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Keynes's *General Theory*: A Different Perspective

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A FLEDGLING ECONOMIST approaching Keynes's *General Theory* for the first time expects to find the policy recommendations derived from a theory that everyone knows to be "Keynesian." Although much of the thought and apparatus identified as Keynesian is there—underemployment equilibrium, liquidity trap, spending multiplier, downward wage "rigidity"—there is little about pump priming, tax cuts, and carefully timed changes in government spending to spur recovery. To find fiscal policies recommended in Keynes's work, one must look to Keynes's popular writings, many of them written before the *General Theory*. Keynes of the *Treatise on Money* (1930, II, pp. 337–38), who had not yet succeeded in the "long struggle of escape" from "traditional modes of thought and expression" gives at least as much attention to fiscal policy as Keynes of the *General Theory,* who mentions public works spending in a few passages of the chapter on the multiplier (1936, chap. 10), but neglects to mention public works in his "Notes on the Trade Cycle" (1936, chap. 22). In that chapter, as in other parts of the book, Keynes's main recommendation is for social control of investment.

The main theme of the *General Theory* is familiar: the classical theory does not

explain involuntary unemployment and cannot do so without violating its postulates. Chapter 1 takes less than a page to name the classical theorists and to state Keynes's theme. "I shall argue that the postulates of the classical theory are applicable to a special case . . . the situation which it assumes being a *limiting point* of the possible positions of *equilibrium*" (1936, p. 3, italics added). Chapter 2 leaves no doubt about the postulate Keynes has in mind. "We need to throw over the second postulate of the classical doctrine and to work out the behavior of a system in which involuntary unemployment in the strict sense is possible" (1936, pp. 16–17). The classical theory, according to Keynes's chapter 2, depends on three assumptions: (1) equality of the marginal disutility of employment and the real wage; (2) the absence of *involuntary unemployment;* and (3) the aggregate demand price and aggregate supply price being equal at all levels of output and employment. "These three assumptions, however, all amount to the same thing . . . any one of them logically involving the other two" (1936, p. 22, italics added).

What I take to be key words—limiting point, equilibrium, and involuntary unemployment—are in italics. The problem in interpreting the *General Theory* is to understand what Keynes meant by these words.

Keynes believed that the notion of involuntary unemployment, the description of the classical theory as a special case—a limiting position of equilibrium that the economic system does not generally reach—and the policy recommendations that he made are linked by a consistent framework. The equilibrium level of employment does not rise and the equilibrium rate of interest and money wage do not fall to the values consistent with full employment equilibrium. The *General Theory* is Keynes's attempt to explain why this is so and to offer a remedy.

Gottfried Habeler offered Keynes some common, current, explanations of wage rigidity and unemployment; Keynes did not accept either. Haberler asked: "Would you agree that an equilibrium with involuntary unemployment is incompatible with perfect competition in the labor market? If . . . competition there were perfect, money wages would fall all the time so long as unemployment existed. . . . If that could be agreed upon . . . most classical economists would agree with you, because nobody denies that unemployment can persist, if money wages are rigid" (JMK, *29,* 1979, p. 272).[1]

Keynes replied that although any increase of money, in wage units, is a compensatory factor, "it does not follow that involuntary unemployment . . . can be avoided by increasing the quantity of money indefinitely, keeping money wages unchanged. If classical economists have always meant that a sufficient increase of money in terms of wage units would be a compensatory element, well and good. . . . I have always understood that they favored a reduction in money wages because they believed that this would have a direct effect on profits, and not one which operated indirectly through the rate of interest" (*29,* pp. 272–73).

A year earlier, in correspondence with Bertil Ohlin, Keynes rejected the idea of monopoly elements in the labor market. Ohlin accused Keynes of not freeing himself, fully, from conventional assumptions by assuming perfect competition in the labor market (*14,* p. 196). Keynes replied that the "reference to imperfect competition is very perplexing. I cannot see how on earth it comes in. Mrs. Robinson, I may mention, read my proof without discovering any connection" (*14,* p. 190).

At about the same time, Keynes, in a letter to Hicks, commenting on Hicks's

[1] I follow the convention of citing Keynes's papers as JMK followed by the volume and page, or by indicating only volume and page numbers.

classic article (1937), distinguished the "pure classical doctrine" and the "much more confused state of mind" that had developed "an inconsistent hotch-potch" (*14*, p. 79).[2]

> The inconsistency creeps in, I suggest, as soon as it becomes generally agreed that the increase in the quantity of money is capable of increasing employment. A strictly brought-up classical economist would not, I should say, admit that. We used to admit it without realising how inconsistent it was with our other premises.

Classical and neoclassical theories of production and employment deny that the levels of output and employment depend on nominal values. Changes in nominal values, money or money wages, do not change real wages, so they cannot *permanently* change the equilibrium levels of employment and output. Keynes did not deny that changes in money or money wages could temporarily change output but, as his replies to Hicks and Haberler (quoted above) show, he did not believe that equilibrium output could be changed solely by changing nominal values.[3]

Keynes did not challenge the classical proposition that the equilibrium levels of real output and employment could only be changed permanently by permanently changing some real variable. On the contrary, he believed that equilibrium output and employment could be moved close to the *limiting point* of equilibrium emphasized in classical theories. The *General Theory* is his attempt to explain why state action could do what unaided private action could not do—permanently increase the capital stock, employment, and output.

[2] Keynes appears to have been so pleased with Hicks's article (1937) that he greeted Hicks more warmly than usual, as My dear Hicks, a salutation he had not used in previous letters and did not repeat in his next.

[3] References supporting the statements and interpretations in the next three paragraphs are given in the text and footnotes that follow.

The classical proposition that Keynes challenged is the impossibility of involuntary unemployment. For Keynes, *full employment* means the level of employment reached when the economy is on the (dynamic) production frontier. At full employment, the economy produces the maximum output that available capital and technology permit. I refer to this level of output and the associated level of employment as *maximum employment* and maximum output to distinguish Keynes's definition from other definitions of full employment.

Keynes's involuntary unemployment is the difference between maximum employment and equilibrium employment. Keynes believed that private decisions produce an equilibrium rate of investment lower, and an equilibrium capital stock smaller, than the social optima. Because investment is lower than the rate required for maximum output, aggregate demand is deficient—that is, less than the amount required to *maintain* full (maximum) employment. Nothing in the market economy adjusts. The equilibrium position is stable; everyone expects the equilibrium to persist. The problem is *not* that people do not know and cannot learn the equilibrium values of the money wage, the rate of interest, and the level of investment. The problem is that they know these values and cannot change them.

This essay offers an interpretation of the *General Theory* that, I believe, is more consistent with Keynes's theory and policy recommendations than other, more familiar interpretations. The *General Theory* and many of Keynes's letters leave no doubt that he recognized the need to reexamine old ideas and to harmonize his views on policy with the theory he had developed. Although he insisted on the main implications of his theory, he remained open to suggestions about the way in which the theory was presented and the policy implemented. He thought that

the main idea—the existence of involuntary unemployment—was simple and that, once the idea was understood, it could be expressed in alternative ways.

No single set of statements is *the* correct re-statement of the *General Theory.* There is, however, considerable difference in the degree to which different interpretations are consistent with the points that Keynes stressed in the *General Theory,* in the papers he published subsequently, and restated in his correspondence. There is, perhaps, a greater difference between the policies Keynes favored in the decade following publication of the *General Theory* and the counter-cyclical policies popularly described as Keynesian.

In the following section, I compare several well-known interpretations of Keynes's theory with Keynes's views on theory and policy. Then I offer an alternative interpretation, reconsider the role of wage rigidity or inflexibility, restate the theory formally, and derive some of the implications that Keynes emphasized. Expectations play a key role in Keynes's theory and in current work, so I contrast Keynes's views with so-called rational expectations before summarizing main conclusions.

To reduce the scope of the essay and its length, I have imposed four limitations. First, the *General Theory* went through several revisions as Keynes's ideas and emphasis changed.[4] I rely only on material included in the *General Theory* or written following its publication. Second, I treat only a small part of Keynes's policy views. A full treatment of his extensive writing on policy and its relation to his theory remains to be written. Third, as the title suggests, I offer an interpretation of Keynes's ideas from a neglected perspective. Quotations present much of the arguments in his own words. I avoid criticism of the ideas and the arguments except for some brief comments in the conclusion. Fourth, one article cannot attempt to summarize and respond to all of the interpretations, or even mention all of the interpretations. I have tried to include a broad range of views, but I have excluded those that never go beyond the first sections, in which prices are fixed; it will be clear that these interpretations miss the main point.

[4] Keynes's ideas on business cycles and unemployment developed over a lifetime. As early as 1913, he presented a theory of business cycle based on the inequality of saving and investment. See JMK, *13,* 1973, pp. 2–14.

Some Standard Interpretations

Forty-five years after its publication, the *General Theory* remains a puzzling book, subject to several different interpretations by acknowledged experts. In this section, I discuss some standard interpretations based on the work of Hicks (1937) and (1950), Don Patinkin (1976), G. L. S. Shackle (1967), and Paul Davidson (1972) and (1980) and summarize Keynes's views on stabilization policy. Keynes's policy proposals not only show what he emphasized and what he opposed, but they show also the vast gulf between Keynes's views and textbook statements of Keynesian theory and policy.

Hicks, (1979, pp. 989 & 992) repudiates his *Trade Cycle* (1950) as a "narrowly Keynesian [*sic*] model" and suggests that the central simplifications that form the basis of the *General Theory* are the use of fixed price markets for output and flexible price markets for financial assets. These markets are linked by a single price, the rate of interest (1979, p. 292). Hicks (1969, p. 313) dismisses chapter 12 of the *General Theory,* on expectations, as "rather wicked," even though Keynes's (JMK, *14,* pp. 79–81) main criticism of Hicks's classic interpretation (Hicks, 1937) is that Hicks failed to distinguish between actual and expected income in the investment function. According to Keynes (*14,* pp. 80–81):

> At one time I tried the equations as you have done, with *I* [income] in all of them. The objection to this is that it overemphasises current income. In the case of the inducement to invest, expected income for the period of the investment is the relevant variable. . . . My own feeling is that present income has a predominant effect in determining liquidity preference and saving which it does not possess in its influence over the inducement to invest.[5]

Patinkin (1976, pp. 105–07) finds the "apex of the *General Theory*" in Keynes's chapter 19. He interprets the argument of the chapter as a statement that flexible wage policy cannot maintain full employment. Although Patinkin mentions expectations, they play a secondary role in the process driving the economy to higher or lower levels of output and employment. Adverse expectations start a decline that becomes a cumulative process. Unemployment reduces money wages, increases the quantity of money in wage units, lowers the interest rate, and starts a cumulative process that restores full employment. According to Patinkin, "the essence of Keynes' argument . . . is that because of a relatively high interest elasticity of the demand for money interacting with a relatively low interest elasticity of demand for investment—both of whose effective magnitudes are very much influenced by the state of expectations—this automatic adjustment process is not very efficacious" (1976, p. 106). Patinkin illustrates his interpretation by using the traditional Keynesian cross diagram in which prices are constant at less than full employment and output is constant once full employment output is reached.

One of the few points on which we can be rather certain is that Keynes did not accept these propositions in the form offered by Patinkin. As early as 1937 with the unemployment rate near 12 percent, Keynes was concerned about too much stimulus. In *The Times* of March 11, Keynes wrote:

> [A] rising tendency of prices and wages *inevitably*, and for obvious reasons, accompanies *any* revival of activity. An improvement in demand tends to carry with it an increase in output and employment and, at the same time, a rise in prices and wages.[6] [Italics added.]

Keynes's discussion of the business cycle in chapter 22 does not mention wage (or price) rigidity. His emphasis is on the marginal efficiency of capital. A collapse of the marginal efficiency of capital starts the cycle, and fluctuations in the marginal efficiency of capital explain the regularity and duration of the cycle. According to Keynes, the regularity of the cycle and the justification for calling fluctuations in employment cyclical arise because there are regular fluctuations in the marginal efficiency of capital. Keynes could not have been clearer.

> The explanation of the *time-element* in the trade cycle . . . is to be sought in the influences which govern the recovery of the marginal efficiency of capital. There are reasons . . . why the duration of the downward movement should have an order of magnitude which is not fortuitous . . . which shows some regularity of habit between, let us say, three and five years. [1936, p. 317, italics in the original.]

Keynes makes clear that the chapter on the trade cycle is an incomplete statement written to link his thoughts on the trade cycle to his *General Theory*.[7] It is striking, however, that the points that Patinkin emphasizes are not to be found when Keynes describes the principal cyclical changes (1936, pp. 315–20). The adjustment of the rate of interest, stressed by Patinkin, is

[5] Hicks responded from the perspective of general equilibrium theory (JMK, *14*, 1973, p. 82). Although he acknowledged the importance of expected income, he insisted on retaining current income in the equation. Later, Hicks (1977, p. 146, *n.* 14) was skeptical of Keynes's claim to have "tried the equations" in their Hicksian form.

[6] Keynes's articles in *The Times* of January 12, 13, 14, and March 11, 1937 are reprinted in Terence W. Hutchison (1977).

[7] See (1936, p. 315): "My only purpose here is to link . . . with the preceding theory." See also (1936, p. 313).

explicitly rejected by Keynes (1936, p. 316–17), who wrote that it is not usually possible to shorten the cycle by reducing the rate of interest.

In a letter to E. F. M. Durbin, the reviewer of his book in *Labour,* Keynes complained (*29,* p. 232) that Durbin had represented Keynes as saying that " 'to cure unemployment it is, therefore, only necessary to force the rate of interest sufficiently low and maintain it there'." This was not his belief. He told Durbin (*29,* p. 232):

> [T]here are many passages in the book devoted to proving that attacks on the rate of interest by themselves are likely to prove an inadequate solution except perhaps temporarily. I, therefore, advocate measures designed to increase the propensity to consume, and also public investment independent of the rate of interest. . . . [I]nvestment is a matter which cannot be left solely to private decisions.

Durbin's reply emphasized two points (*29,* pp. 233–34). Keynes did not favor state ownership of the means of production; Durbin, who later became a Labor Member of Parliament, did. Durbin believed that financing investment with increased money caused inflation. Keynes replied that he would not expand when the economy is near full employment but would "relax my expansionist measures a little before technical full employment had actually been reached" (*29,* p. 235).

The January 1937 statements on policy restate, in popular form, the main message of the *General Theory.* Despite high unemployment, Keynes called for *less* general stimulus to increase aggregate demand and more attention to the distribution of demand.[8] This was not a change of mind, or a passing fancy. The emphasis Keynes gave to the planning of investment in 1937 maintains the emphasis in the *General Theory* and in his letters to Durbin.

A reader of Keynes's "Notes on the Trade Cycle" finds much that is familiar in the 1937 policy statement. Neither emphasizes the standard pieces of Keynesian apparatus—rigid wages, the liquidity trap, and the multiplier. For Keynes in 1937, as in 1936, the principal macroeconomic problem is the failure of a system based on laissez faire capitalism to achieve full employment except briefly and by a route that could not sustain full employment when it is (temporarily) achieved.

Patinkin's emphasis on the restoration of full employment stands in marked contrast to Keynes's insistence, in the *General Theory* and after, that full employment is rarely achieved and does not persist. Many of those who have paid attention to the passages denying the persistence of full employment interpret the *General Theory* as a theory of an economy in persistent disequilibrium. They have found passages that appear to support their interpretation and have, properly, emphasized the importance of expectations in Keynes's theory.

G. L. S. Shackle emphasizes several of the points on which Keynes insisted. Expectations drive Keynes's model by influencing investment, and interest rates play a less important role. Shackle (1961, pp. 211–12) believes, however, that Keynes "saw as the main theme of his book the commanding importance of uncertainty . . . and the nonsense it makes of pure 'rational calculation'. . . ." Keynes, according to Shackle, was concerned only with short-period equilibrium analysis (1961, pp. 211 and 218).

In a later work, Shackle takes a stronger position (1967, p. 129). "Keynes's whole theory of unemployment is ultimately the simple statement that, rational expectation being unattainable, we substitute for it first one and then another kind of irra-

[8] "We are in more need today [January 1937] of a rightly distributed demand than of a greater aggregate demand. . . ." Reprinted in Hutchison (1977, p. 66). Keynes believed that distribution of income affects consumption, but the reference is to geographical distribution.

tional expectation." He speaks of the "deliberate self-deception of business, in supposing its investment decisions to be founded on knowledge and to be rationally justifiable" (1967, p. 132). And he attributes involuntary unemployment "to men's failure to secure, in good time, knowledge of each others' conditional intentions or potential reactions" (1967, pp. 140–41).

Keynes described a system that remains, for long periods of time, at a stable equilibrium. He wrote, "[I]t is an outstanding characteristic of the economic system in which we live that, whilst it is subject to severe fluctuations in respect of output and employment, it is not violently unstable. Indeed it seems capable of remaining in a chronic condition of subnormal activity for a considerable period without any marked tendency either towards recovery or towards complete collapse" (1936, p. 249). On the following pages, he listed the conditions that maintained this stable outcome. Irrational beliefs or behavior, self-deception, and the other factors emphasized by Shackle are not mentioned.[9] Keynes relates the stability of the price level to the stability of money wages and the stability of employment to the value of the multiplier and the (low) interest elasticity of the demand for capital (1936, pp. 250–51).

Currently, so-called post-Keynesians are the most active group emphasizing expectations as a driving force in the *General Theory*. The post-Keynesians combine this emphasis with intense concentration on a single chapter, chapter 17—"The Essential Properties of Interest and Money" and on the role of money in "finance." In a book (1972), and a number of articles (most recently, 1980), Paul Davidson has carried forward the arguments of Shackle, Robinson, and others about the role of expectations but has insisted that it is in the relation between money and liquidity that one finds the revolutionary aspect of the *General Theory*. Keynes, according to Davidson, wanted to deny "the axiom of gross substitution as a building block" for analyzing the economy (1980, p. 305).

The main problem with this interpretation of Keynes is that the *General Theory* stimulated a very active discussion of the theory of interest. Keynes replied to most of the critics and corresponded with Dennis Robertson, Ohlin, and others. In a letter to Robertson (JMK, *14*, 1973, pp. 89–95), Keynes emphasized his agreement with Robertson[10] and restated what he regarded as the main difference between his theory of interest and the classical theory (*14*, 1973, pp. 91–92):

> [A] high level of activity carries within it the seeds of its own destruction by raising interest too high. If you had explained this by the shortage of saving and a higher rate of interest being required to call forth a sufficiency of it, you would have been orthodox and traditional. But by explaining it in terms of its effect on the demand for cash relative to its supply, *you have come over to the liquidity theory* of the rate of interest. [Italics added.]

Again and again Keynes insisted that an increase in the stock of money can, in principle, raise the level of output but, unless there is a change in the expected output, the stock of capital will not increase permanently. In the absence of such an increase in capital, full (maximum) employment cannot be sustained (see JMK, *14*, 1973, pp. 103, 131, 161, 222). This is not a denial of substitution; it is a claim that in a particular and fundamental sense—not previously emphasized—output is a real variable that cannot be

[9] I discuss Keynes's theory of expectations and the relation of uncertainty and risk in the *General Theory* (1936) and the *Treatise on Probability* (1921) in a later section.

[10] "I do feel that there is not a great deal that is fundamental which divides us" (*14*, 1973, p. 89). Keynes makes a similar statement in his 1937 *Quarterly Journal* paper (see JMK, *14*, 1973, p. 109).

changed permanently by monetary policy even if equilibrium output is less than full employment. Keynes's argument, on my interpretation, does not deny gross substitution as that term is generally used.[11] The claim is that nominal money balances are not a substitute for real capital.

In a reply to E. S. Shaw, he explained that his use of the concept of "finance" was not a change or addition, but an attempt to express his ideas in a manner more compatible with the statements of his critics. Finance, he said, "is no more than a type of active balance. . . . I attached an importance to it in my article ["Mr. Keynes and Finance: Comment"] mainly because . . . it provided a bridge between my way of talking and the way of those who discuss the supply of loans and credits etc. . . . [Finance is] one of the sources of demand for liquid funds arising out of an increase in activity. But, alas, I have only driven them into more tergiversations. I am really driving at something extremely plain and simple . . ." (*29*, 1979, p. 282). So much for the importance of "finance" in Keynes's theory.

Keynes's policy recommendations, in his *General Theory* and after, rest on his theory. He believed that his differences with A. C. Pigou and others in the late thirties were not differences about appropriate policy. They often agreed on the policy but, Keynes believed, the orthodox (Pigovian) theory of employment gave no reason to propose the policies that Pigou, Robertson, and Keynes favored. Further, as Hutchison has insisted (1977), Keynes did not accept the postwar policies called Keynesian. He described them as "modernist stuff, gone wrong and turned sour and silly," and described himself as "not a Keynesian" (Keynes, 1946, quoted by Hutchison, 1977, p. 23).

The enormous difference between Keynes's views on policy and the views often attributed to him is clearest in the memos he wrote while working in the wartime Treasury.[12] I find little evidence that he favored compensatory fiscal policy, and he opposed policies to change consumer spending by unplanned changes in government spending and taxes. Two of the main issues in the discussion are postwar policies and the conditions likely to arise in the early and later stages of the adjustment from war to peace. Keynes favored policies to stabilize investment and opposed policies to increase consumption on grounds consistent with my interpretation of the *General Theory* as a theory that implied that income can be raised permanently by increasing and stabilizing investment. At one point, Keynes makes a specific reference to the share of investment that the state should carry out or influence to achieve his aims (*27*, 1980, p. 322). His proposal is for 2/3 to 3/4 of total investment to "be influenced by public or semi-public bodies" (*27*, 1980, p. 322). Keynes did not favor state ownership, as shown by his exchange with Durbin (*29*, 1979, pp. 233–35) and his use of a quotation from Hubert Henderson favoring "an arrangement under which the State would fill the vacant post of entrepreneur-in-chief, while not interfering with the ownership or management of particular businesses, or rather only doing so on the merits of the case and not at the behests of dogma" (*27*, 1980, p. 324).

[11] As early as summer 1936, Keynes accepted some criticisms of Champernowne on chapter 17. In correspondence with Champernowne and Reddaway (JMK, *14*, 1973, pp. 64–70), Keynes analyzes the effect of substitution between such alternative assets as money, gold, and land on the rate of interest and the real wage and concludes that the direction of change in interest rates is indeterminate basing his argument on substitution in portfolios. Hicks (1977, p. 144, *n.* 12) notes that by the end of 1936, Keynes had made "considerable qualifications" to his argument in chap. 17.

[12] These materials were made available to me by Donald Moggridge after reading an earlier draft.

Keynes's proposals for stabilization policy are much better described as a mixture of rules, based on his theory, and pragmatism than as ad hoc changes. This is consistent with the stress he placed on expectations and his firm belief that the most desirable way to reduce fluctuations in income is to reduce fluctuations in investment. He wrote to James Meade as if he accepted the permanent income theory.

> I doubt if it is wise to put too much stress on devices for causing the volume of consumption to fluctuate in preference to devices for varying the volume of investment. . . . People have established standards of life. Nothing will upset them more than to be subject to pressure constantly to vary them up and down. A *remission of taxation* on which people could only rely *for an indefinitely short period might have very limited effects* in stimulating their consumption. . . . On this particular tack your proposal about varying the insurance contribution seems to me much the most practicable, partly because it could be *associated with a formula.* . . . This seems to me quite enough as a beginning. I should much deprecate . . . dealing with income-tax, where there is a huge time lag and short-run changes [are] most inconvenient. . . . Moreover, the very reason that capital expenditure is capable of paying for itself makes it much better budgetwise and does not involve the progressive increase of budgetary difficulties, which deficit budgeting for the sake of consumption may bring about. [*27,* 1980, pp. 319–20, italics added.]

The discussion continued. A month later, May 1943, Keynes again urged Meade to avoid proposals that depend on short-term changes in consumer spending. His letter makes clear, also, that Keynes's stabilization proposal did not depend on prompt changes in the amount of public works. Keynes wanted to *prevent* fluctuations, and he believed that "if the bulk of investment is under public or semi-public control and we go in for a stable long-term programme, serious fluctuations are enormously less likely to occur" (*27,* 1980, p. 326).

In addition to his interest in public direction of investment, and his advocacy of procedural changes to achieve stability of government investment, Keynes favored Meade's proposal to provide a formula for reducing social security taxes on workers, when the unemployment rate rose above 8 percent (see JMK, *27,* 1980, pp. 206–08, 312, 319). Keynes's opinion was that if a 5 percent unemployment rate is the "minimum practicable rate of unemployment" (*27,* 1980, p. 208), tax rates should not decline until unemployment reaches 8 percent.

Throughout the spring and summer of 1943, he impressed on the Chancellor his view of the central importance of a policy to stabilize postwar investment by *stabilizing* and controlling investment (JMK, *27,* 1980, pp. 352–61). He continued to follow the discussion of postwar employment policy from the United States, and on his return again took as active a role as his responsibility for postwar, international economic policy permitted. Keynes's familiar themes are repeated.[13] When the 1944 White Paper on Employment Policy appeared, he accepted the main points but opposed a section that suggested cyclical variation in interest rates as a counter-cyclical policy on the grounds that such a policy is "unworkable." "If it relates to the short-term rate of interest I am very doubtful how much it will help. If it relates to the long-term rate of interest, then the practical and fiscal difficulties in the way of significant fluctuations over a short period . . . are, in fact, overwhelming" (*27,* 1980, p. 377).

[13] Keynes favored control of consumption spending to increase saving, during the transition from war to peace. He expected the transition to last about five years, and he believed that controls would ease the transition. If a crisis occurred, he was prepared to accept autarky as a "last resort" (*27,* 1980, p. 404, *n.* 18). But, he supported forcefully Lionel Robbins's statement on the importance of preserving "the liberty, the initiative and . . . the idiosyncracy of the individual in a framework serving the public good . . ." (*27,* 1980, p. 369).

The Central Thesis

Keynes's theory has two main themes. Fluctuations in output are mainly the result of unpredictable[14] private actions that are not reversed quickly but cumulate for a time. The level around which fluctuations occur is below the average level of output and employment that could be achieved with a higher, but attainable, rate of investment. Although Keynes favored redistribution of income to increase consumer spending (1936, pp. 321, 324–25, *14*, 1973, pp. 16–17, 270–71 passim), he preferred to increase investment until the stock of capital "ceases to be scarce" (1936, p. 325; see also *29*, 1979, pp. 210–11; *14*, 1973, p. 190). The central points of the theory can be developed if we, like Keynes, center attention on investment and neglect consumption.

There are periods of three to five years duration, according to Keynes (1936, p. 317), in which the demand for investment remains below its long-term average. These periods follow a collapse of private investment—the schedule of the marginal efficiency of capital. The consequences of the collapse are discussed in detail (1936, pp. 315–20), but the main reason given for the collapse of investment is "a fickle and highly unstable marginal efficiency of capital" (1936, p. 204) in part the result of destabilizing speculation by "purchasers largely ignorant of what they are buying" (1936, p. 316). Market changes influenced by speculators are used by entrepreneurs in deciding on investment. When the prices of assets fall, investment declines.

A year later Keynes responded to critics by summarizing and restating his theory. "The theory can be summed up by saying that, given the psychology of the public, the level of output and employment as a whole depends on the amount of investment" (*14*, 1973, p. 121). There are other factors, as Keynes quickly added, but it is the factors that, "determine the rate of investment which are most unreliable. . . ." (*14*, 1973, p. 121).

The problem for Keynes is not limited to the fluctuations in output induced by changes in anticipations of future returns. The average level of employment is less than full employment. Keynes believed that the system "is not violently unstable." But, "full, or even approximately full employment is of rare and short-lived occurence."[15] He gave three principal reasons (1936, pp. 249–54):

(1) The multiplier is greater than unity but not very large. If this were not so, Keynes wrote, "a given change in the rate of investment would involve a great change (limited only by full or zero employment) in the rate of consumption."

(2) "Moderate changes in the prospective yield of capital or in the rate of interest will not be associated with very great changes in the rate of investment." Rising marginal cost of production limits the response of investment and output to inventions or improvements in business psychology (anticipations).

(3) "Moderate changes in employment are not associated with very great changes in money wages." This condition, Keynes said, keeps the price level stable when the money stock is constant.

As a result of these conditions, "we oscillate, avoiding the gravest extremes of fluctuations in employment and prices in both directions, round an intermediate position

[14] The "unpredictable private actions are changes in long-term expectations." Keynes notes that he can begin with short-period expectations fulfilled (*14*, 1973, pp. 181–82). He describes as a fundamental problem the problem of finding what the equilibrium position is. More on this in the section on expectations.

[15] Keynes describes these observations as "these facts of experience" (1936, p. 250). A better description would be strongly held beliefs, as the discussion of money wages, below, suggests. The task of the *General Theory* was to develop "psychological propensities of the modern world . . . to produce these results" (1936, p. 250).

appreciably below full employment and appreciably above the minimum employment a decline below which would endanger life" (1936, p. 254).[16]

Neither absolute liquidity preference (the liquidity trap) nor absolute wage rigidity is essential for Keynes's argument, and they do not appear in his summary, chapter 18. Keynes's subsequent restatement (*14*, 1973, p. 121) mentions the social factors that influence the money wage, but he dismisses these factors as of secondary importance for the theory of output and employment. Absolute liquidity preference does not appear in his summary, in his 1937 restatement, or in his notes on the cycle. A main reference (1936, p. 207) is followed by a statement denying the relevance of the liquidity trap.

Keynes's principal differences from what he called "classical theory" are reflected in his definition of unemployment. He believed that the average level of employment could be raised permanently by increasing the rate of investment. The difference between the average level of employment achieved and the level that could be achieved with a higher and more stable rate of investment is one part of "involuntary unemployment." The other part results from cyclical fluctuations in employment and output. Damping fluctuations in investment, Keynes believed, would reduce the cyclical component of involuntary unemployment, increase effective demand, and raise the average level of employment.

Additional support for his belief in a stable equilibrium at less than full (maximum) employment is found in a letter to Lerner commenting on Lerner's review of the *General Theory*. The letter clarifies Keynes's definition of equilibrium at less than full employment and relates the point to his emphasis on Say's Law.[17] Keynes wrote (*29*, 1979, p. 215):

> It was an important moment in the development of my own thought when I realised that the classical theory had given no attention at all to the problem at what point the supply of output as a whole and the demand for it would be in equilibrium. When one is trying to discover the volume of output and employment, it must be this point of equilibrium for which one is searching. I attach importance to this point because whereas the earlier classical economists were consciously believing in something of the nature of Say's Law, more recently the whole matter has slipped out of sight.

Keynes then added that the second important point for him was his "discovery that, as income increases, the gap between income and consumption may be expected to widen." The investment share had to rise as income rose (*29*, 1979, pp. 215–16).

Keynes's restatement of the main conclusions of this theory leaves no doubt about this belief that the economic system is (1) stable and (2) oscillates around an average level of employment below full employment (1936, chap. 18). "[T]he evidence indicates that full, or even approximately full, employment is of rare and short-lived occurrence. Fluctuations may start briskly but seem to wear themselves out before they have proceeded to great extremes, and an intermediate situation which is neither desperate nor satisfactory is our normal lot" (1936, pp. 249–50).

Keynes then restates his view that prices and output go through phases that produce the patterns and regularities ob-

[16] Keynes introduces a fourth "condition" but indicates that it "provides not so much for the stability [*sic*] of the system as for the tendency of a fluctuation in one direction to reverse itself in due course" (1936, pp. 253–54). The fourth condition is that the marginal efficiency of capital falls and rises as the capital stock rises and falls. Low investment reduces the capital stock and eventually raises marginal efficiency of capital. Sustained investment lowers the marginal efficiency.

[17] Keynes was far from certain about the proper way to state the error in classical theory. See his change of mind between page 256 and page 258 in JMK (*29*, 1979).

served in business cycles. Finally, he concludes:

> . . . the outstanding features of our actual experience;—namely, that we oscillate, avoiding the gravest extremes of fluctuation in employment and in prices in both directions, round an intermediate position *appreciably below full employment*. . . . The unimpeded rule of the above conditions is a fact of observation concerning the world as it is or has been, and not a necessary principle which cannot be changed. [1936, p. 254, italics added.]

What were the reasons behind these facts, and what could be done to change them? Keynes summarized the causal factors under three headings (1936, pp. 246–47). The first is the expectations of wealth-owners. Here, Keynes included the consumption function, the demand function for money,[18] and the expected return to real capital. The second factor is the money wage, and the third is the quantity of money. Keynes called the three factors "ultimate independent variables" (1936, p. 246). Though he acknowledged that the three factors could be analyzed further and listed the main forces on which they depend, he argued that further analysis is not necessary for the determination of real income (in wage units) and employment.

There is no reason why we should not take Keynes at his word and accept as his proximate determinants of current employment the three factors which he labelled "ultimate independent variables" and used in the very next paragraphs to explain the determination of output and employment. The problem is that a few pages later Keynes, in a famous passage, seems to dismiss two of the three ultimate factors.

> There is, therefore, no ground for the belief that a flexible wage policy is capable of *maintaining* a state of *continuous* full employment;—any more than for the belief that an open-market monetary policy is capable, *unaided*, of achieving this result. The economic system cannot be made self-adjusting along these lines. [1936, p. 267, italics added.][19]

Does this passage imply that there is no real value of money in wage units for which the system reaches and maintains full employment?

Keynes's answer is a qualified yes, but his affirmative answer applies only for his definition of full employment. Unless anticipations of higher future return to real capital shift the schedule of the marginal efficiency of capital, reductions in money wages or increases in the quantity of money do not maintain full (maximum) employment. Reduction of money wages may, for a time, increase employment, but the higher level will not persist unless the reduction in money wages raises the expected returns to capital. Keynes reaches exactly the same conclusion about increases in money and for the same reason.

Why does the schedule of the marginal efficiency of capital rest below the level required for full employment? To answer this question, Keynes distinguishes between the schedule of the marginal efficiency of capital and the prevailing rate of interest. There are, he believes, three ambiguities about the marginal efficiency schedule, but the "main cause of confusion" is the failure to distinguish "between the increment of value obtainable by using an additional quantity of capital in the *existing* situation, and the series of increments which it is expected to obtain *over the whole life* of the additional capital asset" (1936, p. 138, italics in the original). Three pages later, Keynes restates the principal confusion as the failure to see that the position of the marginal efficiency schedule depends on the *"prospective*

[18] Actually, Keynes refers to the psychological attitude to liquidity. Following the *General Theory* (1936, p. 168), I interpret this to mean the demand for money.

[19] The emphasis on "unaided" in the quotation points up Keynes's belief that state of control of investment was one way to raise employment to a permanently higher level.

yield of capital, and not merely on its current yield" (1936, p. 141). This is, of course, similar to the point, cited above, that Keynes made to Hicks when he stressed expectations of income (*14*, 1973, pp. 80–81).

Changes in the rate of interest by monetary or wage policy can change the amount of investment and thereby increase income and employment. But, to maintain full employment, the increase must persist. This requires a change in expectations about the stream of future returns or (1936, pp. 203–04) a reduction in the expected, effective interest rate. Keynes did not believe either change would occur without a reduction in actual and perceived risk.

There are three types of risk (1936, pp. 144–45). The first arises from uncertainties inherent in nature. In an uncertain world, actual and anticipated returns differ. This risk must be borne, according to Keynes, in every society and cannot be eliminated. A second risk is the risk of capital losses arising from changes in the real value of financial assets. This risk, Keynes said, "renders a money-loan . . . less secure than a real asset; though all or most of this [risk] should be already reflected, and therefore absorbed, in the price of durable real assets" (1936, p. 144). The remaining risk he called "lender's risk." This risk arises because borrowers default, voluntarily or involuntarily. It "is a pure addition to the cost of investment which would not exist if the borrower and lender were the same person" (1936, p. 144). Moreover, Keynes said, the cost for this risk is added twice, once by the lender and once by the borrower. In his role as investor, the borrower requires compensation for the risk to induce him to invest, and the lender in the ordinary case, seeks compensation for the risk of default. In periods of expansion, the evaluation of this risk is biased downward; "both borrower's risk and lender's risk, is apt to become unusually and imprudently low" (1936, p. 145). This leads to a boom caused by a rate of investment that is not sustained in a market economy.

The last point is crucial for Keynes. The risk that is most subject to change—to bullish and bearish sentiments and to cumulative waves of optimism and pessimism—can be eliminated entirely. Fluctuation can be reduced by eliminating the influence of speculative changes in lender's evaluation of risk and by eliminating default risk. Reducing risk raises the marginal efficiency of capital to a higher level and permits the economy to reach full employment.

Keynes explains how full employment can be achieved and fluctuations reduced. After discoursing on the baneful influence of speculators who greatly influence the prices of real capital quoted on financial markets, Keynes explains why speculators "inevitably exert a decisive [*sic*] influence on the rate of current investment. For there is no sense in building up a new enterprise at a cost greater than that at which a similar existing enterprise can be purchased; whilst there is an inducement to spend on a new project what may seem an extravagant sum, if it can be floated off on the Stock Exchange at an immediate profit" (1936, p. 151).

Chapter 12 attempts to explain why short-term speculators have great and growing influence on quoted asset prices, and thus on investment, but the main point of the argument does not change. "There is no clear evidence from experience that the investment policy which is socially advantageous coincides with that which is most profitable" (1936, p. 157). Management of investment by the state, Keynes suggests, can be based on long-views, can eliminate the additional cost of unanticipated default, and possibly bring the equilibrium marginal efficiency of capital to zero in a generation.

In correspondence with J. A. Hobson,

Keynes set out criteria for judging when investment is socially advantageous but not privately profitable. "I cannot agree that investment has ceased to be socially profitable as long as it yields any return at all. . . . [I]nvestment has only reached saturation point when capital is so abundant that it yields no more over a period of time than its cost of production without any surplus" (*29*, 1979, p. 211). Keynes makes a similar point on (*29*, 1979, p. 210) and (1936, p. 376).

Keynes's argument about expectations is not confined to the "wicked" chapter 12. In chapter 5, he compares short- and long-term expectations. It is "often . . . safe to omit express reference to *short-term* expectation, in view of the fact that in practice the process of revision of short-term expectation is a gradual and continuous one, carried on largely in the light of realised results. . . . [M]ost recent results usually play a predominant part in determining what these expectations are" (1936, pp. 50–51; italics in the original). Long-term expectations of investors influence producer's short-term expectations. "[L]ong-term expectations . . . cannot be checked at short intervals in the light of realised results. . . . [T]hey are liable to sudden revision" (1936, pp. 50–51).

In chapter 22 Keynes discusses the use of monetary policy to damp the business cycle. There he asserts that, at the time, most people prefer increased income to increased leisure, insists that his definition of full employment is not the usual definition (1936, p. 326), and contrasts his definition with that of D. H. Robertson, "who assumes . . . that full employment is an impracticable ideal and that the best we can hope for is a level of employment much more stable than at present and averaging, perhaps, a little higher" (1936, p. 327). Keynes then compares two alternatives—social control of investment and reliance on a countercyclical policy that permits interest rates to rise in a boom. He concludes, tentatively, that allowing interest rates to rise might deter "even the most misguided optimists" (1936, p. 327). Keynes rejects the use of monetary or, as he would say, banking policy, however. His reason for rejection is relevant and contradicts those who identify the Keynesian case with the liquidity trap. He does not assert that monetary policy cannot work or that money is not a substitute for capital. Reliance on monetary policy is "dangerously and unnecessarily defeatist. It recommends . . . for permanent acceptance too much that is defective in our existing economic scheme" (1936, p. 327). Keynes does not say what is defective, but the context suggests that it is fluctuations in output that keep average output below maximum output.[20]

There is no ambiguity when Keynes in 1943 compared state intervention to increased investment with policies to reduce interest rates. He wrote (*27*, p. 350):

> It is not quite correct that I attach primary importance to the rate of interest. What I attach primary importance to is the scale of investment and [I] am interested in the low interest rate as one of the elements furthering this. But I should regard State intervention to encourage investment as probably a more important factor than low rates of interest taken in isolation.
>
> The question then arises why I should prefer rather a heavy scale of investment to increasing consumption. My main reason for this is that I do not think we have yet reached anything like the point of capital saturation. . . . After twenty years of large-scale investment I should expect to have to change my mind.

These are not isolated thoughts. They are the theme of the book, and the point they make is repeated in Keynes's correspondence with Hicks, in three 1937 papers on "The Theory of the Rate of Interest" (JMK, *14*, 1973, pp. 101–08), "The

[20] In JMK (*14*, p. 227) Keynes comments on this paragraph and interprets the statement to mean that the systems for controlling booms are deficient. The reference is to the use of monetary policy.

General Theory of Employment" (*14*, 1973, pp. 109–23), and in his Galton lecture on "Some Economic Consequences of a Declining Population" (*14*, 1973, pp. 124–33). In the first of the three papers, Keynes distinguishes his theory from the classical theory of interest on two grounds. First, the demand for money in wage units depends, *inter alia* on the quantity of money because in the short-run the rate of interest depends on the stock of money.[21] Second, investment reaches its equilibrium rate before "the elasticity of supply of output as a whole has fallen to zero" (*14*, 1973, p. 104). To Keynes, this means that aggregate output can be pushed to a higher level than can be achieved under laissez faire. Keynes then notes that his reason for calling his theory a general theory is a direct consequence of the treatment of expectations. In the second of the three papers, he backs away from his policy recommendations[22] but repeats the two "main grounds of my departure" from classical theory. Again, these are the treatment of expectations and the meaning of full employment. In his Galton lecture, Keynes discussed long-term growth but expresses, not doubt but, strong conviction that the depression will end and that investment will rise, relative to output "in the near future up to the best standard we have ever experienced in any previous decade" (*14*, 1973, p. 130).

The similarity between these papers lies not only in what is said but in what is omitted. Rigid wages, liquidity traps, disequilibrium (in the current or conventional sense), denial of gross substitution, the real balance effect—none of these is prominent in the argument and several are not present. That this is not an accident is shown not only by the repetition of his main point but by his response to Hicks following Hicks's review of the *General Theory* in the *Economic Journal* (1936).

Keynes began by discussing whether he must assume, as Hicks claimed, that the price elasticity of the supply of consumption goods must be high (*14*, 1973, p. 71). Keynes responded that a high elasticity is not required. All that is required is that the price elasticity of the supply of output not be zero, as classical theorists believed. He then redefined full employment in terms of the price elasticity of supply.

> If I were writing again, I should indeed feel disposed to define full employment as being reached at the same moment at which the supply of output in general becomes inelastic. It is perfectly true that a great part of my theory ceases to be required when the supply of output as a whole is inelastic. [*14*, 1973, p. 71.]

Hicks's response withdrew the point about "high" elasticity, and added: "I do not want to give up my substantial point, that output may have reached a short-period maximum, even when there are a considerable number of unemployed specialised to the investment goods industries. But I take it you would now accept

[21] The statement Keynes makes appears in JMK (*14*, 1973, pp. 103–04). Keynes talks about the marginal efficiency of money, not the demand for money. Paul Davidson has called my attention to the term "money" in this sentence. In the original draft, I referred to money as "real balances" to represent "the marginal efficiency of money in terms of itself." Davidson persuaded me that this is not what Keynes meant, and he suggested "nominal money" be used instead. I am not persuaded. The ambiguity arises because, in the first half of the *General Theory*, prices and money wages are held fixed, so it is often difficult to judge from the context when Keynes means nominal money and when he means money in wage units. In an exchange with Henderson, Keynes writes, "the absolute quantity of money has no enduring effect on the rate of interest, I do not admit that the quantity of money measured in wage units has no enduring effect" (*29*, 1979, p. 221c). On the following page, he repeats the point "The rate of interest still depends on the interaction of liquidity preference and the quantity of money in terms of wage units."

[22] "I consider that my suggestions for a cure, which, avowedly, are not worked out completely, are on a different plane from the diagnosis. They are not meant to be definitive; they are subject to all sorts of special assumptions and are necessarily related to the particular conditions of the time. But my main reasons for departing from the traditional theory go much deeper than this. They are of a highly general character and are meant to be definitive [*sic*]" (JMK, *14*, 1973, p. 122). He then discusses the two issues, expectations and full employment.

this and *redefine* full employment to cover this case" (*14,* 1973, p. 73, italics added).

Keynes neither granted Hicks's point, nor conceded much. He agreed that the economy can reach a short-period maximum with workers unemployed. "The definition I gave in my previous letter is formally equivalent, I think, with that which I gave in my book" (*14,* 1973, p. 75).[23]

The multiplier-accelerator model with a fixed production function captures much of the message of the *General Theory* as a real theory. The production function sets maximum output, but the economy moves between peak and trough and achieves an average level of output, substantially less than the maximum. The system is not unstable, as in Hicks (1950), but fluctuations occur around a level lower than the level that can be achieved.[24]

Keynes's definition of involuntary unemployment is an implication of this theory. His belief that a one-time increase of investment, under state control or direction, can permanently raise the level of output, achieve full (maximum) employment, and eliminate the gap between average output and maximum output is at best a conjecture.

Rigid Wages

Most statements or restatements of the *General Theory* focus attention on Keynes's assumption that because wages are rigid, real wages do not adjust to clear the market. Franco Modigliani identifies the Keynesian special case with the conditions that interest rates and money wages are at the minimum level set by the liquidity trap and wage rigidity (1944). Milton Friedman accepts this interpretation (1974) and cites Keynes's statement (1936, p. 276) that wages are rigid as evidence that an equation (for wages) is "missing." Haberler (1964), Hicks (1977, p. 81), Harry G. Johnson (1961), and other distinguished scholars share this interpretation. Robert Clower (1965) uses wages and Axel Leijonhufvud (1968, p. 52) uses price inflexibility to deny market clearing, and Hicks cites some of his own earlier work that reaches a similar conclusion (1979, pp. 991–92). Each of the last three interprets his position as Keynesian, although Clower recognizes that the *General Theory* makes no statements about quantity-constrained demand curves (1965, p. 120).

Keynes relied on wage inflexibility to explain why output fluctuates (1936). Chapter 19, which tries to explain why workers cannot always reduce unemployment by lowering money wages, recognizes that the conclusion is not universal. "A reduction in money-wages is quite capable in certain circumstances of affording a stimulus to output, as the classical theory supposes"[25] (1936, p. 257).

Keynes mentions several channels through which a fall of money wages increases employment. Two are of interest. In an open economy, a reduction of home money wages relative to money wages abroad increases employment if it is not offset by changes in tariffs and quotas. He

[23] Compare the similar statement from chapter 20 of *The General Theory.* "We have shown that when effective demand is deficient there is under-employment of labour in the sense that there are men unemployed who would be willing to work at less than the existing real wage. Consequently, as effective demand increases, employment increases, though at a real wage equal to or less than the existing one, until a point comes at which there is no surplus of labour available at the then existing real wage" (1936, p. 289). Hicks (1977, p. 144, *n.* 12) was convinced only that Keynes was correct on Keynes's assumption.

[24] Hicks's conclusions (1950) are obtained by imposing arbitrary constraints. Hicks (1979) explicitly repudiates his 1950 model; in his 1977 book he explains the basis of his change (1977, pp. 177–80). I am grateful to Hicks for the reference to his 1977 book.

[25] Keynes states that chapter 19 amplifies and explains his statement that the wages are not equal to the marginal disutility of labor. In the light of this sentence, and the definition of full employment, it would have been clearer to say that wages are not always equal to marginal disutility of labor. E. Roy Weintraub comments that he interprets Keynes's use of fixed wages prior to chapter 19 as an expositional device.

dismisses this channel by assuming the economy is closed (1936, p. 265). The second channel, a reduction of current money wages relative to future money wages, increases employment in two ways. The marginal efficiency of capital rises and, because money income is lower and firms have smaller wage bills, the community's liquidity preference declines, reducing the rate of interest. A few pages later (1936, p. 266), Keynes suggests that liquidity preference refers to the demand for money in wage units.

Keynes explains why cyclical fluctuations in money wages do not increase the demand for investment. His two arguments are contradictory, as he clearly notes (1936, p. 263). A gradual reduction of money wages generates expectations of a further fall; entrepreneurs extrapolate, wait for the additional reduction, and delay investment. On the other hand, if there is a general belief that the fall in money wages will not persist, wage reduction reduces short-term loans and interest rates more than long-term loans and rates (1936, p. 263).

Keynes dismisses the first argument—the effect of wage reduction on the demand for investment. The fall in money wages would be most effective if it were large and sudden, but this does not occur in a system of free-wage bargaining. Since institutional arrangements prevent quick changes, "it would be much better that wages should be rigidly fixed and deemed incapable of material changes" (1936, p. 265).[26]

A major conclusion follows. Those who argue that wage reduction *maintains* stable employment at the full employment level must rest their argument on the effect of wage changes on interest rates and the demand for money. "The same reasons . . . which limit the efficacy of increases in the quantity of money as a means of increasing investment to the *optimum* figure, apply *mutatis mutandis* to wage reductions" (1936, p. 266, italics added).

Keynes restates his reasons. "Just as a moderate increase in the quantity of money may exert an inadequate influence over the long-term rate of interest, whilst an immoderate increase may offset its other advantages by its disturbing effect on confidence; so a moderate reduction in money-wages may prove inadequate, whilst an immoderate reduction might shatter confidence even if it were practicable" (1936, pp. 266–67).

The implication of this statement is that no one knows the correct amount to change nominal money or nominal wages. Too large or too small a change in money balances (per wage unit) can cause, rather than eliminate, fluctuations. The principal reason that Keynes gives is that the effect on expectations, and therefore on investment, is destabilizing. Large changes in money wages, he writes, "cause a great instability of prices, so violent perhaps as to make business calculations futile" (1936, p. 269).

It is difficult to find any of the conventional interpretations of Keynes in these passages, or in the chapter from which they are drawn. The liquidity trap is not mentioned. The influence of changes in the stock of money on prices and real wages is not denied. The problem is that the change in real wages will be too large or too small to *maintain* full employment at a level that can persist only when investment is at an *optimum*. Price expectations are affected by changes in money and wages, and expectations are volatile,

[26] Chapter 19 gives no justification for the so-called Keynesian policy of guideposts and guidelines. Keynes *prefers* rigid money wages as a policy to avoid the depressing effect of uncertainty about the trend of wages and to reduce fluctuations. His belief that wage increases are slow to occur is a foundation for his argument that future profits are over-estimated during expansions. Most of his discussion, of course, pertains to an economy with price changes but no inflation.

driven by the action of short-term speculators who are influenced by the policy changes.[27]

The discussion of money wages does not conflict with the "Notes on the Trade Cycle," but the latter is much less concerned with maximum employment and more explicit about the reasons cycles persist. Keynes gives three reasons. Once expectations change, time must pass before decay and obsolescence reduce the capital stock and, thereby, raise the marginal efficiency. Inventories of finished and semi-finished goods are reduced during the recession, so for a time there is disinvestment in inventories. Investment in working capital, or raw materials, declines also. But the only reference to wages in his discussion is a mention of current costs of production as a factor reinforcing the effect of declining current returns to investment. At the peak of the expansion, costs of production may be high relative to expected future costs, "a further reason for a fall in the marginal efficiency of capital" (1936, p. 317).

Keynes suggested that studies be undertaken of the relation between real and money wages (1936, pp. 9–10). John T. Dunlop (1938) and Lorie Tarshis (1939) responded. Keynes interpreted their evidence for Britain and the United States as showing (1) that real and money wages rise together and (2) that when money wages fall, real wages may rise or fall (1939). The positive association when wages rise is contrary to Keynes's proposition, and the lack of association when wages fall furnishes no support.

Keynes did not accept the evidence as decisive, but his reply qualifies his earlier proposition in several ways. The most important, for present purposes, is his clarification of the relation of his statements about real wages in chapters 2 and 19. Chapter 2 discusses the relation between real wages and output when there are changes in aggregate demand. Chapter 19 allows money and real wages to change in response to changes in prices caused by forces other than the change in aggregate demand. The "rigidity" of wages in chapter 2, and the relation between money and real wages, is, therefore, a partial equilibrium result. To investigate the relation, Keynes indicates, prices must be held constant, and hourly wages must be used instead of the weekly wages available to Dunlop and Tarshis. (See also JMK, *29*, 1979, p. 285.)

Keynes draws two very relevant conclusions. The first is a tentative conclusion that "short-period changes in *real wages* are usually so small compared to changes in other factors that we shall not go far wrong if we treat *real wages* as substantially constant in the short-period[28] (1939, pp. 42–43, italics added). The second conclusion is even more striking. After pointing out that the relation between real and money wages in the *General Theory* is the traditional relation, based on the writings of Marshall and Pigou, Keynes adds:[29]

[27] Keynes's recommendations for stable monetary policy differ in extreme from the variable policies practiced in the U.S., the U.K., and elsewhere in recent years. See the *General Theory* (1936, p. 203), where Keynes strongly supports policies "rooted in strong conviction, and promoted by an authority unlikely to be superseded."

[28] The claim that real wages are constant appears to be a complete contradiction of the statements in chapter 17 of the *General Theory* (1936, pp. 229–33, esp. 232) explaining why interest rates do not fall enough to maintain full employment. The contradiction vanishes, however, if chapter 17 is read as an explanation of the failure of a market economy to reach Keynes's full, i.e., maximal, employment. The same interpretation of "full employment" reconciles Keynes's discussion on page 249 of the *General Theory* with his later views.

[29] Keynes cites Marshall's testimony in the late nineteenth century before the Gold and Silver Commission and before the Indian Currency Commission. In the latter, Marshall relied on some evidence published by Bowley. Keynes (1939, p. 38) extends Bowley's series and finds that the data after 1886 do not support the "traditional" interpretation on which he had relied. Keynes seems unaware of Henry Thornton (1802) who explained fluctuations in output by asserting that prices are more flexible than money wages.

> That I was an easy victim of the traditional conclusion because it fitted my theory is the opposite of the truth. For my own theory this conclusion was inconvenient, since it had a tendency to offset the influence of the main forces which I was discussing and made it necessary for me to introduce qualifications. . . . If . . . it proves right to adopt the contrary generalisation, it would be possible to simplify considerably the more complicated version of my fundamental explanation which I have expounded in my "General Theory." [1939, p. 40.]

It is difficult to read these conclusions either as a defense of wage inflexibility or as evidence that rigidity of money wages (or prices) is the central tenet on which the *General Theory* stands or falls. Although Keynes did not accept the evidence produced by Dunlop and Tarshis as sufficiently persuasive to change his opinion about cyclical changes in wages, he makes clear that the main conclusions of the *General Theory* do not depend on rigid money wages.

Even in the *General Theory,* the assumption that wages are rigid is advanced as a working hypothesis not a firm conclusion. Keynes makes "a provisional assumption of a rigidity of money-wages, rather than of real wages . . . [to] bring our theory nearest to the facts" (1936, p. 276). He cites the experience of 1924–34 as a reason for making the assumption. The language is cautious and tentative, and the assumption is introduced to contrast his theory of employment with Pigou's and to explain why, in Keynes's words (1936, p. 276), his theory is a general theory whereas the classical theory is "one equation short." The assumption of fixed money wages supplies "the missing equation."

The Model and the Missing Equation

Keynes clarified the role of the "missing equation" in his 1937 article in the *Quarterly Journal.* The restatement gives the "main grounds of my departure" from classical theory (*14,* 1973, p. 122).

> In a system in which the level of money income is capable of fluctuating, the orthodox theory is one equation short of what is required to give a solution. Undoubtedly, the reason why the orthodox system has failed to discover this discrepancy is because it has always tacitly assumed that income *is* given, namely, at the level corresponding to the employment of all the available resources. In other words, it is tacitly assuming that the monetary policy is such as to maintain the rate of interest at that level which is compatible with full employment. [*14,* 1973, pp. 122–23; italics in the original.]

This section presents a condensed restatement of Keynes's theory, using conventional symbols, to show that my interpretation is consistent with many of Keynes's policy recommendations and the statements Keynes made about his views in the *General Theory* and after. The model has eight equations. In most equations—the labor supply equation is an exception—nominal values are deflated by the money wage, W.

In the markets for money and goods, the principal difference between Keynes and his predecessors is the explicit treatment of expectations and the insistence on treating money as an asset. The equality of saving and investment establishes the equilibrium in the market for goods. Equations (1) to (3) form a conventional *IS* curve, representing alternative positions of this equilibrium. Expected income, E, appears in the investment function. Keynes's letter to Hicks cited earlier (*14,* 1973, pp. 80–81), suggests that E is most appropriately defined as expected income in wage units. Equation (4) is an equilibrium condition for the money market. The quantity of money demanded equals the quantity supplied. The *LM* curve specifies this equilibrium relationship and is written with the expected rate of interest, r^e, in addition to the rate of interest and income. A fall in the expected rate of interest reduces the demand for money. The *General Theory* has many

statements about the effect of the expected rate of interest on the demand for money;[30] these statements suggest that r^e is the currently expected long-term rate. The use of deflated values for money and income in this equation is based on the principle of homogeneity of degree one of nominal values in the money and goods markets and is supported by Keynes's letter to Henderson (*29,* 1979, pp. 221–22) cited above.

Equations (1) to (8) express behavior in the markets for goods, money, and labor.

$$\frac{S}{W}=\frac{I}{W} \tag{1}$$

$$\frac{S}{W}=S\left(\frac{Y}{W},r\right) \tag{2}$$

$$\frac{I}{W}=I(r,E) \tag{3}$$

$$\frac{M}{W}=L\left(r,r^e,\frac{Y}{W}\right) \tag{4}$$

$$\frac{Y}{W}=F(K,N) \tag{5}$$

$$N^d=f\left(\frac{W}{P}\right) \tag{6}$$

$$N^s=g(W) \text{ or } g(W,P) \tag{7}$$

$$N=N^d\leqq N^s \tag{8}$$

Keynes's principal innovation on the supply side is a claim that the economy's equilibrium position is at less than the maximum output attainable with the available labor force, tastes, and customs. This proposition takes several forms that I have cited repeatedly. These include Keynes's statements that the supply of output depends on the price level, his claim that an increase in the rate of investment for twenty years would satiate the capital stock and raise output, and his policy recommendations for pre-war and post-war Britain. Equations (5) to (8) are consistent with these claims, if we impose the restrictions that Keynes imposed.

Equation (5) is a standard production function, and equation (6) is the demand for labor, derived from (5). Keynes is clear in chapter 2 (1936, pp. 5 and 17) and elsewhere (*29,* 1979, pp. 284–85, *inter alia*) that he accepts the classical theory of the demand for labor. The labor supply function is the function most often described as "Keynesian." Above, I have reported Keynes's reasons for assuming that it is the money wage, not the real wage, that is determined in labor markets[31] (1936, chap. 2, p. 30; *29,* 1979, p. 284).

Generally, equation (8) holds as an inequality. This is the main point of Keynes's argument: at the equilibrium output that the economy reaches, there is involuntary unemployment. As employment rises, real wages fall. In one letter, Keynes refers to the fall in real wages as "one of the best established of statistical conclusions" (*14,* 1973, p. 190), a statement similar to his replies to Dunlop (Keynes, *29,* 1979, pp. 284–85; 1939).

The eight equations could be expanded to capture all of the interactions Keynes mentions. For example, the distribution of income could be entered in the saving function to correspond with Keynes's stated views. Our purpose is not to replicate detail but to reach Keynes's main conclusions. To do so, we follow Keynes (1936, p. 245) and take as given the skill and quantity of available labor and capital, techniques of production, tastes for con-

[30] There are, in fact, too many statements to neglect, as I tried to do in an earlier draft. Paul Davidson, properly, insisted that without the expected rate of interest, the model misses a central point. One of Keynes's clearest statements is in JMK (*29,* 1979, p. 266).

[31] Keynes makes clear that money wages respond to inflation, and in his reply to Dunlop and Tarshis, he explains that the inflexibility of wages refers to the absence of an effect of real income on the money wage. He would not have objected, and more likely would have insisted, on including expected wages or prices in the labor supply equation under conditions of inflation.

sumption and leisure, the distribution of income, and institutional arrangements. The "ultimate independent variables" (1936, pp. 246–47) are the expectations and functions or propensities, the money wage, and the stock of money. These variables determine "the volume of employment and the national income . . . measured in wage-units" (1936, p. 245).

A few pages later (1936, pp. 249 and 253), Keynes suggests that the model or framework also determines the price level. His reason for excluding the price level from the earlier discussion is that the price level, the money wage, and the rate of interest (1936, p. 250) are subject to moderate changes. He adds that these moderate changes are not matters of "logical necessity" (1936, p. 250); they are among the factors keeping the system stable for given expectations of long-term values.

We can reproduce several of Keynes's conclusions most readily by reducing the system to three equations. The *IS* curve is the solution to equations (1) to (3); the *LM* curve is a rearrangement of eq. (4); and the *SS* curve is derived from eqs. (5) to (8). Keynes insisted that aggregate demand and aggregate supply determine output and employment, not aggregate demand alone.

$$IS: \frac{Y}{W} = A\left(r, \frac{Y}{W}, E\right) \tag{9}$$

$$LM: \frac{Y}{W} = B\left(r, r^e, \frac{M}{W}\right) \tag{10}$$

$$SS: \frac{Y}{W} = F[K, N(W,P)] \tag{11}$$

There are eight variables, but only three equations. Keynes pre-sets at least five variables—the two expectations, *M*, *W*, and *K*. With these assumptions, we can solve for *Y/W*, *P*, and *r*. The solution for *P*, given *W*, determines the demand for labor and the level of employment under all conditions except full (maximum) employment.[32] The labor supply affects the outcome only at full employment, a temporary and unusual circumstance in the *General Theory*.

Keynes discusses a more restricted solution, in which the price level is constant, through most of the first seventeen chapters. With the price level constant, *IS* and *LM* determine *Y/W* and *r*, as in the more general case, but the supply equation, *SS*, becomes a fixed relation between aggregate supply and employment that depends only on technology or in Keynes's words "the physical conditions of supply" (1936, p. 89). The demand for labor sets the level of employment required to produce a level of output equal to aggregate demand. There is no point to talking about the real wage, since *W* and *P* are assumed to be fixed. Using Keynes's symbols for aggregate demand and aggregate supply, *D* and *Z* respectively, in place of *Y/W*, we have $Z = \phi(N)$ as an aggregate supply function. In our notation, this is equivalent to equation (11) where the conditions of production, *F*, are included in ϕ. For the special case of a fixed price level, *N* is independent of *P*; we can, if we wish, write $N = n(D)$. The ϕ and n functions correspond equally to Keynes's formal statements (e.g., 1936, chap. 3 and p. 280), and to the implications of eqs. (9) to (11) with the price level fixed.

Keynes added a formal analysis of the price elasticity of supply (1936, chap. 20), but he did not treat the price elasticity of supply or price changes as a central problem under conditions of less than full (maximum) employment. The supply function in this case, using Keynes's symbols, is $Z = \phi[N(P)]$, a different form of eq. (11).

We can investigate the implications of

[32] "Hence, the volume of employment in equilibrium depends on (i) the aggregate supply function, . . . (ii) the propensity to consume . . . and (iii) the volume of investment. . . . This is the essence of the General Theory of Employment" (1936, p. 29).

eqs. (9) to (11) and compare the implications to Keynes's statements using a two quadrant diagram. The upper quadrant shows the *IS* and *LM* curves. The position of the *IS* curve depends on expected output, *E*, and the position of the *LM* curve depends on r^e and M/W. The lower quadrant shows the *SS* curve. The price level rises with Y/W. The position of *SS* in *Figure* 1 depends on *K* and *W*. With fixed money wages and prices, the supply curve would be horizontal up to full employment; then, it would become vertical. The *IS*, *LM*, and *SS* curves are shown in *Figure* 1.

On average, Keynes's economy achieves a level of output that is less than full employment. Suppose expectations are sufficiently rational that the expected level of output equals the average level of output. Let E_0 denote the expected level of output. When $E_0 = Y_0/W_0$, aggregate demand is at IS_0. When expected output falls below E_0, *IS* shifts to the left and output declines; prices fall along *SS;* with money wages fixed, real wages rise. *Figure* 1 shows, however, that *below* Y_0/W_0 the qualitative implications do not depend on the shape of *SS;* the only ways that a fall in prices can affect the qualitative conclusions are by changing expectations and by changing *W*. Both are discussed by Keynes.

The product of wages and employment is a large component of income. The capital stock is given. Suppose that r^e is the rate of interest that satisfies the *IS* and *LM* schedules at $E_0 = Y_0/W_0$. People can determine the expected *W* by acting as if they subtracted the share of current income going to capital, Kr^e, and then used equation (11) to determine employment. In Keynes, this is $N = n(D)$, as we know.

Keynes relied on conventions or customs to set money wages, but he defined conventions in terms of expectations (1936, p. 152), so he would not have objected to treating *W* as the wage expected

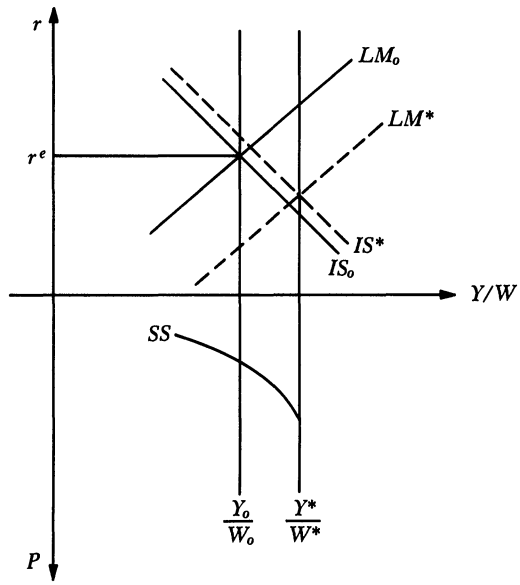

Figure 1

on average. On this interpretation, expected and actual money wages coincide only at Y_0/W_0; W_0 is the wage expected to be paid on average.

Whenever expectations (or increases in money) push output above Y_0/W_0, the price level rises, real wages fall, and employment is above average. Even in these circumstances, employment is set by labor demand; $N^d < N^s$. At full employment output, output is at the maximum set by tastes, technology, and available capital. This is Keynes's full employment output. In *Figure* 1, Y^*/W^* is full employment output.

Output fluctuates around a level that is below maximum output, as Keynes said. Optimistic expectations permit the economy to reach Y^*/W^*, but the high rate of capital accumulation at full employment lowers the marginal efficiency of capital and reduces the demand for investment. Output and employment fall to the average level, Y_0/W_0 (1936, pp. 217–18).

Attempts to push the economy above

Y^*/W^* by monetary policy or by spending on public works produce rising prices, with constant output and employment. Workers achieve full employment at real wages below the real wage paid at levels of output less than or equal to Y_o/W_o. Keynes referred to positions above IS^* as absolute inflation to distinguish permanent increases in prices and money wages from cyclical fluctuations in prices around a constant average price level. I have not found a suggestion that the supply function of labor shifts to restore the real wage obtained at Y_o/W_o.

Below Y^*/W^* real wages rise and fall inversely with the price level. Below Y_o/W_o, the price level is below the average or expected value that would obtain with fixed stocks of money and real capital, or with a constant average gold stock under a gold standard. Real wages are "high" and employment is "low." Between Y_o/W_o and Y^*/W^* the price level is above the average or expected long-term price level set by a gold standard or a constant, long-term average stock of money. Employment is above its average or expected (long-term) value, but real wages are below average.

Keynes's involuntary unemployment is the difference between Y^*/W^* and Y_o/W_o. Workers cannot permanently reduce this level of unemployment by reducing money (and real) wages. A reduction in money wages (or an increase in M) shifts LM to the right, say to LM^* in *Figure* 1. At LM^*, output is near Y^*/W^* but, Keynes explains, if the schedule of the marginal efficiency of capital is unchanged while the rate of interest has fallen below the rate determined by psychological and institutional considerations, r^e, "entrepreneurs will necessarily make losses. . . . Hence the stock of capital and the level of employment will have to shrink until the community becomes so impoverished that the aggregate of saving has become zero. . . . [T]he position of equilibrium . . . will be one in which employment is low enough and the standard of life sufficiently miserable to bring savings to zero" (1936, pp. 217–18). The economy returns to Y_o/W_o.

Keynes continues and makes clear that he does not envisage a multitude of potential solutions. There is *only one* alternative equilibrium position. "The only alternative position of equilibrium would be given by a situation in which a stock of capital sufficiently great to have a marginal efficiency of zero also represents an amount of wealth sufficiently great to satiate to the full the aggregate desire on the part of the public to make provision for the future, even with full employment, in circumstances where no bonus is obtainable in the form of interest" (1936, p. 218). The rate of interest—actual and expected—must be reduced toward zero.

Keynes's solution follows from his theory. Eliminate the influence of volatile expectations on investment to stabilize aggregate demand. If the rate of investment can be increased and stabilized at the level corresponding to IS^* in *Figure* 1, aggregate demand can be maintained at a level equal to full employment output. The reason is that government direction of investment, and more stable output, reduces the (default) risk premiums and lowers the expected rate of interest. The actual and expected rates of interest fall to the level obtained at the intersection of IS^* and LM^*. Output moves along SS to reach Y^*/W^*.

If the rate of investment can be stabilized at a higher level and risk reduced to the minimum level inherent in nature, the marginal efficiency of capital can be brought to a minimum (zero) within a generation or two. Cyclical fluctuations are eliminated if output is held at (or near) Y^*/W^*. Keynes favored stable policies and pre-announced rules for cyclical tax changes and opposed policies that in-

creased variability and uncertainty.[33] He believed that a policy that eliminates involuntary unemployment also reduces cyclical unemployment. Keynes's frictional and voluntary unemployment remain.

Keynes insists repeatedly that his is a general theory, applicable to positions of equilibrium, not just to full employment. The "missing" equation for the money wage permits a solution for output, the price level, and the rate of interest at less than full employment. Once we know the "propensities," the money wage, and the quantity of money, Keynes's system determines output and employment for each value of expected income and the expected rate of interest. Money wages change, but not very much, given expected income. The dominant source of change is expectations.

Expectations and Their Implications

Economists who call themselves "post-Keynesians" stress the importance of Keynes's views on interest and money in chapter 17 of the *General Theory.* The main points of that chapter are, I believe, entirely consistent with my interpretations of Keynes as a theorist who concluded from observations that money wages are inflexible (with respect to real output) and that expectations are volatile.[34] In this section, I discuss interest rate expectations, (expected) differences between money and barter economies, and the difference between Keynes's views and prominent current views of expectations.

In the *Treatise on Probability,* Keynes wrote that the "importance of probability can only be derived from the judgment that it is *rational* to be guided by it in action; . . . in action we *ought* to act to take some account of it" (1921, p. 323, italics in the original). Keynes introduced the notion of "weight" (1921, chap. 6) and used the notion to discuss the relevance of an argument (1921, p. 72). He related the ideas of weight and relevance to *a priori* probability where "the weight of an argument is at its lowest. . . . [T]he weight of an argument rises, though its probability may either rise or fall, with every accession of relevant evidence."

In the *General Theory,* Keynes distinguishes between the "best estimates we can make of probabilities and the confidence with which we make them" (1936, p. 240). The distinction is used to explain the difference between a risk premium and a liquidity premium. He insists there is a difference between "very uncertain" and "very improbable" (1936, p. 148) and refers to the discussion of "weight" in his *Treatise on Probability* (1921). This section of his chapter on long-term expectations is, in several respects, a restatement of the ideas he had published fifteen years earlier. Elsewhere (*29,* 1979, pp. 293–94), Keynes repeats the distinction between probability and weight and the relation to the difference between risk and liquidity premiums then he adds, "A risk premium is expected to be rewarded on the average by an increased return at the end of the period. A liquidity premium . . . is not even expected to be so rewarded.

[33] See the references above to JMK (*27,* 1980).

[34] Hugh Townshend, a former student and early interpreter of Keynes, often received warm praise from Keynes for his careful exposition and insight into the *General Theory.* Townshend (1937, pp. 161–62) interpreted the *General Theory* as stating that one had to assume stability of expectations about money prices or stability of the money wage. Townshend emphasized that we do not need "absolute" stability (constancy?) but only relative stability to develop theories of the demand and supply for output. Townshend went on to argue that, in the short-term, we do not know the size of liquidity premia, changes in the demand for money, etc. Asset prices are "indeterminate." Sidney Weintraub holds a similar interpretation of the reason for Keynes's assumption of fixed money wages. Keynes voices this view (1936, p. 253), but Keynes (1939) and elsewhere gives a very different emphasis.

It is a payment, not for the expectation of increased tangible income at the end of the period, but for an increased sense of comfort and confidence during the period" (*29,* 1979, pp. 293–94). In short, the liquidity premium differs little from the non-pecuniary return to money in contemporary economics. Keynes adds that both economic reward and "habit, instinct, preference, desire, will, etc." affect every decision.[35]

If Keynes had determined the expected rate of interest by taking expectations of the rate of interest, he would have acted in the way he described. Taking expectations is entirely consistent with the approach he appears to have used to analyze expected output, the expected price level, and the average or expected money wage.

The *IS* and *LM* curves, eqs. (9) and (10) determine the interest rate and level of real output, given expected real output, *E*. The solution for r is

$$r = r\left(\frac{M}{W}, r^e, E\right) \tag{12}$$

Suppose we treat r as a random variable and take the expected value. The expected long-term rate of interest is

$$r^e = r\left[\left(\frac{M}{W}\right)^e; E_o\right] \tag{13}$$

Equation (13) is consistent with many of Keynes's statements about long-term interest rates. The "actual value [of the rate of interest] is largely governed by the prevailing view as to what its value is expected to be. *Any* level of interest which is accepted with sufficient conviction as *likely* to be durable *will* be durable . . ." (1936, p. 203, italics in original). Changes in the quantity of money or changes in money wages do not change the long-term real rate unless expected *M/W* changes (*29,* 1979, pp. 221–22). Monetary policy and wage policy are symmetric in their effect, as Keynes insisted. The key to changing long-term interest rates is the expected average level of income. Keynes insists that it is the rate of interest that determines the marginal efficiency of capital, and not the other way round (*14,* 1973, p. 123). I interpret his statement to mean that the expected long-term rate falls very little in a recession. Keynes insists, also, that the rate of interest depends on the quantity of money in wage units, but monetary policy is incapable of reducing involuntary unemployment.

One quotation from the much-discussed chapter 17 shows that (13) is consistent with a main conclusion Keynes draws. Ruminating on the differences between his *Treatise* and the *General Theory,* Keynes writes that he tried in the *Treatise* to develop Wicksell's "natural" rate as the rate that equates saving and investment and maintains a stable price level. What he overlooked, Keynes says, is the relation between employment or output and the rate of interest. The "natural" rate is not unique but "is merely the rate of interest which will preserve the *status quo*" (1936, p. 243). The notion of a natural rate in the *Treatise* is not useful. If any rate is "unique and significant," it is "the *neutral* rate of interest, namely the natural rate in the above sense which is consistent with *full* employment, . . . though this rate might be better described, perhaps, as the *optimum* rate" (1936, p. 243, italics in the original).

Keynes continues: "The neutral rate of interest can be more strictly defined as the rate of interest which prevails in equilibrium when output and employment are such that the elasticity of employment as a whole is zero" (1936, p. 243). This rate is, of course, the long-term rate at which

[35] Keynes makes a similar point in JMK (*29,* 1979, p. 288). There, he refers to the process of using "equivalent certainties" to make decisions and calls attention to his belief that "probabilities themselves, quite apart from their weight or value, are not numerical" (*29,* 1979, p. 288).

$E = Y^*/W^*$. This rate, Keynes says, is the real rate that classical economists expected. In *Figure* 1 of the previous section, the neutral rate is at the intersection of IS^* and LM^*.

In a barter economy, the real wage is the only wage, and there is no money. Neither M/W nor the properties of the liquidity preference function can affect the rate of interest. The expected rate, r^e, is the neutral rate, determined by saving and investment as the classical economists believed.

The particular property of liquidity preference that Keynes emphasizes is the premium charged by, we would now say, risk-averse asset owners. This premium cannot be reduced to zero. A collapse of confidence in the future raises lenders' and borrowers' risk, reduces investment, and drives asset owners to seek "liquidity"—i.e., to hold money for its relatively fixed non-pecuniary yield—safety, security, and the like. At the same time, the expected rate of interest on investment falls, as E falls in eq. (13). The IS curve shifts down, and the quantity of money demanded increases.

These conclusions appear consistent with much of Keynes's discussion of "liquidity" in chapter 15, "The Essential Properties" of chapter 17, and much that Keynes wrote after the *General Theory.* The conclusions are not consistent with the interpretation of post-Keynesians who read Keynes's theory as a disequilibrium theory. My interpretation leaves the system fluctuating around a stable level of output, driven by speculators "largely ignorant of what they are buying" (1936, p. 316).

In Keynes's monetary economy, the expected price level depends on aggregate demand and aggregate supply, which is to say on E, M, r^e, and W, in eqs. (9) to (11). Price expectations change as E and r^e change. In a barter economy, there are no fluctuations in the expected price level, there are only real wages (*29,* 1979, pp. 66–67). Keynes thought output and employment would be higher and fluctuate less. The conjectures about barter and money are not fully developed, in chapter 17, to say the least.

I have derived expectations by taking expected values, as a rational expectationist would do. Keynes believed it was rational to use expectations or "equivalent certainties" when making decisions (1921, p. 323; *29,* 1979, p. 288), but his treatment of expectations differs from current versions of rational expectations in at least two respects. The first is based on observations. For Keynes, expectations are subject to large, discrete changes and are not formed independently. People try to find out what others are doing or saying and then do the same; dominant opinion may change violently in response to relatively small changes in prices, economic activity, or other variables. At times, expectations are extrapolative; a small change in money wages or interest rates generates expectations that additional changes in the same direction will occur. At another time, a large change in the same variables, or a particular level of the variables, may give rise to regressive expectations. Second, Keynes believed that probabilities are *not* numerical values (*29,* 1979, p. 288, *inter alia*), but men must act as if they are. His statements about "animal spirits," casinos, and "bulls and bears" reflect his belief that relatively large changes in expected values can occur quickly and that risk and uncertainty must be distinguished (*29,* 1979, p. 258).

Keynes's comments on volatility are often repeated. Less often repeated are his statements about expectations in chapter 5 of the *General Theory* and his definition of expectations. He defines a person's sales expectation as the "expectation of proceeds which, if it were held with certainty, would lead to the same behaviour as does the bundle of vague and more various pos-

sibilities which actually make up his state of expectation when he reaches his decision" (1936, p. 24, *n.* 3). This definition, and the more orderly and customary influence of expectations, is developed in chapter 5. There, Keynes distinguishes short- and long-period expectations. The former are orderly and revised slowly. The latter are subject to sudden change. A succinct statement of his position—that people act as if the future is calculable, when it is not—appears in his 1937 article in the *Quarterly Journal.*

> By "uncertain" knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty; nor is the prospect of a Victory Bond being drawn. . . . The sense in which I am using the term is that in which the prospect of a European war is uncertain, . . . or the position of wealth-owners in the social system in 1970. About these matters there is no scientific basis on which to form any capable probability whatever. We simply do not know. Nevertheless, the necessity for action and for decision compels us as practical men to do our best to overlook this awkward fact and to behave exactly as we should if we had behind us a good Benthamite calculation of a series of prospective advantages and disadvantages, each multiplied by its appropriate probability, waiting to be summed. [*14,* 1973, pp. 113–14.][36]

I interpret this paragraph as one of several that justifies the use of expected values, derived from his theory, while asserting that decisions taken in this way are subject to large, cumulative errors. The best one can do in an uncertain world is to compute expected values, using current and past observations, while remembering that permanent or persistent changes in expected values cannot be predicted.[37]

Conclusion

Among the many contributions Keynes made to economics, none is more lasting than the stimulus he gave to the development of the theory of output and employment within a general equilibrium framework. "Keynes stirred the stale economic frog pond to its depth," Haberler wrote (1964, p. 269), but subsequent consideration led many economists to conclude that Keynes's *General Theory* was not as novel as had, at first, appeared. Hicks (1937), Modigliani (1944), and Haberler (1964) make the point explicitly.

Keynes believed that his *General Theory* was both novel and revolutionary. He repeated that opinion in his extensive correspondence with economists and in the several papers he published after the *General Theory.* Each time, he made many of the same points: the classical theory does not explain involuntary unemployment, neglects the differences between barter and monetary economies, ignores expectations, and assumes that the price elasticity of the supply of aggregate output is zero. Contrary to the usual identification of Keynes's unique contribution with the Keynesian special case, Keynes did not emphasize either the inflexibility of money wages, or money illusion or absolute liquidity preference—the liquidity trap—when responding to critics or restating his argument.

In the *General Theory* Keynes suggested an empirical investigation of the relation of real and money wages during

[36] Keynes repeats this discussion at the end of the same article (*14,* 1973, p. 122) where he describes it as his main difference with the classical theory. Like Keynes (and unlike Shackle [1967]), I find this paragraph consistent with the main ideas in the *General Theory.* Hutchison (1978, p. 204) notes that Keynes held some of these views as early as 1910.

[37] My reasons for relating Keynes to rational expectations is that mean values of real variables subject to permanent and transitory shocks are not stationary. Karl Brunner, Alex Cukierman, and Meltzer use this process as part of a model of business cycles (1980). Keynes distinguishes the process by which the equilibrium position is discovered and the fundamental problem of learning what the position is (*14,* 1973, p. 182).

business cycles (1936, p. 24). Published results appeared to reject his hypothesis that money wages are inflexible. Although Keynes did not accept the evidence as sufficiently compelling to abandon the hypothesis, he indicated that abandoning the postulate of money wage inflexibility would simplify his hypothesis. Keynes makes clear that his book would have been substantially different, and simpler, if real, rather than money, wages are inflexible during cycles. And, Keynes insisted, for "my own theory this conclusion [inflexible money wages] was inconvenient, since it had a tendency to offset the influence of the main forces which I was discussing . . ." (1939, p. 40).[38]

What are the main forces? The many quotations in the text reproduce the answer Keynes gave repeatedly: the economic system is stable, but employment is subject to fluctuations around an average level that is less than full employment. The important point for Keynes is that the expected level of output is below full employment. If the assumption of fixed real wages was more consistent with the facts, Keynes could accept that fact.

The key words are full employment. I argue that Keynes identified full employment with maximum employment—the level of employment at which the economy produces the maximum output that available capital and technology permit. For Keynes, full employment is the level of employment attained when the economy operates at the "optimal" rate of interest (1936, p. 243), on the dynamic production frontier with the optimal capital stock. Average output is less than maximum output, and average employment is less than maximum employment. If the economy could be made to produce an average level of employment closer to the maximum, involuntary unemployment would be reduced.

Keynes believed that the way to raise the economy's average output was to raise the average level of investment and reduce risk premiums in interest rates by reducing the amplitude of cyclical fluctuations in investment. He identified volatile expectations of future returns as the principal cause of fluctuations in investment. Stabilizing the rate of investment would stabilize output, reduce or eliminate the risk premiums charged by risk-averse lenders and by risk-averse investors in real capital, and lower the expected and actual rates of interest.

Keynes discusses two ways to increase investment. One way is to lower the long-term rate of interest by monetary or wage policy. The other is to eliminate the baneful influence of private speculators and the volatility of expectations, thereby reducing risk premiums and increasing the capital stock. He concludes that neither monetary expansion nor a reduction of money wages can lower the long-term interest rate permanently. Keynes's reason is that these actions do not eliminate the risk premiums and do not change the expected level of real income. Expansive monetary (or wage) policy is not impotent; output can be raised temporarily, but the level around which output fluctuates and the amplitude of fluctuations remain unchanged.

Keynes proposed to solve the employment problem by state management of investment (1936, p. 378–79). He believed that the state would take a long view and would not be influenced by short-term changes in economic activity. State control of investment would, he believed, reduce fluctuations, increase the capital stock and, thereby, lower the marginal product of capital. Keynes conjectured that if this were done, within a generation

[38] Keynes's statement should not be interpreted as a claim that the implications of the theory would be unchanged. The implications for the paths followed by the principal variables during cycles would, indeed, differ. The implication for involuntary unemployment, on my interpretation of that term, are unchanged.

the rate of interest could be driven to zero.

Keynes's views on expectations reflect his early writing on probability theory. In his *Treatise on Probability,* and in the *General Theory,* Keynes expresses the view that the best one can do, in an uncertain world, is to act as if the future can be known while recognizing that the important future events are unknown and cannot be foreseen. There is neither conflict nor contradiction when he writes that the long-term interest rate and the level of output around which the economy fluctuates are constant, but the future is uncertain and the levels of output and interest rates are subject to violent change.

It is often remarked that the *General Theory* is an untidy book, full of asides, speculations, comments, and conjectures unrelated to the main theme. There is some truth to these statements but less than is commonly believed. The statements presume that one of the several conventional interpretations of the book is correct.

My interpretation of the *General Theory* ties many of the chapters—on long-run expectations, business cycles, changes in money wages, interest rates, liquidity, and mercantilism—to the main theme. It explains why the concluding chapter speculates about social philosophy. It explains, also, why Keynes—a practical man with a keen sense of theory, history, policy, and practice—assumes throughout that the economy is closed. His principal concern is to reduce the gap between average and maximum output. To analyze the causes of that gap, the damping effects of countercyclical fluctuations in the trade balance are of little moment, so Keynes recognizes and quickly dismisses these changes in his discussion of money wages.

As early as 1937, with unemployment above 11 percent, Keynes urged a reduction of government spending. His statements on current policy after writing the *General Theory* are not the views of a man who believed in the fine-tuning of government spending, as both Hutchison (1977) and Keynes's wartime memos (JMK, *27,* 1980) in favor of rules and against fine-tuning show. Keynes's main concern in the *General Theory* and after is to reduce the instability of the economy by eliminating fluctuations in the most volatile elements, not to substitute one source of variability for another. Keynes, the probabilist, appreciated that variable policies affect expectations and can increase uncertainty. Keynes, the liberal statesman, favored income redistribution on the belief that redistribution increases spending, but in his wartime memos, he opposed policies to increase consumption. He preferred to increase investment and believed that stimulating consumption was less desirable than investment in housing, utilities, and productive capital. Keynes, who feared that expansive policies in 1937 would produce inflation, declared that he was "not a Keynesian" in 1946. These statements are consistent with my interpretation of the *General Theory.* They are consistent, also, with the Keynes who wrote: "I should regard State intervention to encourage investment as probably a more important factor than low rates of interest taken in isolation" (JMK, *27,* 1980, p. 350).

I have tried to highlight the dominant role of expectations in the *General Theory* and, to a lesser degree, to contrast Keynes's views on probability theory and expectations with the currently prominent view known as rational expectations. I have not tried to show where Keynes's argument is faulty. To do so would require a much longer paper. One puzzling aspect should not escape comment, however. Keynes never explains why, in a world of capital mobility, he expects a single country to drive the rate of interest to zero and increase investment. Keynes does not say anything about capital flight during

the one generation that passed before the interest rate reached zero.

Time has not dealt kindly with many of Keynes's conjectures about policy. Where governments have controlled the rate of investment, they have often yielded to pressures to preserve declining industries or to invest where the expected return is low or negative—in space shots, supersonic aircraft, or road building in the Amazon.

Time may deal more kindly with Keynes's perception that the object of economic policy should be to reduce risk to the minimum inherent in nature and in trading arrangements. To develop policies that maximize the present value of consumption, Keynes directs us to examine the factors determining long-term expectations and to develop institutional arrangements that increase long-term stability. Perhaps those assignments are, at last, of major interest for economists.

References

BRUNNER, KARL; CUKIERMAN, ALEX AND MELTZER, ALLAN H. *Money and economic activity, inventories and business cycles.* Multilithed. Pittsburgh: Carnegie-Mellon University, 1980.

CLOWER, ROBERT W. "The Keynesian Counterrevolution: A Theoretical Appraisal," in *Theory of interest rates: Proceedings of a conference held by the International Economic Association.* Edited by F. H. HAHN AND F. P. R. BRECHLING. London: Macmillan; New York: St. Martin's Press, 1965, pp. 103–25.

DAVIDSON, PAUL. *Money and the real world.* London: Macmillan; New York: Wiley, 1972.

_____. "The Dual-Faceted Nature of the Keynesian Revolution: Money and Money Wages in Unemployment and Production Flow Prices," *J. Post-Keynesian Econ.*, Spring 1980, *2*(3), pp. 291–307.

DUNLOP, JOHN T. "The Movement of Real and Money Wage Rates," *Econ. J.*, Sept. 1938, *48*, pp. 413–34.

FRIEDMAN, MILTON. "Comments on the Critics," in *Milton Friedman's monetary framework.* Edited by R. J. GORDON. Chicago: University of Chicago Press, 1974, pp. 132–77.

HABERLER, GOTTFRIED. "The General Theory after Ten Years," in *The new economics.* Edited by S. E. HARRIS. New York: Knopf, 1947; reprinted in *Keynes' General Theory.* Edited by ROBERT LEKACHMAN. New York: St. Martin's Press, 1964, pp. 269–88.

HICKS, JOHN R. "Mr. Keynes' Theory of Employment," *Econ. J.*, June 1936, *46*, pp. 238–53.

_____. "Mr. Keynes and the 'Classics': A Sugested Interpretation," *Econometrica*, April 1937, *5*, pp. 147–59.

_____. *A contribution to the theory of the trade cycle.* Oxford: Oxford University Press, Clarendon Press, 1950.

_____. "Automatists, Hawtreyans, and Keynesians," *J. Money, Credit, Banking*, August 1969, *1*(3), pp. 307–17.

_____. *Economic perspectives.* Oxford: Oxford University Press, Clarendon Press, 1977.

_____. "On Coddington's Interpretation: A Reply," *J. Econ. Lit.*, Sept. 1979, *17*(3), pp. 989–95.

HUTCHISON, TERENCE W. *Keynes versus the 'Keynesians'. . . ?* London: Institute of Economic Affiars, 1977.

_____. *On revolutions and progress in economic knowledge.* Cambridge and New York: Cambridge University Press, 1978.

JOHNSON, HARRY G. "The *General Theory* after Twenty-five Years," *Amer. Econ. Rev.*, May 1961, *51*(2), pp. 1–17.

KEYNES, JOHN MAYNARD. *A treatise on probability.* London: Macmillan, 1921.

_____. *A treatise on money.* Volume 2. *The applied theory of money.* London: Macmillan, 1930.

_____. *The general theory of employment, interest and money.* London: Macmillan, 1936.

_____. "Relative Movements of Real Wages and Output," *Econ. J.*, March 1939, *49*, pp. 34–51.

_____. *The General Theory and after. Part 1: Preparation.* Volume 13 of *The collected writings of John Maynard Keynes.* Edited by DONALD MOGGRIDGE. London: Macmillan; New York: St. Martin's Press; for the Royal Economic Society, 1973. (Cited as JMK, *13.*)

_____. *The General Theory and after. Part 2: Defence and development.* Volume 14 of *The collected writings.* Edited by DONALD MOGGRIDGE. London: Macmillan; New York: St. Martin's Press; for the Royal Economic Society, 1973. (Cited as JMK, *14.*)

_____. *Activities, 1943–46: Shaping the postwar world: Employment and commodities.* Volume 27 of *The collected writings.* Edited by DONALD MOGGRIDGE. Cambridge and New York: Cambridge University Press, 1980. (Cited as JMK, *27.*)

_____. *The General Theory and after: A supplement.* Volume 29 of *The collected writings.* Edited by DONALD MOGGRIDGE. Cambridge and New York; Cambridge University Press, 1979. (Cited as JMK, *29.*)

LEIJONHUFVUD, AXEL. *On Keynesian economics*

and the economics of Keynes. New York: Oxford University Press, 1968.

MODIGLIANI, FRANCO. "Liquidity Preference and the Theory of Interest and Money," *Econometrica,* Jan. 1944, *12,* pp. 45–88.

PATINKIN, DON. *Keynes' monetary thought.* Durham: Duke University Press, 1976.

SHACKLE, G. L. S. "Recent Theories Concerning the Nature and Role of Interest," *Econ. J.,* June 1961, *71,* pp. 209–54.

———. *The years of high theory.* Cambridge: Cambridge University Press, 1967.

TARSHIS, LORIE. "Changes in Real and Money Wages," *Econ. J.,* March 1939, *49,* pp. 150–54.

TOWNSHEND, HUGH. "Liquidity-Premium and the Theory of Value," *Econ. J.,* March 1937, *47,* pp. 157–69.

THORNTON, HENRY. *An enquiry into the nature and effects of the paper credit of Great Britain.* London, 1802; reprinted New York: Kelley, 1962.