

Keynes' Theory of Money and His Attack on the Classical Model

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This paper centers on Keynes' theory of money and his attack on the classical model. Keynes criticized the self-correcting model of the British orthodoxy along two separate lines. In the first, in which Keynes' theory of money was crucial, he took the institutional variables as given and examined the functional relationships. Keynes' burden was to undermine what he termed the "classical dichotomy," where money was a veil, playing no role in determining output and employment. Two key features of the orthodox model were loanable funds and quantity theories, and Keynes' theory of money emerged from the rejection of these theories. The key to his attack on the classical dichotomy was the speculative demand for money, which he presented as an indirect, unstable function of the interest rate. Hence, Keynes linked money demand to the interest rate. The interest rate was thus determined by monetary variables rather than real factors, contrary to British orthodox opinion. Keynes then demonstrated that intended investment and saving need not be equal at a full employment equilibrium. (JEL B00, E00)

Introduction

Keynes believed the *General Theory* [Keynes, 1936] might create a revolution in economics. Writing to G. B. Shaw, Keynes [1982, p. 42] stated:

"To understand my state of mind, however, you have to know that I believe myself to be writing a book on economic theory which will largely revolutionize—not, I suppose, at once but in the course of the next ten years—the way the world thinks about economic problems."

This belief was based, in part, on the primary theoretical goal of the *General Theory*, which was to attack what he termed the "classical economics." Keynes' reference to classical was primarily to the neoclassical economists who preceded him or were his contemporaries, as well as Marshall's neoclassical version of Smith, Ricardo, and Say [Cate and Johnson, 1997, 1998; Johnson and Ley 1990].

The so-called classical model was one in which perfectly competitive markets with flexible prices resulted in self-adjusting, market-clearing aggregate markets. When combined with the neoclassical extension of Say's law, this model inevitably led to equilibrium at full employment. Keynes' attack on this self-correcting macroeconomic model of the British

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neoclassical orthodoxy (the so-called classical model) proceeded along two separate lines, in one of which his theory of money played a crucial role.

This paper centers on Keynes' theory of money and his attack on the classical model and, therefore, its role in his effort to achieve the primary theoretical goal of the *General Theory*. Keynes' theory of money was a result of his own prior intellectual development and a theoretical necessity given the rest of the analytical structure contained in the *General Theory*. Moreover, his theory of money replaced two linchpins in the classical model. The removal of these linchpins can, therefore, be said to represent the analytical preconditions for the theory of money contained in *The General Theory* [Johnson and Cate, 2000].

The first of these preconditions was Keynes' rejection of the loanable funds theory of interest rate determination. In the *General Theory*, both consumption and saving were functions of income, contrary to the loanable funds theory which held that the rate of interest determined the division of income between saving and consumption.

Having rejected the loanable funds theory, Keynes turned to the secondary money market as the arena in which the interest rate is determined. Thus, Keynes' theory of money was an alternative explanation of interest rate determination, which linked the real and monetary sectors of the economy. As a result, however, a second precondition emerged. Keynes needed to refute the quantity theory of money, a theory he inherited from his neoclassical predecessors and which he had himself embraced and contributed to earlier in his professional career [Johnson and Cate, 2000].

The second section of this paper presents a brief outline of the framework Keynes employed in his attack on the classical model. The third and fourth sections present the basis of Keynes' rejection of the loanable funds theory of interest rate determination and the quantity theory of money, respectively. In the fifth section, we discuss Keynes' own theory of money, and conclusions are presented in the sixth section.

Keynes' Framework for Attacking the Classical Model

Keynes' attack on the macroeconomic analysis of the British orthodoxy proceeded along two separate, but interrelated lines. In the first line of attack, Keynes took the institutional variables of the orthodox model as given and examined the functional relationships contained in that model. The two linchpins, as he saw it, were the loanable funds theory of interest rate determination and the quantity theory of money [Johnson and Cate, 2000]. As an alternative, Keynes substituted his own short-run functional relationships regarding consumption, saving, and the demand for money.

In this line of attack, Keynes sought to undermine the classical dichotomy in which the economy was divided into two airtight components: the real and monetary sectors of the economy. In this vision, the levels of employment and output were determined by real factors alone while the general price level was determined strictly by monetary factors. Since money was merely a medium of exchange, demanded only for transactions purposes, it was a veil that had no role in determining output and employment [Ackley, 1978, pp. 114, 118, 124, 146-8]. The classical dichotomy, coupled with perfectly competitive market-clearing prices, led to a full employment equilibrium via the neoclassical extension of Say's law.

In Keynes' second line of attack on the classical model, he took the functional relationships as given and examined the institutional variables. Here, Keynes focused on the

assumptions and assumed norms of perfectly competitive markets and continuous market-clearing prices. In his view, the two linchpins in this regard were the institutional features that existed in the labor and real goods markets. The basis of this line of attack was the perception of price rigidity in both markets as a result of imperfect competition and market power.

Keynes theory of money was a key factor in his first line of attack on the classical model. His theory of money emerged from his rejection of the loanable funds and quantity theories and in so doing was the key to eliminating the classical dichotomy from his own analysis of the determination of income and employment. In both his rejection of the loanable funds theory of interest rate determination and the quantity theory of money, Keynes took the institutional variables of the classical model as given but rejected the functional relationships regarding consumption, saving, and the demand for money, upon which those theories rested. In their place, the model contained in the *General Theory* rests on an alternative set of functional relationships regarding these variables, hence, the critical role played by his theory of money.

Rejection of the Loanable Funds Theory:

The First Precondition of Keynes' Theory of Money

According to orthodox doctrine, consumption, saving, and investment were all functions of the rate of interest. The rate of interest, in turn, was determined in the loanable funds market where new financial assets that were offered to finance new capital projects were bought and sold. As long as the interest rate is sufficiently flexible, saving is automatically transformed into investment. Perfect competition and Say's law then ensured that the supply of (saving) and demand for (investment) loanable funds are in equilibrium at full employment. As such, deficiencies in aggregate demand due to excessive saving or deficient investment can never create involuntary unemployment in equilibrium.

Keynes' attack on the loanable funds theory had its origins in his *A Treatise on Money* [1930] where he had developed a model designed to explain changes in the general price level. Two key features are relevant here. First, consumption is a function of income [p. 121], a fact which follows from his basic definitions. However, because the *Treatise's* model sought to explain changes in the general price level, Keynes did not develop the concept of a consumption function any further. Second, Keynes treats saving as a function of income [p. 155] and the rate of interest in the *Treatise* [p. 180]. Again, given the purpose of the model in the *Treatise*, the saving-interest rate connection is emphasized over the saving-income connection [pp. 179-87].

Keynes later reexamined the emphasis of the model in the *Treatise* and concluded that given the conditions of the 1930s, his focus must instead center on explaining changes in the levels of output and employment. This reorientation required the development of a new model. In this new model, presented in the *General Theory*, both consumption and saving are functions of current disposable income. Thus, Keynes viewed the factors that determined household decisions to consume and save as very different from the factors that determined business investment decisions. Moreover, he raised the possibility that savings, a leakage from the income stream, might not be transformed into an equivalent amount of investment. As such, increases in savings (decreases in consumption) became a source of deficient

aggregate demand, resulting in involuntary employment in equilibrium. In essence, Keynes removed the interest rate from its central role as the dependent variable, which served to coordinate spending decisions in the economy [Cate, 1997; Cate and Johnson, 1997, 1998; Johnson and Cate, 2000].

Two events spurred Keynes' development of his new model. The first was the inability of the British economy to overcome the Great Depression [Cate and Johnson, 1997, 1998; Johnson and Cate, 2000]. The second was the criticism of Keynes' *A Treatise on Probability* [1921] by Ramsey [1931] and Russell [1922]. By the time of the *General Theory*, Keynes had discarded his earlier objective degree of belief theory of probability in favor of a subjective degree of belief theory similar to the theory of probability developed by Ramsey [1931]. However, Keynes modified Ramsey's theory by using the business community as the basic frame of reference [Keynes, 1936].

In Keynes' subjective theory of probability, the probability relation expresses a certain degree of rational belief about a primary proposition, rational in the sense that it is grounded in knowledge of the underlying reality associated with the primary proposition. If an individual cannot work with the available data associated with a primary proposition, the degree of belief is unknown. More data may lead to a degree of belief concerning a second primary proposition, but it will not affect the still unknown degree of belief in the first primary proposition. These relations play a key role in forming short-term expectations, which affect the decisions of Keynes' consumers, where consumption and saving decisions are based on their relationship to current disposable income [Cate and Johnson, 1998].

While Keynes agreed with neoclassical economists that upon receipt of an increment of income, consumers decided how much to spend on consumption and how much to save. He disagreed that consumption and saving were functions of the rate of interest. Rather, he examined the factors that affect this relationship and argued that consumption and saving are better seen as stable functions of current disposable income. From this induction process flows the stable consumption function, which plays a pivotal role in Keynes' investment multiplier. At this point, a significant analytical problem arose for Keynes. If saving is a function of current disposable income and investment is a function of the rate of interest, by what process is the rate of interest determined? To deal with this difficulty, Keynes developed an alternative explanation of interest rate determination based on his theory of money. However, Keynes could advance his new theory of money only after he had rejected the quantity theory of money.

Rejection of the Quantity Theory of Money:

The Second Precondition of Keynes' Theory of Money

Keynes rejected the quantity theory he inherited from Marshall and Pigou and to which he himself had contributed [Keynes, 1924, 1930]. He rejected the quantity theory both theoretically and as a tool of applied policy [Keynes, 1924, pp. 65, 146-54; 1930, vol. II, bk. VII]. Keynes attacked the quantity theory on three grounds. First, he argued that the two assumptions upon which a stable velocity rests do not hold. Second, Keynes contended that people hold money for reasons other than transaction purposes [Cate and Johnson, 1997; Johnson and Cate, 2000; Johnson et al., 1997]. Finally, Keynes argued that it was

unreasonable to assume that output could be treated as constant [Cate and Johnson, 1997; Johnson and Cate, 2000; Johnson et al., 1997].

In the *Tract on Monetary Reform* [1924], Keynes developed his own quantity equation:

$$n = p(k + rk') \quad , \quad (1)$$

where n is the number of "currency notes or other forms of cash in circulation with the public," p is "the index number of the cost of living," and r is "the proportion of the bank's potential liabilities (k') held in the form of cash." Keynes also assumes "...the public, including the business world, finds it convenient to keep the equivalent of k consumption in cash and of a further k' available at their banks against cheques..." [Keynes, 1924, pp. 62-3]. So long as k , k' , and r do not change, changes in n cause proportional changes in p .

In terms of the Cambridge quantity theory, the long-run conclusion that n and p move together rests on two assumptions: the ratio of cash to deposits is constant and the ratio of reserves to deposits is constant. Keynes argues that an examination of the available data associated with these two ratios reveals that these ratios are, in fact, unstable. If velocity is unstable over time, the proportional relationship alleged between n and p does not hold in the long-run [Keynes, 1924, pp. 65-70], a conclusion Schumpeter [1950, p. 706] believed was the unique contribution of Keynes' quantity equation.

The second aspect of Keynes' attack on the quantity theory addressed the assumption that people demand money only for transaction purposes. Keynes suggested instead that the demand for money may be divided into five categories. Three of these are:

- 1) income deposits, money used to meet personal expenditures;
- 2) business deposits, money used to meet business obligations; and
- 3) savings deposits, money used to meet personal (financial) investment needs.

The remaining two categories cut across the first three categories. One of these Keynes called industrial circulation, money used to undertake normal business operations: gathering the factors of production, making the product, and delivering it to the consumer. The other he called financial circulation, money used to buy and sell titles to wealth: stocks and bonds. In his classification scheme, business circulation makes use of income deposits and a portion of business deposits, and financial circulation makes use of savings deposits and a portion of business deposits [Keynes, 1930, pp. 217-30, vol. I].

Having identified the reasons why individuals demand money, Keynes argues that if the quantity of money changes, then equal proportional changes in the general price level will be forthcoming, provided the ratio of industrial circulation to financial circulation remains constant. However, if the quantity of money remains constant and if the states of bearishness and bullishness (two of the principal factors that affect financial circulation) change, then the ratio of industrial circulation to financial circulation will change, resulting in a change in the general price level.

The final aspect of Keynes' attack on the quantity theory was his rejection of that theory's assumption that output could be treated as constant. The orthodox model asserted that output was determined by employment (one aspect of the classical dichotomy). Since the economy was always in equilibrium at full employment, the level of output could be taken as a constant at the full employment level. By the time of the *General Theory*, Keynes was

determined to show that a less than full employment equilibrium was not only possible but probable. As part of this analysis, Keynes reversed the direction of causation from the equilibrium level of employment to the equilibrium level of output. Instead, Keynes argued that it was the equilibrium level of output that determined the equilibrium level of employment. Once it is established that a less than full employment equilibrium is possible, it is unacceptable to assume that output can be taken as constant, as required by the quantity theory [Johnson et al., 1997].

In summary, Keynes rejected the quantity theory for three reasons. First, he attacked the two assumptions necessary for velocity to be treated as a constant, hence, the proportionality conclusion of the quantity theory. Second, he rejected the presumption that people demand money only for transactions purposes. Finally, he rejected the quantity theory's assumption that the level of output could be treated as a constant. Keynes' three-pronged attack on the quantity theory of money provided the necessary second precondition to the development of his own theory of money.

Keynes' Theory of Money

With the rejection of the loanable funds and quantity theories, Keynes felt he had provided the basis for eliminating the classical dichotomy. Where neoclassical economists saw the interest rate as being uniquely determined by real variables, Keynes saw the rate of interest as being determined by monetary variables. It was left to Keynes' own theory of money to tie interest rate determination (hence, investment, aggregate demand, and output and employment) to the secondary money market where existing financial assets are traded. As such, Keynes believed his theory of money and interest rate determination would link the real and monetary sectors of the economy, thereby overcoming the classical dichotomy.

Keynes' theory of money is most often referred to as the liquidity preference theory of money, a name attributed to Keynes himself. However, this title understates some aspects of his contribution. Of the four functions that money serves, Keynes recognized the role of money as a store of value, a standard of deferred payment, and a medium of exchange. As such, he included three components in the demand for money: the transactions demand for money (for goods and services)—the only component included in the quantity theory, the precautionary demand for money (for hoards), and the speculative demand for money (money as a financial asset) [De Vecchi, 1995]. This clarifies the discussion of the functions of money contained in the *Treatise*.

While Keynes expanded the theory of money, it is nonetheless true that the key aspect of his theory of money, in terms of his attack on the classical dichotomy, lies in the speculative demand and the resulting liquidity preference function. It is the speculative demand for money that links the demand for money to the rate of interest and results in the interest rate being determined in the money market instead of the loanable funds market. Given this functional relationship, Keynes wondered why anyone would want to hold money, a nonincome-earning asset. His response was to point out money's role as the bridge between the dead hand of the past and an unforeseen and less than certain future. Individuals in these circumstances will part with their money, but only if the price is right. Thus, Keynes' theory of money rests on the role of the interest rate as an incentive to overcome people's liquidity preference. The theoretical objective of Keynes' theory of money was to attack the

neoclassical notion that full employment equilibrium would be unaffected by shifts in consumption, saving, and investment. As long as saving, consumption, and investment were all functions of the rate of interest, as in the loanable funds theory, a flexible rate of interest could arguably insure a full employment equilibrium via the neoclassical extension of Say's law. This results from the fact that in the loanable funds doctrine, the interest rate, which is the determinant of businessmen's investment decisions, is also the price guiding consumer decisions regarding consumption and saving. As such, reductions in aggregate demand resulting from increases in saving (decreases in consumption) or decreases in investment would cause involuntary unemployment only in disequilibrium.

In Keynes' theory, in contrast, money is no longer a veil obscuring the operation of the real sector of the economic system. Rather, the demand for money is functionally related to the rate of interest. Here, the supply and demand for money determine the interest rate, which directly impacts investment, aggregate demand, and the equilibrium levels of output and employment.

As previously noted, by the time of the *General Theory*, Keynes had discarded his objective theory of probability in favor of a subjective degree of belief theory. In addition to using this theory of probability as the basis for his rejection of the loanable funds theory, Keynes also employed his theory of probability to examine the variables that affect the speculative demand for money. From this examination, Keynes concluded that the speculative demand for money is an indirect, yet unstable, function of the rate of interest.

In fact, Keynes' theory of expectations impact his analysis of financial markets at several points, with important implications for his theory of the cycle. His well-known view of the stock market sees investors, at least at times, as individuals who are confronted with an unknown probability (uncertainty) for which they substitute a probability that is based on "mass psychology." That is, ignorant individuals anticipate what the average opinion expects the average opinion on future stock prices to be [Keynes, 1936, p. 156]. The resulting expectations concerning future stock prices are irrational because they are not based on the underlying economic reality but on the mass psychology of the market. However, Keynes never suggested that either individual expectations or the interpretation of the mass psychology upon which those expectations were based were homogeneous [Keynes, 1936, Ch. 12].

However, individuals can still make privately rational investment decisions based on some understanding of how price expectations are formed, but these lead to socially inefficient swings in investment. If stock price expectations change the cost of equity—through portfolio substitutions, the price of debt as well— independent of the firms' prospects and investment opportunities, fluctuations in investment will result, having the potential to destabilize output and employment. If expectations regarding the productivity of capital are equally unstable, these effects may lead to falling share prices, which undermine the state of business confidence through a dampening of animal spirits. Thus, expectations may be self-reinforcing.

Another source of cyclical disturbances in output and employment identified by Keynes were people's expectations about the future rate of interest. Keynes defines the rate of interest as "...a measure of the unwillingness of those who possess money to part with their liquid control over it... It is the 'price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash..." [1936, p. 167]. Therefore, liquidity preference is

"...a potential or functional tendency, which fixes the quantity of money which the public will hold when the rate of interest is given" [p. 168]. Keynes' belief that expectations concerning future interest rates were irrational is made clear when he writes [p. 170]:

"[Just] as we found that the marginal efficiency of capital is fixed, not by the 'best' opinion, but by the market valuation as determined by mass psychology, so also expectations as to the future of the rate of interest as fixed by mass psychology have their reactions on liquidity preference..."

Here, the expectations of rising rates in the future would increase the wealth holder's liquidity preferences, that is, their demand for money at present. The resulting desire to hold onto cash makes it extremely difficult to raise security prices or to further lower interest rates, thus blocking two of the channels through which monetary stimulus might normally stimulate recovery. Put differently, pessimistic expectations assuming the future course of financial markets, however irrational its foundations, will justify a strong preference for liquidity, that is, an abnormally large demand for money. The resulting weakness in the demand for financial assets may be offered as a case where expectations create reality rather than reflect it.

In the case of liquidity preferences, Keynes did not believe that all individuals held identical expectations regarding future interest rates. Indeed, differences in interest expectation is exactly what causes the demand for money to increase as interest rates decline. As the current rate falls, more and more people come to believe that rates will rise in the future, with the result that they hold speculative balances rather than bonds. This either/or portfolio decision is consistent with Keynes' subjective degree of belief approach to expectations but is inconsistent with the widely held perception of a diversified portfolio as a rational response to uncertainty. Attempts to explain a downward sloping money demand function as a result of transactions demand responding to the interest rate [Baumol, 1952; Tobin, 1956] overcome the unappealing aspects of Keynes' approach, but only by abandoning any place for speculative balances and interest expectations in monetary theory.

In summary, Keynes' theory of money redefines the demand for money to include three components—transaction, precautionary, and speculative—thereby recognizing the role of money as a store of value, a standard of deferred payments, and a medium of exchange. Keynes' examination of the factors that affect the speculative demand for money establishes the existence of an unstable pattern between the speculative demand for money and the rate of interest, due mainly to the existence of uncertainty. As such, the interest rate is determined by monetary variables rather than real factors alone, as maintained by the British orthodoxy. The classical dichotomy is eliminated, and equilibrium at full employment is no longer assured since the determinant of businessmen's investment decisions are different from the determinant of consumers' decisions regarding saving and consumption.

Conclusion

This paper presented the place of Keynes' theory of money in his attack on what he termed the classical model. This was the primary theoretical goal of his *General Theory*, a work Keynes' believed might create a revolution in economics.

In pursuing this goal, Keynes criticized the self-correcting macroeconomic model of the British neoclassical orthodoxy along two separate but interrelated lines. In the first line of

attack, Keynes took the institutional variables of the orthodox model as given and critically examined the functional relationships of that model. Here, Keynes needed to undermine the so-called classical dichotomy, where money was merely a veil, with no role in determining output and employment. In this regard, the two key elements of the orthodox model were the loanable funds and quantity theories.

In his second line of attack, Keynes took functional relationships as given and focused on the institutional variables. Here, Keynes' attack centered on the assumptions of perfectly competitive markets with flexible market-clearing prices. In this regard, the two key linchpins of the orthodox model were the labor and real goods market, where price rigidity emerges in both markets as a result of imperfect competition and market power.

Keynes' theory of money was central to his first line of attack on the classical model. His theory of money emerged from his rejection of the loanable funds and quantity theories. In his rejection of the loanable funds doctrine and the quantity theory, Keynes took the institutional variables of the classical model as given but rejected that model's functional relationships regarding consumption, saving, and the demand for money. In their place, the *General Theory* model employs an alternative set of functional relationships regarding these variables, hence, the critical role played by his theory of money.

Keynes' theory of money redefined the demand for money to include transaction, precautionary, and speculative components, thereby recognizing the role of money as a store of value, a standard of deferred payments, and a medium of exchange. However, the key component in Keynes' theory of money in his attack on the classical dichotomy is the speculative demand for money and the resulting liquidity preference function. Speculative demand is an indirect but unstable function of the interest rate, due mainly to the existence of uncertainty. Hence, Keynes links money demand to the rate of interest, thereby determining the interest rate by monetary variables rather than real factors, as maintained by the British orthodoxy. As such, Keynes demonstrated that intended investment and saving need not be equal at full employment since the determinant of businessmen's investment decisions are different from the determinant of consumers' decisions regarding saving and consumption. The classical dichotomy is eliminated, and macroeconomic equilibrium at full employment is no longer assured.

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