaustive coverage of the topic, which is covered in detail in textbooks.

2.1. Classical Quantity Theory

The quantity theory dates back at least to Cantillon and Hume. Cantillon distinguished between money and wealth and provided a link between output and supply of money. Hume (1748) said an increase in supply of money would increase output, at least in the short run. According to the classical quantity theory, money is demanded to pay for transactions that are spread over the intervals of payment. The earned income is received on a periodic base, e.g. once a week, or once a month. Every few days a fraction of income for the period is spent as needed. The exact amount depends on one's income, taste, and habits. Elaborate models exist to calculate the exact amount under simplifying assumptions (Baumol 1952). Baumol (1952) and Tobin (1956) carefully use the term "transaction demand for money" instead of "demand for money." The models determine how much cash one would hold using the need for transactions and the return to money, namely the interest rate. This approach reflects the microeconomics view of demand for money. One way to obtain the macroeconomic demand for money is to add the demand for money of the individuals. Another method, which was also used in the

Classical Quantity Theory, uses a direct approach to demand for money taken, which does not include the interest rate. The model ascertains that the demand for money is a multiple of the total money expenditures (price times output), which in turn is the nominal GDP. The “equation of exchange” (Fisher 1911) is

$$M = (1/v)(PY)$$

Where v is the velocity of money, which is assumed to be fairly stable over time for a given economy, P is the price level and Y is the output of the economy, at least in a closed economy (Fisher 1911). Generalization to an open economy is straightforward. Under this theory increase in the supply of money, to be discussed later, would lead to an increase in price level because of the stable nature of the velocity of the money and the fact that the physical output is a function of factors of production and the production capacity of the economy. Although the transaction demand for money implements the rate of interest in the model, the interest rate is not part of the demand for money in the Classical Quantity Theory.

An astute reader would notice that two different types of demand are discussed above. One is individual, specifically when talking about the transaction demand, while the other one is aggregate for the country. The latter is simply the sum of the individual demands for money, in this context. For the purpose of this discussion the distinction is irrelevant. An important component of this theory is the fact that the supply and demand for money determines the price level. Another important question, especially for politicians, is the impact of change in supply of money on prices. The general agreement is that an increase in supply of money would increase prices (Hume 1748 and Fisher 1911, Friedman 1958).

2. 2. Asset-Based Demand for Money

Only a fraction of one's assets would be in the form of money (Pigou 1917). Therefore, Pigou (1917) views the demand for money as a function of the *stock* of assets while Fisher (1911) views it as a function of *flow* of expenditures. Pigou offers the following demand for money model:

$$M = kPR$$

Where M is the demand for money, P is the price index, R is the real value of assets, and k is the portion of current-price of assets (PR) the public wishes to hold as cash. The portion k depends on the marginal utility of money, which is the same as the marginal utility of all other types of assets, following the utility theory. This makes k a function of supply of money. If money is a normal good, an increase in the supply of money diminishes its marginal utility. This notion is not universally accepted. Jevons (1866) assumed that the marginal utility of money is constant. Hovey (1989) provides a summary of the history of marginal utility. If the marginal utility of money could become zero it would imply that, at least after a certain point, the sums of money, regardless of their amount would have the same value. Obviously, Pigou (1917) thinks that utility of money diminishes, but this ignores the fact that money has different functions other than being a form of asset. Note the distinction between a diminishing

utility to holding money and the diminishing utility of money. The former makes perfect sense and is generally accepted. If one holds too much cash, he is not utilizing money effectively. Holding an additional dollar in the form of cash has less utility than holding the dollar before the last. However, once the cash is converted to other goods and services, including other assets, the problem is solved and the “money” no longer has a diminishing utility. According to Fisher (1911) doubling of supply of money doubles the price level. Under Pigou’s (1917) model, the prices can double, less than double, or more than double in response to the doubling of the supply of money, depending on how k and R change. Nevertheless, Pigou agrees with Fisher that the main consequence of an increase in the supply of money is an increase in the price level, *ceteris paribus*.

3. Liquidity Preference

The theory of liquidity preference questions the proportionate relationship between the supply of money and output and prices. The liquidity preference theory links the supply of money to the interest rate instead. The relation between the quantity of money and income and prices is indirect and through the interest rate. According to Keynes there are three reasons for holding money: transaction, insurance, and speculation. The demand for money for transaction is actually the same as the quantity theory. Consumers earn income, a portion of which is used for purchasing goods and services over the period until the next earning. People hold some precautionary money for unexpected needs and emergencies. This explanation accounts for uncertainty in real life, which is missing from the quantity theory. The main contribution of the theory, however, is in the speculative motive of demand for money. Individuals hold some cash in order to take advantage of market opportunities and to avoid capital losses in a declining securities market. If one expects the price of securities to fall one needs to have money on hand to take advantage of lower prices. Therefore, more cash is held than usual to meet the precautionary and transaction demands for currency.

The prices of securities respond to changes in interest rate. As the interest rate increases, the prices of securities decline. Interest rates are determined by the supply and demand for money. An increase in supply of money, other things equal, results in a decline in interest rate. The demand for money is affected by individuals based on the above three motives, while the supply of the money is set by the Federal Reserve Bank in the United States and Central Banks in most other countries. This interest rate refers to a no risk interest rate. The interest rates for securities with different risks are higher by the magnitude of the risk. If the actual interest rate is lower than the expected interest rate one would expect the actual interest rate to rise and the price of securities to fall. Thus, in anticipation, one would hold more cash than explained by precautionary and transaction motives in order to be able to take advantage of lower securities prices when they decline in response to increase in interest rates, which would eventually converge to the expected interest rate. Note that it is not necessary for everyone to have the same expected interest rate. In fact it might be necessary for some difference in the expected interest rates by different people. In this theory the demand for money or liquidity preference according to Keynes is a function of income and interest rate. Note that according to this theory an individual would not hold both securities and (speculative) currency at the same time (Keynes 1936). Under this theory an increase in supply of

money results in a decrease in interest rate. A decrease in interest rate results in an increase in investment, which in turn results in an increase in national income. In order for this to be true there must be an excess capacity as during recessionary periods. Otherwise the result would be inflation. There are two situations under which the process would fail. The first is the case of a liquidity trap when, due to severe recession, the interest rate is so low that an increase in the supply of money is not able to reduce the interest rate any further and, thus, the economy cannot be stimulated by an increase in the supply of money. The second is the case when the elasticity of investment with respect to interest rate is zero. Friedman (1968 b) interjects that interest rate is not the price of money, rather the price of credit.

Under the Keynesian model for every pair of real national income-interest rate there is an equilibrium point in the output sector for investment and saving. This relationship is called the I-S schedule (Hicks 1937). The I-S schedule demonstrates that as interest rates increase the planned investment decreases. A decline in planned investment results in a decline in the level of income. A decline in the level of income reduces the planned savings accordingly until the levels of savings and investment are the same once again. An exact formulation to estimate the expected level of income for a given rate of interest rate can be formulated based on historical values and simplifying assumptions about the nature of the model. Although the I-S schedule provides the loci for equilibrium levels between investment and expenditures, it cannot determine the exact level by itself. The schedule contains four unknown elements of investment, savings, interest rate, and the level of income, subject to the constraint that the savings and investment are the same at the equilibrium.

Similarly, for every pair of real national income-interest rate, there is an equilibrium point in the monetary sector where liquidity preference, i.e. demand for money, equals the supply of money. This relationship is called L-M schedule (Hicks 1937). Interestingly, when the Federal Reserve decided to change the supply of money it makes announcements about the change in the interest rate. Although it is true that the Central Bank or the Federal Reserve control the interest rate via monetary tools; nevertheless, the process is not arbitrary and is governed by the interaction between economic agents. The L-M schedule using the demand for money, supply of money, and the rate of interest that links the two to provide the equilibrium in the money market provide the necessary interest rate level to the I-S schedule to allow the combined I-S/L-M schedules to determine the market equilibrium. For more details consult any intermediate macroeconomics book.

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Biographical Sketch

Dr. Naghshpour has over 64 publications in journals such as *Peace Economics*, *Peace Science and Public Policy*, *Journal of Economics and Finance*, *Review of Regional Studies*, *International Journal of trade and Global Markets*, *International Journal of Monetary Economics and Finance*, *Politics and Policy*, *International Journal of economic Policy in Emerging Economies*, among others. He is the coauthor of *Revolutionary Iran and the United States: Low-intensity Conflict in the Persian Gulf* book. Dr. Naghshpour received the Distinguished Professorship Award for 2008-09 in the category of Research. In 1999, Dr. Naghshpour received the Teaching Excellence Award of College of Business Administration. He has received grants and has been a consultant to numerous State agencies and private companies. He is a member of Montclair Who’s who in collegiate faculty.